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Cooperative
ECONOMIC INSECT
REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE



AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

CORN LEAF APHID ranged moderate to heavy on barley in Artesia area, New Mexico. HESSIAN FLY infestations low in 38 fields checked in 5 Missouri counties. (p. 3).

TEXAS CITRUS MITE population at record high for December on Florida citrus. Cold damage to Florida citrus occurred in old and young groves at low and high elevations, and is severe in all areas except southern sections near east coast; most remaining fruit ruined and most leaves either dead or functionally injured. Mites not directly killed by cold; leaves and fruit in only partially injured condition remaining on trees, will continue to support mites. Effect of cold on scales, scale parasites and other species cannot be assessed at this time. Overall populations will be lowered in immediate future as drying and dropping leaves and fruit will mechanically remove pest species. (p. 3).

SUBTERRANEAN TERMITES very active in Salt River Valley of Arizona; many reports of severe damage to homes during period December 23-29. (p. 6).

SPECIAL REPORTS

Boll Weevil Hibernation Surveys in Texas and Tennessee - Fall 1962. (p. 4).

Status of the Screw-worm in the Southwest. (p. 5).

Reports in this issue are for week ending December 28, 1962, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

JANUARY 1963

The Weather Bureau's 30-day outlook for January calls for average temperatures to continue below seasonal normals over the eastern third of the Nation, with greatest departures in the Middle and North Atlantic States. Above-normal temperatures are expected to prevail over the northwest quarter of the country. In other areas, about normal temperature averages with large fluctuations are anticipated, except for below normal over the Far Southwest. Precipitation is expected to exceed normal over the southern half of the Nation lying east of the Continental Divide. Subnormal amounts are indicated in the north from the northern Plains eastward to the Appalachians, and also over the Far West. In unspecified areas, near normal amounts, mostly in the form of snow, are in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price \$4.80 a year, \$2.40 a half year.

WEATHER OF THE WEEK ENDING DECEMBER 31, 1962

Very cold temperatures over much of the Midwest and Far West and near nationwide precipitation began the period, in contrast to the concentrated storms in New England and the Pacific Northwest and generally open weather elsewhere at the close. In New England, one of the worst blizzards of recent times moved into the area on the 30th, with winds at a steady 40 m.p.h. or more. Sustained 66 m.p.h. winds, with a gust to 81 m.p.h., hit Blue Hill at Milton, Massachusetts. Travelers were stranded, communities were isolated by drifting snow, and powerlines were downed from winds, heavy snow and falling trees. Hardest hit were Maine and New Hampshire where the drifting 35-inch snowfall piled to over 20 feet high in many spots of central and eastern Maine. A daily newspaper, with a perfect 73-year record, in Bangor, Maine, missed publication because of a distribution factor. At the close of the week, the airport at Millenocket, Maine, had a measured snow depth of 45 inches. The hard freeze that blanketed most of the Far West during the period helped keep weekly averages below normal for the first time in 2 months for many areas. On the coast, Santa Maria, California, had freezing lows on the final 6 days, of which a 24° minimum on the 26th set a new monthly low. The only above-normal averages and significant precipitation in the Far West were in the Pacific Northwest. Snowfalls were mostly light and the cover generally remains quite shallow, but rainfall in Washington ranged over 4 inches along the north coast. Over the remainder of the country, temperatures averaged below normal except in Florida. The largest reported departure was 14° at Moline, Illinois. The cold air that crossed westward over the Rockies to cause such readings as a -44° at Fraser, Colorado, also poured over the Nation from the Great Plains eastward. Zero readings were observed in Oklahoma on the 26th, following early week snows to 4 inches throughout much of the Great Plains. The snow had mostly melted by the end.

Two storms, one in the southwest Great Plains, another in the northern Gulf, combined to spread precipitation east of a line from the southern Rockies to the Northern Plains States on the 24th-25th. Most of the area north of the states from Oklahoma into North Carolina had a white Christmas. Washington, D.C., recorded its largest Christmas Day snowfall, with 5.4 inches, since records began in 1888. The two systems got together in the southeast corner of the Nation and drifted up the east coast, moving into New England on the final day.

(Weather continued on page 6)

CEREAL AND FORAGE INSECTS

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Moderate to heavy populations noted in barley fields in Artesia area, Eddy County. (N. M. Coop. Rpt.).

GREENBUG (Toxoptera graminum) - OKLAHOMA - Scattered, noneconomic to light populations noted in small grains checked in Noble, Kay, Alfalfa, Garfield and Grant Counties. (Kunz, Owens, Dec. 22). ALABAMA - Averaged 6 per linear foot of row in Barbour County. (Buttram, Dec. 21).

HESSIAN FLY (Phytophaga destructor) - MISSOURI - Average percent infestation in several fields checked, by county, was as follows: Barton - 0.2 in 9 fields; Carroll - zero in 8 fields; Lafayette - 3.0 in 4 fields; Holt - 1.8 in 9 fields; Ralls - 2.7 in 8 fields. Some of these fields planted too late for fall infestation. (J. D. Munson).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ALABAMA - Adults averaged 2 per 100 sweeps in field of oats in Barbour County. (Buttram, Dec. 21).

FRUIT INSECTS

Citrus Insect Situation in Florida - Mid-December - CITRUS RUST MITE (Phyllocop-truta oleivora) infested 60 percent of groves (norm 71 percent); 32 percent economic (norm 50 percent). Populations below normal and similar for both leaves and fruit. Highest district was upper east coast. TEXAS CITRUS MITE (Eutetranychus banksi) infested 54 percent of groves (norm 26 percent); 26 percent economic (norm 9 percent). Population at record high for December, with highest districts being Gainesville and Indian River. CITRUS RED MITE (Panonychus citri) infested 38 percent of groves (norm 59 percent); 13 percent economic (norm 26 percent). Infestations were very light. Only high district was west coast. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) was seen in 2 percent of groves. SCALE populations were near level reported in November.

On the nights of December 12-13 and December 13-14, central Florida had 12-18 hours below freezing and 7-9 hours below 26°F. Cold damage occurred in old and young groves and at both low and high elevations. It is severe in all areas (except southern areas close to east coast). It is too early to evaluate tree damage, but most of the remaining fruit is ruined and most leaves are either dead or functionally injured.

Outlook - Mites were not directly killed by the cold. Leaves and fruit that remain on trees in only partially injured condition will continue to support mites. The effect of cold on scales, scale parasites and other species cannot be assessed at this time. Overall populations will be lowered in the immediate future simply because the drying and dropping of leaves and fruit will mechanically remove the pest species. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

ORANGE-DOG (Papilio cressphontes) - ARIZONA - Reported from many backyard citrus plantings in Salt River Valley during period December 8-14. (Ariz. Coop. Sur.).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Live larvae continue to be found in bolls on standing stalks in cotton fields near Malaga, Eddy County. (N. M. Coop. Rpt.).

BOLL WEEVIL HIBERNATION SURVEYS IN TEXAS AND TENNESSEE - FALL 1962

TEXAS - Fall collections of surface woods trash were made in Falls, Hill, Limestone and McLennan Counties December 10-18, 1962, to determine the number of boll weevil (Anthonomus grandis) adults that went into hibernation. Each sample consisted of 2 square yards of trash, with 3 samples taken from each location and either 6 or 7 locations being sampled in each county. Collections were made from locations which could be resampled in the spring of 1963. A total of 75 samples was taken from 25 locations in the 4 counties. The average number of live weevils found per acre in Falls, Hill, Limestone and McLennan Counties was 2,285, 1,613, 1,882 and 1,380, respectively, compared with 2,957, 4,032, 2,957 and 6,095 for 1961, and 7,646, 3,485, 2,710 and 4,259 for 1960. The area average of 1,781 weevils per acre in the fall of 1962 compares with 4,114 in 1961 and 4,501 in 1960.

The sharp decrease in numbers of boll weevils entering hibernation in the fall of 1962 was due primarily to hot, dry weather during July and August, which resulted in early maturity, harvest and stalk destruction. (C. B. Cowan).

TENNESSEE - The regular fall survey was made in McNairy County to determine the number of boll weevil adults that went into hibernation in 1962. This county was selected as it usually represents the infestation for the southern tier of counties. Samples were taken in environs of fields known to be infested early during the 1962 growing season, and before the severe cold weather in early December. A total of 12 samples was taken, each consisting of 2 square yards of surface trash. From these 12 samples 18 live weevils were found, indicating an average of 3,633 live weevils per acre. This is the largest number of weevils found in hibernation since the beginning of the survey in 1951, and compared with 3,025 per acre in 1961 and 2,622 in 1960.

The average winter carryover during the past 11 years has been approximately one-third the number found during fall survey. This would indicate that in all probability there will be a rather large number of boll weevils to infest cotton in the southern counties during 1963. A followup survey will be made prior to planting time to determine the number of weevils present to infest the 1963 cotton crop. (J. H. Locke).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A TARSONEMID MITE (Tarsonemus sertifer) - CALIFORNIA - Medium to heavy on blue oak in Woodside, San Mateo County. (Cal. Coop. Rpt.).

AN ANOBIID BEETLE (Vrilletta decorata) - CALIFORNIA - Larvae and adults medium in twigs of locust trees in Watsonville, Santa Cruz County. (Cal. Coop. Rpt., Dec. 21).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Infesting pittosporum in Phoenix area. Vedalia (Rodolia cardinalis) active in several of these infestations prior to advent of cooler weather. (Ariz. Coop. Sur.).

COCCIDS (Ceroplastes spp.) - NORTH CAROLINA - C. ceriferus troublesome at location in Forsyth County. (Wray). Ceroplastes sp. infesting holly in same county. Infestation scattered throughout housing development, with approximately 60 plants involved. (Robertson).

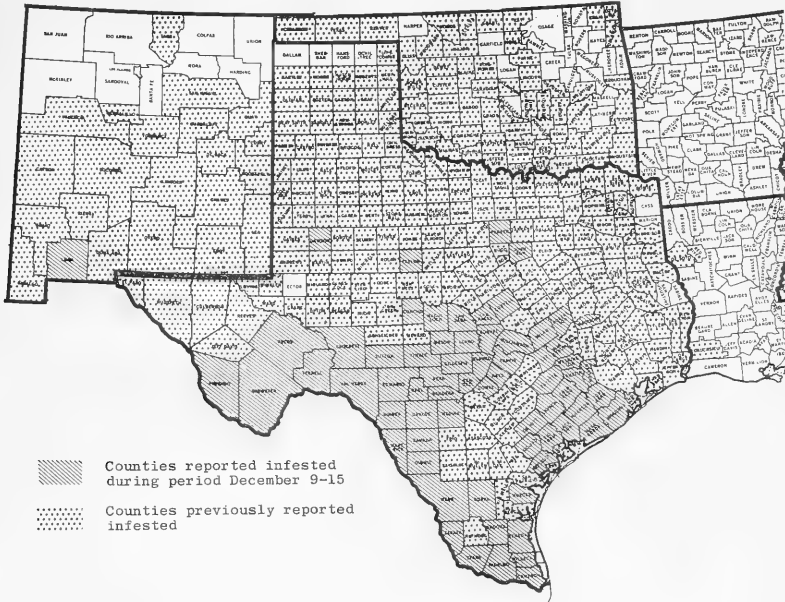
CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) - CALIFORNIA - Medium infestation on an unknown host at Thousand Palms is apparently new record for Riverside County. (Cal. Coop. Rpt.).

A YUCCA THRIPS (Bagnalliella yuccae) - CALIFORNIA - Adult numbers medium on Yucca sp. in Ontario, San Bernardino County. (Cal. Coop. Rpt., Dec. 21).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

A total of 64,290,650 sterile flies was released during the period December 9-15 and 312 screw-worm cases were reported during this period. The areas of fly release are now in process of being changed so that barrier of sterile flies along the United States-Mexican border will receive an average of 600 sterile flies per square mile each week, and the inner half an average of 400 flies per square mile each week. Area to be included in the barrier zone will be approximately 100,000 square miles, with an estimated requirement of 50 million sterile flies each week during remainder of the fiscal year. Fly release will continue within present drop area except when weather will force intermittent cessation of treatment in northern half. Present drop area outside the barrier will receive varying release rates depending on weather conditions and intensity of populations. It is estimated that an average of 200 flies per square mile will be sufficient until it is ascertained that adults have not overwintered in the area. In the southern part of Texas, where it is believed screw-worm will probably overwinter, release rates will be increased as inclement weather reduces the size of the area under treatment. (Anim. Dis. Erad. Div.).



COMMON CATTLE GRUB (Hypoderma lineatum) - ARKANSAS - Control of this species continues to progress. Herds checked in 6 northwest counties show very few grubs in treated animals. Only 43 grubs found in 291 treated animals, for average of 0.15 grub per animal; ranged 0-4. In untreated herds, 272 grubs found in 94 animals, for average of 2.89 per animal; ranged 0-27. (Barnes).

CATTLE LICE - UTAH - Heavy on several cattle near Duchesne, Duchesne County. (Knowlton).

HOUSEHOLD AND STRUCTURAL INSECTS

SUBTERRANEAN TERMITES (Reticulitermes spp.) - ARIZONA - Very active in Salt River Valley; many reports of severe damage to homes received during period December 23-29. (Ariz. Coop. Sur.).

LARGER YELLOW ANT (Acanthomyops interjectus) - NORTH CAROLINA - Probably this species, of concern at a locality in Chowan County, December 3. Det. by R. C. Axtell. (Mount).

STORED-PRODUCT INSECTS

RICE WEEVIL (Sitophilus oryzae) - OKLAHOMA - Heavy populations active in barley checked in Marshall County. Light populations noted in grain sorghum and oats. (Kunz, Vinson).

CONFUSED FLOUR BEETLE (Tribolium confusum) - OKLAHOMA - Heavy in ground corn in Love County; light numbers noted in oats in Marshall County. (Kunz, Vinson).

PHYCITID MOTHS - CALIFORNIA - Populations of Ephesiodes gilvescentella occurring in raisins in experimental storage survived one year in raisins and now considered possible pest of this product. Adults now being held in culture to determine if they can be reared under laboratory conditions. (H. Nelson). NORTH CAROLINA - Ephestia sp. larvae infested sunflower seed in Buncombe County. (Mount).

BENEFICIAL INSECTS

A LADY BEETLE (Coleomagilla maculata fuscilabris) - ALABAMA - Rather heavy populations found hibernating around pecan and pine trees surrounded by corn and/or cotton fields in Lee, Bullock and Barbour Counties. (Buttram, Dec. 21).

MISCELLANEOUS INSECTS

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Continuing delimiting surveys in City of Sacramento show over 200 blocks infested. (Cal. Coop. Rpt.).

A SPRINGTAIL (Achorutes nivicola) - PENNSYLVANIA - Very abundant around bases of trees and on snow December 26 at Meadville, Crawford County, and December 27 at Tionesta, Forest County. (Adams).

Weather of the week ending December 31, 1962 (continued from page 2)

Precipitation fell on 5 of the 7 days from Texas eastward, along the Appalachians, over most of the Great Lakes and the Northeast. Totals were generally over 0.50 inch southeast of a line from southern and eastern Texas across New England, except for southern Florida. Within this area 1-inch totals were numerous, but the area of largest falls was along the central Gulf and up into central Mississippi. Donaldsonville, Louisiana, reported the most, with 5.54 inches. (Summary supplied by U. S. Weather Bureau).

Survey Method for Rice Stink Bug (Oebalus pugnax pugnax)
As Used in Arkansas 1/

Various methods of survey for the rice stink bug were studied in Arkansas from 1959 through 1962. A special study of biology, seasonal development and alternate hosts was made in 1959 and 1960.

The sweep net may be used to collect bugs to determine numbers present and seasonal development. This method, however, has disadvantages as the growing season develops. The development of this species within a rice field is associated with the presence of barnyard grass, Echinochloa crusgalli, on which the bugs feed prior to the heading of the rice. As the rice heads develop, dispersal of bugs to rice occurs; however, feeding may continue on grass. The sweep net collects bugs from both rice and grass and may not give a true picture of the bug population actually feeding on rice. Another disadvantage is the difficulty of the surveyor walking in the tall plants and flooded fields. Field coverage is difficult and some bugs fly ahead of the surveyor due to being disturbed.

The methods adopted in Arkansas are the use of binoculars and "eyeballing." The surveyor walks the levees to obtain field coverage. At least 10 stops for observation are made in each field. At each stop the surveyor focuses the binoculars on 10 heads of rice located at sufficient distance so that the bugs have not been disturbed and counts the bugs seen. While looking at the same 10 heads the surveyor moves a few steps in order to change the angle of observation, enabling him to see bugs that may have been hidden from view at the first stop. In the "eyeballing" method the same procedure is followed. In order to keep his vision on the same 10 heads of rice while counting, the surveyor holds out his hand and uses it as a focusing point. With this method bugs can be seen at a sufficient distance so that the surveyor will not disturb them from the vantage point on the levee; however, the use of binoculars is preferred. Counts are recorded in terms of bugs per 100 heads of rice.

The binoculars used in Arkansas are 6 X 30.

1/ Method developed by Glyn Odglen and Dr. L. H. Rolston, Dept. of Entomology, Div. of Agriculture, University of Arkansas; Grover C. Dowell, Extension Entomologist, and W. P. Boyer, Survey Entomologist.

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Alabama	James R. Buttram, Zoology-Entomology Department, Auburn University, Auburn	Nevada	Robert C. Bechtel, Department of Agriculture, P. O. Box 1209, Reno
Arizona	Vacancy	New Mexico	Modified Agreement
Arkansas	W. P. Boyer, College of Agriculture, University of Arkansas, Fayetteville	North Carolina	D. A. Mount, Department of Entomology, Box 5215, State College Station, Raleigh
California	Ronald M. Hawthorne, State Department of Agriculture, 1220 N Street, Sacramento 14	North Dakota	Richard Frye, Office of State Entomologist, State College Station, Fargo
Colorado	Leonard E. Jenkins, Department of Entomology, Colorado State University, Fort Collins	Ohio	William F. Lyon, Zoology-Entomology Department, Ohio Agr. Experiment Station, Wooster
Delaware	Modified Agreement	Oklahoma	Sidney E. Kunz, Department of Entomology, Oklahoma State University, Stillwater
Florida	Robert E. Woodruff, Division of Plant Industry, State Department of Agriculture, Gainesville	Oregon	Joseph Capizzi, Div. of Plant Industry, State Department of Agriculture, Agricultural Bldg., Salem
Georgia	W. C. Johnson, Extension Service, University of Georgia, College of Agriculture, Athens	Rhode Island	Modified Agreement
Illinois	Clarence E. White, Illinois Agricultural Extension Service, 280 Natural Resources Building, Urbana	South Dakota	Sherwin Hintz, Zoology-Entomology Department, South Dakota State College, College Station
Kansas	Leroy L. Peters, Department of Entomology, Kansas State University, Manhattan	Texas	W. H. Newton, Department of Entomology, Texas A & M College, College Station
Maryland	Wallace C. Harding, Jr., Department of Entomology, University of Maryland, College Park	Virginia	W. A. Tarpley, Department of Entomology, Virginia Polytechnic Institute, Blacksburg
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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Heaviest GREENBUG counts in Oklahoma in Garfield County; up to 30 per linear foot with some damage evident in small grains. Counts 0-20 per linear foot in other counties surveyed. Counts generally 5-10 per linear foot or less in Texas. A GRASS MITE moderate in local plantings of dryland wheat in Moore County, Texas; considerable deadening of plants occurring and webbing conspicuous on crowns of plants. (p. 11).

PINK BOLLWORM recovered from gin trash machines in De Soto, Bossier and Natchitoches Parishes, Louisiana, during November, and one specimen collected in Cleburne County, Arkansas, during same month. (p. 13).

COMMON CATTLE GRUB activity at high degree throughout Oklahoma. (p. 14).

DETECTION

PECAN WEEVIL confirmed for first time in Glasscock County, Texas (p. 12); SPOTTED ASPARAGUS BEETLE recorded in Scotts Bluff County, Nebraska (most western record in State) (p. 12); IMPORTED FIRE ANT found for first time in Liberty, Rockdale, Fayette and Ware Counties, Georgia, during November (p. 17); and a LEPTOPODID BUG (Patapius spinosus) reported for first time in Glenn and Butte Counties, California (p. 17). A STINK BUG (Brochymena quadripustulata) recorded for first time in Hawaii. (p. 17).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 15). Counties reporting comparatively heavier populations continue to be those in the Uvalde-Val Verde area of Texas.

Hawaiian Insect Notes. (p. 17).

Insect Detection in the United States - 1962. (p. 18).

Insects Not Known to Occur in the United States (Old World screw-worm, Chrysomya bezziana Villeneuve). (p. 23).

Grasshopper Adult Survey - Fall 1962. (following page 24).

Reports in this issue are for week ending January 4, 1963, unless otherwise indicated.

WEATHER OF THE WEEK ENDING JANUARY 7

A vast low pressure system off the Maine coast, that was responsible for blizzard conditions in the Northeast during the close of the previous period, moved out slowly and kept cold Canadian air flowing across the Northeast the first 3 days of the period. Central and eastern Maine spent most of the week digging out of deep snow drifted 20 feet high in places. Temperatures rose all week in the Northeast, the greatest rise occurring in Maine where temperatures were above normal after January 2 and averaged 10° to 15° above normal for the week.

From southern and western New England to Lower Michigan and southward to the Gulf of Mexico, temperatures for the week averaged below normal by 3° to as much as 9°. Freezing occurred on 4 to 5 days in northern and western Florida and on 2 or 3 days in low spots in central portions of the State the latter half of the week.

The week was unseasonably warm west of the Great Lakes, where daytime maxima ranged in the 40's and 50's and temperatures for the week averaged as much as 15° above normal along the Canadian Border. Temperaturewise the week was about normal in the central and lower Great Plains, but below normal by 3° to 6° in parts of the Far Southwest.

Precipitation was negligible in most of the Nation. Significant amounts fell along the north Pacific coast and in western Washington where weekly totals ranged up to 2 inches. From the southern Rocky Mountain region to the Atlantic coast, several small areas reported 0.50 inch or more. In an area extending from southeast Kansas southward through Louisiana and east Texas, a few stations reported more than an inch.

After a mostly dry week in the interior of the Far West, the mountain snowpack there remained below normal for the time of year. Utah reported that the water outlook for the coming year is grim at this time. In Washington, the mountain snowpack is about half the seasonal normal.

Snow cover in the Great Lakes region decreased only slightly during the week and depths now range up to 10 inches in northern Michigan. In the Northeast, the snow cover extends southward to Washington, D. C., at lower elevations, except along the immediate coast. At Millenocket, Maine, where the snow was 45 inches deep at the end of the previous week, the depth is now 32 inches.

Considerable fog and drizzle occurred in the central Great Plains and middle Mississippi Valley. During a 4-day period of fog in northern Missouri the temperature changed only 3° to 4°. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Heaviest counts of up to 30 per linear foot reported from Garfield County, with some damage evident. Lower counts of 0-20 per linear foot reported in Blaine, Major, Custer, Tillman, Kiowa, Mayes, Muskogee and Wagoner Counties. Counts in Muskogee and Wagoner areas reduced from those previously reported. (Okla. Coop. Sur.). TEXAS - Reports during period December 23, 1962, through January 4, 1963, indicate very light to no infestations; counts generally 5-10 per linear foot or less. (Texas Coop. Rpt.). NEW MEXICO - Ranged 6-10 per linear foot in grain fields checked in Artesia area, Eddy County. (N. M. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light counts of 1 and 7 per linear foot, respectively, reported from Roger Mills and Major Counties. (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Light counts reported in scattered portions of northwest, west central, southwest and east central areas. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - ARKANSAS - Numbers low in small grains; less than 100 per 100 sweeps in northwest. (Ark. Ins. Sur.). OKLAHOMA - Light in northwest, west central, southwest and east central areas; fewer than 10 per linear foot. (Okla. Coop. Sur.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Active larvae averaged 20 per 25 cornstalks in Beckham County, with 100 percent stalk girdling. (Okla. Coop. Sur.).

CEREAL LEAF BEETLE (Oulema melanopa) - INDIANA - Two additional corn fields found infested. Adults found in lower leaf whorls of the plants in below-freezing temperatures. Corn from fields was fumigated. (PPC, Cent. Reg., Nov. Rpt.).

A CRAMBID (Chilo loftini) - CALIFORNIA - Larvae heavy in sugarcane in East Mesa area, Imperial County. (Cal. Coop. Rpt.).

A GRASS MITE (Oligonychus sp.) - TEXAS - A species, very similar to O. pratensis, moderate in local plantings of dryland wheat in Moore County. Considerable deadening of plants occurring; webbing conspicuous on crowns of plants. (Swaim).

PEA APHID (Macrosiphum pisi) - OKLAHOMA - Ranged 16-20 per square foot of crown area on alfalfa in Tillman County; averaged 25 per linear foot on winter peas. (Okla. Coop. Sur.). ARKANSAS - Ranged 1-5 per square foot in northwest area legumes. (Ark. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Counts of 10-16 per square foot of crown area noted in young and old stands of alfalfa in Tillman County. (Okla. Coop. Sur.). NEW MEXICO - Generally light in alfalfa in southern counties. Treatment required in one field of seedling alfalfa in Eddy County. (N. M. Coop. Rpt.).

Noctuids in Arkansas - Heliothis spp. on soybeans and sorghum received considerable attention in State during 1962. One of several lines of study was determination of species on these 2 crops. Larval collections have now been determined; collections from soybeans in southeast area September 5-12 were 238 CORN EARWORM (H. zea) and no TOBACCO BUDWORM (H. virescens). Collections from sorghum in same area September 13 to 26 were 69 H. zea and no H. virescens. (Ark. Ins. Sur., Dec. 21).

FRUIT INSECTS

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - CALIFORNIA - Light in roots of peach tree stock in Brentwood area, Contra Costa County. (Cal. Coop. Rpt.).

PECAN WEEVIL (Curculio caryae) - TEXAS - Full-grown larvae found in Burkett variety pecan nuts in Glasscock County. This is first confirmed record for this county. Extent of infestation not indicated. (Texas Coop. Rpt., Newton).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - Inspections made in Municipios Hidalgo and Guemez, Tamaulipas, of 47,276 citrus trees on 32 properties revealed 11 trees lightly infested on 5 properties in Guemez; none found in Hidalgo. Treatment necessary in 2 groves in Padilla, Tamaulipas, to reduce heavy infestations to point where parasites could assure control. Infestation at Simojove, Chiapas, under satisfactory control; during November, 40,600 specimens of a PARASITIC EULOPHID (Prospaltella opulenta) received for liberation. Expected seasonal decline in parasitism occasioned by insecticide drift from cotton-dusting operations now apparent in Apatzingan area, Michoacan; decline expected to continue until February or March. Chemical Control Zone - Inspection of 122,358 trees on 3,813 properties in States of Tamaulipas, Sonora, Nuevo Leon and Baja California negative. (PPC, Mex. Reg., Nov. Rpt.).

COTTONY-CUSHION SCALE (Icerya purchasi) - CALIFORNIA - Nymphs light on leaves of navel orange trees in Arlington, Riverside County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) - NEBRASKA - Was quite abundant on asparagus during July and August at Scotts Bluff Experiment Station, Scotts Bluff County. (Hagen, Hill). Previously recorded in Lancaster County in 1945. However, this is most western record and new for Scotts Bluff County. (Bergman).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - Field inspections in TEXAS control counties completed November 2. Infestations lighter than in 1961, with exception of Cherokee County. In LOUISIANA, 95 new properties found infested; all known infested parishes, with exception of one property in Caddo Parish, cleaned and dusted. Infested properties found in Amite, Copiah, Forrest, Pike and Perry Counties, MISSISSIPPI. Infestation at Gloster, Amite County, especially heavy; about one-fourth of sweetpotatoes inspected in Pike County rejected. Survey conducted in all known infested counties in ALABAMA; new properties found in Mobile, Geneva and Houston Counties; none in commercial plantings. In GEORGIA, infested properties found in Appling, Atkinson, Colquitt, Decatur, Grady, Lowndes, Pierce and Thomas Counties. Infestation in Atkinson County first since 1957. Field inspections completed in FLORIDA; approximately 26,000 bushels of sweetpotatoes dusted during November. (PPC, South Reg.). NEW JERSEY - Postharvest field inspections of sweetpotatoes almost completed; dissection of tunnels revealed no larvae. (PPC, East. Reg., Nov. Rpt.).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Heavy in tomato plants at Shafter Research Station, Kern County. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Heavy on garden rhubarb (Rheum rhaponticum) in Pico Riviera area, Los Angeles County. (Cal. Coop. Rpt.).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - One specimen collected in Cleburne County, ARKANSAS; location of field not determined. Gin trash inspections made in 18 southern LOUISIANA parishes; specimens recovered from De Soto, Bossier and Natchitoches Parishes. Larva from Bossier Parish first found since 1958 crop; larva from Natchitoches Parish first since 1959 crop. Infestations heavier than usual in Parmer and Bailey Counties, TEXAS; 13 adults caught in blacklight traps at Brownsville, Cameron County, and 3 adults at Waco, McLennan County, during November. (PPC, South. Reg.). In Graham County, ARIZONA, 405 larvae found in gin trash inspections during November. In Stafford work area, 1,452 larvae found on lint cleaner inspections. Field inspections in county revealed 10 newly infested fields involving 545 acres in Solomon and Eden areas. Lint cleaner inspections indicate increase in Pecos River Valley and other cotton-growing areas of eastern NEW MEXICO. Indications are infestations in Rio Grande Valley and other areas in southwestern part of State are lighter than in past several years. (PPC, West. Reg., Nov. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

RED TURPENTINE BEETLE (Dendroctonus valens) - MONTANA - Attacked approximately 75 percent of residual ponderosa pines in stand thinned during late spring on Northern Cheyenne Indian Reservation. Full circumference of lower bolls, often up to 4 feet from ground, infested. (Tunnoch, Roemhild, Dec. 28).

MOUNTAIN PINE BEETLE (Dendroctonus monticolae) - MONTANA - Approximately 0.9 percent of stand of lodgepole pine in Glacier National Park attacked in October; infestation has been active since 1950. (Tunnoch, Roemhild, Dec. 28).

ENGRAVER BEETLES (Ips spp.) - MONTANA - I. integer and I. ponderosae heavily infested slash in ponderosa pine stands thinned from May through July on the Northern Cheyenne Indian Reservation. This slash was treated with orthodichlorobenzene in July. These beetles also emerged from ponderosa pine slash cut during January and February on Lone Pines Area of Custer National Forest; also infested current logging slash in July. I. ponderosae attacked occasional overmature ponderosa pines in weakened condition during July near Ekalaka, Carter County. One tree contained callow adults. (Tunnoch, Roemhild, Dec. 28). CALIFORNIA - I. montanus adults heavy in bark of ornamental pine in Woodside, San Mateo County. (Cal. Coop. Rpt.).

A BARK BEETLE (Hylastes ruber) - MONTANA - Beetles numerous under bark of a dying Douglas-fir on shore of Flathead Lake in Flathead and Lake Counties. (Tunnoch, Roemhild, Dec. 28).

A BARK WEEVIL (Pissodes curriei) - MONTANA - Larvae feeding around root-collars of 10 white pines 2-10 inches in diameter in Fish Creek Campground, Glacier National Park. Larvae had constructed "chip cocoons" in sapwood; 3 of smallest trees killed. (Tunnoch, Roemhild, Dec. 28).

RUSTY TUSSOCK MOTH (Orgyia antiqua) - MONTANA - Egg masses found in November on subalpine fir near Kalispell and on Douglas-fir near Olney; both locations in Flathead County. Olney infestation covers quite a large area. (Tunnoch, Roemhild, Dec. 28).

LODGEPOLE NEEDLE MINER ("Recurvaria" milleri) - MONTANA - Very heavy on approximately 3,000 acres of lodgepole pine during August south of Butte, Silver Bow County. (Tunnoch, Roemhild, Dec. 28).

A PINE NEEDLE-SHEATH MINER (Zelleria haimbachi) - MONTANA - Reported causing some damage to 5-year-old ponderosa pine plantation east of Libby, Lincoln County. Moderate on approximately 4,000 acres of lodgepole pine in Bridger Mountains north of Bozeman (Gallatin County) during August; infestation first detected in 1960. Generally, this species has spread throughout pine stands in western half of State. (Tunnoch, Roemhild, Dec. 28).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MONTANA - Heavy on approximately 1,200 acres of lodgepole pine on north shore of St. Mary Lake, Glacier National Park; some mortality has occurred. Light infestation detected on this host in Blacktail Creek drainage, Deerlodge National Forest. Also, caused some damage to spruce trees near a home northeast of Denton, Fergus County. (Tunnoch, Roemhild, Dec. 28).

A DOUGLAS-FIR NEEDLE MIDGE (Contarinia pseudotsugae) - MONTANA - Caused noticeable discoloration of current needles in Douglas-fir stand on Warland Ranger District, Kootenai National Forest. In general, populations range light to medium throughout Douglas-fir stands in State. (Tunnoch, Roemhild, Dec. 28).

CONIFER SAWFLIES (Neodiprion spp.) - MONTANA - Larval colonies of N. nanulus contortae and N. fulviceps complex were scarce during July in areas of lodgepole and ponderosa pines containing heavy populations last season in the Little Rocky Mountains. A polyhedrosis virus was probably responsible for reducing this infestation. (Tunnoch, Roemhild, Dec. 28).

GYPSY MOTH (Porthetria dispar) - Egg clusters found and treated in 8 trailer parks in MASSACHUSETTS during November. Appreciable numbers of egg masses found on evergreen plants in nursery in western Massachusetts. New infestations found on perimeter of 4 nurseries on Long Island, and 2 nurseries in Westchester County, NEW YORK. Infestation in Pike County, PENNSYLVANIA, yielded 6 additional egg masses. (PPC, East. Reg.).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - Webs collected on Plum Island, MASSACHUSETTS, in early October, placed in humidity-controlled environment on October 26. First larval emergence from webs noted November 14. About 25-30 out of nest and feeding lightly November 20. By end of month, about 500 larvae were feeding on tender oak; a few into first molt. (PPC, East. Reg.).

AN APHID (Capitophorus hippophaes) - MONTANA - Eggs, probably of this species, very heavy on Russianolive seedlings in November at Montana Forest Nursery in Missoula, Missoula County. (Tunnoch, Roemhild, Dec. 28).

COCCIDS - CALIFORNIA - Saissetia oleae and Coccus hesperidum heavy on iris plants in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Aceria sp.) - CALIFORNIA - This new bamboo bud mite reported from 3 new nursery locations in Ventura, Santa Barbara and Los Angeles Counties. (Cal. Coop. Rpt.). Also, see CEIR 12(49):1233.

INSECTS AFFECTING MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - High degree of activity reported throughout State. (Okla. Coop. Sur.).

A BOT FLY (probably Cephenomyia sp.) - TEXAS - Several hundred larvae found in esophagus of deer killed in Mason County. No ill effects resulting from these larvae apparent in animal. (Garrett).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Reported heavy on hogs in Bryan and Choctaw Counties. (Okla. Coop. Sur.).

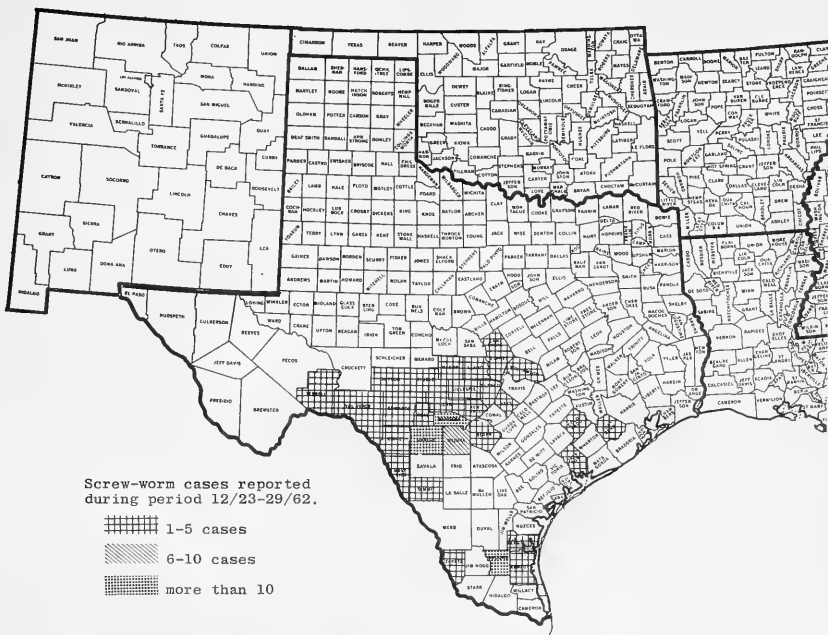
CATTLE LICE - OKLAHOMA - Several species active in Bryan and Latimer Counties. (Okla. Coop. Sur.).

A WASP - OKLAHOMA - Overwintering populations causing some concern around homes on warm days in Choctaw County and Stratford areas. (Okla. Coop. Sur.).

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

A total of 66,039,050 sterile flies was released during the period December 16-22, although cold weather, rain and fog hampered release on many days in the release area. A total of 130 screw-worm cases was reported during this period. Weather and temperatures permitting, sterile fly barrier was gradually extended northward and westward along Texas-Mexican border, at times extending as far north as beginning of Big Bend region of the Rio Grande. From reports and specimens submitted, screw-worm continued to show reduced populations; however, reports indicated relatively heavier populations existed in densely livestock-populated areas surrounding Uvalde County.

During period December 23-29, a total of 41,057,050 sterile flies was released, although weather conditions periodically restricted release in some areas. Constant daily adjustments must be made in areas where flies can be released and in number of flies released. Release continues in barrier northward and westward along Texas-Mexican border to approximately beginning of Big Bend region of Rio Grande. Reports continue to show fewer screw-worm infestations each week; however, counties reporting comparatively heavier populations continue to be those in the Uvalde-Val Verde area. A total of 110 screw-worm cases was reported during period December 23-29. (Anim. Dis. Erad. Div.).



HOUSEHOLD AND STRUCTURAL INSECTS

BROWN-BANDED COCKROACH (*Supella supellectilium*) - UTAH - Infesting several apartments at Logan, Cache County. (Knowlton).

AN ALFALFA WEEVIL (*Hypera brunneipennis*) - CALIFORNIA - Heavy numbers invading home in Carlsbad area, San Diego County. This weevil has become a household nuisance in several locations where it occurs. (Cal. Coop. Rpt.).

A BARK BEETLE (*Pseudopityophthorus pubipennis*) - CALIFORNIA - Medium numbers occurring on window ledges and around lights in home in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

A PARASITIC ENCYRTID (*Comperia merceti*) - OKLAHOMA - This parasite of cockroaches causing some nuisance around homes in Stillwater area, Payne County. (Okla. Coop. Sur.).

MISCELLANEOUS INSECTS

CITRUS WHITEFLY (*Dialeurodes citri*) - CALIFORNIA - Surveys in City of Sacramento to date reveal over 200 blocks infested within area approximately 4 miles long and 2 miles wide. During past 5 years, several infested blocks in east Sacramento and Oak Park Fairgrounds areas inspected in connection with 1958 infestation and in course of normal detection effort; however, whitefly infestation either too light to be detected or had not spread to present extent. Review and inspection of all old infestations dating back to 1907 planned. At present time, apparently 400 blocks will be subject to treatment attention. (Cal. Coop. Rpt.).

JAPANESE BEETLE (*Popillia japonica*) - CALIFORNIA - First of 3 adults emerged in test cage December 25, 1962; 2 others emerged January 1, 1963. These are progeny of 3 adult pairs collected June 12, 1962, in West Sacramento, Yolo County. Adults caged in office where temperatures ranged 70-75°. Females died August 8 and 18, and September 9; males died August 8, 9 and 28. Females observed to enter soil for periods up to 24 hours during mating period; males usually entered soil overnight. Mating continued during life of adults; males and females were marked for easy identification. First to third-stage larvae observed late in September. Activity of out-of-season beetles to be observed and check to be made, if males and females emerge, to determine if additional generation is produced under artificial conditions. If additional generation is produced under these conditions, there is possibility an infestation in some mild-climate areas of State could also produce an additional generation in heated patios, greenhouses and sod areas around heated swimming pools. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (*Graphognathus* spp.) - Aerial treatment completed in infested area in Poinsett and St. Francis Counties, ARKANSAS. Small, new infestation found in Crittenden County. Aerial application in Greene County, TENNESSEE, completed and additional acreage treated in Lawrence, Hardeman and Tipton Counties. Checks made in these areas showed only minor damage to wildlife. Larvae damaged sweetpotatoes in Jones County, MISSISSIPPI. Treatment completed on isolated infestation in Sumter County, ALABAMA. Infestation in Cuthbert, Randolph County, GEORGIA, treated during November. Small areas in Bleckley, Hancock, Peach, Toombs, Twiggs and Wilcox Counties also treated. (PPC, South. Reg.).

EUROPEAN CHAFER (*Amphimallon majalis*) - Final control treatments applied to garden patches at residences in Hudson County, NEW JERSEY. Soil treatment started November 23 at Cypress Hills Cemetery, Queens County, NEW YORK. (PPC, East. Reg.)

A LEPTOPODID BUG (Patapius spinosus) - CALIFORNIA - Medium under boards along railroad tracks in Willows, Glenn County, and in Nord, Butte County; new counties. Collected by T. Haig, Jr.; det. by R. L. Usinger. Species unknown in Western Hemisphere prior to 1941, when single female was collected by S. F. Bailey in Arbuckle, Colusa County. (Cal. Coop. Rpt., Dec. 21).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Collections made for the first time in Liberty, Rockdale, Fayette and Ware Counties, GEORGIA, during November. (PPC, South. Reg.). Surveys negative in Haskell County, OKLAHOMA. (Okla. Coop. Sur.).

HAWAIIAN INSECT NOTES

The following notes were submitted by the Hawaiian Entomological Society and were extracted from the "Notes and Exhibitions" in the minutes of the December 10, 1962, meeting.

A STINK BUG (Brochymena quadripustulata) - A specimen was collected on empty fertilizer bags by Masao Kaneshiro on his farm on Puhawai Road, Lualualei Valley, Oahu, about October 1962. Mr. Kaneshiro stated that he had first seen this species at his farm about a year ago. Determination made by Dr. Herbert Ruckes. This bug is widely distributed across southern Canada, the United States from the Atlantic to the Pacific coasts, and in northern Mexico. Hosts include Pinus, Sorbus, Quercus, Salix, Ulmus, grape, cherry, apple and pear, and is also predaceous on soft-bodied larvae. Adults hibernate under bark or rubbish. This is the first report of this pentatomid bug from the State. (N. L. H. Krauss).

A heavy infestation of BARNACLE SCALE (Ceroplastes cerripediformis) on branches of zitherwood (Citharexylum sp.), a street-growing tree, was reported in December 1962 by Walter Holt, State Forester. Det. by J. W. Beardsley. This is a new host record. (N. L. H. Krauss).

Galls of an ERIOPHYID MITE (Aceria swezeyi) were very conspicuous on branches of lama (Diospyros ferrea var. pubescens form sclerophylla Fosberg) at Puuwaawaa Ranch, North Kona, Hawaii, on October 29, 1962. This species was described from Oahu by H. H. Keifer, and present determination was made by him. (N. L. H. Krauss).

A BILLBUG (Sphenophorus venatus vestitus) is established at Kaanapali, Maui. This is the first record for this island and the fourth island infested since the species was first discovered at Hickam Field in 1960. (H. Nakao, N. Miyahira).

A EUCOSMID MOTH (Cryptophlebia sp.) was very active in terminal shoots of rainbow showertrees in Hilo, Hawaii, and also active on Kauai. These are new records for the islands of Hawaii and Kauai. (E. Yoshioka, C. J. Davis, S. Au).

INSECT DETECTION IN THE UNITED STATES - 1962

FIRST UNITED STATES REPORT

<u>Species</u>	<u>Host</u>	<u>State</u>	<u>County</u>	<u>CEIR Vol. 12 Page No.</u>
<u>Achanodes antipathetica</u> (a tineid moth)	---	Florida	Dade	958
* <u>Aculus pelekassi</u> (a rust mite)	citrus	Florida	Orange	434
* <u>Ceratophyus</u> sp. (a scarab)	lawns, golf courses	California	Santa Barbara	85
<u>Culicoides blantoni</u> (a sand fly)	light trap	Texas	Cameron	529
* <u>Dictyla echii</u> (a lace bug)	---	Pennsylvania	Dauphin	778
* <u>Oulema melanopa</u> (cereal leaf beetle)	cereal crops	Michigan	Berrien	881
<u>Pseudaonidia clavigera</u> (a mining scale)	<u>Camellia</u> sp., <u>Gardenia</u> sp., <u>Jasminum sambac</u> , <u>Ligustrum</u> sp., <u>Osmanthus</u> sp., <u>Pyracantha</u> sp., <u>Quercus</u> sp., <u>Rhododendron</u> sp., <u>Viburnum</u> sp.	Florida	Pinellas	494 534

FIRST STATE REPORT

<u>Species</u>	<u>Host</u>	<u>State</u>	<u>County</u>	<u>CEIR Vol. 12 Page No.</u>
<u>Acanthomyops pogonogynus</u> (an ant)	---	Idaho	Latah	810
<u>Acarapis dorsalis</u> (a bee mite)	<u>Apis mellifera</u> <u>Apis mellifera</u>	Nebraska Wyoming	--- Albany	274 274
<u>Aceria neocynodonis</u> (an eriophyid mite)	Bermuda grass Bermuda grass	Florida Georgia	Brevard Tift	551 1213
<u>Aculus dubius</u> (an eriophyid mite)	timothy	Rhode Island	Washington	378
<u>Aedes vexans nocturnus</u> (a mosquito)	light trap	Hawaii	Honolulu	107

*Also new Western Hemisphere records.

First State Report (cont'd)

<u>Species</u>	<u>Host</u>	<u>State</u>	<u>County</u>	CEIR Vol. 12 Page No.
<u>Antonina pretiosa</u> (a scale insect)	bamboo	Maryland	Montgomery	73
<u>Apion hibisci</u> (a weevil)	<u>Hibiscus</u> <u>oculiroseus</u>	Maryland	St. Marys	599
<u>Aspidiotus diffinis</u> (an armored scale)	<u>Mimosa</u> sp.	Florida	Levy	525
<u>Bittacus pilicornis</u> (a hangingfly)	---	Florida	Alachua	574
<u>Brachyrhinus rugosostriatus</u> (a weevil)	---	Rhode Island	Bristol	1171
<u>Bucculatrix canadensisella</u> (birch skelentonizer)	red birch	Delaware	New Castle	833
<u>Camponotus rasilis</u> (a carpenter ant)	light traps	California	Imperial Riverside	777
<u>Carpophilus melanopterus</u> (a nitidulid)	---	Pennsylvania	Bucks	166
<u>Cirrospilus nigrivariegata</u> (a parasitic eulophid)	<u>Phyllocnistis</u> <u>vitigenella</u>	Delaware	New Castle	1218
<u>Cornaphis populi</u> (an aphid)	---	Utah	Rich	525
<u>Crioceris asparagi</u> (asparagus beetle)	asparagus	Nebraska	Lancaster	492
<u>Cylas formicarius elegantulus</u> (sweetpotato weevil)	---	New Jersey	Gloucester	730
<u>Dermestes peruvianus</u> (a dermestid)	bird cages	Wisconsin	Dane	41
<u>Echidnophaga gallinacea</u> (sticktight flea)	broilers	Delaware	Sussex	1190
<u>Edessa bifida</u> (a stink bug)	---	Virginia	Lancaster	4
<u>Epinotia nanana</u> (a spruce needle miner)	spruce	Delaware	New Castle	240
<u>Epitrix brevis</u> (a leaf beetle)	<u>Physalis</u> sp.	Maryland	Prince Georges	73
<u>Epitrix humeralis</u> (a leaf beetle)	<u>Physalis</u> <u>subglabrata</u>	Maryland	Washington	73
<u>Essigella knowltoni</u> (an aphid)	<u>Pinus</u> sp.	Wyoming	Lincoln	105

First State Report (cont'd)

<u>Species</u>	<u>Host</u>	<u>State</u>	<u>County</u>	<u>CEIR Vol. 12 Page No.</u>
<u>Euborellia annulipes</u> (red-legged earwig)	---	North Dakota	Cass	574
<u>Eumerus strigatus</u> (onion bulb fly)	tulip bed	Montana	Pondera	858
<u>Fenusa pusilla</u> (birch leaf miner)	white birch	Washington	King	771
<u>Galerucella xanthomelaena</u> (elm leaf beetle)	elm	New Mexico	Quay	975
<u>Graphognathus leucoloma</u> <u>imitator</u> (a white-fringed beetle)	---	Virginia	City of Norfolk	1143
<u>Homadaula albizziae</u> (mimosa webworm)	<u>Albizia</u> sp. --- black locust	California Nebraska Kansas	Butte Douglas Wyandotte	32 955 1220
<u>Hylurgopinus rufipes</u> (native elm bark beetle)	<u>Ulmus</u> <u>americana</u>	Nebraska	Seward	1155
<u>Hypera postica</u> (alfalfa weevil)	---	Vermont	Bennington Windham	745
<u>Labops hesperius</u> (a mirid)	intermediate wheatgrass	Arizona	Coconino	788
<u>Lecanium fletcheri</u> (Fletcher scale)	<u>Thuja</u> <u>occidentalis</u>	California	Siskiyou	903
<u>Lepidosaphes yanagicola</u> (a coccid)	<u>Pachysandra</u> sp.	Maryland	Baltimore	600
<u>Leucaspis japonica</u> (a Japanese armored scale)	maple	Delaware	Sussex	1077
<u>Listronotus oregonensis</u> (carrot weevil)	carrots	Delaware	Sussex	1074
<u>Lygocoris belfragei</u> (a mirid)	<u>Ilex</u> <u>verticillata</u>	Maryland	Prince Georges	73
<u>Macrocentrus calacte</u> (a parasitic braconid)	<u>Cryptophlebia</u> sp.	Hawaii	---	426
<u>Mantis religiosa</u> (European mantis)	---	Delaware	New Castle	165
<u>Mezium affine</u> (a spider beetle)	---	Wyoming	Washakie	260
<u>Miccotrogus picirostris</u> (clover seed weevil)	soil around ladino clover	Maryland	Montgomery	945
<u>Mindarus abietinus</u> (balsam twig aphid)	Fraser fir tips	North Carolina	Yancey	385

First State Report (cont'd)

<u>Species</u>	<u>Host</u>	<u>State</u>	<u>County</u>	<u>Ceir Vol. 12 Page No.</u>
<u>Monomorium destructor</u> (an ant)	---	New York	Steuben	106
<u>Musca autumnalis</u> (face fly)	cattle	Rhode Island	Washington	775
<u>Neorhynchocephalus volaticus</u> (a nemestrinid fly)	---	Florida	Columbia	934
<u>Newsteadia americana</u> (a coccid)	roots of a tree	Pennsylvania	Dauphin	348
<u>Norma dietsiana</u> (a leaf tier)	American holly	Delaware	Sussex	703
<u>Oulema melanopa</u> (cereal leaf beetle)	---	Indiana	La Porte St. Joseph	915
<u>Pealius azaleae</u> (azalea whitefly)	azaleas	North Carolina	Wake	1188
<u>Pheidole californica</u> <u>pyramidensis</u> (an ant)	soil	California	Modoc	604
<u>Phloeosinus canadensis</u> (a bark beetle)	<u>Thuja</u> <u>occidentalis</u>	Ohio	Franklin	319
<u>Phloeosinus dentatus</u> (a bark beetle)	<u>Juniperus</u> sp.	Ohio	Washington	319
<u>Phyllocnistis vitigenella</u> (a grape leaf miner)	cultivated grapes	Delaware	New Castle	1214
<u>Pityophthorus pulicarius</u> (a bark beetle)	Austrian pine	Delaware	New Castle	1020
<u>Platyptilia pica</u> (a plume moth)	geraniums	Pennsylvania	Philadelphia Montgomery	976 1007
<u>Podosesia syringae fraxini</u> (ash borer)	ash trees	Utah	Utah	804
<u>Podosesia syringae syringae</u> (lilac borer)	lilac	Delaware	New Castle	1021
<u>Pogonomyremx californicus</u> (California harvester ant)	---	Utah	Grand	642
<u>Pseudolucanus capreolus</u> (a stag beetle)	---	Florida	Hillsborough	1041
<u>Pycnarthrum hispidum</u> (a bark beetle)	fig tree	Texas	Hidalgo	658
<u>Reticulitermes virginicus</u> (a subterranean termite)	---	Delaware	Kent	873

First State Report (cont'd)

<u>Species</u>	<u>Host</u>	<u>State</u>	<u>County</u>	CEIR Vol. 12 Page No.
<u>Rhinacloa forticornis</u> (a mirid)	light trap	Hawaii	Honolulu	842
<u>Rhyzopertha dominica</u> (lesser grain borer)	stored grain	Delaware	New Castle	1158
<u>Scolytus mali</u> (a bark beetle)	dying apple tree	Ohio	Medina	794
<u>Sitona cylindricollis</u> (sweetclover weevil)	roadside sweetclover	New Mexico	Sandoval	992
<u>Spathius prusias</u> (a parasitic braconid)	a weevil (<u>Araecerus</u> sp.)	Hawaii	Honolulu	426
<u>Toumeyella pini</u> (a pine tortoise scale)	a mugho pine	Indiana	Madison	321
<u>Urbanus proteus</u> (bean leaf roller)	---	Delaware	New Castle	195
<u>Xyleborus morstatti</u> (a bark beetle)	<u>Tabebuia</u> <u>pallida</u>	Hawaii	Honolulu	76

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

OLD WORLD SCREW-WORM (Chrysomya bezziana Villeneuve)

Economic Importance: This is the most important myiasis-producing calliphorid in areas of Africa and Asia. It is reported to rank second in importance to the tsetse flies as a pest of cattle in central and southern Africa, and is of considerable importance as a pest of man in India. Cattle are the chief hosts, by and large, but man is apparently attacked with relatively more frequency in India than in other parts of the fly's range. Larvae may attack wounds on various parts of the body; in man, infestation of head wounds seems most frequent. C. bezziana is a specific myiasis-producing fly; it cannot breed in carrion or excrement, and is dependent upon living tissue for its existence. Its habits are similar to the American screw-worm (Cochliomyia hominivorax (Coquerel)) in this respect.

The genus Chrysomya is confined to the Old World, and restricted to the tropical and semi-tropical regions. James (2) also lists 7 other species: C. chloropyga (Wiedemann) is the most important sheep maggot in South Africa, but the other species, C. marginalis (Wiedemann), C. megacephala (Fabricius), C. albiceps (Wiedemann), C. rufifacies (Macquart), C. putoria (Wiedemann) and C. micropogon (Bigot) are primarily secondary invaders or scavengers, and are not generally regarded as major pests. They might be compared with the secondary screw-worm (Cochliomyia macellaria (Fabricius)) of the Americas when considering their importance. Occasionally, however, some form of myiasis is attributed to some of the aforementioned Chrysomya, but C. bezziana is by far the most important of the species.

Distribution: Central and southern Africa, and parts of Asia (India, Ceylon, Burma, Thailand, Indo-China, Philippines).

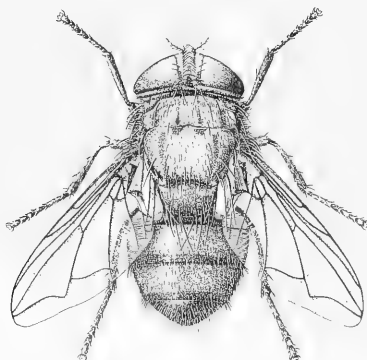
Hosts: Numerous wild and domestic animals, as well as man.

Life History and Habits: The biology as recorded in India is as follows: Eggs are laid singly or in batches inside wounds, sometimes on the unbroken skin covering bruises and abscesses, and occasionally on places soiled by septic exudations and blood from wounds. Eggs hatch in about 18-24 hours. Young larvae feed on liquids exuding from the interior of the wound for about a day; later they become embedded in the living tissue. In about 6 days, the larvae become full fed, leave the wound and drop to the ground where they bury themselves about an inch beneath the surface of the soil. Pupation takes place in 1-2 days and lasts 7-9 days in hot weather of the wet season, but much longer in the cold weather of the dry season. The biotic potential of the fly is enormous; a female may produce 500-600 eggs and there may be 8 or more generations a year.

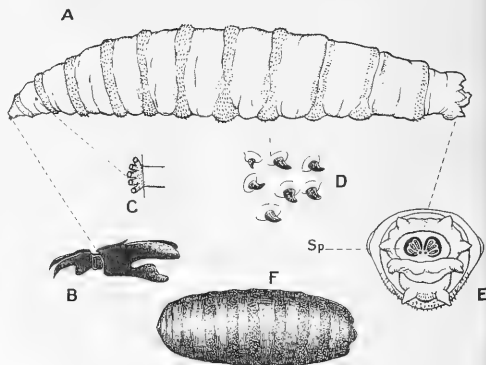
Description: ADULT - Head black on the upper surface except for the frontalia or central stripe of the front; orange on the face, antennae and palpi. Thorax and abdomen green to bluish-purple, with narrow, black posterior margins on the intermediate abdominal segments. In the female, the front is almost parallel-sided and the sides of the frontalia do not bulge in the middle. In the male, the facets of the eyes are uniform, there being no definite upper zone of larger facets and lower zone of smaller ones such as characterizes the common C. megacephala with which C. bezziana can easily be confused. The stigmatal bristle is

well developed, the mesothoracic spiracle is brownish and the squamae are waxy-white. Length 8-12 mm. or about one-half inch. MATURE LARVA - Creamy-yellow, 14-18 mm. or about five-eighths of an inch in length and with only the usual protuberances. Mouth hooks strong. Spines in belts along the incisures are strong, being visible to the naked eye, and recurved; there are several irregular rows of spines to each belt. Anterior spiracles terminate in 4 or 5 finger-like processes.

Chrysomya bezziana adults differ from the American Cochliomyia in several ways. One differing character easy to see is the number of mesothoracic stripes; 3 prominent, black stripes will be present in Cochliomyia, while only 2 narrow, longitudinal stripes will be present on C. bezziana. The full-grown larvae also differ in several ways. An easy, recognizable character to use would be the number of finger-like processes on the anterior spiracles; C. bezziana will have 4-5, while Cochliomyia hominivorax will have 7-9 and Cochliomyia macellaria will have 9-11. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 13(2):1-11-63.



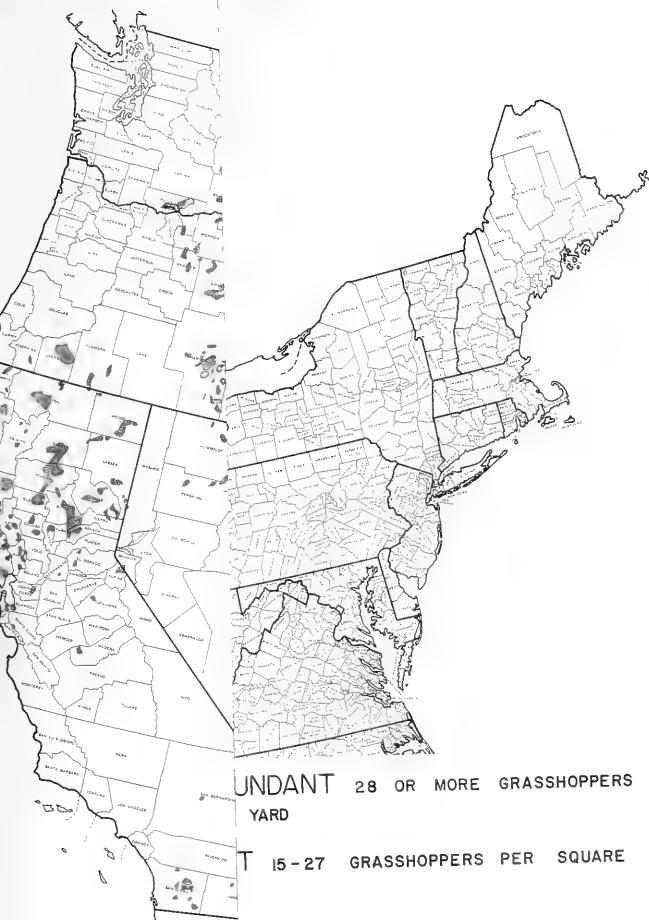
Chrysomya bezziana, adult female



C. bezziana: A - Larva. B - Cephalopharyngeal skeleton. C - Anterior spiracle (much enlarged). D - Spines (much enlarged). E - Posterior end, showing spiracles. F - Pupa.

Major references: 1. Cuthbertson, A. 1934. Rhodesia Agr. J. 31(4):256-258. 2. James, M. T. 1947. U. S. Dept. of Agr. Misc. Pub. 631:72-74. 3. Patton, W. S. and Evans, A. M. 1929. Insects, Ticks, Mites and Venomous Animals of Medical and Veterinary Importance. Pt. I. Medical. pp. 406-495, Croydon. 4. Smart, J. 1956. A Handbook for the Identification of Insects of Medical Importance. Ed. 3 pp. 76-77, London.

Illustrations: Drawing of adult female by A. D. Cushman, USDA. Figures of larva, cephalopharyngeal skeleton, anterior spiracle, spines, posterior spiracles and pupa from Cuthbertson.



**UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
PLANT PEST CONTROL**

opper adult surveys made during the summer months of 1963. Numbers of grasshoppers per square yard of infestations for 1963. Numbers of grasshoppers per square yard of infestations for 1963. Numbers of grasshoppers per square yard of infestations for 1963.

ing, in general are lower than those reported by State personnel. The shaded areas on the map are designated as areas of moderate to heavy infestation.

SHOPPER INFESTATIONS -
Moderate Populations or Above -

UNDANT 28 OR MORE GRASSHOPPERS PER SQUARE YARD
T 15 - 27 GRASSHOPPERS PER SQUARE YARD
E 8 - 14 GRASSHOPPERS PER SQUARE YARD
7 GRASSHOPPERS PER SQUARE YARD
ORS - RANGELAND INFESTATIONS
COLORS - CROPLAND INFESTATIONS

FOR INFORMATION ON CROP OR RANGELAND NEXT SEASON, TYPE OF HABITAT, SPECIES PRESENT, WEATHER, AND INFESTATION.

FOR INFORMATION CONCERNING THE GRASSHOPPER PROBLEM, CONTACT COUNTY AGENTS, AND PLANT PEST PERSONNEL.

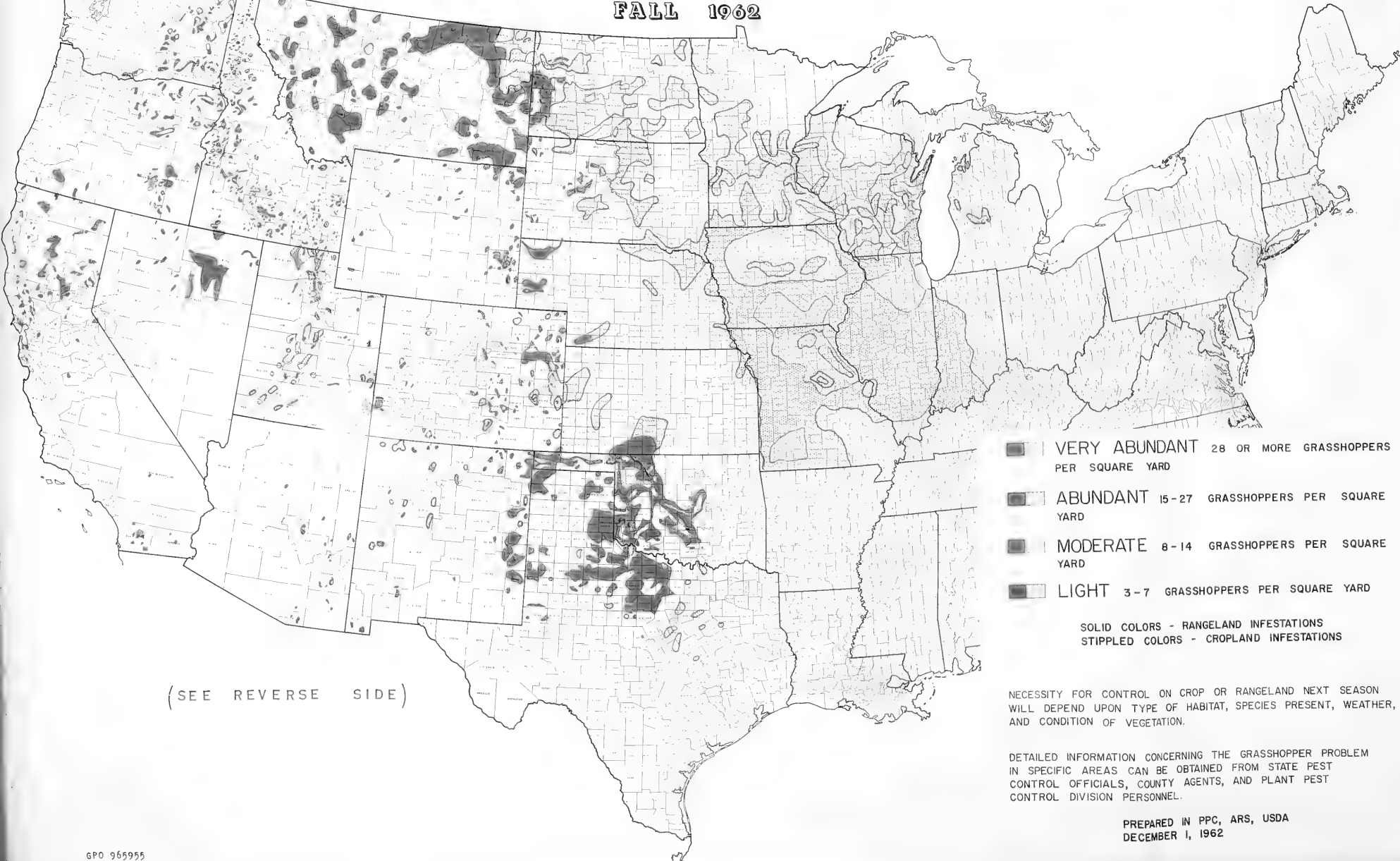
PREPARED IN PPC, ARS, USDA
 FEBRUARY 1, 1962

TOTAL ACRES
278,930
35,710
500,000
13,100
434,070
208,440
840,900
3,677,000

1 Division, Agricultural Research Service

GRASSHOPPER ADULT SURVEY

FALL 1962



UNITED STATES DEPARTMENT OF AGRICULTURE
 AGRICULTURAL RESEARCH SERVICE
 PLANT PEST CONTROL DIVISION

TO COOPERATORS

This map is based upon the results of cooperative grasshopper adult surveys made during the late summer and fall of 1962. The survey reveals where and how many grasshoppers infest an area, and indicates the potential severity of infestations for 1963. Nymphal surveys, made in the spring, determine population densities, and indicate those areas where control may be necessary in 1963.

The infestations in croplands, shown on the map in stippling, in general are lower than those which were indicated in the 1961 fall survey. Control on those lands will be handled by the farmers with technical assistance from Division and State personnel. The infested range areas, shown on the map in solid colors (orange, blue and red only), total 7,826,670 acres in 16 Western and Midwestern States. Shaded areas on the map are diagrammatic. Within these areas, infestations may be solid or spotted.

RANGELAND GRASSHOPPER INFESTATIONS – ACREAGE BY REGIONS, FALL 1962

(Moderate Populations or Above – Orange, Blue and Red)

REGION AND STATE	LANDOWNERSHIP—ACRES		TOTAL ACRES	REGION AND STATE	LANDOWNERSHIP—ACRES		TOTAL ACRES
	PRIVATE AND STATE	PUBLIC DOMAIN			PRIVATE AND STATE	PUBLIC DOMAIN	
CENTRAL							
No. Dakota	143,800	135,130	278,930	Nevada	8,210	73,890	82,100
So. Dakota	31,210	4,500	35,710	New Mexico	151,500	21,500	173,000
Nebraska	500,000	—	500,000	Oregon	280,720	175,180	455,900
				Utah	199,600	244,100	443,700
WESTERN				Washington	130,700	—	130,700
Arizona	10,000	3,100	13,100	Wyoming	290,600	8,400	299,000
California	434,070	—	434,070				
Colorado	203,440	5,000	208,440	SOUTHERN			
Idaho	116,300	724,600	840,900	Oklahoma	187,000	—	187,000
Montana	3,253,000	424,000	3,677,000	Texas	67,120	—	67,120

The survey was planned and performed by the Plant Pest Control Division, Agricultural Research Service, in cooperation with various State agencies concerned.

UNITED STATES DEPARTMENT OF AGRICULTURE

WASHINGTON 25, D. C.

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ECONOMIC INSECT REPORT

Edited by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

U. S. STATES DEPARTMENT OF AGRICULTURE



AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Single MEDITERRANEAN FRUIT FLY adult trapped in Broward County, Florida, on January 11, and larvae found in same general locality on January 12 and 13. Area approximately 2.5 miles southeast of November 2, 1962 find. (p. 28).

ARMY CUTWORM generally light in small grains throughout north central and north-west Oklahoma, and SPOTTED ALFALFA APHID counts heavy on overwintering alfalfa in Kay and Woodward Counties, same State. Both of these pests numerous enough to warrant constant surveillance; they could cause economic damage with the onset of warm weather. (p. 27).

Majority of citrus trees in groves surveyed in Florida dropped all, or nearly all, of their leaves the last few days of December. Much of the fruit began to drop, or was picked early to salvage it. As a result of this mechanical removal, populations of all PESTS, except a SNOW SCALE (Unaspis citri), had declined to a lower level by December 31. (p. 28).

Progress in CALIFORNIA RED SCALE eradication districts has been very favorable in San Joaquin Valley of California. It is estimated that a low incidence of this pest will occur during 1963. (p. 28).

WESTERN PINE BEETLE causing heavy losses to ponderosa pine in areas of Mendocino and Sierra National Forests, California. PINE SAWFLIES damaging pines in Florida. (p. 29).

CORRECTIONS

See page 32.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 31). Populations continue to decrease. Total of 53 cases reported during period December 30, 1962, to January 5, 1963.

Status of the European Corn Borer in 1962. (pp. 33-40). The average number of borers per 100 plants was 80 compared with 51 in 1961 in the North Central States, and 55 compared with 183 in 1961 in the Eastern States of Delaware, Maryland and Pennsylvania.

Reports in this issue are for week ending January 11, unless otherwise indicated.

WEATHER OF THE WEEK ENDING JANUARY 14

The second severe cold wave of the 1962-63 winter overspread the Nation during January 9 to 13. It followed several days of mild temperatures west of the Appalachians. Cold weather prevailed in the Atlantic Coastal States at the beginning of the period, however, with scattered frost in colder locations of Florida's Everglades and southeast coastal farming areas, but gradually rising temperatures thereafter reached well above normal levels before turning colder on Sunday. The cold wave reduced temperatures to subzero levels east of the Cascade-Sierra Nevada Mountains to the Great Lakes and Ohio Valley, and to freezing levels or below at all southern stations from Mobile, Alabama, to the Pacific coast. This was the tenth freeze at San Diego, California, since 1871. West Yellowstone, Montana, reported -56° and Eagle, Colorado, -51° on the 12th. The lowest temperature ever recorded in Arizona, -37° , was reported at Maverick on the 13th. Lows of -30° or lower were reported in Idaho, Utah, New Mexico, Wyoming and Minnesota.

In Texas, the severe cold wave on the 11th to 14th reduced temperatures to -18° at Dalhart in the Panhandle on the 13th and to 25° in the lower Rio Grande Valley on the 13th and 14th. A few stations in the Panhandle reported their lowest temperatures on record. This freeze was not as severe as that of January 1961 in the southern part of the State. Nevertheless, crops were extremely susceptible to freezing temperatures that were continuous for 24 to 30 hours in the Winter Garden and San Antonio areas, as the freeze was preceded by near-record high temperatures for the season, ranging in the 80's and 90's. It is too early to determine the damage. Freezing throughout southern Arizona, including the Yuma area, was continuous for as much as 15 hours in the Salt River Valley, where a cooperative station reported a low of 12° . Temperatures for the week averaged above normal in the Great Lakes region by as much as 3° and east of a curved line through Charleston, South Carolina, Cairo, Illinois, and Sandusky, Ohio, by as much as 6° in North Carolina and Virginia and 12° in northern Maine. Elsewhere, weekly averages were below normal (except slightly above along the extreme southern California coast) by as much as 21° in the central Rocky Mountain region.

Precipitation was very light in nearly all of the West and the mountain snowpack remains below normal. Water hauling was reported in Utah and Nevada. Snow accompanied the severe cold wave but furnished significant moisture only locally in the Rocky Mountains and Great Plains. Blizzard conditions occurred in the west-central Great Plains on Thursday and Friday. Several inches of snow fell in the upper Mississippi Valley and Great Lakes region on Friday and Saturday and generally was drifted by high winds. Weekend snows generally were light in the Northeast, except heavy near the Great Lakes and parts of northern New England. Glaze caused slippery roads from Illinois to New England. Total moisture ranged from 0.50 to 1.00 inch or more in Alabama, Georgia, southern Louisiana, the southern half of Mississippi, the upper Ohio Valley and the Appalachian region. This moisture was very beneficial in the Southeast. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Generally noneconomic in all areas checked in north central, northwest, west central, southwest and south central parts of State. Occasional light counts up to 40 per linear foot found in sandy fields in Garfield and Dewey Counties, northwest. Some colonization noted in areas with higher counts, but only scattered individuals found in other areas. (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Only light counts of fewer than 10 per linear foot observed in north central, northwest and southwest areas. Higher counts of 60 per linear foot noted in Johnston County, south central. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light counts found in barley in Garfield, Blaine, Woods, Woodward and Dewey Counties. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Counts of fewer than 10 per linear foot found in most fields checked throughout north central and northwest counties. Similar counts noted in southwest and south central areas. (Okla. Coop. Sur.).

FALL ARMYWORM (Laphygma frugiperda) - FLORIDA - Generally infesting sweet corn at Lake Harbor, Palm Beach County, January 3. (Fla. Coop. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Generally light (0-3 per linear foot) in fields of small grain throughout north central and northwest areas, with counts as high as 16 per linear foot (averaged 10 per linear foot) noted in field in Woods County. These populations warrant constant surveillance and could cause considerable damage with onset of warm weather. (Okla. Coop. Sur.).

SUGARCANE BORER (Diatraea saccharalis) - FLORIDA - Infested one percent of sugarcane plants inspected at Canal Point, Palm Beach County, January 2. (Fla. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - CALIFORNIA - Larvae medium in lawns in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

SAGEBRUSH DEFOLIATOR (Aroga websteri) - CALIFORNIA - Defoliating bitterbrush in Ditch Camp and East Fork Juniper Creek in Modoc National Forest. (H. R. McLean, USFS).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Heavy counts noted on overwintering alfalfa; ranged 25-50 per square foot of crown area in Kay County and up to 500 per square foot in Woodward County. Existing vegetation on alfalfa incapable of supporting populations of this size, and serious damage could result with return of warm weather. Lighter counts of 5-12 per square foot noted in Choctaw County (south central) and 2 per square foot in Jackson County (southwest). (Okla. Coop. Sur.). NEW MEXICO - Generally light in alfalfa in Chaves and Eddy Counties, with an occasional moderate to heavy population noted. Controls applied to one field of alfalfa in Artesia area, Eddy County. (N. M. Coop. Rpt.).

PEA APHID (Macrosiphum pisi) - OKLAHOMA - Light on alfalfa in north central, northwest, southwest and southeast areas. Also light on winter peas in Garfield County. (Okla. Coop. Sur.). NEW MEXICO - Light in most alfalfa fields checked in Eddy and Chaves Counties, with an occasional moderately heavy, spotted infestation. Unusually light in Dona Ana County alfalfa. (N. M. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - UTAH - Adults numerous in juniper and spruce duff in areas about Logan and Hyde Park, Cache County. Winter dry and generally moderate to January 8. (Knowlton).

SEED-CORN MAGGOT (*Hylemya cilicrura*) - TEXAS - Probably this species, infesting several flax farms in local areas of Bexar County involving considerable acreage. Larvae reducing stands by cutting off plants below ground. (Singleton).

FRUIT INSECTS

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - FLORIDA - Single adult trapped in Lauderdale-by-the-Sea, Broward County, January 11; larvae found in fruit January 12, four-tenths of mile from adult catch; additional larvae found on adjacent property January 13. This area approximately 2.5 miles southeast of November 2, 1962, find. New spray area will consist of 2,900 acres; first application scheduled for January 16. Additional traps placed in service in this area, and additional personnel making fruit inspections. (PPC).

Citrus Insect Situation and Outlook in Florida - End of December 1962

Special Comment - Except for Indian River district, severe cold of December 12, 13 and 14 caused majority of trees in survey groves to drop all or nearly all leaves during last few days of December. Much of the fruit began to drop, or was picked early to salvage it. As result of this mechanical removal, populations of all pests except a SNOW SCALE (*Unaspis citri*) had declined to lower level by December 31. The unusual and widespread change in tree condition has so disrupted sampling, that other methods will have to be used temporarily. Data for next few months may not be compared to prior 12-year continuous record of populations. However, pest conditions will continue to be given by narrative report.

Outlook - In groves with little cold damage, CITRUS RED MITE (*Panonychus citri*), TEXAS CITRUS MITE (*Eutetranychus banksi*) and CITRUS RUST MITE (*Phyllocoptruta oleivora*) will decline only slightly from pre-freeze levels. A few groves expected to show increases. SIX-SPOTTED MITE (*Eotetranychus sexmaculatus*) will gradually increase from current low level in those groves with past history of infestation. Scale populations not expected to change notably in next 2 months. Major insect parasites of scales appear to have survived cold. In completely defoliated groves, loss of leaves greatly reduced but did not eliminate populations of most pest species. Where mites were present on leaves before freeze, few mites and eggs can be found on terminal twigs. Some mites have been noted on new flush. RUST MITES, SCALES and MEALYBUGS also present on twigs and fruit. SCALE PARASITES and predatory YELLOW MITES also noted.

Defoliated groves began to show new pinpoint growth last few days of December; fate of this new flush uncertain. Some is coming from damaged wood and will soon wither; it is also highly susceptible to injury from frosts, dry winds and brief periods of subfreezing weather that are almost certain to occur during next 2 months. An off-season flush of this type is likely to be weak and have abnormal appearance simulating various nutritional deficiency patterns. Where this flush develops to point that leaves reach one-half inch in width, it should be protected from melanose and mites and aphids later in season. A healthy flush will retard further twig dieback and help prevent sunscald of larger wood. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CALIFORNIA RED SCALE (*Aonidiella aurantii*) - CALIFORNIA - Progress in eradication districts has been very favorable in San Joaquin Valley. There are 5 eradication districts in Kern, Tulare and Fresno Counties, encompassing approximately 80,000 acres and including all citrus acreage in these counties. During 3 years districts have been in operation, eradication treatment has been applied to approximately 2,850 acres of citrus. It is estimated that a low incidence of this pest will occur during 1963. Control program now in inspection and preventive stages, but constant inspection and rapid action on new infestations will be necessary, as infestations exist in dooryard plants in the general areas. (R. E. Butcher, Central Calif. Citrus Pest Control Agency).

BROWN SOFT SCALE (Coccus hesperidum) - CALIFORNIA - Heavy on local citrus trees in Newcastle, Placer County. (Cal. Coop. Rpt.).

A WHITEFLY (Aleyrodes spiraeoides) - CALIFORNIA - Light to medium populations developed on leaves and fruit of citrus in Redlands, San Bernardino County. (Cal. Coop. Rpt.).

OBSCURE SCALE (Chrysomphalus obscurus) - ARKANSAS - Has caused some concern on pecans in eastern area. Several samples have been submitted for determination. (Ark. Ins. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Causing heavy loss of ponderosa pine on 250 to 500-acre stand in Youngs Corral in Stonyford District of Mendocino National Forest. (M. L. Lieurance, USFS). Infestations occurring since September in 3 areas in Sierra National Forest continue to take heavy toll of ponderosa pines; 19,000 acres involved in Stevenson Creek, Jose Basin and Big Creek areas. (J. Mount, USFS). Beetles heavy in limited acreage in Texas Creek area of El Dorado National Forest; group killing of 15 or more sugar pines involved. (L. P. Kroner, USFS). Single trees and groups up to 24 ponderosa pines killed in 500-acre stand in Iron Creek area of Sierra National Forest. (M. B. Meadows, USFS).

A PINE REPRODUCTION WEEVIL (Cylindrocopturus eatoni) - CALIFORNIA - Results of earlier infestation in Jeffrey pine now causing trees planted during 1952 to die in Porkypine Burn area in Modoc National Forest. (K. Smith, USFS). Scattered broods found in ponderosa pines in Kassabaum Plantation (approximately 300 acres) in Stanislaus National Forest. (R. A. Giley, USFS). Over 100 ponderosa pines killed in 15-acre stand in Basin Creek Plantation in Stanislaus National Forest in Tuolumne County. (B. Sweatt, USFS).

CEDAR BARK BEETLES (Phloeosinus spp.) - CALIFORNIA - Incense-cedar trees in 3,000-acre stand in Blue Ridge area, Sequoia National Forest, show about 80-90 percent dead or half-dead. Drought had been severe in area and probably contributed to weakening of trees originally. (D. E. Hosler, USFS).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - NORTH CAROLINA - Larvae and several pupae, probably this species, taken from injured apical tips and buds of 4-8 year old pine trees at Delco, Columbus County, December 26; infesting approximately 60 percent of trees in 2-acre planting. (H. G. Johnson).

CONIFER SAWFLIES (Neodiprion spp.) - FLORIDA - N. lecontei reported on loblolly pine (Pinus taeda) near Silver Springs, Marion County (Jan. 3). Few scattered groups of fourth and fifth instar N. lecontei also present in woodland heavily infested by N. excitans. Few, scattered infestations of N. compar reported on loblolly pine near Silver Springs, in association with extensive infestation of N. excitans. What is probably N. lecontei severe on longleaf pine (Pinus palustris) on south side of U. S. Highway 90 in Santa Rosa County, 8 miles east of Milton. General defoliation of longleaf pine by repeated generations killed some saplings. Eggs and newly hatched larvae present. Neodiprion sp. caused defoliation in top portion of crowns of slash pine (Pinus elliottii) at Gainesville, Alachua County (Dec. 23). (Hetrick).

CARPENTERWORM (Prionoxystus robiniae) - CALIFORNIA - Larvae infesting coast live oak in San Jose, Santa Clara County. Several instances have been currently reported; apparently conditions have been favorable during past year for increase in this species. Fruit and ornamental trees have been attacked. (Cal. Coop. Rpt.).

APHIDS - CALIFORNIA - Rhopalosiphum rufiabdominalis medium on Strelitzia sp. in Carlsbad, San Diego County. Adults of Lachnus salignus heavy on twigs and bark of dormant trees (probably willow) in Riverside, Riverside County. (Cal. Coop. Rpt.). OKLAHOMA - Light populations of Cinara tujafilina active in Ardmore area, Carter County. (Okla. Coop. Sur.). FLORIDA - Aphis gossypii light on hibiscus at Plymouth, Orange County (Nov. 28) and at De Bary, Volusia County (Dec. 11); ranged moderate to severe on Tabebuia sp. at Windermere, Orange County (Nov. 30). Cerataphis variabilis severely infested Thrinax microcarpa at Miami, Dade County (Nov. 28), and Cinara tujafilina was severe on Thuja orientalis at Homestead in same county (Dec. 17). Hysteroneura setariae ranged moderate to severe on apricot at Groveland, Lake County (Dec. 1). (Fla. Coop. Sur.).

A MINING SCALE (Pseudaonidia clavigera) - FLORIDA - Second check of insecticide investigation plots in St. Petersburg made during December, 4 weeks after second spraying. Count made one week after freeze of December 12-13 indicated no live adults; however, live nymphs were present. Few eggs observed in dead females, but did not appear normal when examined. Samples of infested Viburnum suspensum collected on December 19 were re-examined 21 days later on January 9; live nymphs found, but no eggs. Fumigation of infested plant material with methyl bromide in infested nurseries now underway; results will be reported at later date. (Dekle, Miller; Fla. Coop. Sur.).

COCCIDS - FLORIDA - Phenacaspis cockerelli moderate on Strelitzia reginae at Bradenton, Manatee County (Dec. 21). (Fla. Coop. Sur.). OKLAHOMA - Unaspis euonymi populations range light to heavy throughout Ardmore, Carter County. (Okla. Coop. Sur.). CALIFORNIA - Pseudococcus obscurus medium in crowns and on trunks of gardenia plants in Sacramento, Sacramento County. Trionymus diminitus medium to heavy on Phormium sp. nursery stock in Fremont, Alameda County. (Cal. Coop. Rpt.).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Adults heavy on acacia trees in Oceanside, San Diego County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Low populations evident on winter vegetation in San Joaquin Valley; cooler weather has inhibited growth of winter annuals. Females checked at this time in northern area of State contained no eggs. In Imperial Valley, Imperial County, check of native annuals showed species present; checks of female leafhoppers showed 3-6 eggs present. (Cal. Coop. Rpt.).

THRIPS - NEW MEXICO - Populations in Dona Ana County onion fields remain light. (N. M. Coop. Rpt.).

TURNIP APHID (Rhopalosiphum pseudobrassicae) - FLORIDA - Moderate on mustard greens at Homestead, Dade County, December 11, 1962. (Fla. Coop. Sur.).

BEAN APHID (Aphis fabae) - CALIFORNIA - Nymphs and adults medium on rhubarb plantings in Pico-Rivera area, Los Angeles County. (Cal. Coop. Rpt.).

SPIDER MITES (Tetranychus spp.) - MARYLAND - Dormant mites and eggs heavy on strawberry planting at Fairland, Montgomery County; up to 25 per leaf. (U. Md., Ent. Dept.).

CATTLE LICE - OKLAHOMA - Linognathus vituli averaged 0.5 per head on cattle in Stillwater area, Payne County. Activity of other species reported from Cotton, Stephens, Ottawa, Mayes, Osage and Tulsa Counties. (Okla. Coop. Sur.). UTAH - Unspecified species causing cattle to rub in Mendon-Petersboro area, Cache County. Unspecified species also appearing in numbers on calves in some herds in Logan-North Logan area of Cache County, and in western Box Elder County. (Knowlton).

BROWN DOG TICK (Rhipicephalus sanguineus) - MARYLAND - A nuisance problem in basement of home in Adelphi, Prince Georges County. (U. Md., Ent. Dept.).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Heavy populations observed in basements of several major buildings in Stillwater area, Payne County. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

A WEEVIL (Hypera brunneipennis) - CALIFORNIA - Medium numbers invading residence in Ventura, Ventura County. Adults have become a nuisance in this respect since species has extended range from desert into coastal areas. (Cal. Coop. Rpt.).

AN ASSASSIN BUG (Zelus renardi) - CALIFORNIA - Medium population invading residence in Talmadge, Mendocino County. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

A PSYCHID MOTH (Apterona crenulella) - UTAH - Cases extremely numerous on fruit and shade trees and shrubs in area southeast of Salt Lake City, Salt Lake County. (Knowlton).

A SCARAB (Cotinis texana) - CALIFORNIA - Larvae heavy in soil locally in Riverside, Riverside County. (Cal. Coop. Rpt.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Survey continues, with decrease in number of infested blocks becoming evident. Over 200 city blocks infested in area approximately 4 by 8 miles in scope. Due to irregular limits of infestation, some 400 blocks will require treatment. In addition to normally encountered citrus, gardenia, Choisya sp. and privet hosts, nymphs have been found on Camellia spp., Myrtus spp., Viburnum spp., Ilex spp. and Hedera spp. Spray treatment will begin January 10, weather permitting. Infestations have occurred on various locations over State since early 1900's, with approximately 30 such infestations successfully eradicated over the years. (Cal. Coop. Rpt.).

A SUBTERRANEAN TERMITE (Reticulitermes virginicus) - FLORIDA - Winged reproductive forms reported in flight during mid-day on December 23. (Hetrick).

AN EARTHWORM MITE (Fuscuropoda agitans) - FLORIDA - Infested earthworm bed at Lady Lake, Lake County (Dec. 31). (Sobers; Fla. Coop. Sur.).

A PHYTOSEIID MITE (Typhlodromus jackmicklei) - FLORIDA - Preying on eggs of Gnорmoschema operculella at Gainesville, Alachua County (Nov. 12). (Fla. Coop. Sur.).

CORRECTIONS

CEIR 13(2):21 - Norma dietsiana (a leaf tier) should read Norma dietziana.

STATUS OF THE EUROPEAN CORN BORER IN 1962

Survey Data Provided by State Agricultural Agencies,
Compiled and Summarized by Survey and Detection Operations,
Plant Pest Control Division, Agricultural Research Service,
United States Department of Agriculture

Cooperating agricultural agencies in 16 states reported on surveys conducted in their states to determine the abundance and distribution of European corn borer (*Ostrinia nubilalis* (Hubner)) in 1962. All survey data, summaries or records of field observations were submitted to Survey and Detection Operations, Plant Pest Control Division office in Washington, D. C., for final processing. After processing, the material was reviewed by personnel of the Entomology Research Division, ARS. This is a compilation of the information submitted by the State agencies.

Distribution

Further spread of the European corn borer in 1962 appeared to be very limited. Only 4 new counties were reported from the States of North Carolina and Georgia in 1962 compared with 15 new counties in 1961, 6 in 1960 and 13 in 1959. Special surveys were conducted during the fall in New Mexico and in northeast Texas, with negative results. In addition, Plant Pest Control inspectors in the Southern Plant Pest Control Region made spot checks for this borer in counties not known to be infested during the fall.

The new counties found infested in 1962 were Davie, Rowan and Stanly in North Carolina, and Bibb in Georgia.

Abundance

The 1962 European corn borer survey was conducted during the late summer and fall of the year. The survey is designed to measure the fall population of European corn borer larvae. The participating states were encouraged to time the surveys to include a high percentage of mature larvae whenever possible. In all cases, except for some minor differences in compiling data, the accepted survey methods were used. The survey was continued on a district basis whenever possible in 1962. A district is usually a group of counties within a state, in most cases being based on Crop Reporting Districts.

Population levels of the European corn borer were generally a little higher in 1962 than in 1961 in the North Central States. Substantial increases in population were noted in Nebraska, and to a lesser extent in parts of Illinois and South Dakota. Generally, decreased populations were reported in Wisconsin and Minnesota, although some increase was noted in the northwest and west central districts of Minnesota. Populations remained generally low in Ohio, Indiana, Kansas and Missouri, but District IX of Missouri had a sharp increase in numbers which increased the overall average in that State. The highest counts in Iowa were in Districts I, II, IV, V, XI and XII, but none exceeded 141 borers per 100 plants and the overall average was lower than in 1961. The highest counts (borers per 100 plants) reported this year in the North Central States were in the northeast, central, eastern and southern districts of Nebraska (294, 284, 280 and 248); southeast and east central districts of South Dakota (294 and 207); North Dakota (285); and District IX of Missouri (263).

In the Eastern States, populations were considerably reduced in Delaware and on the Eastern Shore of Maryland, and generally lower in the remainder of Maryland and Pennsylvania. The prolonged drought which occurred this past year in the Northeast was believed to be responsible for these reduced populations. The survey in Arkansas indicated that populations were about the same as in 1961.

For all states reporting, based on comparable districts or counties surveyed, the average number of borers per 100 plants decreased from 78 to 71 in 1962. The average for the North Central States was 80 in 1962 compared with 51 in 1961, and the average for the Eastern States of Delaware, Maryland and Pennsylvania was 55 compared with 183 in 1961. The population counts for Michigan and North Dakota were not included in the United States average since they were not comparable with the 1961 survey.

A summary of the 1961 and 1962 surveys is shown on Table 1 by states. State summaries are shown on Table 2. Accompanying maps show districts surveyed, approximate population levels and counties where the borer has been recorded.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1962, Compared with Data for 1961

State	1961		1962		:Average No. of Borer :of Borer		:No. of :Districts		:No. of :Counties		:No. of :Counties		:Borer Per 100 Plants	
	: Surve :yed	: 100 Plan :ts	: Surve :yed	: 100 Plan :ts	: Per	: 100 Plan :ts	: Per	: 100 Plan :ts	: Surve :yed	: 100 Plan :ts	: Surve :yed	: 100 Plan :ts	: Number	: 1961 : 1962
<u>Eastern</u>														
Delaware	1	376	3	1	68	3	1	376	68	1	376	68	1	376
Maryland	3	115	21	3	59	21	3	115	59	3	115	59	3	115
Pennsylvania	8	57	42	9	35	49	8	57	35	8	57	38	8	57
Total	12	66	66	13	73	73								
Average \bar{x}														
<u>North Central</u>														
Illinois	7	57	37	7	102	39	7	57	102	7	57	102	7	57
Indiana	12	27	92	12	29	92	12	27	29	12	27	29	12	27
Iowa	12	100	99	12	88	99	12	100	88	12	100	88	12	100
Kansas	3	25	24	3	43	25	3	25	43	3	25	43	3	25
Minnesota	7	70	69	7	67	69	7	70	67	7	70	67	7	70
Missouri	8	38	41	8	72	37	8	38	72	8	38	72	8	38
Nebraska	7	56	72	7	201	72	7	56	201	7	56	201	7	56
Ohio	5	13	33	5	23	33	5	13	23	5	13	23	5	13
South Dakota	6	103	42	6	160	44	6	103	160	6	103	160	6	103
Wisconsin	9	22	58	9	17	58	9	22	17	9	22	17	9	22
Total	78	567	567	76	568	568								
Average \bar{x}														
<u>Southern</u>														
Arkansas	4	27	19	4	24	19	4	27	24	4	27	24	4	27
<u>United States</u>														
Total	92	652	652	93	660	660								
Average \bar{x}														
States Surveyed But Not Included in U. S. Average														
Michigan	1	7	19	1	49	9	1	7	49	1	7	49	1	7
North Dakota	1	262	2	1	285	5	1	262	285	1	262	285	1	262
<u>Weighted averages based on districts surveyed.</u>														

Table 2 - European Corn Borer Abundance in Corn,
Fall of 1962, Compared with Data for 1961

		: Average Number :		: Average Number	
		: of Borers Per :		: of Borers Per	
		: 100 Plants :		: 100 Plants	
State	: 1961	1962:	State	: 1961	1962
<u>Arkansas</u> (Ark. Ins. Sur.)			<u>Iowa</u> (State Dept. of Agr.; Ext. Ser.; Ent. Dept., Iowa State Univ.; ENT, ARS, USDA)		
Northwest	12	20	District I	66	100
North Central	20	11	District II	68	104
Northeast	44	44	District III	78	25
East Central	32	21	District IV	144	141
Average	27	24	District V	143	112
	(23) <u>1/</u>	(25) <u>1/</u>	District VI	82	41
			District VII	199	91
			District VIII	188	86
			District IX	62	76
			District X	79	25
			District XI	47	127
			District XII	42	126
			Average	100	88
					(89) <u>1/</u>
<u>Delaware</u> (Agr. Expt. Sta.)			<u>Kansas</u> (Ins. Sur.)		
Kent	523	77	Northeast	27	45
New Castle	205	51	North Central	5	9
Sussex	399	76	East Central	43	74
Average	376	68	Average	25	43
<u>Illinois</u> (Natural History Survey, Ext. Ser.)			<u>Maryland</u> (Agr. Ext. Ser., Ins. Sur.)		
Northwest	81	150	Eastern Shore	186	64
Northeast	70	66	Southern area	83	58
West	59	165	Western and Central areas	75	54
Central	64	106	Average	115	59
East	64	96			
West-southwest	43	82			
East-southeast	20	25			
Average	57	102			
<u>Indiana</u> (Ext. Ser., Expt. Sta.)			<u>Michigan</u> (Ext. Ser.)		
North-northwest	60	89	Surveyed Counties	7	49
North-northcentral	29	28	(Survey in 1961 conducted in 19 counties; survey in 1962 conducted in 9 counties)		
North-northeast	5	14			
Northwest	11	32			
North Central	10	16			
Northeast	10	21			
Southwest	6	32			
South Central	20	24			
Southeast	8	27			
South-southwest	52	30			
South-southcentral	41	30			
South-southeast	72	7			
Average	27	29			

1/ Average based on all samples rather than district average.

Table 2 - (Cont'd)

	: Average Number :			: Average Number :	
	: of Borers Per :			: of Borers Per :	
	: 100 Plants :			: 100 Plants :	
State	1961	1962	State	1961	1962
<u>Minnesota</u> (State Dept. of Agr.)			<u>North Dakota</u> (State Dept. of Agr.)		
Northwest	86	90	Average <u>1/</u>	262	285
West Central	112	184			
Central	52	30			
East Central	17	17			
Southwest	115	92	<u>Ohio</u>		
South Central	66	34	(Expt. Sta.; Ext. Ser.;		
Southeast	<u>43</u>	<u>20</u>	ARS, USDA)		
Average	70	67	Northwest	28	43
			West Central	9	16
			Central	4	2
			Southwest	7	28
			Northeast	<u>17</u>	<u>25</u>
			Average	13	23
<u>Missouri</u>				(15) <u>1/</u>	(26) <u>1/</u>
(Ext. Ser., Ins. Sur.)					
District I	59	59			
District II	37	47			
District III	23	32			
District IV	28	30			
District V	45	43			
District VI	32	65			
District VII	18	35			
District IX	<u>69</u>	<u>263</u>	<u>Pennsylvania</u>		
Average	38	72	(State Dept. of Agr.)		
			Northwest	27	42
			West Central	38	23
			Southwest	41	30
<u>Nebraska</u>			North Central	-	7
(Agr. Expt. Sta., Ext. Ser., Ins. Sur.)			(4 counties)		
North	47	182	Central	77	41
Northeast	87	294	South Central	40	22
Central	51	284	Northeast	19	5
East	137	280	East Central	51	30
South	42	248	Southeast	<u>161</u>	<u>111</u>
Southeast	25	105	Average	57	35
Southwest	<u>0</u>	<u>16</u>			
Average	56	201	Average comparable districts (8)	57	38

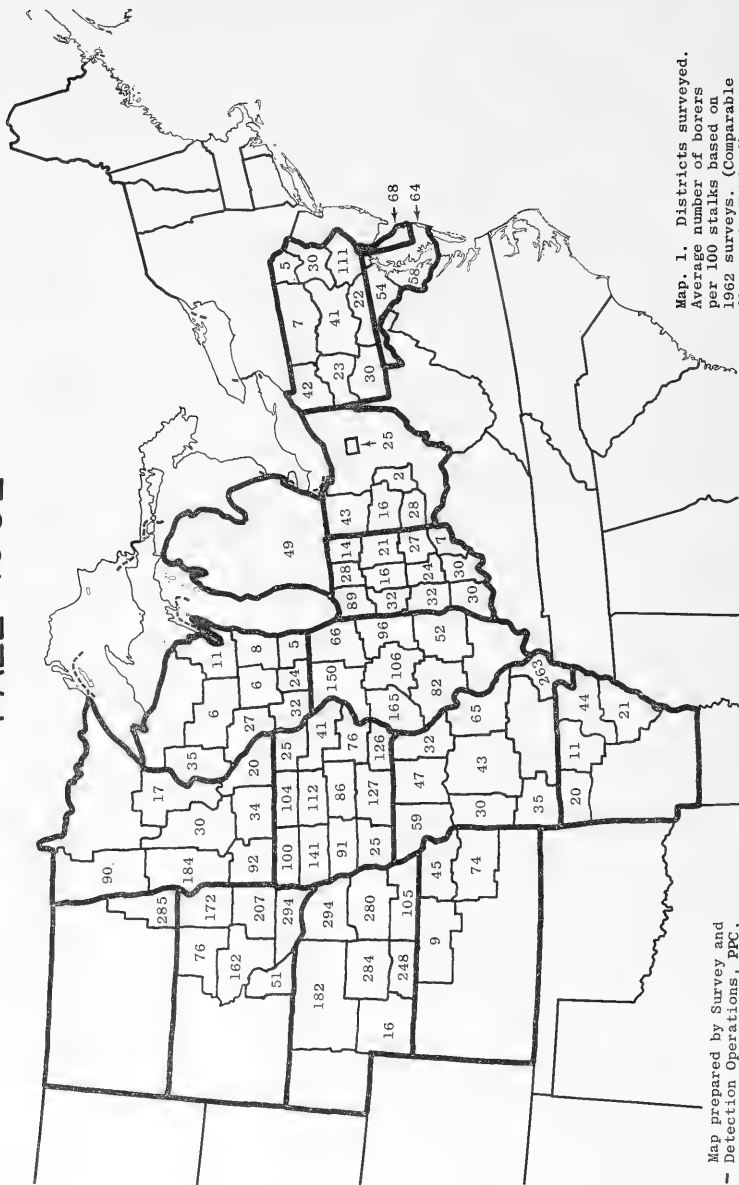
1/ 2 counties surveyed in 1961; 5 in 1962.

2/ Average based on all samples rather than district average.

Table 2 - (Cont'd)

State	: Average Number :		State	: Average Number	
	: of Borers Per :			: of Borers Per	
	: 100 Plants :			: 100 Plants	
	1961	1962		1961	1962
<u>South Dakota</u> (Agr. Expt. Sta., Ext. Ser.)			<u>Wisconsin</u> (State Dept. of Agr.)		
North Central	24	76	Northwest	21	35
Northeast	66	172	North Central	8	6
Central	88	162	West Central	44	27
East Central	150	207	Central	9	6
Southeast	230	294	Southwest	25	32
South Central	<u>59</u>	<u>51</u>	South Central	39	24
			Southeast	24	5
Average	103	160	East Central	18	8
			Northeast	<u>22</u>	<u>11</u>
			Average	22	17

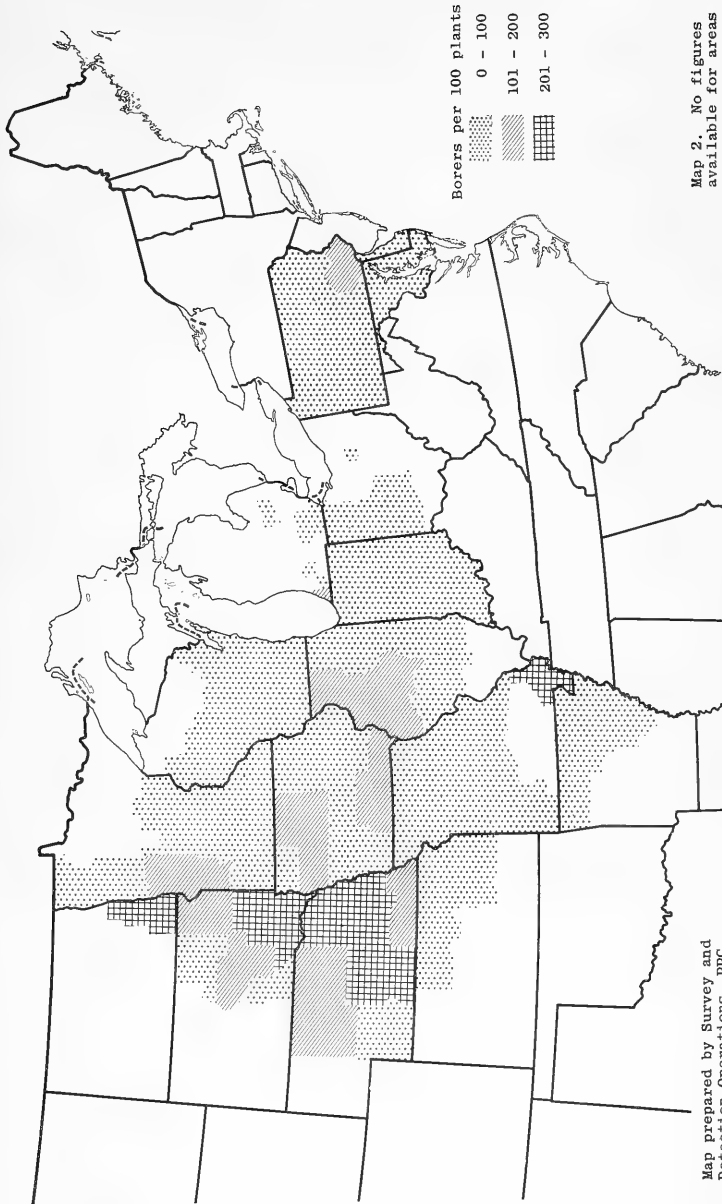
EUROPEAN CORN BORER ABUNDANCE FALL 1962



Map. 1. Districts surveyed.
Average number of borers
per 100 stalks based on
1962 surveys. (Comparable
figures in Table 2).

Map prepared by Survey and
Detection Operations, PPC,
ARS, USDA, January 1963

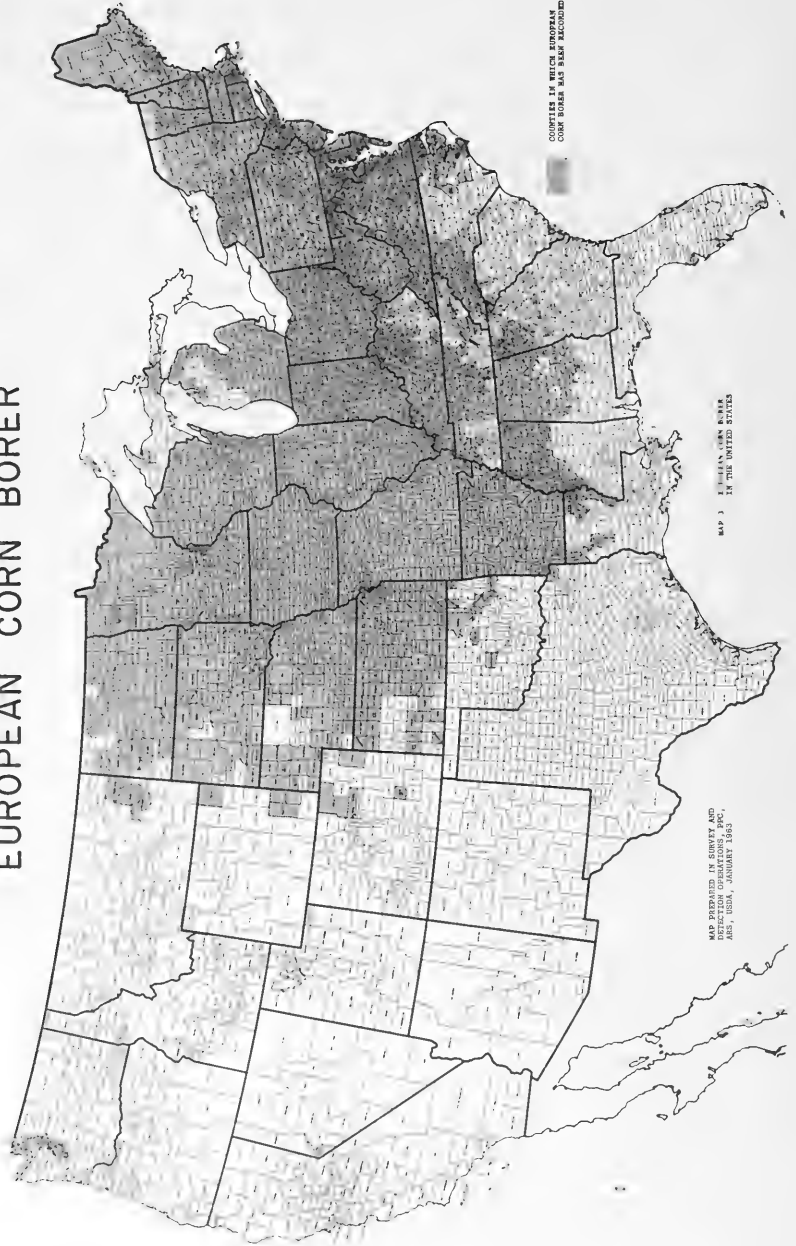
EUROPEAN CORN BORER ABUNDANCE FALL 1962



Map 2. No figures available for areas not shaded.

Map prepared by Survey and Detection Operations, RPC, ARS, USDA, January 1963.

EUROPEAN CORN BORER



COUNTIES IN WHICH EUROPEAN
CORN BORER HAS BEEN RECORDED

MAP 3
EUROPEAN CORN BORER
IN THE UNITED STATES

MAP PREPARED BY GUNTER AND
DETENTION OPERATIONS, INC.,
AEB, USDA, JANUARY 1963

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REPORT

ENTOMOLOGICAL

REPORT

Prepared by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued yearly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal and Industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington, 25, D.C.

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Cold weather reducing insect activity rather generally.

BARK BEETLES continue damaging to pines in areas of California. (p. 44).

DETECTION

New county records reported were NORTHERN FOWL MITE (Ornithonyssus sylviarum) in Columbia County, Arkansas (p. 46), and a GREEN LACEWING (Abachrysa eureka) in Pinellas County, Florida (p. 47).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 45). Infestations in lower Rio Grande Valley of Texas reduced considerably by recent cold weather.

Corn Insect Infestations and Losses in Indiana in 1962. (p. 48).

Interceptions of Special Interest at U. S. Ports of Entry. (p. 55).

List of State Survey Coordinators. (p. 56).

Insects Not Known to Occur in the United States (small spruce sawfly, Pristiphora abietina (Christ)). (p. 59).

Reports in this issue are for week ending January 18, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-JANUARY TO MID-FEBRUARY 1963

The Weather Bureau's 30-day outlook for mid-January to mid-February calls for temperatures to average below seasonal normals over the northern half of the Nation. In the remainder of the country, near normal temperatures with large fluctuations are anticipated, except for above normal in the Far Southwest. Precipitation is expected to exceed normal over the western third of the Nation, thereby providing moisture for many areas which have been unusually dry. Above-normal precipitation is also anticipated east of the Appalachians, while subnormal amounts are indicated for the Great Lakes region and Texas. In unspecified areas, near normal amounts are in prospect. Owing to the anticipated cold weather and storm movements, most of the precipitation over the northern two-thirds of the country is expected to be in the form of snow rather than rain.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price \$4.80 a year, \$2.40 a half year.

(Weather continued on following page)

WEATHER OF THE WEEK ENDING JANUARY 21

Temperatures over 32° were a rarity on the opening 2 days of the week, but moderated until a fresh surge of arctic air pushed its way southward on the 18th and 19th. The severe cold snap of the previous period had overspread the continent by the 14th, reducing temperatures to freezing levels even in the normally warm Imperial Valley of California. The maximum for that day at International Falls, Minnesota, was a nippy -18°. On the 15th in Wisconsin, Hatfield Dam near Black River Falls cooled to -50° and Milwaukee had a -24° reading for their coldest reading in 12 years. Another polar outbreak reached into the North Central States on the 18th to reduce temperatures to unseasonably low levels. As this cold air spread laterally over the Nation, it also moved southward, taking the mercury down to -15° on the 19th at Salt Lake City, Utah, and to -13° at Dalhart, Texas. Weekly averages were, almost without exception, below normal. Only the interior Pacific Northwest, the Florida Peninsula, and the extreme coastal areas of the East had averages near or above normal. Madison, Wisconsin, had the largest reported deficiency with 25°. The recurring plunges of cold air have been responsible for freezing the Missouri River at several places in Missouri. Crop damage of a severe nature was reported from California, Arizona and Texas. The storm of the 18th-21st produced blizzard-like conditions, giving a more permanent snow cover to the Great Plains and Rocky Mountains. However, Nevada, California and much of Idaho have not received their share of precipitation and the water outlook for the crop season to come remains dangerously low.

Precipitation was generally light to moderate everywhere except in the Gulf and East Coast States where amounts ranged from mostly moderate in the Northeast to excessive from southeast Texas into central Georgia. High winds accompanied the snowfall which ranged to over 3 inches in most areas throughout the Great Plains, the upper Mississippi Valley, and the western Great Lakes. Snow fell almost daily in the northern Rockies. A system along the Gulf began spreading rainfall in heavy amounts northward on the 17th, and by the 19th had combined its effects with the frontal system surging southward to spread precipitation along the Rockies and eastward to the Atlantic. Thunderstorms were common in the central Gulf States and Georgia and several tornadoes caused injuries and property damage in the latter State. Port Arthur, Texas, reported the largest total, with 5.48 inches. Much of the East coast precipitation fell as rain, and very little snow was added to the existing cover except in the more northern and interior areas. Snow cover at the end of the period varied from 1 inch in central Oklahoma to 10 inches in southeast South Dakota. Heavy falls west of the Continental Divide in Montana, and moderate falls to the east increased this cover to a more substantial level. The snow depth in the Cascade Range and the Rockies south of Wyoming was increased some by a generally light to moderate fall. Depths range to 2 feet in northern and central Maine. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - NEW MEXICO - Ranged 10-16 per linear foot in fields of small grain near Artesia, Eddy County. (N. M. Coop. Rpt.). TEXAS - During period January 8-9, survey made in following panhandle counties: Randall, Potter, Deaf Smith, Castro, Parmer, Oldham, Hartley, Dallam, Sherman and Moore. Greenbug present in all counties. Populations generally ranged 0-20 per linear foot; however, in Deaf Smith, Castro and Parmer Counties, fields noted with populations up to 200 per linear foot. Effect of recent cold weather on these populations not known. Predators not found during survey. (Daniels). Damage to small grains in some northwest areas of State believed to be caused primarily by weather factors. (Texas Coop. Rpt.). OKLAHOMA - Apparently severe cold conditions considerably reduced populations present previous week; high counts of up to 40 per linear foot in sandy areas of Garfield County now virtually nonexistent. Counts ranged 0.5-2 per linear foot of row in Choctaw, Wagoner and Muskogee Counties. (Okla. Coop. Sur.). GEORGIA - Light on small grain in several northwest counties. (Johnson).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Ranged 20-30 per linear foot in fields of barley in northern Eddy County. (N. M. Coop. Rpt.). OKLAHOMA - Light populations observed in oats in Choctaw County, southeast. (Okla. Coop. Sur.). FLORIDA - Light on 40 acres of sweet corn at Lake Harbor, Palm Beach County (Jan. 3). (Fla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Light counts of 0-4 per linear foot of row noted in Caddo County, west central. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Only light counts of 2-9 per linear foot of row observed in Caddo County, west central. (Okla. Coop. Sur.).

FALL ARMYWORM (Laphygma frugiperda) - FLORIDA - Light on 40 acres of sweet corn at Belle Glade, Palm Beach County (Jan. 14). (Fla. Coop. Sur.).

A BILBUB (Sphenophorus sp.) - ARIZONA - Adults very active in some lawns in Phoenix area, Maricopa County. (Ariz. Coop. Sur.).

SNAILS - ARIZONA - Unspecified species damaging lawns in Phoenix and Mesa areas of Maricopa County. (Ariz. Coop. Sur.).

PEA APHID (Macrosiphum pisi) - OKLAHOMA - Light counts observed; 0-3 per square foot of crown area in Choctaw County, 3 per square foot in Muskogee County, and less than 1 per square foot in Wagoner County. Populations reduced by severe cold in Muskogee County. (Okla. Coop. Sur.). NEW MEXICO - Very light in Bernalillo County alfalfa fields; averaged 2-3 per 25 sweeps. Aphids very sluggish. (N. M. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Light populations, 0-2 per square foot of crown area, noted in Choctaw County, southeast. Severe cold of previous week reported to have killed some young stands of alfalfa. (Okla. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - GEORGIA - Survey in several counties revealed eggs in stems; however, no larvae or adults found. (Johnson).

FRUIT INSECTS

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Since collection of adult January 11 at Lauderdale-by-the-Sea, Broward County, 6 additional collections, consisting of larvae and adults, have been made in same area. (Fla. Coop. Sur.).

A LEAF ROLLER MOTH (Ptycholoma peritana) - CALIFORNIA - Heavy on lemon and lime fruit in San Anselmo, Marin County. (Cal. Coop. Rpt.).

AVOCADO WHITEFLY (Trialeurodes floridensis) - FLORIDA - Moderate on 500 avocado trees at Homestead, Dade County (Jan. 11). (Fla. Coop. Sur.).

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Light in pecan nuts in Bard, Imperial County. (Cal. Coop. Rpt.).

CODLING MOTH (Carpocapsa pomonella) - NEW MEXICO - Cocoons abundant under bark of apple trees in several Bernalillo County orchards checked; ranged 5-20 per tree. (N. M. Coop. Rpt.).

SHOT-HOLE BORER (Scolytus rugulosus) - UTAH - Infesting peach and apricot orchards near pulled-out orchard north of Willard, Box Elder County. (Knowlton).

PACIFIC FLATHEADED BORER (Chrysobothris mali) - CALIFORNIA - Larvae light in pear trees in Patterson, Stanislaus County. (Cal. Coop. Rpt.).

A SPIDER MITE (Tetranychus mcdanieli) - NEW MEXICO - Abundant under bark and on dried fruit in apple orchards where late fall infestations occurred in Bernalillo County. (N. M. Coop. Rpt.).

TRUCK CROP INSECTS

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Nymphs and adults medium on leaves of turnip crops in Thermal, Riverside County. (Cal. Coop. Rpt.).

A LEAF ROLLER MOTH (Ptycholoma peritana) - CALIFORNIA - Medium in strawberry crowns in Oxnard, Ventura County. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - CALIFORNIA - Dendroctonus brevicomis causing considerable fading of ponderosa pines in 2-acre area of high value recreational State Park stand; some 35 trees killed in Castle Crags area. (W. C. Kaiser, State Parks). D. brevicomis causing first loss of Coulter pines in several years in Corte Madera area, Cleveland National Forest; 600-acre stand of Coulter pines involved. (Pierce, Bryant, USFS). Damage by Ips sp. appearing in white fir over entire Johnsville area of Plumas-Eureka State Park; trees with very heavy cone crop showing signs of fading. (M. J. Mason, State Park). Dendroctonus valens and Ips sp. causing heavy killing of ponderosa pines; over 250 trees killed in 40-acre section of Tunnel Mills area, Tahoe National Park. Drought and thinning probably responsible for weakening of trees originally. (M. Williamson, USFS). TEXAS - Dendroctonus frontalis population in southeast part of State continued to decline during November and no activity was observed during December. Scattered, single trees infested by Ips spp. observed through November in same area. Control operations against Dendroctonus spp., principally D. terebrans, began during November in several southeastern counties on trees damaged by construction, logging and lightning. (Texas For. Pest Comm., Nov. and Dec. Rpts.).

SAN JOSE SCALE (Aspidiotus perniciosus) - ARIZONA - Found infesting several deciduous trees in Salt River Valley. (Ariz. Coop. Sur.).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - CALIFORNIA - Larvae medium in soil about nursery stock fuchsia plants in Colma, San Mateo County. (Cal. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Infesting snapdragons in greenhouse at Ardmore, Carter County, south central. (Okla. Coop. Sur.).

SPIREA APHID (Aphis spiraeicola) - CALIFORNIA - All stages heavy on Viburnum sp. in Stockton, San Joaquin County. (Cal. Coop. Rpt.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Counts of 7 per animal observed on 100 steers in Woodward County, and 15-20 per head reported from McCurtain County; activity continues across State. (Okla. Coop. Sur.). ARKANSAS - In Washington County (northwest), one grub taken from 135 treated cows and 71 taken from 9 untreated cows. (Ark. Ins. Sur.). GEORGIA - Total of 30 grubs taken from 8 infested animals of 68 beef animals examined in Putnam County. (Roberts).

BLACK BLOW FLY (Phormia regina) - NORTH CAROLINA - Larvae collected from vagina of sow. Det. by W. G. Bruce. (Mount).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Countywide infestations reported from Bryan County. (Okla. Coop. Sur.).

CATTLE LICE - OKLAHOMA - Linognathus vituli averaged 5 per hair part on 100 steers checked in Woodward County, with activity reported across State. (Okla. Coop. Sur.). UTAH - Unspecified species infesting several cattle herds in Uinta Basin in northeastern area of State. (Knowlton).

A SPRINGTAIL - NORTH CAROLINA - Undetermined species sufficiently numerous in poultry-watering troughs at Lenoir, Caldwell County, to be bothersome. (Jones).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Collected for the first time in Columbia County (northwest), for a new county record. (Ark. Ins. Sur.).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Continues active in basements of buildings in Stillwater area, Payne County. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - UTAH - Entering some homes in Holladay, Salt Lake County. (Knowlton). MARYLAND - Caused a nuisance in home in Kensington, Montgomery County. (U. Md., Ent. Dept.).

A GRASS BUG (Arhyssus scutatus) - CALIFORNIA - Heavy adult numbers invading house and attic in Santa Maria, Santa Barbara County. This species has remained active much longer than normal. (Cal. Coop. Rpt.).

EARWIGS - ARIZONA - Continued a nuisance in many Salt River Valley homes during first part of January. Running of irrigation water for cold protection evidently drove pest indoors. (Ariz. Coop. Sur.).

TERMITES - UTAH - Unspecified species seriously damaging dwelling at Spring City, Sanpete County; also infesting carton in school building at Providence, Cache County. (Knowlton, Hanson).

STORED-PRODUCT INSECTS

Stored-grain Pests in Alabama - FLOUR BEETLES (Tribolium confusum and T. castaneum) most common species observed during survey of Alabama State Docks at Mobile. Other pests observed included Sitophilus oryzae, S. granarius, Tenebroides mauritanicus, Oryzaephilus surinamensis, Lasioderma serricorne, Dermostes maculatus, Attagenus piceus, Plodia interpunctella, Lepisma saccharina and Tinea pellionella. (Seibels).

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Adults observed emerging in homes in Stillwater area, Payne County. (Okla. Coop. Sur.).

A PHYCITID MOTH (Ephestia sp.) - NORTH CAROLINA - Larvae serious in milo seed at Lumberton, Robeson County. Det. by D. A. Mount. (Johnson).

KHAPRA BEETLE (Trogoderma granarium) - OKLAHOMA - Inspections in Beaver and Ellis Counties negative. (Okla. Coop. Sur.).

LESSER MEALWORM (Alphitobius diaperinus) - NORTH CAROLINA - Adults collected from under burlap bags in corner of storage area where shelled corn had been stored. Det. by D. A. Mount. (Johnson).

MISCELLANEOUS INSECTS

A ROUNDHEADED WOOD BORER (Neobellamira delicata) - CALIFORNIA - Medium larval population occurring in dead walnut wood in La Grange, Stanislaus County. (Cal. Coop. Rpt.).

A FALSE POWDER-POST BEETLE (Polycaon stouti) - CALIFORNIA - Larvae, possibly this species, present in manzanita wood used in ornamental planter. Several instances of infestations in planters reported during past few months; cause considerable concern to housewives when adults emerge from old wood. (Cal. Coop. Rpt.).

A DRYWOOD TERMITE (Kalotermes approximatus) - FLORIDA - Extensive colony in heartwood of laurel oak (Quercus laurifolia) at Gainesville, Alachua County (Jan. 12). Access gained through dead branch stub. (Hetrick).

A DAMPWOOD TERMITE (Prorhinotermes simplex) - FLORIDA - Collected at 2 locations in Ft. Lauderdale, Broward County (Jan. 14), by F. P. Clements. (Hetrick).

A SUBTERRANEAN TERMITE (Reticulitermes hageni) - FLORIDA - Collected at Tampa, Hillsborough County (Jan. 4), by P. E. Buck. (Fla. Coop. Sur.).

A GREEN LACEWING (Abachrysa eureka) - FLORIDA - Collected at St. Petersburg, Pinellas County, by R. H. Forsyth (Aug. 16, 1962); this is first record for county or vicinity. Previously recorded from Highlands County and from north-western portion of State. Thought to be restricted to scrub oak areas. (Fla. Coop. Sur.).

A FLOWER FLY (Baccha notata) - FLORIDA - Collected at Punta Gorda, Charlotte County, by J. W. Shirah, Jr. (Dec. 14, 1962). This species has very rarely been collected north of the Florida Keys and southern portion of Dade County. (Fla. Coop. Sur.).

LIGHT TRAP COLLECTIONS

	<u>Pseudaletia unipuncta</u>	<u>Agrotis ipsilon</u>	<u>Prodenia ornithogalli</u>	<u>Feltia subterranea</u>
SOUTH CAROLINA				
Charleston 1/7-13	7	3		12
Charleston 1/14-21	11	9	5	7

Corn Insect Infestations and Losses in Indiana in 1962

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Corn-growing conditions were slightly better in Indiana in 1962 than in 1961, with the southern part of the State showing evidence of the best yields. At the time of the fall survey, corn was generally well-matured to dry. The entire southern fourth of the State had corn with dry leaves and succulent stalks, with the drier corn in the northern part of the State. Stalk rot infection was slightly greater in 1962. The greatest increase was in the northern half of the State where it ranged from scarce to moderate, while in the southern part the disease ranged from none to scarce. Bird damage averaged 0.47 percent, more than double that found in 1961. The greatest loss from this cause occurred in the extreme southern part of the State. Table 1 presents these data by areas.

European Corn Borer

The State average for infestation and percent loss by the European corn borer (*Ostrinia nubilalis*) was almost identical with that of 1961. However, there were some interesting localized shifts of populations of this insect within the State. The north-northwest region had the highest residual population and an average loss of 2.6 percent. The greatest reduction occurred in the south-southeast area, which had the highest infestation in 1961. The infestation in this area dropped from 36.4 percent in 1961 to 8.4 percent in 1962. The loss was reduced from 2.2 to 0.2 percent. In general, the western third of the State showed an increase in population, which resulted in the highest infestation and loss in 1962. The central and eastern thirds had lower populations, with the eastern part having the lowest. (Table 2). Although the average loss was the same as in 1961 (0.8 percent), the total bushel loss will probably be greater, since the density of borer populations shifted to areas of greater corn production.

The area of greatest concentration of European corn borer occurred in Jasper and Pulaski Counties. The field showing the highest percent infestation (88 percent) and the greatest borer population (350 per 100 stalks) was located in Jasper County. A light trap operated in this county recorded the highest capture of European corn borer moths in May and again in late August and early September. An investigation of the area by Dr. George E. Gould indicated that the field of potatoes in which the trap was located was 100 percent infested with European corn borer. This is the first record in Indiana of high infestations of European corn borer in a field crop other than corn, although peppers and gladiola have been occasionally heavily infested in local areas. Since the heaviest infestations in corn also occurred in this area, the relationship of these two crops to European corn borer abundance may be of importance.

Corn Earworm

Although corn earworm (*Heliothis zea*) has been found to overwinter in extreme southern Indiana occasionally, the bulk of the infestation in late summer originates from moths flying into the State from the south and southwest. A complicating factor in the fluctuating of populations is the amount of infestation of tomatoes by this insect, although the possibility of physiologic races of this

insect on these two crops may exist. Generally, the southern half of the State had the highest infestation and losses, although in 1962 there was an increase in infestation in the northern part of the State. Losses in yield in 1962 were 0.7 percent, or more than double that in 1961. Table 3 gives these data.

Corn Leaf Aphid

Corn leaf aphid (Rhopalosiphum maidis) is usually present every year in Indiana corn fields in the late summer although it is not known to overwinter here. The severe outbreak in 1959 pointed out the damage that this insect can cause, even in light infestations. It has been the most destructive corn insect in Indiana in recent years. When very abundant on a corn plant it may result in a completely barren plant or an ear with no grain. Moderate infestations can reduce ear weight as much as 10 percent. In most years, infestations severe enough to result in barren plants occur on only an occasional plant in infested fields.

The overall corn leaf aphid infestation in Indiana this year was slightly higher than in 1961. There was a decided increase in the northern half of the State, with decreases in the south-southcentral and south-southeast areas. The south-southwest area showed a marked increase in infestation, as did the south central. As in the case of the European corn borer, infestations were heaviest in the western third of the State, somewhat lower in the central third, with the lowest infestation in the eastern third. Yield losses may be considerably higher in 1962 due to increases of this insect in the areas of higher corn production. (Table 4).

Angoumois Grain Moth

This is the second year that field infestations by the Angoumois grain moth (Sitotroga cerealella) have been included in the corn insect survey. The infestation was double that of 1961, with field infestations occurring as far north as Blackford and Adams Counties in the northeast area. The greatest concentration of infestation was found in the south-southwest and south-southcentral areas. Infestations occurred in 22 percent of the counties in the State and in 16 percent of the fields surveyed, with 53 and 67 percent of the fields in the south-southwest and south-southcentral areas infested, respectively. Ear infestations averaged 32 and 33 percent in these areas. The total loss based on numbers of infested kernels was low, 0.09 percent for the State. However, this estimate is probably much lower than actually occurred since the sample of ears was collected in mid-September, three weeks or more before harvest. Infestation by this insect is given in table 5.

Summary of Losses

In general, the percent loss in corn yield in 1962 was 5.6 compared with 4.3 percent in 1961. Of this loss, the greatest portion was caused by infestations of the corn leaf aphid. All of the insects surveyed, with the exception of the European corn borer, showed increases in occurrence with resulting increase in loss. Bushel loss will be considerably greater in 1962 than in 1961, since all the insects covered by the survey showed increases in the areas of greatest corn production.

Table 1. Crop condition and bird damage. Fall corn insect survey, Indiana, 1962.

Area	County	Fields		Yield estimate	Maturity a/	Stalk rot	Bird damage	
		No.	No.				1961	1962
		<u>No.</u>	<u>No.</u>				<u>Pct.</u>	<u>Pct.</u>
NNW		7	16	Good	Dry	Moderate	.2	.02
NNC		5	11	Good	Dry	Scarce	.5	.04
NNE		6	10	Good	Dry	Scarce	.6	.60
NW		6	15	Good	Dry	Scarce	0.	.29
NC		8	15	Good	Green-dry	Scarce	0.	.01
NE		10	19	Good	Green-dry	Scarce	0.	0.
SW		8	13	Good	Dry	None	.5	0.
SC		7	11	Very good	Green-dry	None	.2	1.00
SE		9	16	Good	Dry	None	.4	.20
SSW		10	17	Very good	Green-dry	Scarce	.1	1.12
SSC		7	10	Good	Green-dry	Scarce	.1	.70
SSE		9	10	Very good	Green-dry	Scarce	0.	1.70
NN		18	37	Good	Dry	Scarce	.4	.22
N		24	49	Good	Dry	Scarce	0.	.10
S		24	40	Good	Dry	None	.4	.40
SS		26	37	Very good	Green-dry	Scarce	.1	1.17
West		31	61	Good	Dry	Scarce	.2	.36
Central		27	47	Good	Green-dry	Scarce	.2	.44
East		34	55	Good	Dry	Scarce	.2	.62
State		92	163	Good	Dry	Scarce	.2	.47

a/ Green-dry indicates dry leaves with stalks still green and succulent.

Table 2. European corn borer abundance and damage. Fall corn insect survey, Indiana, 1962.

Area	Counties	Fields	Plants infested	Borers per infested plant	Borers per 100 plants		Loss	
					1961	1962	1961	1962
	No.	No.	Pct.	No.	No.	No.	No.	No.
NNW	7	16	52.7	1.2	59.8	89.3	1.8	2.6
NNC	5	11	27.6	.8	29.4	27.6	.9	.7
NNE	6	10	13.2	.8	4.6	13.6	.1	.4
NW	6	15	27.5	.9	10.7	31.7	.3	1.0
NC	8	15	16.3	.8	9.9	16.0	.3	.5
NE	10	19	20.0	.9	9.9	21.4	.3	.6
SW	8	13	29.2	.7	6.2	31.7	.2	1.0
SC	7	11	21.1	.5	19.6	24.4	.6	.7
SE	9	16	18.1	.5	7.6	27.2	.2	.8
SSW	10	17	29.4	.7	52.5	29.8	1.6	.9
SSC	7	10	33.2	.8	41.2	30.0	1.2	.9
SSE	9	10	8.4	.6	72.7	6.6	2.2	.2
NN	18	37	31.2	.9	31.3	42.8	.9	1.3
N	24	49	21.3	.9	10.2	23.0	.3	.7
S	24	40	22.8	.6	11.1	27.8	.3	.8
SS	26	37	23.7	.7	55.3	22.1	1.7	.7
West	31	61	34.7	.9	32.3	45.1	1.0	1.4
Central	27	47	24.6	.7	25.0	24.5	.8	.7
East	34	55	14.9	.7	23.6	17.2	.7	.5
State	92	163	24.7	.8	27.0	28.9	.8	.8

Table 3. Corn earworm infestation and damage. Fall corn insect survey, Indiana, 1962.

Area	Counties	Fields	Plants infested	Damaged kernels per infested ear	Kernels per ear	Loss	
						1961	1962
	<u>No.</u>	<u>No.</u>	<u>Pct.</u>	<u>No.</u>	<u>No.</u>	<u>Pct.</u>	<u>Pct.</u>
NNW	7	16	14.4	14.5	724	.1	.3
NNC	5	11	12.0	9.0	826	.1	.1
NNE	6	10	8.8	7.0	634	0.	.2
NW	6	15	11.7	13.5	801	.1	.2
NC	8	15	7.7	8.7	762	.0	.2
NE	10	19	6.7	6.3	747	.0	.1
SW	8	13	23.7	16.6	791	.1	1.2
SC	7	11	31.6	16.8	789	.1	1.3
SE	9	16	3.5	2.8	892	.1	.1
SSW	10	17	30.4	19.2	852	1.0	2.0
SSC	7	10	29.6	19.2	799	1.2	1.7
SSE	9	10	31.2	16.8	783	1.2	.8
NN	18	37	11.7	10.2	728	.1	.2
N	24	49	8.7	9.5	770	.0	.2
S	24	40	19.6	12.1	824	.1	.9
SS	26	37	30.4	18.4	811	1.1	1.5
West	31	61	20.0	16.0	792	.3	.9
Central	27	47	20.2	13.4	794	.3	.8
East	34	55	12.6	8.2	764	.3	.3
State	92	163	17.6	12.6	783	.3	.7

Table 4. Corn leaf aphid infestation and estimates of loss. Fall corn insect survey, Indiana, 1962.

Area	Counties	Fields	Plants infested	Increase in		Loss	
				Nubbins	Barren	1961	1962
	No.	No.	Pct.	No.	No.	Pct.	Pct.
NNW	7	16	25.1	1.0	.4	.0	4.1
NNC	5	11	24.4	1.9	.2	0.	3.9
NNE	6	10	18.4	.8	.3	.9	2.3
NW	6	15	13.6	.6	.1	2.0	1.0
NC	8	15	10.9	.6	.1	0.	.3
NE	10	19	11.8	.4	0.	0.	.5
SW	8	13	41.8	.8	0.	8.8	8.7
SC	7	11	38.7	.7	0.	3.4	7.9
SE	9	16	27.8	.5	.1	8.4	4.9
SSW	10	17	42.1	1.9	.0	3.7	8.8
SSC	7	10	8.0	.6	.2	4.8	.0
SSE	9	10	13.2	.9	0.	4.0	.9
NN	18	37	22.6	1.3	.3	.3	3.8
N	24	49	12.1	.5	.1	.7	.6
S	24	40	36.2	.7	.0	7.0	7.2
SS	26	37	21.1	.9	.1	4.2	3.2
West	31	61	30.6	1.1	.2	3.6	5.6
Central	27	47	20.6	1.0	.1	2.2	3.0
East	34	55	17.8	.4	.1	3.3	2.2
State	92	163	23.0	.8	.1	3.0	3.6

Table 5. Angoumois grain moth infestation and damage. Fall corn insect survey, Indiana, 1962.

Area	Counties	Fields	Infestation						Loss	
			Counties		Fields		Ears			
			1961	1962	1961	1962	1961	1962	1961	1962
	No.	No.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	
NNW	7	16	0	0	0	0	0	0	0.	0.
NNC	5	11	0	0	0	0	0	0	0.	0.
NNE	6	10	0	0	0	0	0	0	0.	0.
NW	6	15	0	0	0	0	0	0	0.	0.
NC	8	15	0	0	0	0	0	0	0.	0.
NE	10	19	0	20	0	10	0	2	0.	.02
SW	8	13	38	0	23	0	6	0	.03	0.
SC	7	11	57	29	36	18	7	4	.04	.01
SE	9	16	0	22	0	13	0	2	0.	.00
SSW	10	17	50	80	29	53	13	32	.38	.21
SSC	7	10	43	71	30	67	8	33	.06	.38
SSE	9	10	22	44	20	37	10	16	.03	.24
NN	18	37	0	0	0	0	0	0	0.	0.
N	24	49	0	8	0	4	0	1	0.	.01
S	24	40	33	17	20	10	4	2	.02	.00
SS	26	37	38	65	26	51	10	28	.16	.36
West	31	61	22	20	13	13	5	8	.10	.05
Central	27	47	25	25	16	21	4	9	.02	.16
East	34	55	5	22	5	15	2	5	.01	.06
State	92	163	18	22	12	16	4	7	.04	.09

Loss estimates are based on size of ears as shown in Table 3.

INTERCEPTIONS OF SPECIAL INTEREST AT U. S. PORTS OF ENTRY

Some important interceptions that were reported October 31, 1962, by the Plant Quarantine Division, ARS, USDA, follow. These reports are based on the identification received from Federal taxonomists at the U. S. National Museum during the month, but do include any of special interest from recent months that were not previously reported.

LEEK MOTH (Acrolepia assectella (Zell.)) (a pest which is sometimes very injurious to Allium in Europe) twice in baggage, once at New York, New York, and once at San Pedro, California.

CITRUS BLACKFLY (Aleurocanthus woglumi Ashby), or probably that species, 4 times in baggage and 5 times in cargo from Mexico; Brownsville, Texas, 7 times; Laredo, Texas, one time; and San Ysidro, California, one time.

MEXICAN FRUIT FLY (Anastrepha ludens (Lw.)), or probably that species, 12 times in baggage from Mexico; Brownsville, Texas, 6 times; Laredo, Texas, 2 times; Roma, Texas, one time; Eagle Pass, Texas, one time; Nogales, Arizona, one time; and San Diego, California, one time.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)), or probably that species, 13 times in baggage, once in cargo and 3 times in stores; Charleston, South Carolina, one time; Honolulu, Hawaii, 2 times; Norfolk, Virginia, one time; Cleveland, Ohio, 3 times; Boston, Massachusetts, 2 times; Miami, Florida, 2 times; New York, New York, 4 times; and Chicago, Illinois, 2 times.

A WEEVIL (Cleonus sp.), a genus destructive in the European area, in beets in stores at Philadelphia, Pennsylvania.

ORIENTAL FRUIT FLY (Dacus dorsalis (Hend.)) three times in baggage and once in mail at Honolulu, Hawaii.

A COSSID (Dyspessa ulula (Bkh.)) in baggage at New York, New York.

A PYRAUSTID (Evergestis forficalis (L.)), a pest of crucifers in Europe and parts of Asia, in stores once each at San Juan, Puerto Rico, New York, New York, and Mobile, Alabama.

PINK BOLLWORM (Pectinophora gossypiella (Saund.)) twice in baggage at Miami, Florida.

PYRAUSTIDS (Piletocera spp.), species of unknown importance, one on taro (Colocasia esculenta) and one on ginger root (Zingiber officinale) on cargo from Fiji at San Francisco, California, 2 times, and at Seattle, Washington, one time.

EUROPEAN CHERRY FRUIT FLY (Rhagoletis cerasi (L.)) in baggage 2 times at New York, New York.

A STENOMID (Stenoma catenifer Wlsm.), an avocado seed moth of Mexico, Central America and many South American countries, twice in baggage: Once each at Miami, Florida, and El Paso, Texas.

KHAPRA BEETLE (Trogoderma granarium Everts) 3 times in stores and 4 times in cargoes: At New York, New York, 5 times; Philadelphia, Pennsylvania, one time; and Wilmington, North Carolina, one time.

GOLDEN NEMATODE (Heterodera rostochiensis Woll.) 7 times: Baltimore, Maryland, 2 times in airplanes' baggage; San Pedro, California, 2 times in airplanes' baggage; New York, New York, 2 times in airplanes' baggage; and at Detroit, Michigan, one time in airplane's baggage.

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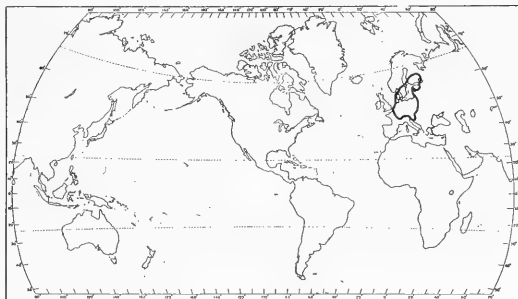
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South Carolina	Mr. W. C. Nettles, Leader, Extension Entomology and Plant Disease Work, Clemson College, Clemson
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Tennessee	Mr. R. P. Mullett, Extension Entomologist and Plant Pathologist, College of Agriculture, University of Tennessee, Knoxville 16
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INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

SMALL SPRUCE SAWFLY (Pristiphora abietina (Christ))

Economic Importance: This tenthredinid is an important pest of spruce in areas of northern and central Europe. Outbreaks have been reported in the Netherlands, Denmark, Germany, Poland, Czechoslovakia and Switzerland. Damaging infestations may last for several years. The pest caused considerable damage to Norway spruce in south Jutland, Denmark, between 1940 and 1950, and further controls were needed in 1955, 1956. Great losses were reported to spruce near Freiberg, Germany, in 1950; apparently the result of increased populations when favorable dry soil conditions facilitated the pupation of larvae. In Switzerland, it was confirmed that infestations begin in young plantations and then spread to older trees if the soil is favorable for pupation. The deformations of the crowns of spruce caused by infestation may result in the growth of the trunk being reduced by about 70 percent; however, it was found that few of the trees are killed even if attacked year after year and, when the outbreak ends, the crowns recover in a few years. Spruce grown in mixed stands with beech were protected in that the ground cover was rendered unfavorable for the cocoons of the sawfly.

Distribution: Recorded in Austria, Belgium, Czechoslovakia, Denmark, Estonia SSR, Finland, France, Germany, Netherlands, Poland, Sweden, Switzerland and Yugoslavia (Sarajevo).



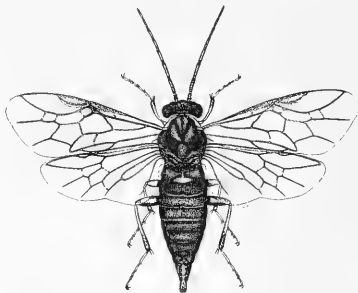
General Distribution of Pristiphora abietina (Christ)

Hosts: Engelmann spruce, Norway spruce, Sitka spruce, blue spruce and Serbian spruce.

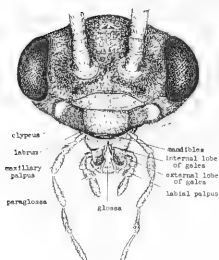
Life History and Habits: The biology, as studied during 1938-40 in the area known then as East Prussia, is as follows: In 1939, adults began to emerge in mid-May and continued for three weeks, and oviposition was in progress between May 24 and June 25. Up to 14 eggs were laid in the needles on shoots about an inch long, but only one per needle. Most eggs were laid on younger spruces during the first half of the period, and on older spruces during the second half. Eggs were unusually abundant on young trees, despite the small numbers of cocoons found beneath them, so that migrations of the adults must be assumed. Because of the long oviposition period, all stages of development, egg to full-fed larvae, occur together. Larval development appeared to be most rapid on older spruces, but there was considerable variation. Larvae were most numerous June 5-14.

Earlier studies conducted in Switzerland indicate the following additional information. In the Swiss plateau, adults appear in May or early June, the males usually a few days before the females. In the laboratory, females laid 80-100 eggs each. For oviposition, the spruce shoot must be free of bark scales, but the individual needles of the young shoot must still form a compact whole. The egg is laid in a slit cut in a needle well protected in the May shoot. Larvae hatch in 3-5 days and are ready to spin cocoons 12-20 days later. If the oviposition period has been prolonged, however, larvae may be found on trees up to 5 weeks. The male larvae have 4 instars and the females 5. Cocoons are spun in the ground litter or in the surface layer of soil, and are most abundant under moss or in places with humus, while only few occur in litter from deciduous trees or under brambles. Pupation takes place about 2 weeks prior to adult emergence in the spring.

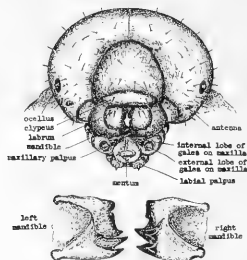
Description: ADULT - Length of male 4.5-5 mm. or about 1/4 of an inch; female 5-6 mm. Female mostly black, with area around mouth, pronotum, tegulae, and sides and apex of abdomen yellow. Male mostly dark yellow, with spot on frons, posterior surface of head, mesonotum, metanotum and most of dorsum of abdomen black. Legs the same in both sexes; mostly yellow, with dark brown shading at bases of all coxae, at apices of middle and hind femora, and tibiae and on hind tarsi. Sheath of the saw, ventral view, not notched at the tip. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies. Description mostly furnished by Dr. B. D. Burks). CEIR 13(4):1-25-63.



Female of *Pristiphora abietina* (Christ)



Head of Female



Head of Larva

Major references: 1. Nageli, W. 1936. Mitt. Schweiz. Anst. Forstl. Versuchsw. 19(2):213-381. 2. Niklas, O. F. 1943. Z. Angew. Ent. 30(2):224-251.

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February 1, 1963

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Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST CONTROL DIVISION, ARS, USDA

The Department Economic Insect Report is being created as a service to American agriculture. Its contents are compiled from information supplied by cooperating State, Federal and industrial entomologists and other agencies, and a special releasing file maintained by the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington, 25, D. C.

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Cold weather continues to keep insect activity at low levels. ARMY CUTWORM populations heavy and damaging to legumes in Drummond area of Garfield County, Oklahoma. (p. 63). MEDITERRANEAN FRUIT FLY continues to be found in Lauderdale-by-the-Sea area of Broward County, Florida. Aerial treatments underway. (p. 63). OLIVE SCALE appears to be spreading rapidly and increasing in severity in San Joaquin County, California. (p. 66). A SCARAB (Ceratophyus sp.), found for the first time in the U. S. at Vandenburg Air Force Base, Santa Barbara County, California, in January of 1962, is now noticeable in lawns of new model homes at the air base. Winter rains may activate beetle populations. (p. 68).

DETECTION

IMPORTED FIRE ANT found for first time in the following counties during December 1962: Beaufort, South Carolina; Ashley, Arkansas; and Polk, Texas. (pp. 67-68).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 66). Cold weather continues to assist eradication efforts; it is anticipated that the small populations able to survive the cold weather will be overwhelmed by sterile flies released over southern Texas.

Summary of Insect Conditions in some Countries of Africa and the Near East - Turkey (p. 69); Iran (p. 71); Afghanistan (p. 72); Morocco (p. 74); Libya (p. 76); Republic of the Sudan (p. 78); and Ethiopia (p. 82).

Changes in the Scientific Names of Some Common Aphids. (p. 84).

Reports in this issue are for week ending January 25, unless otherwise indicated.

WEATHER OF THE WEEK ENDING JANUARY 28

Unusually cold weather continued over virtually the entire country, for the third consecutive week west of the Mississippi River and for the second consecutive week in the East. In the Ohio and upper Mississippi River Valleys and Great Lakes region, temperatures at numerous stations have averaged 20° or more below normal for the past 2 weeks. Cold waves early and late in the week brought sub-zero minima to such southern locations as Memphis, Tennessee; Birmingham, Alabama; and Atlanta, Georgia. On the 24th, numerous stations from Ohio southward recorded

(Weather continued on following page)

new alltime low temperatures, a few of which are here listed:

<u>Station</u>	<u>Lowest</u>	<u>Previous Low</u>
Nashville, Tennessee	-15°	-13° Feb. 1951
Lexington, Kentucky	-21°	-20° Feb. 1899
Cleveland, Ohio	-19°	-17° Jan. 1873
Cincinnati, Ohio	-19°	-17° Jan. 1936
Toledo, Ohio	-17°	-16° Feb. 1899
Louisville, Kentucky	-20°	-20° Jan. 1884

In addition, a low of -34° at Bonnieville, Kentucky, on the 24th was the lowest temperature ever recorded in that State. The previous low for Kentucky was -33° recorded at Sandhook on February 11, 1899. Minneapolis, Minnesota, had 157 continuous hours of subzero temperatures beginning at 2 a.m. on January 18, the second longest such period on record. The longest period of subzero there was 186 hours beginning at 8 p.m., December 31, 1911, followed by 4 hours above zero and then another period of 113 hours below zero. Snow cover has prevented deep frost penetration in many areas, but the ground is frozen 3 feet deep in Iowa and 10 inches in the vicinity of Columbus, Ohio. Kansas reports frost penetration of 12 to 15 inches and 12 to 15 inches of ice on ponds. Lowest temperatures of the season reached the lower Rio Grande Valley of Texas on the 24th when readings of 19° to 24° were recorded. Lows of 15° to 18° occurred in the San Antonio and Winter Garden areas.

Little or no precipitation occurred from Texas westward through New Mexico, the Great Basin, and Pacific States, and weekly totals were generally light in the remainder of the Far West and as far east as the Great Lakes and lower Mississippi Valley. Moderate to heavy weekly totals were rather general from the western foothills of the Appalachian Mountains to the Atlantic coast and in the central Gulf coastal areas. Most of the week's precipitation preceded or accompanied cold waves early and late in the week and fell in the form of snow, except as rain, with some sleet and freezing rain in the South. Weekly totals in the East ranged from 0.50 inch up to more than an inch along the Atlantic coast. With little or no precipitation in the Far West, the mountain snowpack remained generally much below normal. During the first cold wave east of the Rockies, 4 to 6 inches of snow fell over the Ohio Valley and central Appalachians, up to 4 to 8 inches over the northern Appalachians, and much heavier amounts in Michigan, and northern portions of New York State and New England.

The weekend snowstorm was accompanied by strong winds in the northeast quarter of the Nation, and new snow ranged up to more than a foot in some northeastern areas. Reports from northern New York State indicate that last week's weather there was about as severe as any experienced during the past century. Some stations east of Lake Ontario in New York reported about 5 feet of new snow, and Watertown reported 57 inches on the ground on the morning of the 28th.

At the end of the week, snow covered the Great Plains as far south as Kansas and eastward to the Appalachians. Along the Atlantic coast, the cover extends from Maine to northern Virginia. Scattered southern stations such as Little Rock, Arkansas; Jackson, Mississippi; and Chattanooga, Tennessee, reported a trace. Depths generally range from 2 to 6 inches in the Great Plains and Midwest. In the Great Lakes region, depths as a rule exceed 6 inches and range up to 30 inches or more in northern Michigan on the lee side of the Great Lakes. In New England, the cover ranges from 25 to 40 inches in the north and 5 to 10 inches in the south, except deeper in western highlands and less near the coast. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Schizaphis (Toxoptera) graminum)* - OKLAHOMA - Populations remain generally noneconomic except for light counts in isolated spots as severe cold weather continues. Counts per linear foot, by county, were as follows: Garfield, 2-15; Logan, 1-20; Kingfisher, 1-25; Payne, 0-20; Muskogee, 3-20; Tillman, 9-13; negative in Beckham, Custer and Kiowa Counties. Very small numbers reported from Bryan County. Dead aphids found in most fields checked; all above counts made prior to sub-zero temperatures of midweek. (Okla. Coop. Sur.). GEORGIA - Light on small grain in southern portion of State. (Johnson).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - In all fields checked in Garfield, Kingfisher, Logan and Payne Counties, counts ranged 1-15 per linear foot. (Okla. Coop. Sur.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Low counts of 3-12 per linear foot noted in fields checked in Garfield, Kingfisher, Logan, Payne and Tillman Counties. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae)* - OKLAHOMA - Populations continue low. Counts per linear foot, by county, were as follows: Garfield, 6-7; Logan, 4-10; Kingfisher, 2-15; Payne, 0-5. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Counts per linear foot, by county, were as follows: Garfield, up to 20; Kingfisher, 5-10; Logan and Payne, 0-5. (Okla. Coop. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Counts per linear foot of row, by county, were as follows: Garfield, 0.5; Logan, 1-5; Kingfisher, 0.5-4; Payne, 0-2. Occasional dead larvae found in Payne County. Heavy populations reported damaging legumes in Drummond area, Garfield County. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphon (Macrosiphum) pisum)* - OKLAHOMA - Light in alfalfa in Sequoyah, Kingfisher and Logan Counties; ranged 8-20 per square foot of crown area in Sequoyah and 5-25 in Logan County. Light counts also noted in winter peas in Garfield County. (Okla. Coop. Sur.). ARKANSAS - Very few found in legumes in northwest area; averaged less than one per square foot. (Ark. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Light on alfalfa in Payne and Kingfisher Counties. (Okla. Coop. Sur.).

FRUIT INSECTS

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Recent infestation confined to Lauderdale-by-the-Sea, Broward County, in area approximately one mile long and half mile wide; no finds have been made west of inland waterway which is one-half mile from coast. Single aerial application made over approximately 3,000 acres previous week; another application scheduled for January 25. Approximately 2,200 Steiner traps now in operation in infested area and will be converted to medlure by January 25. Three larval finds and one collection of pupae reported; no new adults trapped. (Fla. Coop. Sur.).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - First male of the season taken in Hidalgo County, December 6. Total of 1,300 traps in use in Cameron, Hidalgo, Dimmit, Starr and Willacy Counties. (PPC, South. Reg.). CALIFORNIA - New lure, ENT-44,014-X, used for first time. Observations indicate this new lure will be longer-lasting and less subject to evaporation by wind and temperature. All detection for Mexican fruit fly was negative during 1962, and to date in State during 1963. (Cal. Coop. Rpt.).

*See page 84.

OMNIVOROUS LOOPER (Sabulodes caberata) - CALIFORNIA - Heavy on leaves of avocado trees in San Luis Obispo County, and medium in Carpinteria, Santa Barbara County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Population surveys in foothill breeding grounds of western San Joaquin Valley indicate overwintering leafhoppers beginning to concentrate on favorable south slopes in some areas. This is particularly true northward from Coalinga, Fresno County. In Imperial Valley, beet leafhoppers number 11 per 100 sweeps on desert annuals on west side of Valley from Mount Signal to Westmoreland, Imperial County. Winter annuals have also germinated in some abundance on east side of Imperial Valley, but no counts of beet leafhoppers possible, due to high winds. Present estimates of situations indicate treatment of 17,000 acres will be necessary during 1963. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - All stages heavy on leaves of pepper plants in Oasis, Riverside County. (Cal. Coop. Rpt.).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - TEXAS - Spotted, heavy infestations present on cabbage roots in Hidalgo County. None present in many fields; heavy in other fields. (Garner).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light on cabbage in southern part of State. (Johnson).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - One newly infested property found in Santa Rosa County, FLORIDA. Field and storage survey in GEORGIA resulted in finding 35 infested properties; 93 properties released from regulations in the State. Infestation found in home planting in Escambia County, ALABAMA; this species had been eradicated from the county for several years. Newly infested property found in Perry County, MISSISSIPPI; several properties found in generally infested areas in Forrest, Greene, Lincoln and Walthall Counties. In Lawrence County, 9 new properties found infested. Field inspections in LOUISIANA resulted in finding 53 newly infested properties, mostly in Tangipahoa Parish. Five newly infested properties found in Cherokee County, TEXAS. (PPC, South. Reg., Dec. Rpt.).

FUNGUS GNATS - TEXAS - Heavy populations of adults of undetermined species appearing in tomato greenhouses in Limestone County. (Brown).

A SAWFLY (Metallus capitalis) - OREGON - Mined leaves of raspberries at Astoria, Clatsop County, during summer of 1962. Det. by B. D. Burks. (Goeden).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - No larvae found in lint cleaner inspections in Riverside County. ARIZONA - One larva collected in eradication area through December 31. NEW MEXICO - Surveys in Pecos River Valley in southern Eddy County showed considerable damage in several fields. Lint cleaner inspections indicated substantial increase in populations in Pecos River Valley in Chaves and Eddy Counties, and in Lea and Roosevelt Counties located east and north of this Valley along eastern side of State. Lint cleaner surveys in Sierra and Dona Ana Counties in Rio Grande Valley, and in Luna, Otero and Hidalgo Counties, indicate lightest infestations in several years. (PPC, West. Reg., Dec. Rpt.). Cold temperatures have killed larvae in bolls in fields with standing cotton stalks in southern Eddy County; 40 percent of larvae in fields near Malaga, Eddy County, dead. (N. M. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

GYPSY MOTH (Porthetria dispar) - Additional egg clusters found on firewood, nursery stock and deciduous growth on peripheries of nurseries in CONNECTICUT and MASSACHUSETTS. Two small concentrations of egg clusters in Orleans, Jefferson County, NEW YORK, located south of area infested in 1961; one concentration of 17 new egg masses and several old, located 0.4 mile distant, and one of 5 new and 1 old egg mass located 0.75 mile distant. Appraisal scouting of last summer's positive trapsites in New York continued; additional small infestations found at 4 sites in Rockland County, bringing county total to 6. (PPC, East. Reg., Dec. Rpt.).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - MASSACHUSETTS - All scouting on Plum Island and adjacent areas negative to date. (PPC, East. Reg., Dec. Rpt.).

EUONYMUS SCALE (Unaspis euonymi) - CALIFORNIA - Adults heavy on Euonymus sp. locally in Sacramento, Sacramento County. (Cal. Coop. Rpt.). OKLAHOMA - Medium on euonymus in Greer County. (Okla. Coop. Sur.). MARYLAND - Moderate on euonymus at Baltimore. (U Md., Ent. Dept.).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Until recently this species, with 16-year history in Stockton, San Joaquin County, appeared limited to few light spot infestations; however, is now spreading rapidly and increasing in severity. Privet appears to be particularly susceptible to attack. (Cal. Coop. Rpt.).

TEA SCALE (Fiorinia theae) - TEXAS - Heavy numbers attacking local camellia plantings in Harris County. (Dial). FLORIDA - Moderate on camellia at New Smyrna Beach, Volusia County (Jan. 14), and at Gainesville, Alachua County (Jan. 15); on Ilex sp. at Lakeland, Polk County (Jan. 16); and on camellia at Lake Helen, Volusia County (Jan. 18). (Fla. Coop. Sur.).

A WAX SCALE (Ceroplastes sp.) - NORTH CAROLINA - Infested spiraea twig, as well as azaleas, nandinas and camellias, at a locality in Wake County. (Robertson).

Coccids in California - During past 15 years, Asterolecanium arabidis has shown decline in Stockton area, San Joaquin County. Twig distortion of privet and Pittosporum tobira was common in area during past years. Current observations show no infestations on privet and only light infestation of P. tobira. Pseudococcus microcirculus heavy on limited number of cattleya orchids in an orchid-house in Larkspur, Marin County. This species is not known to occur in the State and is subject to eradication. Pseudococcus adonidum medium on citrus and heavy on oleander in San Simeon, San Luis Obispo County. Aspidiotus densiflorae light on leaves of oaks in San Simeon. Protospulvinaria pyriformis medium on limited number of gardenia plants and light on Saxifraga sp. in Brentwood, Los Angeles County; species subject to eradication treatment. (Cal. Coop. Rpt.).

Coccids in Florida - Aspidiotus lataniae moderate on Ilex sp. at Clearwater, Pinellas County (Jan. 9). Asterolecanium bambusae and A. miliaris miliaris moderate on 4 clumps of bamboo at Winter Haven, Polk County (Jan. 15). Asterolecanium puteanum moderate on Ilex sp. at Clearwater (Jan. 9). Ceroplastes ceriferus severe on 50 Podocarpus nagi at Winter Haven (Jan. 14). Ceroplastes floridensis light on 25 Coccoloba uvifera at North Miami, Dade County (Jan. 8); general on 4 Ilex sp. at Lakeland, Polk County (Jan. 16); severe on 26 Ilex cornuta var. burfordii at Daytona Beach, Volusia County (Jan. 18). Coccus hesperidum light on 10 Nephtytis sp. at Pierson, Volusia County (Jan. 17), and severe on one Magnolia virginiana at Winter Haven (Jan. 18). Diaspis boisduvalli severe on 2 orchids at Holly Hill, Volusia County (Jan. 17), and moderate on orchids at Winter Haven (Jan. 17). Eucalymnatus tessellatus moderate on Syzygium jambos at Ft. Lauderdale, Broward County (Jan. 10). Phenacaspis cockerelli infested Chamaerops humilis and Magnolia grandiflora at Gainesville, Alachua County (Jan. 11); severely infested M. grandiflora at Winter Haven (Jan. 14); infested

Magnolia sp. at Vero Beach, Indian River County (Jan. 16). Pseudaulacaspis pentagona severely infested Ligustrum amurense at Apopka, Orange County (Jan. 17), and was moderate on L. vulgare at Pierson (Jan. 17). Saissetia hemisphaerica severely infested Zamia floridana at Fort Meade, Polk County (Jan. 16). (Fla. Coop. Sur.).

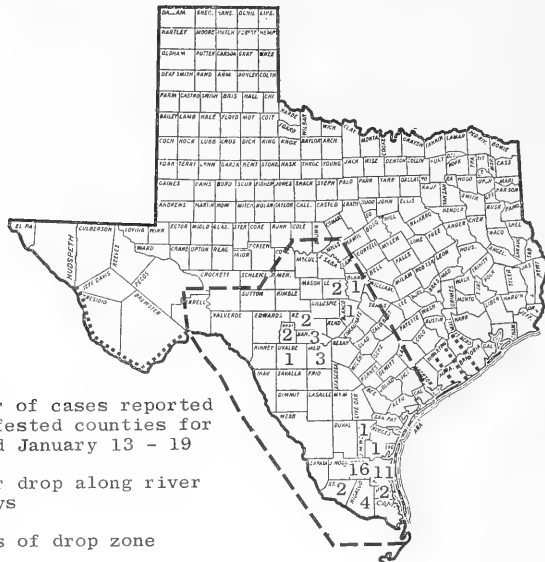
AN ERIOPHYID MITE (Trisetacus quadrisetus) - OREGON - Damaged ornamental juniper at a nursery in Troutdale, Multnomah County, in late November. Det. by H. H. Keifer. (Larson).

A SNAIL (Vallonia pulchella) - CALIFORNIA - Heavy populations occurring in dichondra lawns in Lakeside, San Diego County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

Cold weather continues to assist screw-worm eradication efforts through a succession of cold waves which have penetrated deeply into Texas. Fifty-three specimens were received this week, all of which were oviposited prior to the cold wave on January 13. Infestations being reported are declining each day. It is anticipated that the small populations able to survive the cold weather will be overwhelmed by sterile flies released over southern Texas. A total of 46,695,150 sterile screw-worm flies was released during the period January 13-19, with 53 screw-worm cases being reported during the same period. (Anim. Dis. Erad. Div.)



Figures - Number of cases reported in infested counties for period January 13 - 19

..... - Linear drop along river valleys

- - - - - Limits of drop zone

COMMON CATTLE GRUB (Hypoderma lineatum) - ARKANSAS - Averaged 3 per head (ranged 0-13) on treated cattle and 13.4 per head (ranged 0-30) on untreated cattle in Sharp County, north central. (Barnes). OKLAHOMA - Activity continues throughout State; counts per head ranged 10-35 in Washita, 10 in Greer and 0-15 in Tillman Counties. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - TEXAS - Adults becoming pestiferous in homes and offices in Brazos County. (Newton).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Activity continues across State; infestations range light to medium in Cotton, Stephens and Bryan Counties. (Okla. Coop. Sur.).

CATTLE LICE - ARKANSAS - None found on cattle checked in Sharp County, north central. (Barnes). OKLAHOMA - Populations of several species increasing across State; light to heavy infestations reported from Pushmataha, Greer, Cotton, Stephens, Washita, Hughes, Bryan and Payne Counties. (Okla. Coop. Sur.).

MEALWORMS - UTAH - These pests and adults of dermestids numerous in poultry houses at Spanish Fork, Utah County. (Knowlton, Acord).

LONE STAR TICK (Amblyomma americanum) - ARKANSAS - Engorged adults found at rate of less than one per head on cattle in Sharp County, north central. (Barnes).

WINTER TICK (Dermacentor albipictus) - OKLAHOMA - Reported heavy on cattle in Pauls Valley area, Garvin County; light counts noted on cattle in Pushmataha County. (Okla. Coop. Sur.).

CHICKEN MITE (Dermanyssus gallinae) - OKLAHOMA - Reported heavy on poultry in Stephens County. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

DRUGSTORE BEETLE (Stegobium paniceum) - OKLAHOMA - Causing some concern to homeowners in Stillwater area, Payne County. (Okla. Coop. Sur.).

RICE WEEVIL (Sitophilus oryzae) - NORTH CAROLINA - Adults about lights in home in Rowan County. (W. P. Smith).

ELM LEAF BEETLE (Galerucella xanthomelaena) - MARYLAND - Adults caused a nuisance in home at Rock Hall, Kent County. (U. Md., Ent. Dept.).

OLD-HOUSE BORER (Hylotrupes bajulus) - MARYLAND - Infesting floor joists in home at Emmitsburg, Frederick County. (U. Md., Ent. Dept.).

CLOVER MITE (Bryobia praetiosa) - NORTH CAROLINA - Abundant on window sills of home in Durham County. (W. F. Wilson).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - New infestations at University of Florida, Gainesville, Alachua County, FLORIDA, treated. Approximately 120 acres of seedbed nursery treated at Bartow, Polk County. Specimens collected in Baker County where infestation was thought to have been eradicated. Inspection of treated area in City of Savannah, GEORGIA, negative in main part of city, but a few mounds found in outer area. Active mounds found in several locations in City of Columbus. Surveys in Pierce, Ware and Liberty Counties, Georgia, negative.

Found for the first time in Beaufort County, SOUTH CAROLINA. Survey in Carteret County, NORTH CAROLINA, shows some extension of infested area. Surveys in 16 counties in TENNESSEE negative during December. Appraisal survey on several treated areas continues to show good results in ALABAMA. Isolated infestations in Limestone and Morgan Counties treated. Survey in Washington County, MISSISSIPPI, continues to enlarge known area of infestation; about 75 sections now involved. Survey in Ashley County, ARKANSAS, resulted in new county record. A few active mounds found in treated area in Union County. Appraisal surveys in treated blocks in north LOUISIANA very encouraging; no specimens found in treated block in Red River Parish. Collection made for the first time in Polk County, TEXAS. Extensions of infested areas found in Harris and Bexar Counties. (PPC, South. Reg., Dec. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - Small acreages treated in East Baton Rouge and St. Tammany Parishes, LOUISIANA. Treatment completed in infested area in Burdett, Mississippi County, ARKANSAS. Treatment made in areas in Shelby, Hardeman and Carroll Counties, TENNESSEE. Treatment accomplished on approximately 800 acres in Baldwin County, ALABAMA; small acreages treated in other areas throughout the State. Treatment of infested area of Decatur County, GEORGIA, adjacent to the Florida-Georgia State line completed. Additional acreage treated in Houston, Bibb, Bleckley, Sumter and Wilcox Counties. (PPC, South. Reg., Dec. Rpt.).

JAPANESE BEETLE (Popillia japonica) - Soil treatment completed on approximately 5 square miles of residential area of St. Louis, MISSOURI. Hand treatment of 67 acres in Monroe County, and 128 acres in Lenawee County, MICHIGAN, completed. (PPC, Cent. Reg., Dec. Rpt.).

A SCARAB (Ceratophyus sp.) - CALIFORNIA - Activity particularly noticeable in lawns of new model homes at Vandenburg Village, Vandenburg AFB, Santa Barbara County; 20-30 mounds made in new lawns. Only few mounds have been made in golf course. Winter rains may activate beetle populations. (Cal. Coop. Rpt.). See CEIR 12(7):85 and CEIR 12(10):166.

BOXELDER BUG (Leptocoris trivittatus) - MARYLAND - Caused a nuisance in a community in Baltimore. (U. Md., Ent. Dept.).

TERMITES - FLORIDA - Prorhinotermes simplex and Reticulitermes hageni collected at Ft. Lauderdale, Broward County (Jan. 18), by F. P. Clements. Det. by L. A. Hetrick. (Fla. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - FLORIDA - Single moth collected in blacklight trap at Gainesville, Alachua County, January 22. (Fla. Coop. Sur.).

SUMMARY OF INSECT CONDITIONS IN SOME COUNTRIES OF
THE NEAR EAST AND AFRICA

1962

The seven summaries of insect conditions that follow have been submitted in the 1962 Annual Report of the Regional Insect Control Project, with headquarters in Beirut, Lebanon. The first attempt to present information on the more important insect pests of the Near East in the Cooperative Economic Insect Report was made in 1955 following a request from the survey committee of the Entomological Society of America. For the benefit of CEIR readers, it may be well to point out that the Regional Insect Control Project is a cooperative program operated by the Plant Pest Control Division, Agricultural Research Service, in accordance with an agreement signed on February 18, 1954, between the U. S. Department of Agriculture and the International Cooperation Administration (now Agency for International Development). At the present time, a staff of ten entomologists are stationed in eight countries working with the personnel of the U. S. Operations Missions and Ministries of Agriculture.

The work of these entomologists is designed to fulfill commitments to the host countries, with respect to the evaluation of locust problems, the demonstration of control practices, development of insect surveys and the training of nationals in methods, procedures and the organization of applied entomology and plant quarantine work. During the last few years the Ministries of Agriculture have strengthened their Plant Protection organizations. Insect survey operations were strengthened through the assignment of Joseph W. Gentry as survey specialist to the project headquarters in Beirut. Mr. Gentry has kindly reviewed and edited the 1962 summaries. An increased effort has been made to collect, identify and record pest species of economic importance. Firsthand information on foreign pests should serve to familiarize the entomologist and the pesticide industry of the United States with the major pests in the areas reported on. It should lead to better understanding and mutual interest in the entomological problems common to the United States and other nations. (Edson J. Hambleton, Assistant to the Director (Foreign Technical Programs), Plant Pest Control Division, ARS, USDA, Washington 25, D. C.).

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Summary of Insect Conditions in Turkey

Prepared by Flournoy M. Philips

Cereal and Forage Insects: A PENTATOMID (*Aelia* sp.) caused less damage to wheat in the central and western Anatolian Plains in 1962 than in previous years; over 50,000 acres were treated, however. SENN PEST (*Eurygaster integriceps*) was of little or no importance, with only 2,000 acres being treated as the insect migrated from the mountains. CEREAL LEAF MINER (*Syringopais temperatella*) caused moderate to heavy damage on wheat in isolated areas throughout the cereal-growing areas of Turkey. DESERT LOCUST (*Schistocerca gregaria*) migrated into Turkey from Iraq and Syria necessitating the treatment of approximately 15,000 acres of wheat and other cereals in parts of 6 provinces in southeastern Turkey. ALFALFA WEEVIL (*Hypera postica*) caused moderately heavy damage in extreme eastern Turkey and in one province in the western Anatolian Plains. ITALIAN LOCUST (*Calliptamus italicus*), MOROCCAN LOCUST (*Docioptaurus maroccanus*) and MIGRATORY LOCUST (*Locusta migratoria*) were light to moderate throughout Turkey and caused little or no damage. An APHID (*Cuernavaca noxius*) caused heavy damage to wheat and barley in the Konya area.

Fruit Insects: CODLING MOTH (Carpocapsa pomonella) infested as high as 89 percent of the apples in the Nidge-Eregli area where one or less treatments were performed, and infested from less than 1 percent of the apples in orchards that had eight sprays at regular intervals to 45 percent in orchards with a lesser number of sprays. A SPIDER MITE (Tetranychus sp.) caused heavy damage to apples in the Nidge area and light to moderate damage in other apple-growing areas. A HYPONOMEUTID (Hyponomeuta sp.) caused almost complete defoliation of apple trees in the Cankiri area where treatments were not applied. EUROPEAN CHERRY FRUITFLY (Rhagoletis cerasi) caused about 25 percent damage to the cherry crop in the southern and western Anatolian Plains. Over 250,000 peach and apricot trees were treated for ORIENTAL FRUIT MOTH (Grapholitha molesta) in the Bursa area. A COCCID (Diaspis sp.) caused a moderate amount of damage to peach and mulberry trees in the Istanbul-Bursa area. Another COCCID (Ceroplastes sp.) caused a little damage to the fig crop in the Aegean coastal area. MEDITERRANEAN FRUIT FLY (Ceratitis capitata) infested less than 5 percent of the citrus crop on the Mediterranean coast. CITRUS RUST MITE (Phyllocoptruta oleivora) caused moderate to heavy damage in the Adana Plains area on citrus. OLIVE FRUIT FLY (Dacus oleae) reportedly infested up to 30 percent of the olive crop in the Bursa-Gemlik area, and OLIVE MOTH (Prays oleellus) was so heavy in the Aegean coastal region that the Ministry of Agriculture treated nearly five million olive trees in an attempt to control it. BLACK SCALE (Saissetia oleae) caused moderately severe damage in the Gemlik area and light damage in Istanbul and Bursa. VINE MOTH (Lobesia botrana) was reportedly light to moderate on grapes throughout the grape-growing areas of Turkey. An ARCTIID CATERPILLAR (Arctia sp.) was moderate on grapes in the Gaziantep-Kayseri-Konya area.

Truck Crop Insects: A CUTWORM (Agrotis sp.) caused a great deal of damage to cabbage and tomatoes in the Marmara Sea area. A MOLE CRICKET (Gryllotalpa sp.) inflicted light damage to truck crops and ornamentals in the central Anatolian Plains. The BALUCHISTAN MELON FLY (Myiopardalis pardalina) lightly damaged melons in the Kayseri-Nevsehir-Kirsehir area. TWELVE-SPOTTED MELON BEETLE (Epilachna chrysolina) caused moderate damage in the Diyarbakir and Sakarya areas.

Cotton Insects: SPINY BOLLWORM (Earias insulana) was light on cotton in the Adana Plains area and was reported to be light to moderate in the Diyarbakir area. PINK BOLLWORM (Pectinophora gossypiella) was estimated to have caused less than 4 percent damage to the cotton crop in the Izmir region and as much as 6 percent in the Adana Plains area. OLD WORLD BOLLWORM (Heliothis armigera) caused localized heavy damage in the Adana area, and a SPIDER MITE (Tetranychus sp.) was moderately damaging to cotton in the Adana area. Light to moderate damage to cotton was caused by COTTON APHID (Aphis gossypii) in Adana and the Aegean coastal areas.

Stored-products Insects: Until May of 1962, the Ministry of Public Health in Turkey would not allow the Plant Protection General Directorate to treat stored grains for the control or prevention of stored-product insects. In May, after considerable debate between the two Ministries, it was finally decided to allow treatment based on the allowable tolerances as set forth in the USDA Summary of Registered Agricultural Pesticide Chemical Uses. KHAPRA BEETLE (Trogoderma granarium) was found in grain storage in Ankara in May, and CONFUSED FLOUR BEETLE (Tribolium confusum) was present in many areas throughout Turkey.

Miscellaneous Pests: A TEA SCALE (Pulvinaria floccifera) remained light on tea in the Black Sea area, but BLACK CITRUS APHID (Toxoptera aurantii) caused a moderate amount of damage on tea in Artvin, Trabzon and Rize Provinces.

Summary of Insect Conditions in Iran

Prepared by T. E. Gilliland
and G. Farahbakhsh

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) was very heavy in the Central Ostans (Provinces) and in Kermanshah, Khuzistan, Khurasan, Kerman and Fars Ostans. The Iranian Government carried on both aerial and ground control. The U. S. furnished five Cessna 185's, with pilots, to assist with this project. The effective control campaign reduced the damage to less than five percent. A total of 6,175,000 acres was reported to have been treated. MOROCCAN LOCUST (Doclostaurus maroccanus) was lighter than normal in Gurgan, Shiraz, Kermanshah and some other areas. Some damage to seedling crops was reported. A total of 172,000 acres was reported treated. Calliptamus spp. grasshoppers were normal. SENN PEST (Eurygaster integriceps) was heavy in Isfahan, Kermanshah and Ghazvin. Damage was more than usual in these areas. Chemical controls were applied on 98,800 acres. The biological control program was not very effective this year due mostly to a reduced amount of rearing activity. Outbreaks of an ARMYWORM (Pseudaletia sp., probably unipuncta) occurred on rice in the Caspian Sea area. About 500 acres were severely damaged, but the infestation was generally spotted. DURRA STALK BORER (Sesamia cretica) was light on corn in Tehran area. ALFALFA WEEVIL (Hypera postica) was the main problem on alfalfa, being heavy and warranting controls in the Tehran area.

Citrus Insects: In the Caspian area, PURPLE SCALE (Lepidosaphes beckii) was heavy. BLACK PARLATORIA SCALE (Parlatoria zizyphus) was very light but increasing in some areas. BROWN SOFT SCALE (Coccus hesperidum) was heavy in some areas with some sooty mold being evident, especially at Ramsar and Pahlavi. GRAPE MEALYBUG (Pseudococcus maritimus) was heavy at Lahijan, Ramsar and Babulsar, the latter being a new area of developing infestation. A new area of infestation of Pulvinaria aurantii was found at Babulsar. CHAFF SCALE (Parlatoria pergandii) was increasing at Babul. CITRUS RUST MITE (Phyllocoptura oleivora) and CITRUS RED MITE (Panonychus citri) were very heavy. CALIFORNIA RED SCALE (Aonidiella aurantii) was increasing at Ramsar and Shahsavar. YELLOW SCALE (Aonidiella citrina) was increasing in Babulsar and Babul.

Olive Insects: BLACK SCALE (Saissetia oleae) - An encyrtid parasite (Aphycus helvolus) of this scale insect has apparently not become established in the Rudbar area probably due to chemical control and climatic conditions. In the Ramsar area, however, attempts to introduce and establish it have been successful. Other species of encyrtids are needed in this area to increase the effectiveness of the biological control. OLIVE SCALE (Parlatoria oleae) was very light, parasites being active. OLIVE PSYLLID (Euphyllura olivina) was usually not heavy, but in some areas as much as 20 percent fruit loss was noted.

Deciduous Fruit Insects: OYSTERSHELL SCALE (Lepidosaphes ulmi) was very heavy, especially in Tehran area; and PEAR LACE BUG (Stephanitis pyri) was also very heavy, with severe damage noted at Veramin, especially on apple. WOOD BORERS were unusually heavy, with many reports in the Tehran area. LEOPARD MOTH (Zeuzera pyrina) was the major species involved, but SHOT-HOLE BORER (Scolytus rugulosus) was also very damaging in some areas. Damaging infestations of OLIVE SCALE were prevalent. A FRUIT-TREE MITE (Bryobia rubrioculus) was unusually heavy in the dry season. CODLING MOTH (Carpocapsa pomonella) was normal on apples.

Pistachio Insects: COCCIDS (Lepidosaphes pistaciae and L. pistacicola) were very heavy, especially in Kerman area. PISTACHIO PSYLLID (Agonoscena targionii) was damaging in the Kerman and Rafsijnan areas.

Date Insects: LESSER DATE MOTH (Batrachedra amydraula) was found attacking newly formed dates in southern area of Iran -- Persian Gulf Coast. GREATER DATE MOTH (Arenipses sabella) attacked pollen sacs on date palms.

Vegetable Insects: CABBAGE APHID (Brevicoryne brassicae) infestation on crucifers was about normal. CABBAGEWORMS were the main pests of crucifers at Veramin in September. Pieris spp., Plutella maculipennis and Hellula undalis were involved. MELON APHID (Aphis gossypii) infestations were about normal on melons. The main pests of melons were BALUCHISTAN MELON FLY (Myiopardalis pardalina) and TWELVE-SPOTTED MELON BEETLE (Epilachna chrysomelina). CUTWORMS (Agrotis sp.) were severe in the Caspian Sea area. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) caused severe damage to beans at Karaj. ONION THRIPS (Thrips tabaci) was also heavy. A SUGAR-BEET CROWN BORER (Gnorimoschema ocellatella) was very serious on sugar beets. Lixus weevils also caused damage, but were not as heavy as the crown borer. Infestations of BEET ARMYWORM (Spodoptera exigua) were considered normal. APHIDS, mostly Aphis fabae, were damaging on beans.

Cotton Insects: SPINY BOLLWORM (Earias insulana) required controls in the southern region. OLD WORLD BOLLWORM (Heliothis armigera) was very heavy in the Caspian Sea area, requiring controls. MITES were also a problem with medium infestations at Khurasan. THRIPS infestations were normal. LEAFHOPPERS (Empoasca spp.) and APHIDS were heavy and causing damage in the Veramin area in September.

Tobacco Insects: Infestations of Heliothis armigera were above normal in buds, and GREEN PEACH APHID (Myzus persicae) was heavy.

Forest and Shade Tree Insects: ELM LEAF BEETLE (Galerucella xanthomelaena) was unusually heavy in the Caspian Sea area on alder and damaging to this species and elm in other areas. Another CHRYSOMELID (Plagiodes sp.) was also heavy on these trees in the Caspian Sea area. FLATHEADED WOOD BORERS (Capnodis spp.) were medium to heavy on poplars in Tehran area. Capnodis miliaris caused heavy damage in the central area. EUROPEAN ELM SCALE (Gossyparia spuria) was medium to severe in the Tehran area, and a WHITEFLY (Siphoninus granati) continued heavy on ash in the same area.

Stored-product Insects: Infestations of GRAIN INSECTS were about normal, with KHAPRA BEETLE (Trogoderma granarium), RICE WEEVIL (Sitophilus oryzae) and GRANARY WEEVIL (S. granarius) being the most damaging species.

Summary of Insect Conditions in Afghanistan

Prepared by E. R. Millet

Cereal and Forage Insects: WEEVILS (Hypera sp. and Sitona sp.) were again extremely light, only an occasional specimen, in alfalfa in the Kabul area in early September. ALFALFA WEEVIL (Hypera postica) and H. brunneipennis were identified from Afghanistan collections by the Museum National d'Histoire Naturelle, France, during the year. SWEETCLOVER APHID (Therioaphis riehmi) and COWPEA APHID (Aphis craccivora) were also extremely light in alfalfa, with only one or two specimens

per sweep being found. SENN PEST (Eurygaster integriceps) and a STINK BUG (Aelia melanota) were again light in the wheat areas at Qaisar and Maimana this past spring and no control was merited. In the Kabul area, wheat was moderately infested by several species of APHIDS, and a THRIPS (Haplothrips tritici) was numerous on the heads of wheat in the same area. MIRIDS, probably Deraeocoris punctulatus, ALFALFA PLANT BUG (Adelphocoris lineolatus) and Lygus gemellatus, were noted in alfalfa near Kabul, but no extremely heavy infestation was observed. They were all taken in sweepings.

Locusts: In 1962, Afghanistan had the heaviest invasion of DESERT LOCUST (Schistocerca gregaria) in almost thirty years. Yellows and dark reds appeared along the eastern frontier as early as late December 1961, and early January 1962. Egg deposition began in mid-March, hatching in April, and fledging in mid-May. Large areas of southern and western Afghanistan were infested. Infestations also occurred up to 40 miles north and 100 miles west of Kabul in mountainous areas up to 8,000-foot elevations. This is unusual for Afghanistan. There were an estimated 150,000 to 190,000 acres of egg beds and hatching sites established in March and April. Control, apparently 85 percent effective, was applied on an estimated 375,000 acres of "hoppers" (pinks and yellows) from April to mid-August. Considerable damage was done to alfalfa, mulberry and windbreak trees in the Helmand Valley. Damage to cotton and other crops was very light. An ITALIAN LOCUST (Calliptamus sp.) and MOROCCAN LOCUST (Dociostaurus maroccanus) were again light in the northern provinces, with only a two weeks' campaign against these pests. A local GRASSHOPPER (Chrotogonus trachypterus) was again numerous and caused much damage to vegetables in Lashkar Gah.

Fruit Insects: CODLING MOTH (Carpocapsa pomonella) was widespread on apples in Afghanistan this year and caused heavy damage. ERMINE MOTH (Hyponomeuta padella) was also very destructive to apples, apricots and almonds throughout the areas where these fruits are grown. APHIDS were heavy on all fruit trees in Afghanistan, particularly on peaches. An APHID (Pterochlorus persicae) was extremely heavy again this year at Coriz-i-Mir, sometimes covering peach limbs for several inches. An extremely heavy MITE infestation, species probably Bryobia rubrioculus, was noted on several apple trees at the Paghman forest nursery. A COCCID (Lecanium unifasciatum - tentative determination) was also numerous on peaches in the Kabul area. A CECIDOMYIID GALL (Odinadiplosis, probably amygdali) was again exceedingly heavy and caused abnormal growth and rosetting of buds of peaches at Coriz-i-Mir. Larvae were observed in July, and some pupation began in August. It is believed that there must be only one generation a year of this pest, with the adults emerging from old growth in early spring and infesting young, tender growth at that time. Thus far, collection of adult specimens has been unsuccessful.

Vegetable Insects: CUTWORMS and WIREWORMS were reported doing considerable damage to sugar beets in Kataghan Province. MELON FLY (Dacus cucurbitae) was not as heavy as last year in the Jalalabad area; at least at the Ministry farm where two treatments were applied to all vegetables and truck crops. Only about 10 percent infestation was reported in the melon and cucumber crops. This pest was also collected from melons near Paghman this year. The BALUCHISTAN MELON FLY (Myiopardalis pardalina) was not as heavy in cantaloups and sweet melons, as in 1961. Infestation was estimated at about 10 percent. The same holds true for a WEEVIL (Baris, probably granulipennis) in watermelons which developed an infestation of only about 5 percent in 1962. BEAN APHID (Aphis fabae) on beets, and CABBAGE APHID (Brevicoryne brassicae) on cabbage and mustard, were again heavy in gardens in the Helmand Valley.

Citrus Insects: CITRUS WHITEFLY (Dialeurodes citri) and YELLOW SCALE (Aonidiella citrina) were heavy in groves at Jalalabad, with the latter being especially heavy at Laghman. The CITRUS PSYLLA (Diaphorina citri) was extremely heavy in Laghman in early March, with as many as six adults on new sprouts of orange trees.

There was a very low population in Jalalabad at this time, but it was moderate in mid-summer. A LEAF MINER (probably Phyllocnistis citrella) was observed as heavy on new growth of young citrus nursery stock in Jalalabad in early August.

Cotton Insects: CUTWORMS (Agrotis sp.), APHIDS, and LEAFHOPPERS (probably Empoasca decipiens and E. decedens) were reported as important in cotton in Kataghan Province. Considerable control was conducted against these pests in this area. SPIDER MITES (Tetranychus spp.) were light on cotton in the Helmand Valley. SWEETPOTATO WHITEFLY (Bemisia tabaci) was light in the Helmand Valley in July, but was reported as heavy in plots at the research farms at Marja and Bolen in September. SPINY BOLLWORM (Earias insulana) and PINK BOLLWORM (Pectinophora gossypiella) were both normal in the Jalalabad area. E. insulana was light in the Helmand Valley this year.

Forest and Shade Tree Insects: WOOD BORERS (Aeolesthes sarta and Capnodis cariosa) continue to be destructive to the elm trees along streets in Kabul. Many fully grown elm trees continue to die from the ravages of these pests. Willows and poplars are also attacked.

Ornamental Insects: ROSE APHID (Macrosiphum rosae) was heavy on roses in Kabul this summer. Small WHITE GRUBS did heavy damage to roots of newly planted roses in Kabul in April

Stored-grain Pests: KHAPRA BEETLE (Trogoderma granarium) larvae were found extremely heavy on walls at edge of bulk wheat in storage houses at Marja and Grishk in the Helmand Valley during the summer. Other pests observed in stored wheat were GRANARY WEEVIL (Sitophilus granarius), RICE WEEVIL (S. oryzae) and RED FLOUR BEETLE (Tribolium castaneum).

Man, Animal and Household Insects: TICKS were annoying to cattle on the Ministry farm at Kabul, and there was also a heavy infestation of a FOWL TICK (probably Argas sp.) in the chicken houses of the Ministry farm. HOUSE FLY (Musca domestica) and MOSQUITOES (Aedes spp. and Culex spp.) were heavy in Lashkar Gah during the summer months; however, they were light in Kabul. A COCKROACH (Shelfordella sp.) was lighter in 1962 than the previous year. The pest migrates into houses. A LOUSE FLY (Hippobosca longipennis) was again quite annoying to dogs.

Summary of Insect Conditions in Morocco

Prepared by G. E. Cavin

Cereal and Forage Insects: No invasions of the DESERT LOCUST (Schistocerca gregaria) occurred in 1962. Morocco has now been free of the desert locust since February 1961. A buildup of MOROCCAN LOCUST (Doclostaurus maroccanus) in the vicinity of Debdou and El Aouina necessitated control measures on 7,700 hectares. Populations of PENTATOMIDS (Aelia spp. and Eurygaster spp.) were generally low. Some slight damage was reported in the Fez-Meknes area. HESSIAN FLY (Phytophaga destructor) caused severe damage to soft wheat fields in many areas during the early spring. A heavy attack on corn, sorghum and alfalfa by BEET ARMYWORM (Spodoptera exigua) occurred throughout the Rharb Plain and at Casablanca in May and June. DURRA STALK BORER (Sesamia cretica) was heavy on corn near Agadir, sorghum at Tangier and Sudan grass at Kenitra in August.

Citrus Insects: A heavy attack of MEDITERRANEAN FRUIT FLY (Ceratitis capitata) occurred in the Souss Valley in the spring. CALIFORNIA RED SCALE (Aonidiella aurantii) continued to be the most serious citrus pest. New infestations were found in several locations, but all were isolated and no appreciable extension of the general infested area occurred. GLOVER SCALE (Lepidosaphes gloverii) was heavy on oranges and pomelos at Kenitra in April. DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi) was light on tangerines at Pt. Bouchita. BROWN SOFT SCALE (Coccus hesperidum) was abundant on young citrus plantings at Kenitra and Marrakesh in August and September. COTTONY-CUSHION SCALE (Icerya purchasi) was generally light, but widespread on oranges and tangerines. CITRUS MEALYBUG (Pseudococcus citri) and CITRUS BUD MITE (Aceria sheldoni) were common at Zaio. A light infestation of TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was observed at Kenitra in August. FLORIDA RED SCALE (Chrysomphalus aonidum) was light but general throughout most of the Rharb Plain. BLACK CITRUS APHID (Toxoptera aurantii) infested oranges at S. Aissa in May.

Grape Insects: Grapes were attacked by a THRIPS (Retithrips syriacus) near Marrakesh in September. GRAPE ERINEUM MITE (Eriophyes vitis) was serious at Kenitra in April. A SPHINGID (Celerio lineata livornica) was found occasionally in the vicinity of Beni Amar in May. A FLEA BEETLE (Altica lythri ampelophaga) was found in one vineyard at Oujda. GRAPE PHYLLOXERA (Phylloxera vitifoliae) and a MEALYBUG (Pseudococcus sp.) were also reported, the latter being heavy at Moghrane.

Olive Insects: In April and May, BLACK SCALE (Saissetia oleae), a WEEVIL (Brachyrhinus cribricollis), a BLISTER BEETLE (Zonabris oleae) and OLIVE MOTH (Prays oleellus) were common at Midar and Zaio; and OLIVE PSYLLID (Euphyllura olivina) was common at Zaio in July. OLIVE FRUIT FLY (Dacus oleae) was general throughout the olive-growing area, the attack increasing in September in the Mediterranean areas.

Miscellaneous Fruit Insects: CODLING MOTH (Carpocapsa pomonella) was common in peach and apple orchards throughout the Rif and Middle Atlas Mountains and on the plain at Fez and Meknes in August. A severe outbreak of PEACH BUPPRESTID (Capnodis tenebrionis) occurred in stone fruits and mulberry at Sefrou in August and September, and MEDITERRANEAN FRUIT FLY (Ceratitis capitata) attacked late pears at Kenitra. Extensions of the areas of date palms infested with PARLATORIA DATE SCALE (Parlatoria blanchardi) were found at Ksar-es-Souk, Erfoud and Goulmine.

Vegetable Insects: Adults of a CHAFER (Rhizotrogus sp.) damaged peas at Marrakesh in February. BEET ARMYWORM (Spodoptera exigua) caused severe damage to peppers at Casablanca and was widespread on the Rharb Plain on sugar beets, peppers, artichokes and tobacco. A BEET CURCULIONID (Lixus junci) and a SUGAR-BEET CROWN BORER (Gnorimoschema ocellatella) caused severe damage to sugar beets at Nodor and Sidi Slimane. In May, TWELVE-SPOTTED MELON BEETLE (Epilachna chrysomelina) was heavy on squash at S. Yahia du Rharb and an APHID (Aphis sp.) was heavy on broadbeans at Kenitra. A CORN EARWORM (Heliothis armigera), TURNIP MOTH (Agrotis segetum), SILVER-Y MOTH (Autographa gamma), and a SPHINGID (Celerio lineata livornica) were general on most vegetable crops throughout the Mediterranean coastal areas. A NEMATODE (Meloidogyne sp.) caused some damage to tomatoes at Ben Achen in May.

Cotton Insects: Populations of SPINY BOLLWORM (Earias insulana) and PINK BOLLWORM (Pectinophora gossypiella) were kept at low levels due to repeated insecticidal treatments. A FIELD CRICKET (Gryllus bimaculatus), COTTON JASSID (Empoasca lybica) and a SPIDER MITE (Tetranychus sp.) were light at Monte Arruit.

Forest Insects: Populations of GYPSY MOTH (Porthetria dispar) were generally light. Some slight defoliation of cork oaks occurred near Rabat and Kenitra. A PINE PROCESSIONARY MOTH (Thaumetopoea sp.) populations were heavy on pine and cedar near Grutama in April.

Summary of Insect Conditions in Libya

Prepared by R. L. Linkfield and A. Damiano

Cereal and Forage Insects: The SPOTTED ALFALFA APHID (Therioaphis maculata) was quite heavy in Tripolitania and the Fezzan, and BLACK CUTWORM (Agrotis ipsilon)* caused some damage to small plantings of alfalfa in the Fezzan. Medium infestations of COWPEA APHID (Aphis craccivora)* were found damaging maturing alfalfa plants. BEE TARMY WORM (Spodoptera exigua)* caused heavy damage to alfalfa and grass plantings. GREENBUG (Schizaphis (Toxoptera) graminum), CORN LEAF APHID (Rhopalosiphum maidis), and two other APHIDS (R. padi and Cuernavaca noxius)* infested small grains throughout Libya. A SPIDER MITE (Tetranychus frater)* was found infesting soybeans in Tripolitania. DURRA STALK BORER (Sesamia cretica) was very damaging to all plantings of corn.

Fruit and Olive Insects: In general, OLIVE FRUIT FLY (Dacus oleae) infestations were medium throughout the country. On June 1, eggs and larvae were found in olives. A BARK BEETLE (Phloeotribus scarabaeoides) caused severe damage to growing tips of olive trees. Pupae of the CODLING MOTH (Carpocapsa pomonella) were first observed the last of February, while the adults were observed on March 9. Heavy damage was caused to pears, apples and quince in the Tripoli area. Populations of a COCCID (Pollinia pollini) were heavy on olive trees along the coastal areas of Tripolitania. A SPHINGID (Celerio lineata livornica)* was present in some grape vineyards. The distribution and damage caused by this pest have not been determined. Light infestations of ROSY APPLE APHID (Anuraphis rosea)* were found on apple trees in Cyrenaica. Pear and plum trees were heavily attacked by a FRUIT-TREE MITE (Bryobia rubrioculus)*. In March, a MITE (Cenopalpus pulcher)* damaged buds and flowers of quince in Tripolitania. FIG WAX SCALE (Ceroplastes rusci) caused complete loss to fig crops in several areas of Tripolitania.

Citrus Insects: Extremely high populations of the MEDITERRANEAN FRUIT FLY (Ceratitis capitata) occurred in 1962. In one citrus grove alone, 500 flies were caught in five Steiner traps in one week. Besides heavy infestations attacking tangerine and the early orange varieties, high populations were found in a persimmon grove. Treatments are being used wherever possible. Heavy infestations of both TWO-SPOTTED SPIDER MITE (Tetranychus telarius) and PRIVET MITE (Brevipalpus obovatus) were observed where chemical control had been applied for scale insect control. BLACK PARLATORIA SCALE (Parlatoria zizyphus), CHAFF SCALE (P. pergandii) and DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi) were found infesting many groves at varying degrees of intensity.

Vegetable Insects: Medium infestations of the BEAN APHID (Aphis fabae)* were found attacking beets and Swiss chard in Cyrenaica, and heavy infestations were observed on broadbeans in Tripolitania. GREEN PEACH APHID (Myzus persicae) caused light to medium damage to eggplant, parsley, hot peppers and radish in the Fezzan. TURNIP APHID (Hyadaphis (Rhopalosiphum) pseudobrassicae)* was very

* Identified by U. S. Department of Agriculture or U. S. National Museum taxonomist.

heavy on plantings of radish at Sebha. COWPEA APHID (Aphis craccivora)* caused considerable damage to broadbeans at the Experiment Station in Brak. A light infestation of an APHID (Dactynotus cichorii)* were found on chicory at Derna. The APHIDS (Anuraphis foeniculus, Hyadaphis coriandri and Cavariella aegopodii)* were present on dill. CABBAGE LOOPER (Trichoplusia ni)* caused light damage to lettuce on some truck farms in Cyrenaica. LARGE WHITE BUTTERFLY (Pieris brassicae)* and CABBAGE APHID (Brevicoryne brassicae) were the major limiting factors in good cabbage production throughout the country. STINK BUGS (Graphosoma semipunctata and Tholagus flavolineatus)* were very heavy on the flowers of dill and carrot. DERMESTIDS (Anthrenus sp. and Attagenus sp.)* were found feeding on the seeds of dill and onion. TWELVE-SPOTTED MELON BEETLE (Epilachna chrysomelina)* was the primary pest of cucurbits in the Fezzan. Damage by this pest was estimated to be over 40 percent. A WEEVIL (Cleonus sp.)* was very heavy on plantings of Swiss chard in the Sebha area of the Fezzan. OLD WORLD BOLLWORM (Heliothis armigera) was first observed in January on early tomato varieties. A CUTWORM (Agrotis sp.) caused serious damage to watermelons in Tripolitania. SPINY BOLLWORM (Earias insulana) was very heavy on okra. A SPHINGID MOTH (Herse convolvuli) caused severe damage to the leaves of sweetpotato and morning-glories.

Other Field Crop Insects: Infestations of COTTONY-CUSHION SCALE (Icerya purchasi) were found on castorbean plants in Tripoli. A PYRALID (Nephoteryx sp.) infested plantings of castorbean. Very heavy infestations of a CRICKET (Brachytrupes megacephalus) occurred this year in peanut plantings. In some cases, the farmers had to plant a second crop, the first having been completely destroyed. A SESAME POD BORER (Antigastra catalaunalis) was very heavy on sesame plantings.

Ornamental and Forest Insects: The TULIP BULB APHID (Anuraphis tulipae)* caused considerable damage to iris plantings in Cyrene, while an APHID (Anuraphis helichrysi)* attacked marigold flowers in Derna. A PHYTOSEIID MITE (Phytoseiulus persimilis)* damaged violets in Tripolitania. Zizyphus trees in the Mourzouk oasis of the Fezzan were infested with a WHITEFLY (Aleurolobus niloticus)*. A MEMBRACID (Oxyrachis tarandus) was very heavy on Acacia juliflora in the Misurata area. A TORTRICID (Cacoecimorpha prunubana) caused considerable damage to commercial plantings of carnations in the Tripoli area. Infestations of a TUSSOCK MOTH (Casama innotata) were light this year on Acacia horrida, probably due to the active pupal parasites, a CHALCID (Hockeria unicolor) and an ICHNEUMON (Pimpla instigator). A BLISTER BEETLE (Zonabris oleae) caused severe damage to a planting of seed snapdragons in Cyrenaica.

Insects Affecting Man and Animals: In the market area of Gemel, Tripolitania, a very heavy infestation of an ARGASID TICK (Ornithodoros savignyi)* occurred. The entire market area had to be sprayed. An IXODID TICK (Hyalomma impelatatum)* was found on the ground near the houses of farmers. FLEAS, BED BUGS and COCK-ROACHES were the three main household pests in Libya.

Beneficial Insects: Ceroplastes rusci and Saissetia oleae were effectively controlled by a PTEROMALID (Scutellista cyanea). Collections of this parasite were field-released at Nalut, where C. rusci had destroyed this year's fig crop. A LADY BEETLE (Scymnus sp., probably testaceus)* was very active on orange and pomegranate trees in Cyrenaica. Mite populations were very low in orchards observed having this predator. Large populations of another LADY BEETLE (Coccinella undecimpunctata)* effectively controlled the spotted alfalfa aphid (Therioaphis maculata) in Brak, Fezzan. The spotted alfalfa aphid was being

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controlled in Mourzouk by a BRACONID (Trioxys utilis)* and in Brak by a PTEROMALID (Pachyneuron sp.)*. An ENCYRTID PARASITE (Aphycus helvolus) was introduced into Libya for the first time this year. The parasite was field-released at an olive plantation in Homs, Tripolitania, for control of the black scale. VEDALIA (Rodolia cardinalis) was effectively controlling the cottony-cushion scale in most areas of Tripolitania. A BRACONID (Diaeretiella rapae) heavily parasitized Brevicoryne brassicae.

Summary of Insect Conditions in the Republic of the Sudan

Prepared by Arthur Kaatz

Cereal and Forest Insects: DESERT LOCUST (Schistocerca gregaria) invaded the Red Sea Hills and coastal area (winter breeding range) after light rains in November and again in December 1961, and mid-January 1962. Short rains in the north limited the breeding to four small areas, while in the southwest, general rains facilitated more extensive breeding. However, the overall locust invasion and breeding throughout the area was light. Only 30 swarms and 114 "hopper" sites were recorded. All young "hoppers" were destroyed before they had reached the fifth instar. There were no locust invasions in the summer breeding range (a wide belt across north central Sudan extending from the borders of the Republic of Chad up to near the Red Sea Hills). This is where invasion and breeding are normally the heaviest. A few very small patches of the solitary phase were found, but they were not numerous, widely scattered and posed no threat. Controls were not necessary. Infestations of a TREE LOCUST (Anacridium moestum melanorhodon)* have increased steadily during the last three years, and in 1962 were present throughout the year in Northern, Khartoum, Kordofan and Darfur Provinces. Breeding took place for the first time in Northern and Khartoum Provinces in July, August and September. This locust is widely scattered in the small brush of the desert wastes. When they have denuded the trees or the vegetation dries up in the desert the locusts, flying at night, invade cultivated areas along the Nile River and threaten sorghum and other vegetation. In this area, controls were aimed at keeping the tree locusts from devastating cultivated crops, rather than an eradication campaign, and were successful. It may be necessary to direct a major control campaign against this insect in coming months. A MIGRATORY LOCUST (Locusta migratoria migratorioides) was present in many places where tree locusts were found, but not numerous except at Khashm el Ghirba where 17 acres of sugarcane were sprayed in order to save a variety trial.

DURRA STALK BORER (Sesamia cretica) was widespread in sorghum in the central Sudan and caused extensive damage in local areas. Sugarcane in Blue Nile Province was also infested. SOUTHERN GREEN STINK BUG (Nezara viridula)* was heavy in sorghum and millet heads during the milk stage in the Tokar Delta in January and February. It was also found on sorghum in Equatoria Province. NOCTUIDS (Heliothis armigera and H. peltigera) infested sorghum and millet in the Tokar Delta during January and February. SPOTTED ALFALFA APHID (Therioaphis maculata)* and COWPEA APHID (Aphis craccivora)* were found in berseem fields near the northern Nile River during February and March. Parasites were present in great numbers and apparently kept aphids under control. No damage was reported. GRASSHOPPERS of all species were numerous and general in 1962. Slight damage to sorghum and sesame crops was reported from many areas. A BLISTER BEETLE was reported damaging sorghum, millet and sesame crops in Darfur Province. A MIDGE was reported causing damage to sorghum heads in southern Butana district. BEE T ARMYWORM (Spodoptera exigua) infested peanuts, berseem and kenaf at the demonstration farms of Khashm el Ghirba. Treatments were required on berseem. Also at Khashm el Ghirba, infestation of kenaf and guar (a pulse) trial plots by a FLEA BEETLE had to be treated.

* Identified by U. S. Department of Agriculture
or U. S. National Museum taxonomist.

Fruit Insects: A FRUIT FLY (Pardalaspis sp.) was serious in a few guava orchards in the Northern Province. Cultural practices were more effective generally, than sprays, in controlling this insect. A CITRUS LEAF MINER (not identified) was widespread over most of the Sudan, causing considerable damage. COCCIDS (Lepidosaphes tapleyi* and Parlatoria pseudaspidotus*) were found in most mango orchards in Northern and Khartoum Provinces. During June, July and August, a treatment campaign was carried out in Khartoum Province to clear approximately 35,000 mango seedlings from infestation. Elsewhere, all along the Nile River, small orchards were reported being successfully treated. PARLATORIA DATE SCALE (Parlatoria blanchardi*) is serious in the date palm region of Northern Province. Very few schemes were sprayed, and treatment was not always successful. Up to 60 percent of the date palms in the Dongola-Nile reach are attacked by a TERMITE (Odontotermes sudanensis)*. Citrus in the Sennar District and along the Nile River was treated to control SCALE INSECTS. MEALYBUGS were persistent in 1962 on guava, grapes, mangoes and citrus in Northern and Khartoum Provinces. Grapefruit and orange were treated where HIBISCUS MEALYBUG ("Phenacoccus" hirsutus)* was reported in Khartoum Province. A mealybug-ant complex on guava in the Shendi District and on grapes in Khartoum was sprayed and successfully controlled. Mealybugs were also found on pineapple in Equatoria Province, but they were not a problem in 1962. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) attacks on grapefruit and oranges were light but widespread. Treatments were applied in Khartoum in March and April. Light infestations were also reported on citrus along the Dongola-Merowe Nile reach, but no controls were applied. Light infestations of a CATERPILLAR (Papilio sp.) were found in most of the citrus-growing areas. Treatments were carried out on 700 citrus seedlings in Equatoria and on 30 acres of young trees in Khashm el Ghirba. GRASSHOPPERS were general on all young citrus trees, but damage to leaves was light except in Equatoria where 700 citrus seedlings were sprayed to protect nursery stock.

Vegetable Insects: The most important pests of vegetables were THRIPS on onions, and RED PUMPKIN BEETLE (Raphidopalpa foveicollis)* and TWELVE-SPOTTED MELON BEETLE (Epilachna chrysomelina)* on cucurbits and beans. A 70-acre melon crop on the Blue Nile was destroyed by the latter two pests. Many fields were successfully treated. In the Shendi District, 150 acres of onions were treated to control thrips; 30 acres at Khartoum and many smaller patches in other regions. A BLISTER BEETLE (Mylabris sp.)* was severe on okra, tomatoes and beans during September and October in Darfur Province. Blister beetles were also reported on sorghum in the same area and on melons along the Blue Nile River. FLEA BEETLES severely attacked okra wherever planted, especially in Darfur, Blue Nile and Equatoria Provinces. A FRUITWORM (Heliothis armigera) attacked tomato fruit along the Nile River. Many plantings had to be sprayed; some were abandoned. SOUTHERN GREEN STINK BUG (Nezara viridula)* was severe on tomatoes at Arbaat Wells. A HORNWORM and SWEETPOTATO WEEVIL (Cylas formicarius)* were found on sweetpotato in Equatoria Province. CABBAGE APHID (Brevicoryne brassicae)* caused severe damage and crop loss on cabbage at Wad Ramli demonstration farms, and WHITEFLIES and LEAFHOPPERS were reported on tomato and eggplants in most areas and were suspected of being vectors of leaf curl on tomatoes. A FRUIT FLY (Dacus sp.) attacked most melon fields and ruined much of the fruit. Only the most progressive owners sprayed their melon fields. A CABBAGEWORM required controls on cabbage in Equatoria, and a TINGID (Urentius echinus)* was found in many areas on eggplant. The latter pest was not serious except at Khashm el Ghirba where controls were carried out.

Cotton Insects: COTTON JASSID (Empoasca lybica) occurred this year in all cotton-producing regions. Due to the late season, attacks were later and varied in intensity. In the Gezira, White and Blue Nile reaches, aerial treatments on an estimated 600,000 acres of cotton started the last week of September and are expected to be continued well into January 1963. The Tokar Delta was also affected from January through March 1962. "Hopperburn" was severe in places, but no

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controls were applied. Treatments were applied to 6,000 acres of early cotton at Zeidab in Northern Province in July and to a small acreage at Khashm el Ghirba. SWEETPOTATO WHITEFLY (Bemisia tabaci)* is as widespread as the cotton jassid in the Sudan. Controls for the two pests are usually combined, therefore the same acreages were treated in 1962. The infestation of sweetpotato whitefly was reported heavy in the northern Gezira and varied greatly in the rest of the Blue Nile and White Nile Districts during early October, but it became heavier by November, necessitating spraying in all areas. COTTON APHID (Aphis gossypii) was general in all cotton fields in Equatoria Province, but it caused little damage. On Tokar Delta cotton, heavy deposits of honeydew lowered the cotton grade. Parasites and predators were reported present in Tokar, but not numerous enough to control the aphid. Aphids were also reported in Sennar, Singha and Dueim Districts.

A COTTON THRIPS (Hercotrips fumipennis) was reported in Dueim District in October on 5 different schemes. Up to 50 percent damage was reported in 2,200 acres of cotton at Semieh scheme. Parts of this scheme were later treated, also 5 schemes at Dueim. A FLEA BEETLE (Podagrica puncticollis) destroyed approximately 6,000 acres of cotton seedlings in the Gedaref District during August and September. An additional 15,000 acres were saved by spraying the edges of cotton fields and adjoining fallow fields. It was also reported in the early sown cotton along the Blue Nile reach and in the Nuba Mountains. COTTON STAINERS (Dysdercus spp.) infested cotton in Equatoria, Tokar Delta and Gash areas. A control campaign was carried out in the Nuba Mountains.

The BOLLWORMS (Heliothis armigera and H. peltigera) infested about 60,000 acres of cotton in the Tokar Delta during January through March, causing enough damage to ruin most of the first and second pickings. In October at Gedaref, 15,000 acres were reported heavily infested with both H. armigera and a RED BOLLWORM (Diparopsis watersi). South of Kosti and south of Sennar, both H. armigera and D. watersi were reported in January, February and March, and again in October on this season's crop. Many schemes were treated to control H. armigera. D. watersi was also reported in the Nuba Mountains and in the Gash scheme. SPINY BOLLWORMS (Earias insulana* and E. biplaga) were both reported in the Tokar Delta and in the Nuba Mountains. Earias insulana was also reported along the White Nile south of Kosti and on the Blue Nile south of Sennar. PINK BOLLWORM (Pectinophora gossypiella) is present along the Blue and White Nile Rivers, but is kept under control by heat treatment of all cottonseed and clean cultivation measures. Equatoria Province, where clean cultivation practices are lax, reported heavy infestations in several local areas near Nzara.

Other insects reported on cotton were a MIRID (Helopeltis sp.) and a LEAF MINER in Equatoria Province. Also reported was a PSYLLID, which migrated from the Congo. It was reported to be serious on leaves in several areas. COTTONSEED BUG (Oxycarenus hyalinipennis)* was reported in the Tokar Delta and Equatoria Province. EGYPTIAN COTTONWORM (Prodenia litura) was present in the Gash where cotton fields were adjacent to infested castorbeans. This pest was reported for the first time on cotton in the Nuba Mountains where about 1,000 acres were treated. A LYGUS BUG damaged terminal buds and leaves of young cotton near Suki on the Blue Nile; 10,000 acres were treated. COTTON STEM BORER (Sphenoptera gossypii) is present in the Gash and may become a problem, as cotton stalks are saved as stock material for a paper factory. Many stem borers were found emerging from this material. GRASSHOPPERS, CRICKETS and TERMITES caused slight damage in most of the cotton-growing district. A TERMITE (Microtermes aluco)* was reported in the Tokar Delta.

Stored-product Insects: KHAPRA BEETLE (Trogoderma granarium) is present in much of the Sudan and is the major insect pest of stored products. Two storehouses at Port Sudan were given fog treatment and several shipments of agriculture products were fumigated, but otherwise no controls were conducted. The FLOUR

* Identified by U. S. Department of Agriculture
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BETTER (Tribolium confusum and T. castaneum) are found in and on agriculture products wherever stored. Several storehouses at Port Sudan were treated, but no other controls were undertaken except fumigation of exports on request. Other insects frequently found in varying numbers were a GRAIN MOTH (Corcyra sp.), CADELLE (Tenebroides mauritanicus), SILVERFISH, COCKROACHES, RICE WEEVIL (Sitophilus oryzae) and LESSER GRAIN BORER (Rhyzopertha dominica). A BETTER, probably cigarette beetle, ruined several large inventory stocks of cigarettes in Juba. A WEEVIL (unidentified) was reported in stored tobacco at Yei and Maridi.

Castorbean Insects: Castorbeans are grown in the Gash scheme and on a few small schemes in the Northern Province. While many caterpillars were present this year, only two caused any appreciable damage. They were EGYPTIAN COTTONWORM (Prodenia litura) and a CASTORBEAN CATERPILLAR (Achaea catella). Two parasites, a PHORID (Megaselia sp.)* and a CHALCID (Brachymeria euplocae)*, found in great numbers in the Gash, have apparently controlled many of the caterpillars. GRASSHOPPERS (many species) caused the only other reported damage, and about 1,000 acres were treated around the edges of fields to kill grasshoppers moving in from adjoining fields. Other insects reported on castorbean were a PYRALID (Phycita potiella) on leaves; LEAFHOPPERS (Erythroneura sp.); NOCTUIDS (Grammodes geometrica, Heliothis armigera, Spodoptera exigua and Eublemma brachygonia) (the last on male flowers); a STEM BORER (Sphenoptera sp.); LIMA-BEAN BOD BORER (Etiella zinckenella) on leaves; a SPIDER MITE (Eutetranychus orientalis); WHITEFLIES; and CRICKETS.

Coffee Insects: A LEAF MINER (Leucoptera sp.), reported from the Congo, has been reported to be causing damage in Equatoria Province. The LEAF SKELETONIZER (Leucoprema dohertyi) caused slight damage to shaded and thickly planted coffee. COFFEE BERRY BORER (Stephanoderes hampei)* damage was reported up to 60-80 percent in fruits of older plantations in the Yei District. Infestations were also reported from the Maridi District. MALYBUGS have spread over most of the coffee area of the Maridi District where a number of plantations were successfully treated. Also reported were a COFFEE TRUNK BORER and THRIPS in the Yambio District.

Insects Affecting Man and Animals: (Contributed by F. H. Khatat, WHO Entomologist) - MOSQUITOES: Anopheles gambiae, occurring throughout the country, is the main vector of malaria in the Sudan and A. funestus is another major vector. A number of other Anopheles are recorded for the country and some of these are secondary or potential vectors. YELLOW-FEVER MOSQUITO (Aedes aegypti) is generally distributed. Although the 1940 yellow fever epidemic in the Nuba Mountains area was attributed to this species, two other Aedes of the subgenus Stegomyia in the area, transmitted the disease experimentally to monkeys. The chief vector of filariasis to man is Culex pipiens quinquefasciatus. PSYCHODIDS: Sand flies are widespread in Sudan. Phlebotomus papatasi is responsible for the transmission of oriental sore (Leishmania tropica) and a sand fly fever; another species, P. orientalis, is reported to be a vector of Kala-azar (L. donovani). CULICOIDES: Culicoides milnei and C. pallidipennis, found in the Nuba Mountains area, are annoying biters. Livestock are seriously annoyed by these pests. SIMULIDS: Simulium damnosum and S. griseicollae are the main vectors of onchocerciasis. TABANIDS: A number of these insects are known from the country and, in addition to their harmful bites, they transmit several diseases of man and animals. MUSCIDS: Glossina morsitans and G. tachinoides transmit cattle trypanosomiasis in the southern tsetse fly belt. G. palpalis is a vector of human sleeping sickness, a disease which is confined to a few isolated foci in Sudan. Among the most common of the muscids are Musca domestica vicina, M. sorbens and M. lusoria.

* Identified by U. S. Department of Agriculture or U. S. National Museum taxonomist.

Summary of Insect Conditions in Ethiopia

Prepared by W. C. Kurtz

Cereal and Forage Insects: A PYRRHOCORID BUG (*Dysdercus nigrofasciatus*), a known cotton pest, was collected on sorghum near Wolliso. An APHID (*Aphis sorghi*)* severely infested sorghum near Simba and corn at Jimma. A medium infestation of a STINK BUG (*Aspavia vittiventris*)* was noted on soybeans and grass at the experiment station of the Jimma Agricultural School. A LEAFHOPPER (*Tettigoniella cosmopolita*)* was possibly associated with a defoliating disease of soybeans at Jimma. Populations were very heavy. CORN PLANTHOPPER (*Peregrinus maidis*)* was heavy under the leaf sheaths of sorghum and corn at Robi. At Quiha, an EARWIG (*Forficula senegalensis*)* was prevalent under the leaf sheaths and husks of corn. The NUTGRASS ARMYWORM (*Spodoptera exempta*)* was heavy on corn near Nazareth. There was relatively light damage from *S. exempta* in 1962, although generally it causes widespread damage. SUDAN DURRA BUG (*Agonoscelis versicolor*) generally caused heavy damage on sorghum in western Eritrea. A LADY BEETLE (*Chnootriba similis*) was found in sweepings from soybeans at Jimma. A LEAF BEETLE (*Exora pusilla*)** infested teff and wild grasses on range and farms near Jimma. Another LEAF BEETLE (*Luperodes exclamationis*)** lightly infested soybeans at the same location. A light infestation of a STINK BUG (*Nezara immaculata*) was found on growing corn and wheat at Quiha. This species is new to the U. S. National Museum. Economic loss is experienced almost every year in lower elevation to forage, all kinds of crops and other vegetation by the DESERT LOCUST (*Schistocerca gregaria*). An ARCTIID was collected on *Crotalaria* sp. at Alemaya, about 40 per plant. A CORN EARWORM (*Heliothis* sp., presumably *armigera*) caused heavy damage to corn and sorghum at Alemaya. A SPITTLEBUG (*Locris* sp.)* was found lightly infesting grass at Jimma and Alemaya. Commonly found along the roadside, feeding on the leaves of broad-leaf herbaceous plants, was a PLANT-FEEDING LADY BEETLE (*Epilachna vigintipunctata*)*. This species also feeds on grasses. An APHID (*Aphis sacchari*)* was heavy on corn at Jimma.

Fruit Insects: A VINEGAR FLY (*Zaprionus vittiger*) heavily infested guava at Shashamana and Awash. BLACK PARLATORIA SCALE (*Parlatoria zizyphus*) was found lightly infesting orange trees at Wuchale and in areas of Eritrea. Also at the same fruit farm in Wuchale, the FALSE CODLING MOTH (*Cryptophlebia leucotreta*)* caused 4 to 6 percent damage to navel and mandarin oranges. A SAWFLY was light on grape at Ambo. At Debre Zeit, a light infestation of a PSYLLID (*Spanioza erythraea*) caused pitting of the underside of leaves, badly deforming them. This pest is quite common in citrus in most parts of the country. At the fruit market in Addis Ababa, the STRIPED MEALYBUG (*Ferrisia virgata*) heavily infested Anona sp. fruit. This fruit reportedly came from Dire Dawa vicinity. At Keren (Eritrea) and Dire Dawa, BLACK CITRUS APHID (*Toxoptera aurantii*) lightly infested citrus. YELLOW SCALE (*Aonidiella citrina*) and BROWN SOFT SCALE (*Coccus hesperidum*) were heavy on citrus at Harrar. The latter species was also heavy at Wuchale. A light infestation of three COCCIDS, *Africanidia africana**, OLEANDER SCALE (*Aspidiotus hederarum*)* and *Coccus* sp.,* was found on mango near Harrar. The COTTONY-CUSHION SCALE (*Icerya purchasi*) is generally distributed over Ethiopia on many hosts and causes a great amount of economic damage to citrus. Attempts at introducing VEDALIA in 1962 for control were unsuccessful. Further attempts will be made.

Truck Crop Insects: A LYGAEID BUG (*Spilosternus pandurus*) lightly infested artichoke at Harrar. A COREID BUG (*Acanthomia tomentosicollis*)* heavily infested bean pods at Harrar. A STINK BUG (*Eurydema ornatum*)* caused light damage to cabbage

* Identified by U. S. Department of Agriculture or U. S. National Museum taxonomist.

** Identified by Commonwealth Institute of Entomology.

at Harrar and mustard near Cambolcia. Larvae of LARGE WHITE BUTTERFLY (*Pieris brassicae*)* were found feeding heavily on cabbage near Addis Ababa, and EGGPLANT FRUIT BORER (*Leucinodes orbonalis*)* caused light damage to eggplant in the same area. A LEAF BEETLE (*Phyllotreta mashonana*)** heavily infested cabbage at Jimma, and another LEAF BEETLE (*Altica pyritosa****) was heavy on flax near Robi and light on sweetpotatoes at Jimma. Also at Robi, heavy damage was caused to eggplant by a PLANT-FEEDING LADY BEETLE (*Epilachna fulvesignata*).* A light infestation of POTATO APHID (*Macrosiphum euphorbiae*)* was found on sweetpotatoes at Jimma Agricultural School, and a light to medium infestation of a THRIPS (*Hercinothrips* sp., undescribed)* was found on Swiss chard at Alemaya. A LEAF BLOTCH MINER (*Cryphiomystis*)* near this genus but new genus and species) mined sweetpotato leaves seriously at Jimma. A light to medium infestation of a PLANT BUG (*Halticus* sp.) was found on eggplant at Robi, and a WEEVIL (*Blosyrus rugulosus* ssp. *abyssinicus*)** was heavy on sweetpotatoes at Alemaya. At Seneffe, an APHID (*Cavariella aegopodii*) was heavy on edible fennel.

Cotton Insects: A PYRRHOCORID BUG (*Dysdercus nigrofasciatus*) caused considerable damage to cotton near Waldea. At Tandahoe and Assietta, several insects were prevalent such as LEAFHOPPERS, SPINY BOLLWORM (*Earias insulana*), WHITEFLIES and COTTON APHID (*Aphis gossypii*). At Ghibe River, a heavy infestation of LEAFHOPPERS was reported. THRIPS were also quite common. Timely spraying at Tandahoe and Assietta will probably prevent any serious damage.

Coffee Insects: A LYONETIID (*Leucoptera* sp.), a leaf miner, was found causing light damage at Jimma. A light infestation of a STINK BUG (*Calidea bohemani*) was noted at Shashamana.

Oil Seed Insects: At Chacha, flax was lightly infested by a STINK BUG (*Veterna abyssinica*)* and heavily infested by a THRIPS. A light infestation of another STINK BUG (*Sphaerocoris annulus*)* was found on Ethiopian nigerseed, *Guizotia abyssinica*.

Miscellaneous Insects: A POWDER-POST BEETLE (*Lyctus brunneus*)* heavily infested old furniture at Alemaya, and a TERMITE (*Odontotermes* sp.) was found infesting a house at Addis Ababa. A heavy infestation of GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*)* was reported on hollyhock, and a COCCID (*Coccus elongatus*) was collected from acacia trees, both in Addis Ababa. Another COCCID (*Saissetia nigra*) was collected from false peppertree in Asmara; and OLEANDER SCALE (*Aspidiotus hederæ*)*, FLORIDA RED SCALE (*Chrysomphalus aonidum*)* and still another COCCID (*Selenaspidus articulatus*)* were severe on palms at Harrar.

* Identified by U. S. Department of Agriculture
or U. S. National Museum taxonomist.

** Identified by Commonwealth Institute of Entomology.

*** Identified as *Haltica pyritosa* by Commonwealth Institute of Entomology.

Changes in the Scientific Names of Some Common Aphids

Louise M. Russell^{1/}

Beginning with this announcement, different scientific names will be used in my determinations of several species of common aphids than have been used in the past. The changes are being made in order to indicate more clearly the relationship of the included species, and to give expression to the advances that have been made in the understanding of the species. Broad generic concepts are denoted in the name combinations, and subgeneric names will not be indicated in routine determinations.

With one exception, the name combinations adopted here may be found in the exceedingly useful publication, "A Conspectus of Aphids as Vectors of Plant Viruses," by J. S. Kennedy, M. F. Day, and V. F. Eastop, 114 pages 1962 (Commonwealth Institute of Entomology, 56 Queen's Gate, London, S. W. 7, 25s).

Most of the names have been used extensively for several years, but one, Acyrtosiphon solani (Kaltenbach), apparently is a new combination in the Conspectus. Ovatus crataegarius (Walker), the only name not appearing in the Conspectus, is in current use and may be found in "Francis Walker's Aphids," by John P. Doncaster, 165 pages, 1961 (British Museum (Natural History)), Cromwell Road, London, S. W. 7, Three Pounds).

The names that will be changed in my determinations are as follows:

<u>Future name</u>	<u>Former name</u>
<u>Acyrtosiphon barri</u> (Essig)	<u>Macrosiphum barri</u> (Essig)
<u>Acyrtosiphon dirhodum</u> (Walker)	<u>Macrosiphum dirhodum</u> (Walker)
<u>Acyrtosiphon pelargonii</u> (Kaltenbach)	<u>Macrosiphum pelargonii</u> (Kaltenbach)
<u>Acyrtosiphon pisum</u> (Harris)	<u>Macrosiphum pisi</u> (Harris)
<u>Acyrtosiphon porosum</u> (Sanderson)	<u>Myzus porosus</u> (Sanderson)
<u>Acyrtosiphon solani</u> (Kaltenbach)	<u>Myzus solani</u> (Kaltenbach)
<u>Dactynotus ambrosiae</u> (Thomas)	<u>Macrosiphum ambrosiae</u> (Thomas)
<u>Dactynotus rudbeckiae</u> (Fitch)	<u>Macrosiphum rudbeckiae</u> (Fitch)
<u>Hyadaphis pseudobrassicae</u> (Davis)	<u>Rhopalosiphum pseudobrassicae</u> (Davis)
<u>Macrosiphum avenae</u> (Fabricius)	<u>Macrosiphum granarium</u> (Kirby)
<u>Neomyzus circumflexus</u> (Buckton)	<u>Myzus circumflexus</u> (Buckton)
<u>Ovatus crataegarius</u> (Walker)	<u>Phorodon menthae</u> (Buckton)
<u>Schizaphis graminum</u> (Rondani)	<u>Toxoptera graminum</u> (Rondani)
<u>Smynthuroides betae</u> (Westwood)	<u>Trifidaphis phaseoli</u> (Passerini)

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREENBUG and other GRAIN APHIDS continue at low population levels. PEA APHID noneconomic in Kansas, Arkansas and Oklahoma, but some controls may be necessary in Salt River Valley of Arizona. No SPOTTED ALFALFA APHIDS found in Arkansas, Kansas and Oklahoma. Percent adult ALFALFA WEEVIL survival apparently high in Cache County, Utah, and surveys for eggs, larvae and adults negative in Georgia. (p. 103).

Single MEDITERRANEAN FRUIT FLY adult collected in Steiner trap at Lauderdale-by-the-Sea, Broward County, Florida, on February 4. In Florida citrus groves not seriously defoliated in December freeze, only scattered infestations of MITES and WHITEFLIES are important at this time. (p. 104).

GREEN PEACH APHID, FALL ARMYWORM and BEET ARMYWORM appearing on lettuce in Salt River Valley of Arizona. (p. 105).

Medium larval populations of CALIFORNIA OAKWORM defoliating live oak trees in Santa Barbara County, California. (p. 105).

Unusually heavy populations of MOSQUITOES currently occurring in cities in Sacramento Valley and upper San Joaquin Valley of California. (p. 107).

FORECASTS

Surveys indicate BEET LEAFHOPPER movement to cultivated districts of central and southern Arizona, southeastern California, and eastern Utah and western Colorado to range light to moderate; movement to southern Nevada and southern, central and northern Utah to be light. (p. 105).

DETECTION

A COCCID (Dysmicoccus lasii) collected in Florida for first time. (p. 106).

CORRECTIONS

See page 108.

SPECIAL REPORTS

Beet Leafhopper Survey in Desert Areas of Southern Utah and Nevada, Southeastern California and Central Arizona - January 18 to February 1, 1963. (p. 105).

Notes on Heliothis in Arkansas. (p. 109).

Reports in this issue are for week ending February 8, unless otherwise indicated.

WEATHER OF THE WEEK ENDING FEBRUARY 11

Temperatures for the week averaged from 10° to 25° above normal (near record levels) from the western Great Plains to the Pacific coast, about normal in the Mississippi Valley, and below normal by 3° to 6° in the East except 6° to 12° below in the Hudson Valley. This was the second consecutive unusually warm week in the Far West, and the fourth consecutive abnormally cold week in the Northeast. This week was warmer than the previous week in nearly all sections, and the first warmer than normal week in most of the Great Plains since the first week of the year. A high of 71° at Walla Walla, Washington, on the 4th, was the highest temperature recorded there in February since 1886.

A cold wave moved across the northeast quarter of the Nation on Friday, reducing temperatures to subzero levels in most of New England, New York, Pennsylvania and some other areas of adjoining States. Burlington, Vermont, recorded -20°.

Another cold wave preceded by snow was moving down through the midcontinent area at the end of the period. It was not nearly so severe as those in January, but minima in the Dakotas ranged from 0° to -10° and freezing extended to the west Gulf coastal areas.

Precipitation was heavy along the Pacific coast, in sections of the lower Rockies, an area including portions of eastern Arkansas and western Tennessee, and in parts of Florida and the south Atlantic coast. Elsewhere amounts generally were light to moderate, except that little or none fell in Nevada and western Utah and from southern Texas eastward through Louisiana, Mississippi and Alabama.

Substantial snowfall occurred in the southern Rockies. As much as 14 inches were reported in the northern mountains of New Mexico. But elsewhere in the Far West there was little new snowfall and the mountain snowpack remained below normal. In Washington, the snowpack is the lowest of record for the time of year. High temperatures in the West melted snow at lower elevations.

Snow cover east of the Rockies was heaviest in Maine, with over 2 feet of snow covering northern and interior sections. Greenville, Maine, reported 46 inches on the ground. In the remainder of New England and in New York, Pennsylvania and northern New Jersey, depths generally range from 3 to 6 inches, except more in the mountains and little or none along the coast. In the Midwest, depths range from an inch in central Illinois and Indiana, up to more than 20 inches in extreme northern Michigan. Snowfall preceding the weekend cold wave extended to the Southern States, and on the morning of the 12th, Shreveport, Louisiana, and Jackson, Mississippi, each reported an inch of snow on the ground. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Schizaphis graminum*) - NEW MEXICO - Recent cold temperatures have frozen back wheat and drastically reduced aphid populations in Curry County fields. (N. M. Coop. Rpt.). OKLAHOMA - Populations continue at noneconomic level throughout all small grain sections of State. Surveys negative in many areas. Highest count reported averaged 7 per linear foot in one Muskogee County field. (Okla. Coop. Sur.). KANSAS - None observed in wheat and barley fields checked in Sedgwick, Sumner, Harper, Kingman and Reno Counties, south central. (Peters).

ENGLISH GRAIN APHID (Macrosiphum avenae*) - ARKANSAS - None found in fields checked in northwest. Very little green growth due to cold weather during January. (Ark. Ins. Sur.).

GRAIN APHIDS - OKLAHOMA - ENGLISH GRAIN APHID (Macrosiphum avenae*), APPLE GRAIN APHID (Rhopalosiphum fitchii) and CORN LEAF APHID (R. maidis) counts continue at very low level in all areas, with negative findings in many areas. (Okla. Coop. Sur.).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - OKLAHOMA - Of 25 stalks checked in Beckham County, 23 were girdled. Of 15 larvae recovered, only one alive. In 2 fields checked in Choctaw County, 20 and 22 percent of stalks girdled, with no live larvae recovered. (Okla. Coop. Sur.).

A CUTWORM (Chorizagrotis sp.) - CALIFORNIA - Larvae, probably a species of this genus, heavy on leaf blades of rye in Alturas, Modoc County. (Cal. Coop. Rpt.).

WHEAT CURL MITE (Aceria tulipae) - CALIFORNIA - Medium on Lolium multiflorum (Italian ryegrass) in Berkeley, Alameda County. (Cal. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum*) - ARKANSAS - None found in fields checked in northwest. Very little green growth on cereal and forage crops due to cold weather during January. (Ark. Ins. Sur.). OKLAHOMA - Very light population found in only one field in Garvin County; all other surveys negative. (Okla. Coop. Sur.). KANSAS - None found in examination of alfalfa in south central area. (Peters). ARIZONA - Appearing on annual flowers in Salt River Valley; some controls may be necessary if parasites do not exert control. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - None found in fields checked in northwest. Very little green growth on forage crops due to cold weather during January. (Ark. Ins. Sur.). OKLAHOMA - Checks negative in southeast, south central and central areas. (Okla. Coop. Sur.). KANSAS - None found during examination of alfalfa in south central area. (Peters).

ALFALFA WEEVIL (Hypera postica) - UTAH - Percent of adult survival apparently high in Cache County areas where checks have been made. Activity noted in Cache Valley on February 5 when temperatures were around 60°F. (Knowlton). GEORGIA - Surveys in several northwest and northern counties negative for eggs, larvae and adults. (Johnson).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Trace larval counts noted in alfalfa in Sumner County, south central. (Peters).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Activity greatly reduced since onset of severe cold weather. Counts ranged 0.5-1 per linear foot of row in Major, Alfalfa, Grant and Garfield Counties. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Light, scattered counts of up to 14 per linear foot noted in Tillman County; only scattered individuals observed in fields checked in Kingfisher County. None found in central, south central and northwest areas. (Okla. Coop. Sur.).

* See CEIR 13(5):84.

FRUIT INSECTS

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - FLORIDA - Single adult male collected in Steiner trap at Lauderdale-by-the-Sea, Broward County, February 4. (Fla. Coop. Sur.).

Citrus Insect Situation and Outlook in Florida - End of January 1963

Special Comment - Of the 130 mature groves regularly examined in survey, 66 nearly or completely defoliated by December freeze and 8 of these suffered wood damage. The 64 groves that escaped with moderate to no defoliation were mostly close to the east coast or along southernmost fringes of citrus belt. In groves defoliated in late December, nearly all insect and mite populations are very low, with but few exceptions. Where CITRUS RUST MITE (*Phyllocoptura oleivora*) was abundant on fruit in December, most fruit infestations are still near same level. Where a SNOW SCALE (*Unaspis citri*) was present in December, population is at similar level. This pest is only on wood and was little affected by the freeze. Defoliated groves put out new growth in January. In warmer areas, this growth is about half expanded. Many bloom buds have developed and some are open. In colder areas, new growth is smaller and weaker. Some withering and dropping of this weak flush has been observed.

Outlook - In defoliated groves, all new flush has been substantially free of pests to date, but melanose lesions, RUST MITES and a few SPIDER MITES are appearing. Very few APHIDS have been seen either on citrus or on weed hosts. Although the large amount of tender growth will favor buildup of aphids, mites and whiteflies, present population of these species in damaged groves is so low that few infestations of importance are expected until March. In undamaged groves, pest populations are near December levels and all are below normal for January except TEXAS CITRUS MITE (*Eutetranychus banksi*), WHITEFLIES, GLOVER SCALE (*Lepidosaphes gloverii*), CHAFF SCALE (*Parlatoria pergandii*) and YELLOW SCALE (*Aonidiella citrina*). January 1963 data from 64 groves not seriously defoliated given below. In these groves, only scattered infestations of mites and whiteflies are important at this time.

CITRUS RUST MITE (*Phyllocoptura oleivora*) infested 43 percent of groves; 21 percent economic. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 34 percent of groves; 21 percent economic. CITRUS RED MITE (*Panonychus citri*) infested 24 percent of groves; 12 percent economic. PURPLE SCALE (*Lepidosaphes beckii*) infested 67 percent of groves; none economic. FLORIDA RED SCALE (*Chrysomphalus aonidium*) infested 26 percent of groves; none economic. BLACK SCALE (*Saissetia oleae*) infested 32 percent of groves; none economic. GLOVER SCALE (*Lepidosaphes gloverii*) infested 62 percent of groves; none economic. CHAFF SCALE (*Parlatoria pergandii*) infested 73 percent of groves; none economic. WHITEFLIES infested 81 percent of groves; 20 percent economic. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CALIFORNIA RED SCALE (*Aonidiella aurantii*) - CALIFORNIA - Adults medium on dooryard lemon in Pinedale, Fresno County. (Cal. Coop. Rpt.).

A SCARAB (*Anomala nigropicta*) - FLORIDA - Severely infested *Citrus aurantifolia* at Lehigh Acres, Lee County (Feb. 1). Beetles completely defoliated lime tree in very short period. Also infested *Saintpaulia* sp. at Ft. Myers, Lee County, January 28. (Fla. Coop. Sur.).

PEACH TWIG BORER (*Anarsia lineatella*) - CALIFORNIA - Medium in apricot trees in Niles area, Alameda County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

Beet Leafhopper Survey in Desert Areas of Southern Utah and Nevada, Southeastern California and Central Arizona - January 18 to February 1, 1963

Surveys indicate BEET LEAFHOPPER (Circulifer tenellus) movement to cultivated districts of central and southern Arizona, southeastern California, and eastern Utah and western Colorado to range light to moderate; movement to southern Nevada and southern, central and northern Utah to be light.

Generally, beet leafhopper movement is expected to be light to moderate from breeding areas south of the 34th° parallel and light from areas to the north of this line. Rains during December and early January stimulated good annual weed host development in most of winter breeding areas in Arizona. Dry soil conditions in western Arizona and southeastern California produced spotty distribution of host plants. Few areas with host plant cover were found north of the 34th° parallel. Unusually cold weather in mid-January damaged host plants in some areas and may have caused some reduction of overwintering leafhopper populations.

Host plants were found at 38.7 percent of the 10-mile sampling points, compared with 38 percent in 1962, 34 percent in 1961, 53 percent in 1960, 10 percent in 1959, 70 percent in 1958 and 14 percent in 1957. The average number of beet leafhoppers found in areas where host plants were present was 0.02 per square foot, compared with 0.012 in 1962, 0.02 in 1961, 0.014 in 1960, 0.05 in 1959 and 0.66 in 1958.

This report covers only the beet leafhopper situation as found in the area surveyed. It does not have reference to populations that may have overwintered in local breeding areas in northern and eastern Utah, and in western Colorado and Nevada. (H. H. Blakemore).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Prevalent numbers appearing on lettuce in Salt River Valley. (Ariz. Coop. Sur.).

FALL ARMYWORM (Laphygma frugiperda) - ARIZONA - Beginning to appear on lettuce in Salt River Valley. (Ariz. Coop. Sur.).

BEE T ARMYWORM (Spodoptera exigua) - ARIZONA - Appearing on lettuce in Salt River Valley. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

CALIFORNIA OAKWORM (Phryganidia californica) - CALIFORNIA - Medium larval populations defoliating live oak trees in Santa Barbara County. This is rather late for this pest to be active. Oaks have been severely damaged by this species in many locations over State this year. (Cal. Coop. Rpt.).

FALL CANKERWORM (Alsophila pometaria) - KANSAS - Few scattered egg masses noted on small pin oak nursery stock in Johnson County, east central, January 9. (Thompson).

APHIDS - FLORIDA - Eulachnus rileyi collected on Pinus sp. at Longwood, Seminole County, December 3, 1962, by C. O. Youtsey; this is second record for Department of Plant Industry. Cinara longispinosa heavily infested Pinus serotina at Gainesville, Alachua County, January 11. (Fla. Coop. Sur.).

EUONYMUS SCALE (Unaspis euonymi) - OKLAHOMA - Heavy infestation of 15-20 per leaf reported from Cleveland County. (Okla. Coop. Sur.).

COCCIDS - FLORIDA - Dysmicoccus lasii collected on Borreria terminalis at Miami, Dade County, July 28, 1961. Det. by R. F. Wilkey. This is a new State record. (Fla. Coop. Sur.). CALIFORNIA - Adults of Rhizococcus cacticans medium on roots and in soil around Puya sp. and Anacampseros sp. in a growing ground in Paramount, Los Angeles County. Toumeyella pinicola adults heavy on twigs of ornamental dooryard pine in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

Coccids in Florida - Pseudaonidia clavigera infested Viburnum suspensum at Largo, Pinellas County (Jan. 29). Aspidiotus lataniae moderate on 500 Ilex burfordii at Oviedo, Seminole County (Jan. 28). Fiorinia theae moderate on Euonymus sp. at Bunnell, Flagler County (Jan. 21) and on Ilex burfordii, at Oviedo (Jan. 28). Parlatoria proteus infested Vanda sp. at Naranja, Dade County (Jan. 8); orchids at Wakahoota, Alachua County (Jan. 11); and was moderate on Euonymus sp. at Bunnell (Jan. 21). Pseudaulacaspis pentagona was light on Prunus persica at Hastings, St. Johns County, in January; moderate on Allamanda sp. at De Leon Springs, Volusia County (Jan. 30). (Fla. Coop. Sur.).

PSYLLIDS - CALIFORNIA - Nymphs of Psylla ribesiae heavy on aralia nursery stock in Mountain View, Santa Clara County. Nymphs and adults of Psylla uncatoides light on young acacia trees in Santa Paula, Santa Barbara County. Paratrioza lavaterae heavy on Lavatera assurgentifolia in Montecito, Santa Barbara County, and San Ysidro, San Diego County. (Cal. Coop. Rpt.).

OMNIVOROUS LOOPER (Sabulodes caberata) - CALIFORNIA - Medium on Dodonaea sp., Aralia sp. and Prunus sp. nursery stock in San Luis Obispo and Morro Bay, San Luis Obispo County. (Cal. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americana) - FLORIDA - Infested Prunus serotina at Gainesville, Alachua County, January 30. Det. by L. A. Hetrick. (Fla. Coop. Sur.).

A LEAF ROLLER (Platynota stultana) - CALIFORNIA - Heavy on juniper and cotton-easter nursery stock in Hemet, Riverside County. (Cal. Coop. Rpt.).

CUTWORMS - ARIZONA - Unspecified species appearing in flower beds in many parts of Salt River Valley. (Ariz. Coop. Sur.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Larvae heavy in dichondra lawns in Colusa, Colusa County. (Cal. Coop. Rpt.).

A DRYWOOD TERMITE (Kalotermes approximatus) - FLORIDA - Infested Persea borbonia at Gainesville, Alachua County, January 29. Colony entered branch heartwood via dead branch stub; destruction of heartwood cylinder caused breakage of infested branch. Det. by L. A. Hetrick. (Fla. Coop. Sur.).

A STEM SAWFLY (Hartigia cressonii) - CALIFORNIA - Larvae heavy in rose canes in Los Banos, Merced County. (Cal. Coop. Rpt.).

TUMID SPIDER MITE (Tetranychus tumidus) - FLORIDA - This species and Caloglyphus sp. infested Pittosporum tobira at Brooksville, Hernando County, January 28. (Fla. Coop. Sur.).

INSECTS AFFECTING MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - GEORGIA - Surveys made January 23 to February 1 in several central and southern counties. Of 295 animals examined, 54 infested; counts ranged 1-51 per animal, averaged 2 per animal. (Roberts). OKLAHOMA - Ranged 0-9 (average 4) per head on yearling steers in Stillwater area, Payne County, with fewer than one per head on mature animals. Counts ranged light to heavy in Bryan County, with 7-10 per head noted in McCurtain County and 15 per head in Cleveland County. (Okla. Coop. Sur.).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Larvae have been appearing in backs of cattle in Cache County during past 2 weeks. (Knowlton).

CATTLE LICE - GEORGIA - Of 295 animals examined in surveys conducted during period January 23 to February 1, louse infestations found on 149 animals. Of specimens examined, 2 were Solenopotes capillatus, one was Bovicola bovis and all other specimens were Linognathus vituli. (Roberts). OKLAHOMA - Activity of several species continues on untreated animals throughout State. (Okla. Coop. Sur.). UTAH - Rubbing of some beef cattle noted at Richmond, Cache County. (Knowlton).

CHICKEN BODY LOUSE (Menacanthus stramineus) - ARKANSAS - Counts in flocks in Benton County (northwest) were light on 5 flocks, moderate on one flock and heavy on one flock. Survey method used described in CEIR 12(13):295. (Simco).

MOSQUITOES - CALIFORNIA - Unusually heavy populations currently occurring in cities in Sacramento Valley and upper San Joaquin Valley. Hibernating females have been activated by rain followed by unseasonably warm weather. These pests have created a severe nuisance which homeowners and some business establishments are having difficulty in controlling. (Cal. Coop. Rpt.).

EAR TICK (Otobius megnini) - NEW MEXICO - Populations increasing on cattle in Curry County. (N. M. Coop. Rpt.).

FOWL TICK (Argas persicus) - NEW MEXICO - Reports indicate populations range moderate to heavy and are a problem in several poultry houses in Curry and Dona Ana Counties. (N. M. Coop. Rpt.).

HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - UTAH - Annoyance in northern and central area homes has been very common as result of recent warmer weather. (Knowlton).

ELM LEAF BEETLE (Galerucella xanthomelaena) - ARKANSAS - Adults present in homes in Fayetteville, Washington County (northwest). (Ark. Ins. Sur.).

COCKROACHES - ARIZONA - Unspecified species causing considerable annoyance to homeowners in central area of State. (Ariz. Coop. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - MARYLAND - Caused a nuisance in homes in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

TROPICAL RAT MITE (Ornithonyssus bacoti) - MARYLAND - Caused a nuisance in home at Centreville, Queen Annes County. (U. Md., Ent. Dept.).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - FLORIDA - Collected at Gainesville, Alachua County. Winged reproductives flying from many woodland locations during early afternoon. Flights within heated buildings several days to several weeks earlier locally. (Hetrick).

A DRYWOOD TERMITE (Kalotermes snyderi) - ALABAMA - Heavily infested several household furnishings in Mobile County. Several articles damaged beyond repair at time of discovery. (Seibels).

STORED-PRODUCT INSECTS

WHITE-SHOULDERED HOUSE MOTH (Endrosis sarcitrella) - CALIFORNIA - Heavy in seed oats in Guadalupe, Santa Barbara County. (Cal. Coop. Rpt.).

INDIAN-MEAL MOTH (Plodia interpunctella) - MARYLAND - Adults emerged in Anne Arundel County home. (U. Md., Ent. Dept.).

CIGARETTE BEETLE (Lasioderma serricorne) - OKLAHOMA - Found infesting tobacco in Stillwater area, Payne County. (Okla. Coop. Sur.).

DRUGSTORE BEETLE (Stegobium paniceum) - OKLAHOMA - Causing concern in Oklahoma City and Tulsa areas. (Okla. Coop. Sur.).

YELLOW MEALWORM (Tenebrio molitor) - NEW MEXICO - Light to moderate infestations found among stored sacks and feed in Curry County. (N. M. Coop. Rpt.).

MISCELLANEOUS INSECTS

AN EARTHWORM MITE (Fuscuropoda agitans) - CALIFORNIA - Medium in mud and wet grain on dairy property in Cypress, Orange County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 11(48):1085 - A LEAFHOPPER (Fieberiella florii) - OREGON - This is not a new State record for 1961. Recent determinations of leafhoppers collected at various locations in Oregon during 1949, 1950, 1951 and 1952 showed this species to be present prior to 1961. (Capizzi).

LIGHT TRAP COLLECTIONS

SOUTH CAROLINA - Charleston (Feb. 4-10) - ARMYWORM (Pseudaletia unipuncta) - 1;
GRANULATE CUTWORM (Feltia subterranea) - 2.

NOTES ON HELIOTHIS IN ARKANSAS

By

W. P. Boyer, W. H. Whitcomb, Grover C. Dowell and Robert Bell 1/

The abundance and economic importance to several crops of Heliothis spp., primarily H. zea (Boddie), has created a need for more survey on this genus. As a result, survey has been increased during the past six years. Special attention has been given to first seasonal appearance, early-season life cycle, seasonal history, hosts, predators, species involved and surveys to determine areas within the State in which insecticide resistance may be developing or may have developed.

Even though early-season infestations of H. zea are seldom of economic importance in Arkansas, they are, however, the predecessors of midseason outbreaks. For this reason, a study was begun in 1957 to determine where and in what crops H. zea first appeared in Arkansas.

In 1935, Isely mentioned that moths of H. zea may be found in northwest Arkansas as early as April 13. He also pointed out that first-generation larvae may be swept from vetch or alfalfa in May and that they had been found damaging seedling corn.

At first, an attempt was made in this study to capture early-flying moths by the use of light traps. The traps were standard U.S.D.A. survey-type, equipped with two G.E. blacklight bulbs. Eggs were often discovered in the field before any moths were taken in the traps. Sweep nets were unsatisfactory, since the eggs would have been in the field a week before the small larvae were picked up in the net. The most satisfactory method proved to be direct examination of the plants in the field for eggs. This was particularly satisfactory on crimson clover. A hand lens was used for identification, and the eggs were then brought into the laboratory for rearing. A foot-square wooden frame was used for counts.

During early May of 1958, third-stage larvae were found in white clover in Bradley County and the next week in crimson clover in Conway County, Arkansas. On April 13, 1959, eggs were taken in three southwestern Arkansas counties. They were found in several different legumes but were most abundant in crimson clover. On April 11, 1960, eggs were collected in southwest Arkansas in much the same counties as in 1959. The eggs were again far more abundant in crimson clover. In 1960, eggs were taken in forty-five counties before the first of May. Egg counts varied from one to seventeen per square foot. Neither in 1959 nor in 1960, was a single larva found during the first three days of survey. Frosts, one or two nights before, may have killed them. After the middle of April, eggs could be found until the last week of May, indicating a gradual and somewhat scattered emergence. In 1961, eggs were found April 4 in three counties in southwest Arkansas. One second-stage larva was found in that area on the same date. In 1962, egg deposition was later than it had been in previous years; the first eggs were found April 25 in southwest Arkansas.

In 1959, crimson clover began to dry up about the first of May and was no longer attractive for egg deposition. In 1960, crimson clover began to dry up approximately May 10. Eggs were taken from early corn whorls and tomato terminals

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on May 7 in 1959 and on May 10 in 1960. The last eggs of the first generation were found on May 23 in 1959 and on May 27 in 1960. In both cases, the moths began to emerge between June 5 and June 10.

Early-season hosts included crimson clover, white clover, burclover, red clover, alsike clover, hop clover, alfalfa, vetch, rough peavine, evening-primrose (Oenothera sp.), lupine, tomato, corn and strawberry.

In the insectary, eggs laid before May 5 required 7 to 8 days to hatch. Larvae from these eggs required 30 to 36 days to reach the prepupal stage. The prepupal stage lasted 3 days. Pupae emerged in 14 to 18 days. Under these conditions, the total life cycle lasted 54 to 65 days. Larvae fed on alfalfa took approximately 2 days less from egg to prepupa than those fed on crimson clover. Those fed on corn whorls took slightly longer than those fed on crimson clover.

From March 1957 to June 1962, a special investigation gave important information on predators of Heliothis spp. in early-season crops.

Orius insidiosus (Say) appeared to be the most important single predator of early-season H. zea. It was taken simultaneously in early composites and legumes in late March in south Arkansas. It was particularly effective as an egg predator. At least four species of lady beetles fed on Heliothis eggs in early legumes in Arkansas. They were Coleomegilla maculata (Degeer), Hippodamia convergens Guérin-Méneville, Olla abdominalis (Say) and Cycloneda munda (Say). Early in the year, Cycloneda munda was the most abundant species in legumes. The nabids, Nabis capsiformis Germar, N. ferus (L.), N. alternatus Parshley, N. roseipennis Reuter, N. sordidus Reuter, and N. deceptivus Harris, and the lygaeid, Geocoris punctipes (Say), fed freely on Heliothis larvae. The nabids were found all winter in legume fields, particularly on warm days. G. punctipes appeared in early April in legume fields. Members of the genus Zelus, particularly Z. exsanguis (Stål) and Z. cervicalis Stål, were predators on the second and third-stage Heliothis larvae. They overwintered in leaf trash as nymphs, climbed onto nearby shrubs in early March, fed, transformed into adults, and flew to nearby small grain, legume and other cultivated fields. The genus Polistes, including P. annularis (L.), P. exclamans Viereck, and P. rubiginosus Lepelletier, preyed on large larvae. They were apparently more effective as predators in May than in April.

Species Study

In 1962, a survey was conducted to determine the relative abundance of Heliothis zea (Boddie) and H. virescens (Fabricius) in certain crops. Light trap collections at four locations are summarized in Table 1, page 112.

In total collections for the season, as shown in Table 1, H. zea outnumbered H. virescens 2,845 to 40 (a 71 to 1 ratio). The earliest H. virescens collected was one moth taken at Kelso the week of June 14-20, when four H. zea were taken. The largest number of H. virescens taken in any one-week period was 13 at Little Rock the week of August 16-22, when 183 H. zea were collected. The largest weekly catch of H. zea was 372 the week of July 16-22 at Kelso, when two H. virescens were taken. Larval collections from cotton are summarized in Table 2.

Survey has been used as a tool to detect resistant populations of bollworm, Heliothis zea, in cotton. The point-sample method of scouting cotton insects now being used in Arkansas is sufficiently sensitive that bollworm resistance can be detected from point-sample scouting records taken weekly. Counts taken by this method give the following information.

1. Number of row feet to obtain 200 green squares $\frac{1}{4}$ inch or larger in diameter -- four samples of 50 squares each.

2. Number of bollworm damaged green and flared squares on the feet of row covered under number 1.
3. Number of bollworm eggs and larvae in 100 terminals.
4. Insecticidal treatments including date, material, dosage, and rate and method of application.

In 1961, resistance was detected in two Arkansas counties, while in 1962, resistance was detected in 11 counties.

Survey was further used to study resistance by the collection of 6,992 larvae of H. zea from corn in 13 counties. These larvae were delivered alive to a laboratory where a uniform method of topical applications of insecticides was used. Indications of resistance were shown by the average number of larvae killed, which varied by counties from a low of 42 percent to a high of 90 percent.

With resistance of Heliothis spp. to certain insecticides apparently becoming more widespread, and with the increasing economic importance of this genus, comparable survey will be continued.

Reference: Isely, Dwight. 1935. Relation of Hosts to Abundance of Cotton Bollworm. Ark. Agr. Expt. Sta. Bul. 320:1-30.

Cooperative Economic Insect Report,
Vol. 13, No. 7, February 15, 1963.

Table 1 - Light Trap Collections - 1962

Heliothis zea and H. virescens

(N.R. - No Record; Z. - zea; V. - virescens)

Dates	Kelso		Hope		Little Rock		Morrilton		Total	
	Z.	V.	Z.	V.	Z.	V.	Z.	V.	Z.	V.
May 10-16	0	0	N.R.	N.R.	N.R.	N.R.	1	0	1	0
May 17-23	4	0	N.R.	N.R.	N.R.	N.R.	4	0	8	0
May 24-30	8	0	1	0	N.R.	N.R.	6	0	15	0
May 31-June 6	3	0	0	0	N.R.	N.R.	6	0	9	0
June 7-13	4	0	2	0	N.R.	N.R.	8	0	14	0
June 14-20	4	1	3	0	N.R.	N.R.	4	0	11	1
June 21-27	7	0	2	0	18	0	8	2	35	2
June 28-July 4	5	0	1	0	13	0	5	0	24	0
July 5-11	6	0	9	0	18	0	25	0	58	0
July 12-18	10	0	52	0	20	0	27	0	109	0
July 19-25	21	0	47	2	11	0	29	0	108	2
July 26-Aug. 1	28	1	9	0	46	0	15	0	98	1
Aug. 2-8	54	1	29	1	88	0	24	0	195	2
Aug. 9-15	122	0	26	3	104	8	19	0	271	11
Aug. 16-22	372	2	N.R.	N.R.	183	13	47	0	602	15
Aug. 23-29	44	2	N.R.	N.R.	200	0	59	0	303	2
Aug. 30-Sept. 5	52	2	N.R.	N.R.	N.R.	N.R.	38	0	90	2
Sept. 6-12	76	0	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	76	0
Sept. 13-19	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.
Sept. 20-26	290	1	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	290	1
Sept. 27-Oct. 3	204	1	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	204	1
Oct. 4-10	281	1	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	281	1
Oct. 11-17	133	1	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	133	1
Oct. 18-24	42	0	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	42	0
Grand Total									2,845	40

Table 2 - Bollworm Larvae Collected in Cotton - 1962

County	Late August Collections		September - October Collections		
	Number of <u>H. zea</u>	Number of <u>H. virescens</u>	County	Number of <u>H. zea</u>	Number of <u>H. virescens</u>
Chicot	55	0	Desha - 9/26	21	7
Desha	154	2	Desha - 10/16	75	9
Faulkner	49	0			
Jackson	89	1	Total	96	16
Jefferson	336	0			
Johnson	20	0			
Lee	38	0			
Lincoln	110	0			
Lonoke	11	0			
N. Mississippi	57	0			
Washington	11	0			
Yell	15	0			
Total	945	3			

Further larval collections were as follows:

Area	Date	Host	Number of <u>H. zea</u>	Number of <u>H. virescens</u>
Southeast Arkansas	September 5-12	Soybeans	238	0
Southeast Arkansas	September 13-26	Sorghum	69	0

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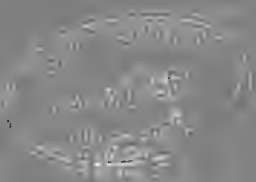
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ECONOMIC REPORT

REPORT

1957

U.S. DEPARTMENT OF AGRICULTURE
ECONOMIC DIVISION
ECONOMIC RESEARCH SERVICE
U.S. DEPARTMENT OF AGRICULTURE



AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued semi-annually to monitor Agriculture. The contents are compiled from information supplied by cooperating State, Federal and industrial entomologists and other agricultural workers. In releasing this material the Division assumes no clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington, 25, D.C.

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Continued cold weather holding GREENBUG and other aphids at noneconomic levels in Oklahoma. New infestation of MEDITERRANEAN FRUIT FLY found at Boynton Beach, Palm Beach County, Florida, with trapping of adult female January 29. Additional larvae found at known infestation at Lauderdale-by-the-Sea, Broward County. (p. 87).

DETECTION

IMPORTED FIRE ANT collected for first time in Hernando County, Florida. (p. 90).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 89).

Soybean Insect Survey as Used in Arkansas. (p. 91).

Summary of Insect Conditions in Hawaii - 1962. (p. 93).

New 1962 Maryland Insect and Mite Records. (p. 95).

1962 Occurrence of Brood II of the Periodical Cicada in Maryland. (p. 96).

Interceptions of Special Interest at U. S. Ports of Entry. (p. 97).

Insects Not Known to Occur in the United States (wheat chafer, Anisoplia austriaca Hbst.). (p. 98).

WEATHER BUREAU 30-DAY OUTLOOK

FEBRUARY 1963

The Weather Bureau's outlook for February calls for above-normal temperatures to prevail over the southwestern quarter of the Nation and about normal over the Northwest. This appreciable moderation, compared to January, will penetrate only occasionally into the eastern half of the Nation where temperatures are expected to fluctuate widely but average below seasonal normals. Precipitation is expected to exceed seasonal normals over most of the area lying west of the Continental Divide and also along coastal areas from the Virginia Capes northward. On the other hand, subnormal precipitation is indicated for the Great Lakes region, the southern Plains and the Gulf States. In unspecified areas, about normal precipitation is anticipated, frequently in the form of snow.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price \$4.80 a year, \$2.40 a half year.

WEATHER OF THE WEEK ENDING FEBRUARY 4

Sharp temperature fluctuations occurred east of the Rocky Mountains last week, and average temperatures were a few degrees higher than for the previous week. Nevertheless, this was the third consecutive unusually cold week, with averages as much as 18° below normal in the Midwest. Cold waves moved across the area early and late in the week, bringing subzero minima southward to the central Great Plains and the Ohio Valley. Temperatures averaged above zero in Wisconsin for the first time in 3 weeks, and many frozen pipes and sewers were reported in the State. In western Kansas, temperatures in some locations rose 95° from January 27 to February 1, and Dodge City's 86° on Friday was a record high there for February. Minneapolis, Minnesota, had 21 consecutive days with minima zero or lower, a new record. The weekend cold wave brought another damaging freeze to the lower Rio Grande Valley, with a low of 26° at Rio Grande City. Average temperatures in the Far West were higher than last week generally by 10° to 20° and were as much as 12° above normal in the Great Basin after 3 abnormally cold weeks there.

The rise in temperatures in the Far West was accompanied by heavy precipitation which brightened the outlook for irrigation water. Some locations in Utah had record rainfalls, with Deer Creek recording 5.08 inches in 24 hours for a new State record. Heavy rains caused widespread flooding in southern Idaho the latter part of the week. Severe local flooding also was reported near Reno, Nevada. Snowfall increased the snowpack in the Sierras and Cascades, but it still remains below normal.

Precipitation east of the Rockies was again mostly limited to the Appalachian region and the Atlantic and Central and East Gulf Coastal States. Glaze made roads slick in parts of the Midwest and South early in the period and in the Northeast over the weekend. The snow cover melted in Kansas and in the plains of Colorado, Wyoming, and western Nebraska and South Dakota. Chinook winds with temperatures up to 64° in Wyoming removed the snow from lower levels and caused snowslides in the mountains. Snow also melted in most of Missouri and the Ohio Valley, and depths decreased slightly in areas farther north. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Schizaphis graminum*) - OKLAHOMA - Continued cold weather holding populations at noneconomic levels throughout State. Highest counts ranged 8-15 per linear foot in Wagoner and Muskogee Counties. Many observations in north central, west central and northwestern areas negative, with numerous dead aphids present in some areas. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Generally light in barley fields near Animas, Hidalgo County. Ranged 5-15 per linear foot of row. (N. M. Coop. Rpt.). FLORIDA - Severe on 3 acres of sorghum at Bonita Springs, Lee County, January 17. (Fla. Coop. Sur.).

GRAIN APHIDS - OKLAHOMA - APPLE GRAIN APHID (Rhopalosiphum fitchii), ENGLISH GRAIN APHID (Macrosiphum avenae*), and CORN LEAF APHID (Rhopalosiphum maidis) populations continue at very low levels throughout State. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Occasional specimens found in small grains checked in north central areas. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Only an occasional aphid found in alfalfa near Animas, Hidalgo County. (N. M. Coop. Rpt.). OKLAHOMA - Negative in field of seedling alfalfa in Kay County heavily infested in earlier checks. (Okla. Coop. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Low populations of 0-2 per linear foot observed in fields checked in Garfield, Alfalfa, Grant, Kay and Noble Counties. Heavier, localized population reported in winter peas in Garfield County. (Okla. Coop. Sur.).

FRUIT INSECTS

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - New infestation located at Boynton Beach, Palm Beach County, with trapping of adult female January 29. Four more larvae collected January 22 in calamondin at known infestation at Lauderdale-by-the-Sea, Broward County. (Fla. Coop. Sur.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - Total of 6,277 inspections of 1,848 traps in the States of Baja California and Sonora negative. Incidental inspection of fallen fruit in Baja California also negative. (PPC, Mex. Reg., Dec. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - Total of 255 trees on 3 properties found lightly infested in State of Tamaulipas. Parasites survived treatments in grove in Padilla, Tamaulipas, in sufficient numbers to control remaining citrus blackfly. Chemical Control Zone - Total of 108,294 citrus trees inspected on 2,624 properties in the States of Baja California, Sonora, Tamaulipas, Nuevo Leon and Coahuila negative. Quarantine stations at Linares, Nuevo Leon, intercepted many trucks with large amounts of citrus fruit with leaves from Veracruz State; leaves frequently found with live forms of citrus blackfly. (PPC, Mex. Reg., Dec. Rpt.).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Medium on walnut trees in Gilroy, Santa Clara County. (Cal. Coop. Rpt.).

* See CEIR 13(5):84.

TRUCK CROP INSECTS

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light on cabbage and collards in Thomas County. (Johnson).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light feeding on tobacco in the seedbed noted in Tift, Berrien, Cook and Thomas Counties. (Johnson).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - MEXICO - Gin trash inspections in the States of Sonora and Baja California and in southern part of Tamaulipas negative; inspections terminated. Inspection of debris in 42 fields comprising 5,915 acres in the States of Tamaulipas, Nuevo Leon and Coahuila yielded 75 specimens. Lint cleaner inspections in Sonora and southern Tamaulipas negative. (PPC, Mex. Reg., Dec. Rpt.). FLORIDA - Infesting Hibiscus sp. south of Key Largo, Monroe County, January 22. Det. by W. Breidenbach. (Fla. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BLACK CITRUS APHID (Toxoptera aurantii) - FLORIDA - Severe on Murraya exotica at Davenport, Polk County (Jan. 17), and light on Hamelia erecta at Ft. Lauderdale, Broward County (Jan. 20). (Fla. Coop. Sur.).

SPIREA APHID (Aphis spiraeicola) - CALIFORNIA - Populations heavy on Viburnum sp. in Stockton, San Joaquin County. (Cal. Coop. Rpt.).

AN APHID (Cinara tujafilina) - FLORIDA - Infested arborvitae (Thuja sp.) at Clewiston, Hendry County (Jan. 21). (Fla. Coop. Sur.). OKLAHOMA - Causing honeydew secretions on arborvitae in areas about Durant, Bryan County, and Stillwater, Payne County. (Okla. Coop. Sur.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - FLORIDA - Light on Pinus sp. at Brooker, Bradford County (Jan. 4). (Fla. Coop. Sur.).

FERN SCALE (Pinnaspis aspidistrae) - CALIFORNIA - Heavy on staghorn fern locally in San Diego, San Diego County. (Cal. Coop. Rpt.).

A MEALYBUG (Pseudococcus nipae) - CALIFORNIA - Heavy on nursery stock of Cordyline sp. in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

Coccids in Florida - Chrysomphalus aonidum infested Aucuba sp. at Palatka, Putnam County (Jan. 18), and was severe on Camellia japonica at Apopka, Orange County (Jan. 22). Ceroplastes floridensis was moderate on Fortunella margarita at Davie, Broward County (Jan. 9). Kuwanaspis pseudoleucaspis infested Bambusa sp. at De Land, Volusia County (Jan. 15). Pseudauleucaspis pentagona infested twigs of Prunus persica at Sanford, Seminole County (Jan. 10), and at Lake Como, Putnam County (Jan. 16); and was moderate on Ligustrum sp. at Zephyrhills, Pasco County (Jan. 25). (Fla. Coop. Sur.).

A SPRINGTAIL (Hypogastrura pseudarmatus) - NORTH CAROLINA - Undetermined species reported in CEIR 13(4):46 as sufficiently numerous in poultry watering troughs to be troublesome, determined as this species by D. L. Wray. (Mount).

BLACK-LEGGED TICK (Ixodes scapularis) - FLORIDA - Collected from dog at Travernier, Monroe County (Jan. 25). (Fla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - UTAH - Very annoying in several homes at Hyrum, Cache County, and in some residential areas southeast of Salt Lake City. (Knowlton).

A CARPENTER ANT (Camponotus sp.) - NORTH CAROLINA - Infested home in Randolph County January 8. (Jones).

OLD-HOUSE BORER (Hylotrupes bajulus) - MARYLAND - Infested floor joists in home at Mitchellville, Prince Georges County. (U. Md., Ent. Dept.).

STORED-PRODUCT INSECTS

DRIED-FRUIT MOTH (Vitula edmandsae serratilineella) - CALIFORNIA - Light on dried peaches held in cold storage in warehouse in Vacaville, Solano County. Several tons of dried peaches dumped because of no satisfactory method of reconditioning fruit. (Cal. Coop. Rpt.).

WIREWORMS - NEW MEXICO - Larvae of undetermined species abundant in sacked feed at several ranches in Lea County. (N. M. Coop. Rpt.).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Collected 2.4 miles north of State Highway 595 on State Highway S-595 in Hernando County on January 21. This is initial record for the county. (Fla. Coop. Sur.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Survey has covered some 800 city blocks in Sacramento; nearly one-third of blocks inspected have infestations. Apparently main infested area now showing limiting boundaries as only few blocks have been added. With buffer blocks included in eradication treatment, some 400 blocks will be treated. Spray crews currently operating in area, with over 50 blocks treated. Additional crews will be added as men and equipment become available. With favorable weather, program will be completed in time to allow safety margin before spring emergence. Public relations very favorable to date. This cooperation reflects unusually heavy infestations of other whitefly species which have been experienced past 2 years. (Cal. Coop. Rpt.).

AN EARWIG - NEW MEXICO - Infestation of undetermined species found in dairy barn near Eunice, Lea County. (N. M. Coop. Rpt.).

LIGHT TRAP COLLECTIONS

SOUTH CAROLINA - Charleston (Jan. 28 - Feb. 3) - ARMYWORM (Pseudaletia unipuncta) - 13; GRANULATE CUTWORM (Feltia subterranea) - 5.

Soybean Insect Survey as Used in Arkansas

The plant-shaking method of survey for soybean insects has been used in Arkansas for several years. With the very extensive increase in soybean acreage, work was conducted to improve the method by the use of certain equipment. The equipment consists of a piece of heavy white or off-white cloth. Each end of the cloth is folded over a thin piece of one-inch wood and sewn tight so that wood will not slip out of the fold. The finished piece of equipment is 24 x 42 inches with the ends rigid. This cloth can then be rolled together and easily handled as shown in figure 1. As shown in figure 2, the cloth can be unrolled to any length up to 42 inches to fit any row width. Row widths vary, however. Most of the fields in Arkansas are planted in 38 or 40-inch rows.



Figure 1



Figure 2

The surveyor enters a field and selects a site at random. For soybeans standing upright, the surveyor stands between two rows facing parallel with the rows. He then unrolls the cloth and slides it forward at ground level under undisturbed plants. The surveyor then kneels down, extends each arm forward parallel with the row on either side, and vigorously shakes the vines over the cloth. See figure 3. Approximately one and one-half row feet of plants on each row are shaken to give a sample of three row feet. The plants are then pushed back from over the cloth and the insects on the cloth are counted. To provide better light the surveyor may stand upright with the cloth above the tops of the plants.

In many cases in Arkansas, the plants tend to lean over. This may occur as a result of vigorous growth on the more fertile soils. Other causes according to agronomists are late planting, thick stands, or a combination of both. In these fields, the surveyor faces perpendicularly to a row in opposite direction of the leaning plants. The cloth is carefully placed under the leaning plants, with the longer dimension parallel with the row. Plants on three row feet of the one row are shaken as described above. See figure 4.



Figure 3



Figure 4

Additional sites are selected at random until a minimum of 10 sites have been sampled at locations to give field coverage. Infestations are reported as to number of the various species found on 30 row feet.

This method has proved satisfactory for the various species, except three-cornered alfalfa hopper (Spissistilus festinus) adults which are easily disturbed and fly too quickly. The method seems satisfactory for nymphs of this species.

In sampling fields infested with corn earworm (Heliothis zea) larvae, the surveyor must look carefully for large larvae which may fall near the base of the plants or in the opposite middles and miss the cloth. Only large larvae are likely to do this and are easily seen.

In surveying for stink bugs, field coverage is very important as infestations may be very uneven. Special attention should be given to areas in the field near timber. Very vigorous shaking is required for stink bug survey.

The use of the cloth is much better than shaking the insects on the ground, especially if there are cracks in the soil or there is debris on the ground. (W. P. Boyer and W. A. Dumas).

SUMMARY OF INSECT CONDITIONS IN HAWAII - 1962

Submitted by the Hawaiian
Entomological Society*

Highlights: New immigrant insect pests were reported during the year while recently established immigrant pests spread to the neighbor islands. LAWN ARMYWORM infestations were generally sporadic, but caused heavy damage in some areas on Oahu. Reports of damage to showertrees and litchi by a TWIG-BORING EUCOSMID MOTH (Cryptophlebia sp.) increased somewhat. Heavy infestations of BLACK CUTWORM were reported on Kauai and Hawaii. Rapid establishment of introduced beneficial insects promised effective control of some of the insect and weed pests. Of special interest was a rare noctuid collected at the Kokee Tracking Station, Kauai. The specimen was sent to Dr. E. L. Todd, USDA taxonomist, Washington, D. C., who commented as follows: "The very unusual noctuid collected at Kokee, Kauai...is apparently an undescribed species."

Cereal and Forage Insects: A BILLBUG (Sphenophorus venatus vestitus), confined to Oahu until recently, spread to Kauai, Molokai, and Maui. On Oahu, it caused severe damage to several acres of sugarcane seedlings at the Hawaiian Sugar Planters Association Substations at Kailua and Kunia, Oahu. This pest seriously damages lawn grasses and has been reported from other graminaceous hosts in the Southeastern States, but this is the first record of damage to sugarcane. The RUSTY PLUM APHID (Hysteroneura setariae), a vector of sugarcane mosaic, was reported for the first time from island of Hawaii. It is established on Oahu and Molokai. A heavy infestation of LAWN ARMYWORM (Spodoptera mauritia acronyctoides) was found damaging Tifton 358, a relatively new lawn grass, at Wai'ialea Nui, Oahu, during the latter part of August. Earlier, 33 acres of lawn surrounding a housing area in Pearl City (Oahu) were almost completely denuded. On Kauai, damage to nightblooming-cereus, "airplant" and sedum by BLACK CUTWORM (Agrotis ipsilon) was reported and, on the island of Hawaii, two plots of trefoil and clover seedlings in an experimental planting were destroyed. Honokaa Sugar Company also reported heavy damage to a newly planted area of sugarcane by this cutworm.

Forest, Ornamental and Shade Tree Insects: A STINK BUG (Brochymena quadripustulata) was collected in Lualualei Valley, Waianae, Oahu, in October, a first report of this pentatomid from the State. B. quadripustulata is widely distributed across the continental United States, southern Canada and northern Mexico. Hosts include pines, sumac, mountain ash, elm, oak, willow, cherry, apple, pear and grape; it is also predaceous on soft-bodied larvae. The COFFEE TWIG BORER (Xyleborus morstatti) gradually increased its range from Kailua to the adjacent district of Kaneohe but still appears to be confined to Oahu. Reports of damage to ornamentals by a NOCTUID (Achaea janata) continued through the early part of the year. Considerable reduction in populations of a CONIFEROUS TWIG APHID (Cinara carolina) on loblolly pine seedlings on Maui and Molokai was noted; however, on Molokai the GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) caused heavy damage to plantings of Monterey pine where much killing of needle clusters was observed.

A CICADELLID (Protalibrella braziliensis), first reported in September 1960, caused heavy damage to Lippia canescens, a low-growing plant commonly used for ground cover. This is the first record of damage by P. braziliensis in Hawaii.

* Coordinated by the Entomology Branch, State Department of Agriculture, with University of Hawaii, Pineapple Research Institute and Hawaiian Sugar Planters Association cooperating.

Truck Crop Insects: The SOUTHERN GREEN STINK BUG (Nezara viridula) is now firmly established on Oahu and has spread to Kauai. Unconfirmed reports indicate that it may also be established on Molokai. Its rapid spread, destructiveness and increasing host list make Nezara one of the most destructive immigrant pests in Hawaii in recent years.

Insects Affecting Man and Animals: First recovery of a MOSQUITO (Aedes vexans nocturnus) from an outer island (Kauai) was reported in April. A. vexans nocturnus was first discovered on Oahu in January. Also on Kauai, two additional "firsts" were reported; the SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus), a new pest record for the island, and another CATTLE LOUSE (Solenopotes capillatus) collected from a young calf at Kipu Ranch in July, a new record for the State. On Maui and Hawaii, the NORTHERN CATTLE GRUB (Hypoderma bovis) was reported increasingly active. Cattle were observed running frantically trying to escape fly attacks.

Mass nocturnal flights of SCIARID MIDGES (Sciara garretti, S. spatitergum and S. radicum) in astronomical numbers were reported in Naalehu (Hawaii) and nearby areas during the last week of January and first week of February. The midges were reported so numerous that they obscured headlights and coated windshields of vehicles.

Beneficial Insects: Introduced beneficial insects continued to exert heavy pressure on the weed pests, lantana and emex, on Hawaii and Maui during the early part of the year. However, dry weather conditions throughout the State during the second half of the year seriously retarded activities by these insects.

On Kauai, a FLOWER-FEEDING TEPHRITID (Tetraeuaresta obscuriventris), introduced from Fiji for the control of Elephantopus mollis, a serious weed pest, was recovered a short two months after its release. Another rapid establishment (Kauai) was the recovery of the introduced PUNCTUREVINE WEEVIL (Microlarinus lareynii) to control puncturevine, Tribulus terrestris. Introduced and released in August, it was recovered in late September at Kekaha where large numbers in all stages of development were collected from seeds that were recently separated from plants. The introduced LANTANA HISPID (Uroplata girardi) appeared to be established at east Lawai Valley, Kauai.

On Hawaii, a SEED-FEEDING BRUCHID (Bruchus atronotatus) was recovered from Christmasberries in Kau in August. This is the first recovery of this introduced weevil and the second insect to become established on this range weed pest. In October, B. atronotatus was recovered at Heeia, Oahu, the first recovery for this island. The introduced SCIOMYZID FLY (Sepedon macropus), a liver fluke snail predator, continued to flourish in the State. Large numbers of this snail killer were observed at Kawaiinui Swamp in March, and one specimen was swept from Batis maritima in the old Hawaiian salt beds of Kahua Ranch, Ewa, Oahu, in October. It was the first recovery of an adult in an area nearly four miles from the nearest release site.

New 1962 Maryland Insect and Mite Records

by

T. L. Bissell, W. C. Harding, Jr., and C. W. McComb 1/

1. Apion hibisci Fall (COLEOPTERA: CURCULIONIDAE) 2/
Collected from Hibiscus oculiroseus by T. L. Bissell at Lexington Park, St. Marys County, September 4, 1960. Determined by R. E. Warner.
2. Brevipalpus phoenicis (Geijskes) (ACARINA:TENUIPALPIDAE) 3/
Collected from palm inside a greenhouse by C. W. McComb at Catonsville, Baltimore County, October 23, 1961. Determined by E. W. Baker.
3. Eotetranychus carpini (Oudemans) (ACARINA:TETRANYCHIDAE) 3/
Collected from elm by C. W. McComb at Rockland, Baltimore County, October 10, 1961. Determined by E. W. Baker.
4. Lepidosaphes yanagicola Kuwana (HOMOPTERA:DIASPIDIDAE) 2/
Collected from Pachysandra sp. (in cold frames) by C. W. McComb at Towson, Baltimore County, April 17, 1962. Determined by H. Morrison.
5. Miccotrogus picirostris (Fabricius) (COLEOPTERA:CURCULIONIDAE) 2/
Collected from soil around ladino clover by A. L. Steinhauer at Fairland, Montgomery County, June 15, 1962. Determined by R. E. Warner.
6. Schizolachnus lanosus Hottes (HOMOPTERA:APHIDAE)
Collected from Pinus taeda by T. L. Bissell at Lexington Park, St. Marys County, July 21, 1960. Determined by F. C. Hottes.

1/ Department of Entomology, University of Maryland, College Park, Maryland.

2/ Previously published in the Cooperative Economic Insect Report.

3/ Intercepted on plant material, establishment uncertain.

1962 Occurrence of Brood II of the Periodical Cicada in Maryland

by

T. L. Bissell, W. C. Harding, Jr., and C. W. McComb 1/

<u>County</u>	<u>Localities Where Specimens or Injury to Plants Were Observed</u> <u>2/</u>
Anne Arundel	Annapolis (<u>Severn Grove</u>), Epping Forest.
Charles	Route 224 (<u>Douglas Point to Chixamuxen</u>), Hilltop, Welcome, La Plata, Port Tobacco, Pomfret, Turkey Hill Road, Grosstown, Brice.
Calvert	<u>Prince Frederick</u> , Barstow, <u>Bowens</u> , <u>Port Republic</u> , <u>St. Leonard</u> , Island Creek, Lusby, Solomons.
Prince Georges	Aquasco <u>3/</u> , Eagle Harbor <u>3/</u> .
St. Marys	Charlotte Hall, Mechanicsville, Thompson Corner, Oaks, Golden Beach, Harpers Corner, <u>Oakville</u> , <u>Sandgates</u> , Hillville, <u>Hollywood</u> , Drumcliff, California, Town Creek, Lexington Park, Carver Heights Run, Scotland, Ridge, Drayden, <u>Great Mills</u> , Route 5 (<u>Red Gate to Leonardtown</u>), <u>Turntop Hill</u> , <u>McIntosh Road</u> , Dynard, Avenue and Abell.

1/ Department of Entomology, University of Maryland, College Park, Maryland.

2/ Underlined localities indicate moderate to heavy infestations.

3/ Not verified.

INTERCEPTIONS OF SPECIAL INTEREST AT U. S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on November 30, 1962, follow. These reports are based on the identifications received from Federal taxonomists at the U. S. National Museum during the month, but do include any of special interest from recent months that were not previously reported.

CITRUS BLACKFLY (Aleurocanthus woglumi Ashby) at Miami, Florida, in baggage.

MEXICAN FRUIT FLY (Anastrepha ludens (Lw.)), or probably that species, 29 times (2 times in stores, 5 times in quarters and 22 times in baggage). One time each at Calexico, California; Presidio, Texas; and Galveston, Texas. Twice each at Houston, Texas; Tampa, Florida; New York, New York; and Chicago, Illinois. Three times at El Paso, Texas; 7 times at Laredo, Texas; and 8 times at Brownsville, Texas.

WEEVILS (Baris sp. and Brachycerus sp.). Baris sp. found in turnips in stores and Brachycerus sp. in garlic in baggage; both at New York, New York.

AN OAK TORTRICID (Cacoecimorpha pronubana (Hbn.)) in baggage at New York.

PEACH FRUIT MOTH (Carposina nipponensis (Wlsm.)) in stores at Honolulu, Hawaii.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)), or probably that species, 38 times (13 times in stores and 25 times in baggage). Twenty-five times at New York, New York. Two times each at Mobile, Alabama; San Juan, Puerto Rico; and Honolulu, Hawaii. One time each at Duluth, Minnesota; Tampa, Florida; Chicago, Illinois; Galveston, Texas; Boston, Massachusetts; Miami, Florida; and San Pedro, California.

ORIENTAL FRUIT FLY (Dacus dorsalis Hend.), or possibly that species, 7 times in baggage at Honolulu, Hawaii.

CELERY FLY (Euleia (Acidia) heraclei (L.)), or probably that species, in celery at New York, New York.

CABBAGE MOTH (Mamestra brassicae L.) 3 times in stores at New York, New York.

An OLETHREUTID (Matsumuraeses phaseoli (Mats.)), a pod borer in Japan, in string beans in stores at Houston, Texas.

EUROPEAN CHERRY FRUIT FLY (Rhagoletis cerasi (L.)) 21 times (6 times in stores, one time in cargo and 14 times in baggage). At New York, New York, 19 times and once each at Miami, Florida, and Detroit, Michigan.

A STALK BORER (Sesamia nonagrioides (Lef.)), a small grain stem borer of importance in the Mediterranean area and Azores, in baggage at New York, New York.

WHITE GARDEN SNAIL (Theba pisana (Müller)) 7 times with general cargo. At Wilmington, North Carolina, one time; Norfolk, Virginia, 2 times; New Orleans, Louisiana, one time; Boston, Massachusetts, 2 times; and Cleveland, Ohio, one time.

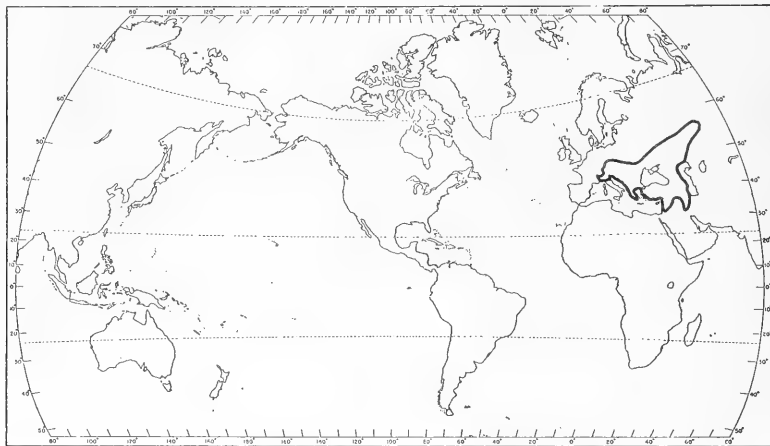
KHAPRA BEETLE (Trogoderma granarium Everts), or probably that species, 24 times (3 times in stores, 3 times in ships' holds and 18 times in burlap wrappers of cargoes). Sixteen times at New York, New York. Two times each at Philadelphia, Pennsylvania; Houston, Texas; and Charleston, South Carolina. Once each at Detroit, Michigan, and Duluth, Minnesota.

GOLDEN NEMATODE (Heterodera rostochensis Wr.) 5 times. Two times at Boston, Massachusetts; once in air mail and once in plane's baggage. Once each at Jacksonville, Florida; Detroit, Michigan; and San Francisco, California, in ship's stores, plane's baggage and mail, respectively.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

WHEAT CHAFER (Anisoplia austriaca Hbst.)

Economic Importance: The genus Anisoplia is widespread in the Old World; it extends from Spain and France in Western Europe to the central Siberian lowlands in Asia. It also occurs in north Africa. Over 50 species or subspecies are recorded in the fauna of the USSR. Several species of the genus are recorded as being economically important pests, but A. austriaca is considered to be the most important. In the USSR, losses from this scarabaeid in the first part of the decade during 1870-1880 were 100,000,000 rubles. Large sums of money were appropriated and spent for control of the pest in the southern part of Russia in the 19th Century. It was reported under experimental conditions in Bessarabia (USSR) that hard varieties of wheat may be as much as 40 percent injured, with most of the grain being only partly eaten. Soft varieties of wheat do not suffer too much from the attacks of this insect. Spring-sown barley is attacked to some extent, but injury to oats is negligible. Cultural controls, such as plowing fields immediately after oviposition, planting early growing varieties of wheat, and controlling the adults will reduce damage considerably.



General Distribution of Anisoplia austriaca Hbst.

Distribution: Recorded in Albania, Austria, Bulgaria, Czechoslovakia, France (?), Germany (Bavaria), Greece, Hungary, Iran (Ardebil, Kurdistan and other western provinces), Italy (Venezia Giulia, Venezia Tridentina, Lombardy), Romania, Turkey, Syria, USSR and Yugoslavia.

Hosts: Wheat, barley, rye, oats and various native grasses, such as quackgrass, brome and timothy.

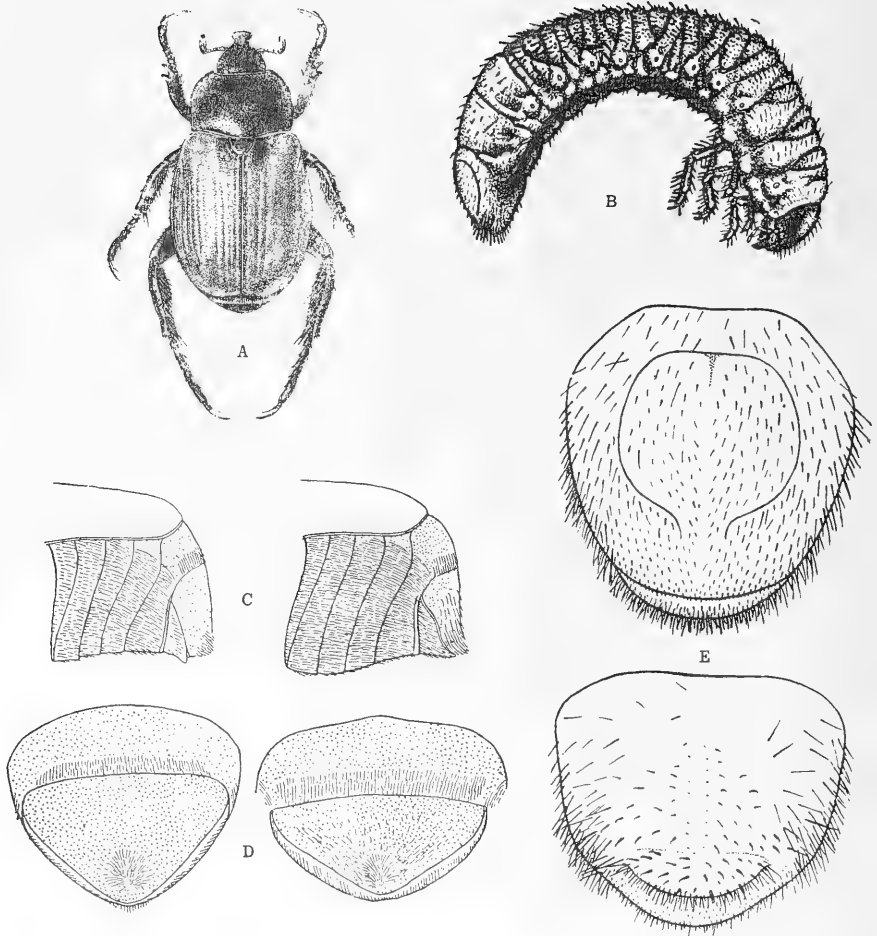
Life History and Habits: The biology as studied in the USSR is as follows: The life cycle, from egg to adult, takes 2 years. Adult emergence is quite variable, extending for nearly 2 months, but sometimes as little as one month. The peak

flight is variable; however, it generally takes place from mid-June to the first of July and lasts for not less than 2 weeks. Adults have been reported to live for 11-12 days to 3 weeks. They are light-seeking, and appear in the morning (9-10 a.m.). Adults first attack rye and winter wheat and afterwards spring wheat. During the daytime, they sit on the heads of grain, but in the evening they go down to the ground. On hot days, adults fly from one place to another, but in cloudy weather or when there is considerable wind or rain, they remain dormant. The female, when ready to oviposit, buries herself in the earth to a depth of 4-6 inches and deposits 30-40 eggs in rather small masses. They usually prefer loose earth and in the general vicinity where feeding has occurred. Eggs hatch in about 3 weeks, and larvae begin feeding on humus and rootlets of different plants. The depth at which larvae live depends on the temperature and humidity of the upper strata of the soil; generally it ranges from about 2 to 8 inches except in the winter when larvae are hibernating, then the depth ranges from 14 to 32 inches. Larvae hibernate twice, once each winter and, in the 22nd month of their lives, transform to pupae. Pupation occurs in special chambers 4-6 inches deep in the soil the last of May or first of June. Adults emerge 2-3 weeks later. Heavy flight years may be predicted by obtaining data on the relative abundance of older larvae. However, climatic conditions may alter this situation. The pupa is very sensitive to every kind of condition of moisture and illumination.

Description: ADULT - Body large, thickset; 12.8-16 mm. or one-half to three-quarters inch in length. Appearance - elytra brown, pronotum dark green. Head and pronotum rather densely punctate. Pronotum narrows considerably in front and slightly behind, female elytra have swollen lateral margins, greatest width near middle. Elytra of both sexes with short, stout setae along lateral margins. Coloration of elytra almost uniform brown except for a dark green or black square spot on some, with the scutellum being the center of the spot at the base of the elytra; spot on male usually small or lacking. Pygidium rather densely covered with gray hairs at apex; ventral surface covered with close decumbent gray hair. Larger claw on anterior male tarsus long, strongly bent basally, sometimes with small median denticle on lower side, slightly recurved terminally and apically acute. LARVA - Full-grown larva whitish, 22.5 mm. or nine-tenths of an inch. Head reddish; anal opening diagonal. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U. S. National Museum). CEIR 13(6):2-8-63.

(See illustrations on page 100)

Major references: 1. Edwards, W. H. 1880. The Grain Beetle and Means to Destroy it. 18 pp., St. Petersburg. (Manuscript of translation from Russian accompanied by 2 color plates). 2. Farahbakhsh, G. 1961. Dept. Plant Protect. Minist. Agr., Tehran. Pub. 1:103, Iran. 3. Horion, A. 1951. Verzeichnis der Kafer Mitteleuropas. II. p. 370, Stuttgart. 4. Junk, W. and Schenkling, S. 1915. Coleopterorum Catalogus. Part 66:163. 5. Medvedev, S. I. 1949. Fauna SSSR 10(3):239-272. 6. Porta, A. 1932. Fauna Coleopterorum Italica. Vol. V. p. 438, Piacenza.



Figures of *Anisoplia austriaca* Hbst.: A, adult male; B, larva; C, terminal abdominal segments of adult (male left, female right); D, pygidium (male left, female right); E, terminal segment of larva, dorsal view above and ventral below.

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SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued as a service to various agricultural interests. Its contents are compiled and analyzed from reports by cooperating State, Federal and municipal entomologists and other agricultural workers. In releasing this material the Division assumes no responsibility and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Larvae of an ALFALFA WEEVIL (*Hypera brunneipennis*) causing considerable damage to alfalfa on Yuma Mesa of Arizona; controls underway. Also active in California. Occasional CLOVER LEAF WEEVIL larva noted in Montgomery County, Kansas; and larvae of what is probably this species found February 5 in Washington County, Arkansas. (p. 115).

Heavy larval populations of a LEAF ROLLER MOTH (*Amorbia essigana*) are present in commercial avocados in La Habra-La Puente areas of Los Angeles County, California; fruit losses have been 5-25 percent in some orchards. (p. 115).

CATTLE LICE continue light to heavy in most areas of Oklahoma, and are annoying to beef cattle in Kane and Millard Counties, Utah. (p. 118).

DETECTION

A DRYWOOD TERMITE (*Incisitermes* (*Kalotermes*) *minor*) recorded for first time in Texas. (p. 119).

FORECASTS

GRASSHOPPERS - Major problem area on rangeland for 1963 appears to be in Montana. (p. 125). A severe infestation of HESSIAN FLY expected in the spring of 1963 in Kansas if weather conditions are favorable. (p. 134).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 118).

Summary of Insect Conditions in the United States - 1962

Introduction (contributors) - (p. 120).

Weather of the Year - (p. 122).

Cereal and Forage Insects

General Feeders - (p. 125).

Small Grain Insects - (p. 130).

Reports in this issue are for week ending February 15, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-FEBRUARY TO MID-MARCH 1963

The Weather Bureau's 30-day outlook for the period mid-February to mid-March calls for temperatures to average below seasonal normals over most of the Nation except for near to above normal in the northwest quadrant, California, and the Florida Peninsula. Greatest departures are anticipated over the eastern Great Lakes region, the Ohio Valley and the Middle Atlantic States. Precipitation is expected to exceed normal over the southern third of the Nation, accompanying storms moving from off the west coast into the Southwest and thence along the Gulf States and Atlantic seaboard. Subnormal precipitation is expected over the Midwest, and about normal amounts in unspecified areas.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price \$4.80 a year, \$2.40 a half year.

WEATHER OF THE WEEK ENDING FEBRUARY 18

Much of the area south of a line from the southern Rockies to the Great Lakes was consistently cool throughout the period and little warming was noted until the final day. From the Great Plains eastward, averages ranged to as much as 15° cooler than those of the week before and Pennsylvania had its 6th consecutive week of below-normal average temperature. Brownsville, Texas, had freezing minima on 2 days, but Huntington, West Virginia, had the greatest deficiency, with a 16° below normal, and St. Johnsbury, Vermont, reported the coldest temperature with a -25° on the 17th. Over the Far West, temperatures were also lower than those of the previous period and the weekly average at Albuquerque, New Mexico, was 26° cooler. The unseasonably warm averages of a week ago which caused local flooding from snowmelt in western Wyoming, had moderated to near normal during this past week, except in northern areas of the Great Plains and west coast, where averages remained generally over 6° above normal. The lowest reported temperature from the Far West was a chilly -34° at Fraser, Colorado, and Alamosa in the south-central San Luis Valley of the same State reported -30°.

Precipitation fell in most areas of the Nation, but was heaviest in coastal areas. Totals were very light in the northern and central Great Plains and the central Mississippi Valley. A persisting deficiency was reported from Arkansas, but showers early and late in the period gave some beneficial moisture to all sections of Texas. Laredo, Texas, received a total of 1.23 inches for the period. Much of the Florida Peninsula received over 2 inches from rains that produced 1 inch statewide. From the severe squall that crossed that State on the 12th, the Broward and Palm Beach areas received over 4 inches. Most precipitation over the Far West came as rain in California and the coastal area of the Pacific Northwest. Scattered precipitation, as snow at higher elevations, also fell in the southern Rockies and central Great Basin area. All but the extreme southern areas of California received over 1/2 inch of rainfall with much of the Central Valley recording totals over 1 inch. Some points recorded over 4 inches. The mountain snowpack remains low and was reported as near the lowest on record for the season from Washington. On the 13th, Stampede Pass, Washington, reported 39 inches, 61 inches less than usual for this time of year. Improved estimates were being reported in the snowpack from Utah, but depths are still critically low. Little if any snow was added to the existing cover except in more susceptible locales of the Northeast. Only light snowfall was recorded in the western Great Lakes area and the deepest cover was reported at 29 inches from both Houghton and Marquette Airports in Michigan. Up to 1 foot of new snow to the lee of Lake Ontario kept the depth in that area to as much as 6 feet. Falls of 10 inches in New England during the first half of the week added to the already heavy cover, and depths of 4 feet were measured in northern areas and central Maine. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRAIN APHIDS - KANSAS - None found in wheat and barley fields examined in southwest area. (Peters). OKLAHOMA - Populations of GREENBUG (Schizaphis graminum*), ENGLISH GRAIN APHID (Macrosiphum avenae*) APPLE GRAIN APHID (Rhopalosiphum fitchii) and CORN LEAF APHID (R. maidis) continue at noneconomic level throughout State; also continue negative in many areas. (Okla. Coop. Sur.). TEXAS - Schizaphis graminum* and other small grain pests have been of no significance to date due to extremely cold weather during recent weeks. (Newton).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Light counts of 30-100 per 10 linear feet recorded in Beckham County. (Okla. Coop. Sur.) TEXAS - Has been of no significance to date because of extremely cold weather. (Newton).

CUTWORMS - ARIZONA - Present in lawns in Maricopa and Yuma Counties and few noted in some alfalfa on the Yuma Mesa. Causing some injury to rangeland in Mohave County. (Ariz. Coop. Sur.).

WEEVILS (Hypera spp.) - CALIFORNIA - Medium numbers of H. brunneipennis adults beginning to feed; currently present in lawns in Vista, San Diego County. (Cal. Coop. Rpt.). ARIZONA - H. brunneipennis larvae causing considerable damage to alfalfa on the Yuma Mesa; controls underway. However, desired results not being obtained in some instances unless ground machinery is used. (Ariz. Coop. Sur.). KANSAS - Occasional H. punctata larva noted on south facing roadside embankment in Montgomery County. (Peters). ARKANSAS - Larvae collected February 5 from red clover in Washington County, northwest, appear to be Hypera sp., probably punctata. Larvae collected 2-3 days after rather cold weather; minimum daily temperatures about 10°F. (Ark. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - KANSAS - Single adult collected when plant material and debris from 2 plants processed through Berlese funnel. Plants collected on south facing roadside embankment in Montgomery County. (Peters).

FURIT INSECTS

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - CALIFORNIA - Spotted, heavy infestations present in peach trees in Brentwood, San Joaquin County. (Cal. Coop. Rpt.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - ARKANSAS - Examinations of trees in Crowley Ridge peach-growing area in eastern portion of State show 90 percent of twigs infested by late 1962 populations. (Ark. Ins. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - Egg cases very abundant on peach twigs in Erath County area. Microscopic examination of 10 egg masses showed 90 percent viability of overwintering larvae. (Millikein, Newton).

PECAN WEEVIL (Curculio caryae) - ARKANSAS - Infested 40 percent of pecan nuts left in field in Lee County, east central area. (Ark. Ins. Sur.).

OBSCURE SCALE (Chrysomphalus obscurus) - ARKANSAS - Observed on pecan in Lee County, east central area. (Ark. Ins. Sur.).

A LEAF ROLLER MOTH (Amorbia essigana) - CALIFORNIA - Heavy larval populations widespread in commercial avocados in La Habra-La Puente areas of Los Angeles County. Fruit losses have been 5-25 percent in some orchards. Infestations of this pest usually held at lower levels by biological control which has not been effective this season. (J. Beutel, Ext. Serv.).

* See CEIR 13(5):84.

COTTONY-CUSHION SCALE (Icerya purchasi) - CALIFORNIA - Heavy on citrus trees in Penryn area, Placer County. Cold weather may have reduced or eliminated populations of vedalia (Rodolia cardinalis) in local areas so that biological control of I. purchasi may be delayed until warm weather and vedalia populations have an opportunity to increase. (Cal. Coop. Rpt.). ARIZONA - Present in few lemon groves on the Yuma Mesa. (Ariz. Coop. Sur.).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - CALIFORNIA - Medium to heavy on several varieties of lemon in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - Present in some lemon and tangerine groves on the Yuma Mesa. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - TEXAS - Larvae infesting turnips in Trinity County. Degree of damage or infestation not given. (Lange, Newton).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light on cabbage in Colquitt County. (Johnson).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Winter spray program resumed after temporary shutdown due to adverse weather conditions. Canyon areas of western Fresno, Merced, Stanislaus and San Joaquin Counties treated by helicopter, with approximately 10,000 acres covered. In Imperial Valley, Imperial County, female beet leafhopper populations, averaging 3.5 per 100 sweeps of annual weeds on desert floor, show material egg development at present time. It still appears that as much as 20,000 acres may be subject to spring treatments. (Cal. Coop. Rpt.).

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Larvae continue to feed on lettuce in Maricopa County. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Continues to feed on lettuce in Maricopa County. (Ariz. Coop. Sur.).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Feeding damage light on tobacco in plant bed in several southern counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Feeding damage light on tobacco in plant bed in several southern counties. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - CALIFORNIA - Dendroctonus brevicomis and Ips spp. currently attacking ponderosa pine in Doggett Creek area of Klamath National Forest. Beetles attacking young saw-timber in groups in 600-acre stand. (G. S. Robinson, USFS). Killing ponderosa pine singly and in groups of 5 or more in 300-acre stand in Deafy Glade with infestations spreading into adjacent Mendocino National Forest land; and in Lower Letts Valley recreation area, where over 50 trees in 20-acre plot have been killed as result of untreated logging slash on adjacent property. (C. E. Fargo, CDF).

A GEOMETRID MOTH (Hydriomena nubilofasciata) - CALIFORNIA - Heavy populations present on Quercus agrifolia (California live oak) in Oakland, Alameda County. (Cal. Coop. Rpt.).

A JUNIPER TWIG MOTH (Periploca nigra) - CALIFORNIA - Light on juniper twigs in La Habra, Orange County. (Cal. Coop. Rpt.).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - CALIFORNIA - Medium to heavy on gardenia bushes in Sacramento, Sacramento County. Heavy on poinsettia leaves in Encinitas, San Diego County. (Cal. Coop. Rpt.).

BEAN APHID (Aphis fabae) - CALIFORNIA - Medium on Tropaeolum sp. (nasturtium) in San Francisco, San Francisco County. (H. B. Leech, Calif. Acad. Sci.).

AN ARBORVITAE APHID (Cinara tujafilina) - NEW MEXICO - Generally light on arborvitae in southern counties. Honeydew very noticeable on some plants. (N. M. Coop. Rpt.).

A PALM APHID (Cerataphis variabilis) - NORTH CAROLINA - Collected from an unspecified palm in Wake County, January 31. Det. by C. F. Smith. Palm recently imported into State. (Mount).

A WILLOW APHID (Lachnus salignus) - CALIFORNIA - Present on budding pussy willow in San Diego County and few other locations. Species has become more obvious during past year than previously noted. (Cal. Coop. Rpt.).

COTTONY-CUSHION SCALE (Icerya purchasi) - TEXAS - Heavy locally and attacking yard shrubbery in Llano County. (Verdell).

TEA SCALE (Fiorinia theae) - TEXAS - Heavy, local population destroying camellia plants in Gregg County. (Blair).

EUONYMUS SCALE (Unaspis euonymi) - NEW MEXICO - Light to unusually heavy on euonymus plants in Albuquerque area, Bernalillo County. (N. M. Coop. Rpt.).

A WAX SCALE (Ceroplastes sp.) - MARYLAND - Heavy on Japanese holly and flowering crab apple tree at Rivera Beach, Anne Arundel County. (U. Md., Ent. Dept.).

A THRIPS (Franklinella occidentalis) - CALIFORNIA - Medium populations in orchid flowers in Los Osos, San Luis Obispo County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Callyntrotus schlechtendali) - CALIFORNIA - Populations medium on rose nursery stock in Ojai, Ventura County. This mite fairly general in occurrence but rarely does obvious damage to foliage. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

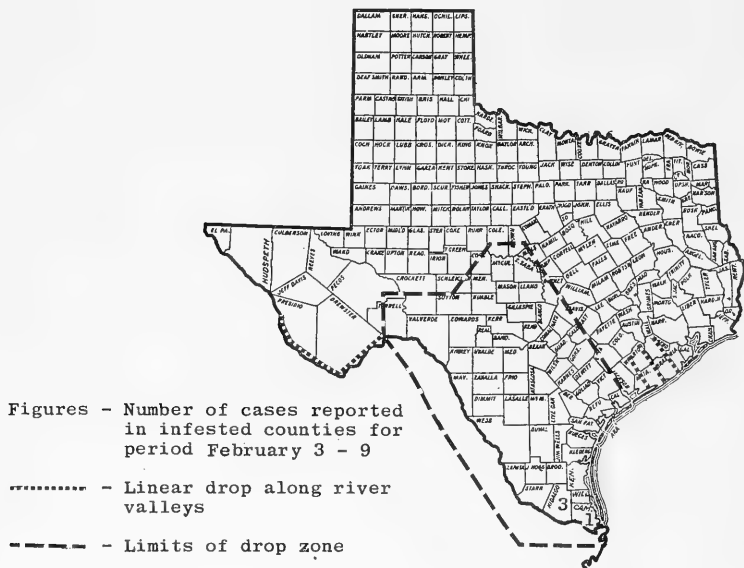
CATTLE GRUBS (Hypoderma spp.) - NORTH CAROLINA - Averaged 5.5 per animal in 26 one-year-old beef animals and 1.8 per animal in 14 two-year-old animals examined in Wake County; all animals native to area. The 12 H. lineatum grubs collected estimated to have been in backs of animals 2-4 weeks and 14 H. bovis grubs estimated to have been in backs of animals one day to 2 weeks. Of 90 dairy cows also examined in Wake County, only one had any grubs; however, these animals only in pasture during morning hours last spring. H. bovis was detected in several areas of State during surveys conducted in 1948 and 1949. Det. by W. G. Bruce. (Jones, Mount). OKLAHOMA - H. lineatum continues active with 14 grubs per head noted on calves in Noble County; other counts per head, by county, were 0-10 in Garvin, 0-20 in Bryan; ranged light to medium in Haskell and Hughes Counties. (Okla. Coop. Sur.).

MOSQUITOES - TEXAS - Adults of Aedes sollicitans and Culiseta inornata caused some concern in Jefferson County during warmer days in January. (Jefferson Co. Mosq. Control Comm., Jan. Rpt.).

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period February 3-9, specimens were submitted from 4 screw-worm infestations on 3 premises in the 2 southernmost counties in Texas. These are least number of specimens submitted for identification since eradication efforts began in February 1962. The Cage Ranch near Falfurrias, Brooks County, Texas, which has been most serious trouble spot in recent weeks, as demonstrated by number of specimens submitted for identifications, has reported no screw-worm during this period. However, 5 sterile egg masses have been found on wounded animals on this premise.

A total of 113,411,450 sterile screw-worm flies was released and 4 screw-worm cases were submitted during the period February 3-9. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period February 3 - 9

..... - Linear drop along river valleys

----- - Limits of drop zone

HOUSE FLIES (*Musca* sp.) - NEW MEXICO - Unusually abundant during first week of February, when daytime temperatures ranged 70-80°F. in many areas of State. (N. M. Coop. Rpt.).

CATTLE LICE - OKLAHOMA - Infestations continue light to heavy in most areas of State with counts of 2 per hair part on yearling steers and 6 per hair part noted on mature cows in Noble County; 40 percent of mature cows in Pushmataha County heavily infested, with light to heavy numbers reported in Bryan, Cotton, Garvin, Blaine, Hughes, Haskell, Le Flore, Mayes and Kingfisher Counties. (Okla. Coop. Sur.). UTAH - Annoying to herds of beef cattle in Kane and Millard Counties. (Knowlton).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Populations ranged light to heavy on swine in Bryan, Cotton, Garvin and Mayes Counties. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - UTAH - Annoyance unusually serious in homes in central and northern portions of State during unusually warm period in early February; however, recurrence of cold weather has reduced this annoyance. (Knowlton). NORTH CAROLINA - Present in an office in Wake County. (Wray).

ELM LEAF BEETLE (Galerucella xanthomelaena) - MARYLAND - Hibernating adults caused nuisance in home at Mitchellville, Prince Georges County. (U. Md., Ent. Dept.).

CLOVER MITE (Bryobia praetiosa) - UTAH - Entered few homes in general area of Salt Lake City during warm period early in February. (Knowlton). NORTH CAROLINA - Infesting a building in Wake County. (Wray).

A DRYWOOD TERMITE (Incisitermes (Kaloterms) minor) - TEXAS - Specimens recorded from hardwood furniture in San Antonio, Bexar County, during January contribute a new State record for this species. Det. by T. E. Snyder. (McGregor, Dorward).

STORED-PRODUCT INSECTS

AN OTITID FLY (Chrysomya sp., probably demandata) - TEXAS - Larvae heavy locally in silage stored in Mitchell County. (Logsdon).

MEALWORMS (Tenebrio spp.) - UTAH - Infesting feed on farm at Tremonton, Box Elder County. (Knowlton).

MISCELLANEOUS INSECTS

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Survey continues in City of Sacramento with nearly 300 infested blocks recorded. Border areas somewhat inconsistent in infestations and few outlying blocks found infested, which increases spray area. Over 400 city blocks to be given eradication treatment, with over 150 of these already treated. Wind and rain have inhibited program, both survey and treatment; 5 spray crews currently operating and 5 County and State survey crews delimiting area. Over 1,000 city blocks inspected to February 15; over 60,000 gallons of spray material applied to host plants in 150 block area treated as of same date. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Noted on many weeds along roadsides in Yuma County; very few winged forms seen. (Ariz. Coop. Sur.).

PUSS CATERPILLAR (Megalopyge opercularis) - NORTH CAROLINA - Cocoon collected from apple twig in Cabarrus County. (Robertson).

CORRECTIONS

CEIR 13(2):20 - Euborellia annulipes (red-legged earwig) should read Euborellia annulipes (ring-legged earwig).

CEIR 13(3):29 - A WHITEFLY (Aleyrodes spiraeoides) - CALIFORNIA - Should read "... developing on leaves and fruit..."

LIGHT TRAP COLLECTIONS

GEORGIA, Tifton (1/31-2/13) - No collections. SOUTH CAROLINA, Charleston (1/21-27) - No collections.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1962

INTRODUCTION

The summary of insect conditions beginning in this issue and continuing in several succeeding issues of the Cooperative Economic Insect Report was compiled in Survey and Detection Operations from annual summaries that were submitted by State and Federal cooperators. This is the fourth year that a summary of this nature has been published. The summary will follow the same format which is used in the weekly issues of the CEIR, with some minor exceptions.

Survey and Detection Operations is especially grateful to each individual who assisted with the preparation of the 1962 summary. Listed below are the names of individuals who helped assemble the data.

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DELAWARE

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GEORGIA

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IOWA

Summary notes taken from
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R. Roselle, R. Staples, H. Stevens
and G. Stokes

NEVADA

R. C. Bechtel

NEW HAMPSHIRE

J. R. Conklin

NEW JERSEY

Summary notes taken from
weekly reports.

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NEW YORK

A. A. Muka

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NORTH DAKOTA

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Polivka and C. L. Griswold

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PENNSYLVANIA

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UTAH

G. F. Knowlton

VERMONT

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Boush, C. B. Dominick and R. N.
Hofmaster

WASHINGTON

C. A. Johansen; assisted by
federal, state and field
entomologists

WISCONSIN

M. S. Conrad

WYOMING

D. G. Fullerton

Also included in the 1962 summary are notes from the following special reports.

"Summary of Fruit Insect Conditions, 1962 New York-New England Fruit Spray Specialist Conference", compiled by L. W. Boulanger, Maine Agricultural Experiment Station, from the conference held at Amherst, Massachusetts, October 29-30, 1962.

"Forest Insect Conditions in the United States - 1962". Those individuals that compiled or contributed to this summary were Leo Abrahamsen, S. D. Adams, Gerald Beach, J. L. Bean, J. W. Bongberg, W. D. Buchanan, David Crosby, Raymond Dolan, G. L. Downing, P. R. Flink, Ramon Gass, M. K. Idleman, David Ketcham, D. D. Lucht, David McComb, S. W. Meso, Jr., G. E. Moore, L. H. Moore, P. W. Orr, D. W. Renlund, E. G. Rennels, T. T. Terrell, Scott Tunnock, A. C. Valcarce, Dale VanDenburg and R. I. Washburn. This forest summary is issued by the U. S. Forest Service and will be available upon request later in 1963.

WEATHER OF THE YEAR 1962 1/

The weather of 1962 was characterized by great temperature fluctuations, with record-breaking cold waves during the first 4 months and again in December, mid-summer heat during May east of the Rockies, and a cool summer in the northern two-thirds of the Nation. Weather conditions generally were favorable for agriculture, with total crop production for the year among the highest on record. Severe local storms which always take a considerable toll of life and property during the warm season of the year were less frequent than in many other years. No hurricanes entered the mainland. Flood losses were low.

A great cold wave that ranks among the most severe on record highlighted the weather of the year's first month. As it crossed the northern Rockies on the 9th, a sea-level pressure reading of 31.40 inches at Helena, Montana, was the highest ever recorded in the United States, including Alaska and Hawaii.

In Texas, the cold wave from January 9 to 12 was comparable to the disastrous cold waves of February 1951 and February 1899. The Lavaca River at Hallettsville froze from bank to bank (the river is 35 feet wide there) for the first time in 60 years. Galveston Bay at Texas City froze over from the shore to 100 yards out, the first such occurrence in 62 years according to long-time residents. In San Antonio and vicinity, lakes and streams froze over for the first time since 1918.

Many other sections of the South had their lowest temperatures since 1899. New Orleans, Louisiana, and Mobile, Alabama, had their longest periods of subfreezing on record, 67 and 86 consecutive hours, respectively. At the latter station where a low of 13° occurred, bays north of the Causeway froze over with 2 to 3 inches of ice except for channels.

Snow fell at locations along the Gulf and California coasts where snow is rather rare. Snowfall was unusually heavy during January in the middle Mississippi Valley, but light in the Far West and unusually light in the Northeast where Boston's 2.5 inches was a January low for 90 years.

This January cold wave was a record-breaker in some northern sections, too. Denver, Colorado, had 14 days with a minimum of zero or below, the most for January since 1875, and Huron, South Dakota, had continuous subzero temperatures from the 17th through the 21st, the longest such period there since 1936.

1/ L. H. Seamon, Climatology, Weather Bureau, Washington, D. C.

Extreme lows of -55° were recorded in Montana, Wyoming and Colorado, establishing a new January record in the latter State. A low of -47° in New Mexico was also the lowest temperature ever recorded in that State during January.

In the South, this great freeze from January 9 to 12 was blamed for many millions of dollars damage, and ranks among the most damaging freezes of this century. New Orleans, Louisiana, alone estimated its losses at \$15 million and estimates for Baton Rouge, Louisiana, and Meridian, Mississippi, were placed at \$5 million and \$1 million, respectively. Citrus incurred heavy damage in southern Texas and some crop damage occurred in Florida.

During another severe cold wave at the end of January and the beginning of February, temperatures dropped to new record lows for February in Vermont (-48°) and Maine (-44°) on the 2d. This cold wave was followed by a winter warmup that sent temperatures to new record high levels for February in Wyoming, 78° ; Missouri, 90° ; Illinois, 83° ; Tennessee, 85° ; North Carolina, 88° ; South Carolina, 89° ; and Florida, 94° .

A cold wave at the beginning of March reduced temperatures to the lowest levels on record for that month in Wisconsin (-48°), Iowa (-35°), and Illinois (-21°). Snowfall, extremely heavy in the Middle Atlantic States, North Central Interior and the Far West during February and March, was of great importance in the latter area in building up the mountain snowpack. Record amounts of more than 20 inches fell in Iowa where depths sometimes exceeded 3 feet locally.

A storm off the north Atlantic coast on March 6 and 7 was named "The Great Atlantic Coastal Storm", owing to its unusual violence. Winds up to 85 m.p.h., were responsible for swells up to 30 feet high which battered coastal installations from Maine to Florida. The death toll was 33, injuries numbered 1,252, and dwellings either damaged or destroyed were counted in the thousands. Losses totaled many millions of dollars.

A cold wave early in April reduced temperatures to record low levels for so late in the season in some northern areas, with freezing in New Mexico and frost in northern Florida. During a heat wave that spread westward across the Nation, the latter half of the month, temperatures soared to record high levels for so early in the season at many stations.

Midsummer heat prevailed during much of May in the southern two-thirds of the area east of the Rockies, but the month was cold and wet west of the Great Lakes, and in the Far West, and very dry in parts of the Northeast. This was the warmest May during a record dating back 87 years at Dodge City, Kansas; 89 years at Chicago, Illinois; 84 years at Thomasville, Georgia; and 91 years at Mobile, Alabama. Highest temperatures so early in the season for cities with long-term records included 100° at Wichita, Kansas, on the 25th; 99° at Jacksonville, Florida, on the 20th; and 94° at Alpena, Michigan, on the 16th.

The summer of 1962 was pleasantly cool in the northern two-thirds of the Nation, but was hot and humid in the Gulf States. At Boston, Massachusetts, the temperatures failed to rise to 90° during the summer for the first time in 58 years. Precipitation was heavier than usual in most of the Great Plains and Rocky Mountain region, and below normal from the Mississippi Valley to the Appalachians, in southern Texas, and west of the Rockies. Drought began to develop in parts of eastern Pennsylvania, northern New Jersey, southeastern New York, and southern New England in June and became rather severe before being ended by August rains, the first of which fell from about the 6th to 11th. Washington, D. C., had its driest August (0.55 inch) and driest summer (4.62 inches) since records began in 1871.

Wind and hailstorms were numerous in north central areas during June. A tornado in the Texas Panhandle on June 1, caused over \$6 million damage. Hail and wind caused \$2 million damage in Omaha, Nebraska, on July 21, and \$2-1/2 million at

Dubuque, Iowa, on July 22. In August, thunderstorms with hail and wind caused several million dollars damage in southeast Michigan and northwest Ohio on the 8th. On August 20, a tornado killed 4 persons, injured several others, and caused \$1 million property damage in the western portion of Cleveland, Ohio, and a tornado at Cameron, Louisiana, on the 28th killed 6 persons.

Autumn temperatures and precipitation were for the most part uneventful, except for unusually early snowfall in northern areas during September. Storms on the north Pacific coast on October 11, 12 and 13 were blamed for more than 50 deaths and property losses estimated in the neighborhood of \$250 million. On October 4 to 7, rains from storms off the New England coast caused flooding which resulted in several million dollars damage, and high winds along the Maine coast caused additional damage estimated at several million dollars.

Highlighting December weather was the severe cold wave which was responsible for extremely cold weather east of the Rocky Mountains and record-breaking low temperatures for December at numerous stations in the southeastern quarter of the Nation. The cold wave moved into the northern Great Plains late on the 10th and covered the entire East late on the 12th. Numerous stations recorded their lowest December temperatures of record on the 13th. A list of some of these stations and their low temperatures are as follows:

Montgomery, Alabama	5°	Lake Charles, Louisiana	18°
Daytona Beach, Florida	21°	Meridian, Mississippi	4°
Jacksonville, Florida	12°	Vicksburg, Mississippi	9°
Tampa, Florida	18°	Asheville, North Carolina	-6°
Rome, Georgia	0°	Chattanooga, Tennessee	2°
Savannah, Georgia	9°	Nashville, Tennessee	7°
Thomasville, Georgia	8°	Appalachicola, Florida	13°
Baton Rouge, Louisiana	11°		

In addition, December lows were equaled at Nantucket, Massachusetts, -3°; Miami, Florida, 35°; and Atlanta, Georgia, 1°. The low at Tampa, Florida, was the lowest ever recorded there in any month. Damage, while widespread in the South, was heaviest in Florida, where the crop losses were expected to total many millions. In Louisiana, over half of the stations from Houma in the south to Ruston in the north equaled or broke their alltime December minima on the 13th when Tallulah, Clinton and Covington reported lows of 7°. In Mississippi, University Station at Oxford reported a low of 0°. Unseasonably cold weather continued east of the Rockies the remainder of December except for a brief period of moderation during the third week. The month ended with unseasonably cold weather over the entire Nation. The 30th and 31st were bitterly cold in New England where a combination of subzero temperatures and high winds with gusts exceeding hurricane force created an extreme wind chill.

Precipitation was less than half normal in large portions of the Mississippi Valley, Utah, Nevada and western Arizona. At Phoenix, Arizona, rain beginning on December 17 ended the driest period for March 1 through December 16 on record. The Los Angeles, California, Airport recorded only 0.10 inch for the last 6 months of 1962.

Much below normal snowfall in the Far West during December left the mountain snowpack extremely low at the end of 1962. In many areas, near record low amounts were reported. Snowfall was frequent in the northeastern quarter of the country the latter part of the month. During a storm over the Northeast on the 30th-31st, from 30 to 35 inches of snow fell in central and eastern Maine, with lesser amounts in the remainder of the Northeast. In Washington, D. C., 16.2 inches was the most snow for December since 1888. Other record amounts for December included 41.9 inches at South Bend, Indiana; 54.2 inches at Muskegon, Michigan; and 30.3 inches at Cleveland, Ohio.

A severe winter storm in the Northeast on the 30th and 31st, created severe blizzard conditions in Maine, and parts of New Hampshire, Vermont and New York. Sustained winds exceeded 40 m.p.h., and temperatures dropped to -10° to -20°. Albany, New York, reported wind gusts up to 60 m.p.h. at 2:30 a.m. of the 31st and a -10° temperature. Many communities were isolated, with much personal hardship resulting from lack of power, communication and transportation facilities. A daily newspaper in Bangor, Maine, missed publication for the first time in 73 years.

SUMMARY OF INSECT CONDITIONS - 1962

CEREAL AND FORAGE INSECTS

General Feeders

Highlights:

Widespread GRASSHOPPER infestations did not develop in 1962, but some damaging populations did require controls. Crop and range damage in Utah was conservatively estimated at over \$1,250,000, and an estimated 1,472,645 acres of crops were treated in Illinois thereby saving farmers about \$6,885,872. Populations in Illinois were more abundant than they have been at any other time in the past 15 years, and damage was more evident in Wisconsin and Indiana than in 1961. The major trouble area on rangeland for 1963 appears to be Montana. ARMY CUTWORM was damaging locally during the spring in several of the Western States, with Wyoming and Nebraska reporting more than normal damage from this pest. Alfalfa was damaged the most in Wyoming, while winter wheat, alfalfa and other crops suffered in areas of North Dakota, Nebraska, Kansas, Colorado, New Mexico and Texas.

The 1961 fall adult GRASSHOPPER surveys indicated heavy populations over a wide area, but widespread infestations did not develop in 1962 due to the cold, wet spring. Some damaging populations did develop, however, and required controls. Over 190,000 acres of rangeland were cooperatively treated in 9 states. In addition, over 7,000 acres of wildlife refuges were treated in CALIFORNIA, NORTH DAKOTA and OREGON. The grasshopper outlook for 1963 indicates moderate to heavy populations on over 7,800,000 acres of rangeland in 16 Western and Midwestern States. The major trouble area appears to be MONTANA. (See map in CEIR 13 (2):1-11-63).

In CALIFORNIA, indications of heavy grasshopper infestations were noted developing in meadow grass in April in San Diego County. During the same period, grasshoppers were light on alfalfa in the Scott Valley area of Siskiyou County, developing on alfalfa and filaree in San Diego County, and light to medium on pasture grasses in local areas of Butte County. By May, light infestations were present on range, pastures and alfalfa in Shasta, San Diego, Amador, Placer, Siskiyou, Tehama, Yolo and Calaveras Counties. Medium to heavy populations developed in Siskiyou County later and fairly heavy numbers were present in Imperial County. They were also medium in Humboldt County and medium in local areas of San Bernardino and Yolo Counties. No serious invasions of croplands developed during 1962. Grasshopper populations almost doubled over 1961 in NEVADA, with the major increases occurring in Elko, Eureka, Lander and Humboldt Counties. Most of these increases were on rangeland with Aulocara elliotti, CLEAR-WINGED GRASSHOPPER (Camula pellucida), MIGRATORY GRASSHOPPER (Melanoplus sanguinipes), and

Oedaleonotus enigma as the dominant species. A total of 6,400 acres of crested wheatgrass and adjacent rangeland was treated in Humboldt County with satisfactory results. The 1962 adult grasshopper survey showed economic infestations on 101,100 acres in Nevada; 82,100 of which are rangeland and 19,000 of which are cropland, located primarily in the above listed counties.

This was a serious year for grasshoppers in UTAH, with most extensive outbreaks occurring in San Juan, Box Elder, Sanpete, Juab and Iron Counties. Crop and range damage was conservatively estimated to exceed \$1,250,000. Had it not been for the excellent range conditions due to an abundance of spring moisture, both crop and range damage would have been more severe. It is estimated that 45 percent of the 40,000-acre wheat crop, 60 percent of the dry bean crop of 12,000 acres and 10 percent of the grass over 25,000 acres, in the more severely infested areas of San Juan County, were destroyed by grasshoppers. The farmer, rancher, orchardist control programs are estimated to have exceeded 200,000 acres sprayed for grasshopper control in Utah. In addition, 12,079 acres were aircraft sprayed in the Sanpete-Juab area and 14,266 acres in Iron County to protect range and forest lands as a cooperative Federal-State-rancher program. Grasshoppers at the end of 1962 threatened at least 567,500 acres of cropland and 443,700 acres of rangeland in Utah for 1963.

Several infestations of range grasshoppers, Aulocara elliotti, Ageneotettix deorum, Amphitornus coloradus, Cordillacris occipitalis, Melanoplus occidentalis, migratory grasshopper and TWO-STRIPED GRASSHOPPER (Melanoplus bivittatus) occurred during 1962 in WYOMING. The number of acres of rangeland cooperatively controlled in Wyoming are as follows: Crook County - 644; Goshen County - 13,745; Lincoln County - 4,000; Niobrara County - 7,555; Platte County - 2,430. The total acres were 28,374 and the cost was \$19,440.55 or an average of 69 cents per acre. All acreage was controlled by aircraft except for 458 acres in Crook County which were worked with a Buffalo Turbine ground unit. The 4,000 acres in Lincoln County, Wyoming, were all on the Bridger National Forest. All other infestations in Wyoming were on privately owned lands. Rangeland infestations of grasshoppers in MONTANA were not considered of great importance in 1962. Abundant rains produced excellent grass growth and, even in areas which were considered critical the year before, practically no grass damage occurred. No large areas of range were treated during 1962 in Montana. Cropland grasshoppers were still common in some northeastern Montana counties and some roadside and field margin controls were applied. The main cropland species were migratory grasshopper, clear-winged grasshopper and two-striped grasshopper.

There was a decided drop in grasshopper populations throughout the eastern counties of WASHINGTON, where the problem principally exists, primarily because of the unfavorable weather conditions for nymphal survival. Moderate infestations were troublesome over sizeable acreages, especially rangelands, in Klickitat, Lincoln, Okanogan and Stevens Counties; however, as against the 1962 adult survey, only 130,700 acres were found infested in five scattered counties; namely Asotin, Garfield, Klickitat, Lincoln and Okanogan. The principal species were migratory grasshopper and two-striped grasshopper.

Grasshopper infestations in NEW MEXICO were lighter than was anticipated in rangeland areas this past spring, and the adult survey during the fall of 1962 indicated the infested acreage to be the lowest in several years, although there appears to be a population increase in the northeast part of the State. Extreme drought conditions prevailed in areas infested in 1961. Severe hailstorms apparently destroyed nymphs in some areas. Grasshoppers also damaged seedling tomatoes at Deming during early May and defoliated trees, shrubs and flowers in small areas of the Albuquerque section in September and October. In COLORADO, migratory grasshopper, RED-LEGGED GRASSHOPPER (Melanoplus femurrubrum), DIFFERENTIAL GRASSHOPPER (Melanoplus differentialis), PACKARD GRASSHOPPER (Melanoplus packardii), Melanoplus occidentalis, M. confusus, two-striped grasshopper, M. lakinus, Aulocara elliotti, Ageneotettix deorum and Amphitornus coloradus occurred at levels of economic importance in grassland in the following counties: Huerfano,

San Miguel, Dolores, La Plata, Archuleta, Custer, Fremont and Douglas. Huerfano County was the only area in which a cooperative program was carried out. In Huerfano County, there were 110,000 acres of grasshopper-infested land, with counts of 12-75 per square yard; 13,500 acres were treated under a cooperative contract. In the other areas infested, the acreage was too scattered to make a program economically feasible. In Kiowa and Cheyenne Counties, grasshoppers, feeding on the borders of fall-planted wheat, damaged one to two drill widths. In the southwestern area of Colorado, grasshoppers migrated from soil bank land into the wheat and caused considerable damage. Populations in this area of the State averaged 15-60 per square yard on soil bank land and 5-40 per square yard on wheat.

Many species of grasshoppers caused locally heavy damage to rangeland in areas of central, north central and northwest TEXAS, but they did not cause damage in wide-spread areas. In OKLAHOMA, first instars were noted in the west central areas in mid-April. Activity continued through September. Generally, light damage was confined to localized areas, especially in the south central, northwest and pan-handle areas. Predominant grasshopper species were Ageneotettix deorum, Amphitornus coloradus, Phlibostroma quadrimaculatum, two-striped grasshopper, differential grasshopper, red-legged grasshopper, Melanoplus occidentalis, Packard grasshopper and Mermiria maculipennis. Grasshoppers continued to be scarce in most areas of KANSAS, with only a few farmers applying controls in the western area. The dominant species were red-legged grasshopper, migratory grasshopper, two-striped grasshopper and differential grasshopper. A new problem area showed up in certain northeastern counties.

Scattered grasshopper infestations occurred in crop and range lands in NEBRASKA, producing an increase in both population numbers and area infested. Infestations in cropland occurred primarily on idelands in the northeast. Rangeland populations were more severe in the northwest. Populations built up to considerable numbers in the early spring, but decreased in some areas during the early summer due to unfavorable climatic conditions. Ideal growing conditions with ample moisture overshadowed much of the grasshopper damage. This allowed populations to remain stable for egg deposition. Egg concentrations coincided with adult populations.

A few first instars of migratory grasshopper and two-striped grasshopper were reported during the week of May 8-14 in SOUTH DAKOTA. During this period, the average egg development in the central region of South Dakota for all species was 50 percent coagulated, 35 percent eyespot and 15 percent segmented. Heavy populations of Melanoplus spp. were reported from Gregory County alfalfa fields the following week. By the week of June 18, nymphal counts in the west river area ranged from 5 to 10 per square yard, with a few spots having counts of 12 to 15 per square yard. Most of the 'hoppers were first and second instars, with some being third and a few in their fourth instar. Throughout the summer, scattered outbreaks were found, reported and controlled before any damage of concern could be caused. The adult grasshopper survey started during the week of August 7-14 in South Dakota, with the results showing that both rangeland and cropland had a reduction in grasshopper populations over the past few years. The whole of the State had unusually low populations in cropland during 1962. Rangeland had relatively small areas of threatening infestations, occurring in Custer, Haakon and Harding Counties. Around the middle of September, some scattered ranchers and farmers in Dewey County treated their winter wheat field borders for protection from grasshoppers. Throughout the early fall months, grasshoppers caused enough damage to edges of wheat fields that some of the margins had to be replanted. The egg survey consisted of between 75 to 80 stops in the State. Eggs could be readily found in central South Dakota where grasshoppers were numerous during the summer.

In general, the grasshopper situation did not develop into a serious problem in NORTH DAKOTA. Numbers per square yard ranged from noneconomic to threatening. However, some isolated cases of severe infestations were reported. The dominant

species of grasshoppers on cropland were migratory grasshopper and two-striped grasshopper. Some Packard grasshopper, red-legged grasshopper, clear-winged grasshopper and Melanoplus dawsoni were also found. On rangeland, the dominant species were migratory grasshopper, Ageneotettix deorum and Aulocara elliotti. Clear-winged grasshopper was present in smaller numbers. The major egg hatch started in mid-June in North Dakota and continued through mid-July. Grasshoppers caused some damage to flax in the north central part of the State. In MINNESOTA, weather conditions for grasshopper egg and nymphal development were generally unfavorable over much of the State in 1962. Spring and early summer were characterized by long periods of cool, wet weather. This was especially true in the west central and northwest areas of the State. It was felt that the adverse weather conditions, along with greatly accelerated vegetative growth, were responsible for late hatch, slow development and, in some cases in western and northwest Minnesota, high nymphal mortality. The adult survey in August showed a marked population drop in the west central district from that of 1961. Alfalfa is the principal habitat infested by grasshoppers in Minnesota. The red-legged grasshopper is by far the dominant species; however, two-striped, differential and migratory grasshoppers are found dominant in some fields in the western and northwestern counties. Threatening to severe infestations continue to be scattered and localized. A general increase in threatening to severe populations was noted in the light sandy soils in much of Isanti, Anoka, Sherburne, west Benton and Morrison Counties. Threatening infestations still persist in Kittson and west Marshall Counties, but at a lower level than in 1961. A small area of threatening infestation in Yellow Medicine and Lac qui Parle Counties completes the picture of economic grasshopper populations in Minnesota. Grasshopper infestations in the remainder of the State have declined or remained at a low level.

Injury by grasshoppers was more evident during 1962 than in 1961 in WISCONSIN. Alfalfa in the central portion of the State was entirely stripped in some instances and moderate damage was manifest in many areas where numbers were in any way important. Cropping practices had the most important influence upon crops other than alfalfa. Where alfalfa had recently been cut during or shortly after grasshoppers had reached maturity, some injury to corn, soybeans, snap beans and tobacco was encountered. Red-legged grasshopper again accounted for about 90 percent of the populations involved, with differential grasshopper being the second most abundant species present. Differential grasshopper, as well as migratory grasshopper, appears to be most commonly encountered in corn fields where both leaf feeding and silk feeding frequently became noticeable in 1962. Two-striped grasshopper caused some concern in the central area. Red-legged grasshopper eggs began hatching in sandier areas of Wisconsin the first week of June; 5 days earlier than in 1961. Damage became noticeable in some areas by the end of July. The fall survey revealed an average of 10 per square yard for the State, which was the same as in 1960. Development was delayed, with fifth instars still present on October 9, and females still containing eggs were present as late as October 26. This delay in oviposition and prolonged development may be a hopeful indication that grasshopper populations may decrease in certain areas of Wisconsin, if not in most areas, in 1963. The total acreage of hay treated for grasshoppers in the State was 5,645 compared with 10,240 in 1961. There were 3,856,000 acres of hay planted in Wisconsin in 1962, 26,000 more than in 1961. Of the acreage treated in 1962, 1,000 were in Waupaca County and 1,500 in Waukesha County.

The grasshopper hatch was reported to be increasing generally by mid-June in IOWA. Infestations in July were rated light to severe, with the heavier populations being in the southern and central thirds of the State. However, 40 percent of the fields surveyed in the southern third and 50 percent of those in the central third of Iowa were rated as having light infestations. In MISSOURI, hatching of grasshoppers was spread out over a longer period than normal because of cool, wet conditions in the spring. Damage was not evident in any area during the spring and early summer due to an abundance of vegetation in the hatching areas. Extremely dry conditions during mid to late summer in central, north central and northeast Missouri caused a rapid migration of 'hoppers from waste areas to pastures, legumes and cultivated crops. Counts averaged as high as 33 'hoppers per

square yard in pastures, 28 per square yard in legumes and 25 per square yard in cultivated crops. Pastures, already injured by drought, suffered the most damage throughout Missouri. In the central area, where pastures and legumes dried up first, corn and soybeans were damaged extensively in spots. The dominant species in Missouri in order of their importance were red-legged grasshopper, migratory grasshopper, differential grasshopper and two-striped grasshopper. Differential and red-legged grasshoppers were the principal species involved in a small area in northwestern ARKANSAS, but infestations were of minor importance.

Grasshoppers were more abundant in ILLINOIS during 1962 than they have been at any other time in the past 15 years. Early warning from entomologists and an extensive control program by farmers prevented much damage. An estimated 1,472,645 acres were treated in 1962, thereby saving farmers about \$6,885,872. Red-legged grasshopper, differential grasshopper and some migratory grasshopper were noted. During May 28-31, populations averaged 302 per 100 sweeps (up to 108 per square yard) in grassy roadsides and other places in the east-southeast district. The grass was still succulent, but population pressures were causing the small 'hoppers to move into and severely defoliate marginal rows of corn and soybeans. A few third instars appeared June 3-8 and populations in grass averaged 36 per square yard in the west district and 29 per square yard in the central district. By June 11-15, many grassy roadsides, ditchbanks, fence rows and marginal rows of corn and soybeans had been treated in Illinois. Although populations were declining in grassy areas, hatch was just getting well started in clover and alfalfa. Average populations per square yard in grassy areas June 11-15 were 12 in the central district, 17 in west-southwest and 19 in east-southeast. In the northeast district there were 12.5 per sweep, and in the east, 23.2 per sweep. Occasional adult migratory grasshopper was observed in the east-southeast and west-southwest districts. There were 5 grasshoppers per linear foot in marginal rows of a soybean field in Will County. During June 24-29, hatch was nearly completed in the southern half of the State and well underway in northern Illinois. Populations in grassy areas then averaged 10.5 per square yard in the west-southwest district and 14 per square yard in the east-southeast. However, populations in clover and alfalfa averaged 20.3 per square yard in the west-southwest and 19.5 in the east-southeast. The week of July 8-13 showed that some clover and alfalfa fields in the west district had 25-30 percent of the leaf area removed from the plants and second to fourth instars ran from 80 to 180 per square yard. In the northwest district, populations were 3-90 (average 46 nymphs, mostly first to third instar) per square yard, with hatch still occurring in the northern 2 tiers of Illinois counties. Adults were common throughout the southern half of Illinois July 15-20, and a few adults were observed in the northern half of the State. In late July and August, some clover fields were completely stripped of leaves. As clover and alfalfa fields were cut, grasshoppers migrated into and damaged nearby corn and soybeans. One cornfield had all silk removed from tips of ears and some kernel damage was apparent; counts were 14 adults and nymphs per plant in marginal rows. One field of soybeans with 15 adults per foot of row had 75 percent of the leaf area removed in marginal rows and pod feeding was evident. Timely warnings of grasshopper presence and extensive control programs prevented much of the potential damage in Illinois. An estimated 235,128 acres of corn, 372,179 acres of soybeans, 699,438 acres of hay and pasture and 165,882 acres of fence rows, roadsides, ditchbanks, etc., were treated to control this grasshopper outbreak.

Populations of Melanoplus spp. again increased over the preceding year in INDIANA. Damaging populations occurred in localized areas throughout the southern three-fourths of the State. The dominant species were red-legged grasshopper and differential grasshopper. In Decatur County, an infestation in one field of soybeans averaged 40 grasshoppers per square yard. In MICHIGAN, red-legged grasshopper and migratory grasshopper continued their low population trend of former years. Both species are in the southern part of the State, especially Montcalm County. No organized control program was carried out in 1962. Individual farmers treated crops such as potatoes for protection against migrating grasshoppers.

MORMON CRICKET (Anabrus simplex) infestations increased during 1962 in NEVADA. Surveys showed that approximately 30,600 acres are infested, with major increases occurring in Eureka, Lander and Pershing Counties. Total of 21,857 acres in San Juan County, UTAH, and 2,500 acres in the Kanosh area of Millard County, Utah, were aircraft baited during the year. Mormon crickets are a threat to rangelands in the Bear Top Mountain area of Daggett County and Kanosh area of Millard County for 1963. In NEBRASKA, Mormon cricket was present in small numbers in a solitary location in Dawes County; and in MONTANA, only small isolated bands were noted during the past 2 years in the Big Horn Mountains. Only scattered individual Mormon crickets, this species and others, were observed during the 1962 season in WASHINGTON and no concentrations required controls; this situation repeats the conditions encountered since the massive control work done during the late 1940's and early 1950's.

Larvae of ARMY CUTWORM (Chorizagrotis auxiliaris) were abundant in small grains and alfalfa in southwest NORTH DAKOTA during May, and locally heavy larval populations caused damage to winter wheat and alfalfa in the panhandle area of NEBRASKA during mid-April. Localized damage to oats occurred in early May in the northern part of Nebraska. The heaviest moth flights in central Nebraska occurred during mid-May and approximately June 1 in the panhandle area. Army cutworm was of economic importance in KANSAS only in a few wheat and alfalfa fields in the southern area, and the pest destroyed a field of winter wheat in Baca County, COLORADO. The insect was about normal in abundance in UTAH. However, larval infestations were found in several areas of WYOMING. Most damage occurred on alfalfa. The largest populations were found in Big Horn, Hot Springs, Fremont and Laramie Counties. In general, populations were larger than in 1961 in Wyoming. No extensive army cutworm outbreaks were reported in MONTANA, but scattered, light infestations occurred in Richland, Rosebud, Chouteau, Roosevelt and Cascade Counties. In IDAHO, larval populations of 1-6 per square foot were noted during late April in some rangeland areas of Gooding, Elmore and Owyhee Counties. Damage in Idaho was mostly confined to rangeland, with dryland grains and hay crops suffering only light damage in areas of Elmore, Owyhee and Butte Counties. The cutworm damaged alfalfa in Elko County, NEVADA, in early May, but was noticeably absent in CALIFORNIA following its heavy invasion in 1961. Army cutworm damaged alfalfa, vetch, flax, grain sorghum, Johnson grass, clover and other field crops in several areas of TEXAS, but was generally concentrated in several south central counties. Cutworms, mostly army cutworm, severely defoliated alfalfa in a number of fields in northern Dona Ana County, NEW MEXICO, during March and April. They also damaged Austrian winter peas, small grains and safflower in Luna County, New Mexico.

APHIDS in general appeared later than usual in CALIFORNIA and the first infestations were in alfalfa, beans and barley. Infestations eventually spread to corn plantings and a few miscellaneous forage crops without serious consequences.

Small Grain Insects

Highlights:

GREENBUG and ENGLISH GRAIN APHID were generally not a problem on small grains during 1962. Some damage did occur, however, in northeast North Dakota during August and in parts of Park County, Wyoming, and on the Eastern Shore of Maryland. CORN LEAF APHID reached economic levels on barley in Idaho and Nevada and in areas of other states, but was not a widespread problem on small grains. RICE DELPHACID was found in seven Louisiana parishes during the year, the first occurrence since 1959. Hoja blanca, transmitted by this delphacid, was not found. RICE STINK BUG was the principal pest of rice in Arkansas in 1962 and widespread infestations occurred in coastal rice-growing areas of Texas. Localized outbreaks of ARMYWORM were of some concern in 1962, the most noteworthy of which occurred on the Delmarva Peninsula and in areas of Wisconsin, Minnesota and Wyoming. FALL ARMYWORM

caused heavy damage to small grains in Texas, and early planted, susceptible varieties of wheat showed considerable HESSIAN FLY damage during the fall in Kansas. A severe spring infestation of hessian fly is expected in Kansas where weather conditions are favorable. CEREAL LEAF BEETLE was recorded for the first time in the Western Hemisphere when an infestation was found in Berrien County, Michigan. It was later found to occur in Cass County, Michigan, and in La Porte and St. Joseph Counties, Indiana. State quarantines became effective in Michigan and Indiana and intensive surveys and chemical controls are planned for 1963. WIREWORMS caused considerable damage to small grains in Wyoming, and BROWN WHEAT MITE was numerous enough to warrant controls in Colorado and cause considerable damage in parts of Texas and New Mexico.

GREENBUG (Schizaphis (Toxoptera) graminum) reached economic levels on small grains in portions of northeastern and north central NORTH DAKOTA during 1962. It became a problem on wheat in the northeast during August, but in most cases the fields attacked were planted late. Greenbug was first found on May 8 in MINNESOTA, the south central district. Nearly all were alates, with only a few nymphs present. Although small grains were in the seedling stage and quite susceptible to greenbug feeding, very little damage was reported. By early June, the pest was found throughout Minnesota. However, populations generally remained low the entire season and did not present a problem. In WISCONSIN, adults began appearing in oat fields the fourth week of May, 2 weeks earlier than in 1961. Populations were low and, except for a few fields in Trempealeau County, no noticeable loss was evident. "Red leaf", the disease transmitted by this insect, was also very light in Wisconsin. Greenbug was first found May 21 in the central and west districts of ILLINOIS, but it did not build up and was very light throughout the season. Noneconomic levels were present in MISSOURI, NEBRASKA and KANSAS. Counts in Nebraska averaged 1 per 10 sweeps in the eastern area. In OKLAHOMA, damage was generally light throughout the season. Populations were active from January through early May in that State, with the highest populations being present in the Kingfisher-Garfield-Kay County area in late April after the wheat crop had reached the "boot" stage. The first fall activity in newly planted wheat was observed in mid-October, with noneconomic populations present in most areas of Oklahoma throughout the fall months. Practically no economic infestations occurred during the year in ARKANSAS and the pest did not cause general damage to small grains in TEXAS, but a few fields in the northwest and north central part of the latter State required controls. Greenbug was relatively light in eastern NEW MEXICO grain fields during the spring, but an apparent buildup was noted during November and December in winter wheat fields in the same area. In COLORADO, the aphid was light to moderate on wheat and present on malting barley in some areas. Controls were applied to the latter crop to prevent possible loss. Large populations of this grain aphid were found only in Park, Campbell and Big Horn Counties, WYOMING, on small grains. Damage was light in all areas of Wyoming except in parts of Park County where moderate losses occurred. In general, populations were much smaller than those of 1961 in Wyoming and below normal for the year in UTAH. Greenbug was abundant on grains in the eastern area of IDAHO during July and August.

ENGLISH GRAIN APHID (Macrosiphum avenae), like greenbug, was a problem on small grains in portions of northeastern and north central NORTH DAKOTA during 1962. Conditions were similar for both aphids. The English grain aphid was reported as noneconomic in NEVADA, UTAH, KANSAS, NEBRASKA, MINNESOTA and OKLAHOMA. In the latter State, populations were generally light from January through April and the first fall populations (very light) were noted in early November and existed the remainder of the year. In COLORADO, infestations were similar to those of greenbug. Colonies of English grain aphid appeared about three weeks later than in 1961 in WISCONSIN and populations remained relatively low throughout the season. Nymphs were present in ryegrass as late as October 23. The aphid was above normal in abundance on small grains on the Eastern Shore of

MARYLAND, but were held in check during late May by parasites and predators. Counts of 15 per sweep were found in Franklin County, PENNSYLVANIA, wheat. English grain aphid was abundant on grains in eastern IDAHO during July and August, and this aphid is one of the few that is numerous on small grains in ALASKA. Barley yellow dwarf is spreading in Alaska, but definite vectors are still unknown in that State.

CORN LEAF APHID (Rhopalosiphum maidis) reached economic levels in barley in Clark, Jefferson, Bonneville and Bingham Counties, IDAHO, by July 20, and infestations of the aphid were evident on wheat, oats and many grasses in Bingham and Power Counties. Considerable yellow-dwarf damage occurred in late-planted barley in Butte, Bonneville, Bingham and Power Counties, Idaho, as a result of aphid infestations. Infestations were severe in NEVADA, especially in central counties. Heavy populations developed on barley in Clark County in April and in the central and northern counties of Nevada in June. In the latter areas, insecticides were applied for control. Medium populations of the aphid were present on barley in Monterey County, CALIFORNIA, and light to medium infestations were present on barley in ARIZONA during February and March. In NEW MEXICO, corn leaf aphid began building up in barley fields in Dona Ana, Sierra and Eddy Counties, and Animas Valley, Hidalgo County, in April. Populations were apparently kept under control by beneficial insects, except in a few fields which had to be treated in northern Eddy County and an occasional field in Dona Ana County. Limited numbers of the aphid were present in TEXAS small grain fields and generally light populations existed in OKLAHOMA throughout 1962. Only localized damage was noted in southwest Oklahoma where high populations caused heavy honeydew secretions on maturing heads. Generally, populations were not as high as in 1961 in this State. Corn leaf aphid caused some concern in insolated fields of wheat and barley in NORTH DAKOTA and low populations were reported on barley in northwest MINNESOTA.

APPLE GRAIN APHID (Rhopalosiphum fitchii) was reported heavy on oats at Mapleton and Bridgewater, Aroostook County, MAINE, and populations were more abundant than normal in the spring in UTAH. Limited numbers were present on small grains in TEXAS and MISSOURI, and noneconomic numbers were present in KANSAS and OKLAHOMA. In the latter State, activity was observed from early January to early May, with the return of fall populations in early November continuing through the remainder of the year. Highest counts were reached during late April in the north central areas of Oklahoma.

Apple grain aphid and English grain aphid were less numerous on oats and less barley yellow dwarf virus was present in western WASHINGTON than usual, apparently reduced throughout the State by winter killing (1961-1962); however, they were building up in fall-planted wheat in eastern Washington during the fall and through the mild weather of December. There was considerably obvious chlorosis of plants during this latter period.

The largest populations of a MEDITERRANEAN GRAIN APHID (Rhopalosiphum rufiabdominalis) in WYOMING occurred in the southeastern area, but they were not as large as in 1961. The aphid caused considerable damage in Laramie County and controls were applied to a few fields. In KANSAS, noneconomic populations of R. rufiabdominalis were present in most wheat fields examined in the fall. An undetermined APHID caused some problem in the southern Piedmont and Coastal Plain of NORTH CAROLINA in small grains, particularly oats, as the vector of yellow-dwarf virus. Silpha argopyrella averaged 4 per sweep in wheat in Franklin County, PENNSYLVANIA.

RICE DELPHACID (Sogata orizicola) was found in LOUISIANA; the first record of this vector of hoja blanca in the United States since it was found in Louisiana in 1959. It was collected in Louisiana in Iberia Parish July 16. Later, it was detected in St. Mary, St. Martin, St. James, Vermilion, Evangeline and St. John the Baptist Parishes. A vigorous eradication campaign was conducted by State and Federal agencies. All of the 35 fields found to be infested were treated with insecticides. No specimens were collected during intensive surveys of late October and early November. Surveys for disease and/or vector conducted on 201,812

acres in ARKANSAS, FLORIDA, Louisiana, MISSISSIPPI, SOUTH CAROLINA and TEXAS during 1962 with no evidence of the disease being discovered in any State. The vector was found only in Louisiana. Another LEAFHOPPER (Cuerna costalis) was light to moderate on wheat in COLORADO. A PLANT BUG (Trigonotylus ruficornis) was common in grass in the southeast district of ILLINOIS in May and June, and all stages of the bug were found in wheat on May 8. On June 10 to 15, it ranged 0-10 (average 3) adults and 0-160 (average 70) nymphs per 100 sweeps in wheat in the east-southeast district. A CORIED BUG (Arhyssus scutatus) occurred in light to medium numbers in grain fields in Siskiyou County, CALIFORNIA.

RICE STINK BUG (Oebalus pugnax pugnax) was the principal pest of rice in ARKANSAS in 1962. A number of fields was surveyed weekly to detect seasonal development. Considerable acreage was treated in Arkansas, some of which was justified and some not. Excessive rain in June resulted in heavy growth of barnyardgrass, the main early host of this species. Moderate, widespread infestations occurred in the coastal rice-growing counties of TEXAS and about normal populations were present in LOUISIANA.

A heavy outbreak of ARMYWORM (Pseudaletia unipuncta) occurred in Worcester County, MARYLAND, during May on young barley and oats; several localities needed treatments. Economic infestations also occurred in Dorchester and Kent Counties, Maryland. Considerable damage to rye was observed in an area of Sussex County, DELAWARE, in late May. A localized outbreak occurred on the Eastern Shore of VIRGINIA about May 15. Damage was heavy in some sections, with corn and oats being hurt the most. Medium infestations were encountered on oats in Hanover County and on small grains in an area of Culpeper County, both in Virginia. However, there were no widespread outbreaks in that State in 1962. Armyworm caused considerable localized damage to small grains in Calhoun County, SOUTH CAROLINA, and local, heavy infestations were present on small grains in several middle GEORGIA counties. Armyworm infestations on small grain in ARKANSAS were comparable with 1961, with considerable acreage being treated. An infestation of seedling rice in Arkansas was the first observation of this type of damage by this species in the State. In MISSOURI, the first larvae of the season were observed in early May on small grains in the southeast section. The high counts of the year were reported in late May in the central and southeast areas of the State. These counts ranged from 3 to 35 larvae per square yard and were made in barley. Very little chemical control was used on armyworms this past season in Missouri. Larvae appeared throughout southern ILLINOIS May 6-11. In late May, some treatments were necessary in small grain in southwestern Illinois and a few oat fields were damaged in northern Illinois.

Armyworm moths were low in numbers during the first flight in INDIANA, but following favorable growing conditions for the first-generation larvae, the second flight was very large. In WISCONSIN, flights of armyworm moths began appearing early in the spring and attained a peak during the first and second weeks of June. The difference this season was that populations were more than ten times as great as in 1961 and continued heavy flights occurred for approximately a month and a half. Larval infestations of consequence in Wisconsin were confined mostly to an area of eastern Rock, Dane, southern Columbia, northwestern Dodge, Fond du Lac and a small portion of central Iowa counties. A few larvae were found in oats during the third week of June. Some treatment was necessary before parasitism became effective during the latter part of July. Pupation commenced in Columbia County during the first week of August and the second-generation larvae were of no consequence. Actual damage during the year in Wisconsin was generally light, although a few fields of oats were nearly destroyed.

Blacklight traps began collecting armyworm moths toward the end of May in MINNESOTA. No infestations in small grains were observed until the second week of July. It was present throughout the State, but high populations were widely scattered. Heavy infestations were reported from Le Sueur, Renville,

Mower, Aitkin, Swift, Polk, Marshall and Kittson Counties. Isolated, economic infestations were observed in small grains in NORTH DAKOTA and damage from this species and other armyworms in SOUTH DAKOTA was slight in 1962. In the latter State, scattered outbreaks of little importance were reported around the Martin area (Bennett County) and also around the Aberdeen area (Brown County). Small numbers were also collected in the blacklight trap on the South Dakota State College campus. Larval counts in NEBRASKA ranged 1-5 per 10 sweeps in small grains in the northeast in June and July, and heavy adult flights were present in the State in mid-June and the first week of August. One severe armyworm infestation was found in Goshen County, WYOMING, which damaged oats just before harvesting. Control efforts contained this outbreak in a small area and kept losses at a minimum. Counts of larvae under windrowed oats were as high as 50 to 60 per square foot. Armyworm was below normal in abundance in UTAH and noneconomic in KANSAS during 1962.

FALL ARMYWORM (Laphygma frugiperda) caused heavy damage to small grains in TEXAS and was prevalent in LOUISIANA. WHEAT HEAD ARMYWORM (Faronta diffusa) and PALE WESTERN CUTWORM (Agrotis orthogonia) caused light to moderate damage to wheat in COLORADO. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) killed some wheat during October in Baylor County, TEXAS. It was eating the center inside of wheat stalks below the ground.

HESSIAN FLY (Phytophaga destructor) infestations increased during the spring in KANSAS, but damage was not great to the harvested crop. Early planted, susceptible varieties showed considerable damage in the fall in the northwest, west central, north central, central, northeast and east central districts of Kansas. Where suitable weather conditions exist during the spring of 1963, a severe infestation is expected. In NEBRASKA, wheat in Franklin and Harlan Counties had spotted infestations up to 50 percent in June. Elsewhere in southern and eastern Nebraska, infestations ranged from one to 10 percent. Fall surveys in the State showed scattered infestations in fields in the southwest, south, southeast and east, ranging from zero to 75 percent. Some damage to spring wheat was observed in the Enderlin area of NORTH DAKOTA. Damage in MONTANA was light and sporadic and only in the eastern part of the State. However, a general light infestation was found in Teton, Pondera and Chouteau Counties, with stem infestation running as high as 10 percent. Damage to wheat in MISSOURI was lighter statewide than in 1961. Light to moderate damage was evident in spots in the southwest, east central and northeast areas. The numbers of maggots per 100 stems in these areas of Missouri ranged from zero to 143. The county averages of maggots per 100 stems ranged from 7.25 to 30.8. Populations of hessian fly increased in ILLINOIS from 9.6 puparia per 100 tillers of wheat in 1961 to 13.9 per 100 tillers in 1962. An estimated 32.1 percent of all wheat was seeded one week or more before the "fly-free date" in 1962. An estimated 25.2 percent of all wheat in Illinois was seeded with resistant varieties. Most of the resistant varieties were seeded early. Infestations also increased in INDIANA over 1961. Seventy-five samples from 36 counties ranged from zero to 45 percent infestation, and averaged 10 percent for susceptible varieties. Resistant varieties ranged from zero to 9.4 percent, and averaged 3 percent. Evidence of infestation was observed in a high percentage of southern MICHIGAN counties. Resistant varieties of wheat appeared to be damaged little by this pest.

WHEAT STEM MAGGOT (Meromyza americana) was present throughout MINNESOTA, but populations were very low, less than one percent. In KANSAS, wheat stem maggot was of importance in the 1962 harvested crop only in a very few fields in the eastern area. Maggot-infested plants were found in several fields during the fall. A special survey in Gilliam and Sherman Counties, OREGON, for the AGROMYZID (Cerodontha dorsalis) revealed extremely small numbers present in 16 fields checked during May. WHEAT MIDGE (Sitodiplosis mosellana) caused some shriveling of the kernel of wheat in PENNSYLVANIA. Medium populations of a LEAF MINER (Hydrellia griseola) were evident locally in rice plantings in Sutter County, CALIFORNIA, and medium in Butte County, same State. Treatments in other

areas of California prevented a buildup. Probably due to the cooler weather, this leaf miner was not the problem in 1962 that it had been in past years in the State. In TEXAS, larvae of a CECIDOMYID, determination of which is pending, infested approximately 5 percent of the wheat crop in Wilbarger County during May. The larvae were found between the leaf sheath and stem above the last node, but no damage was apparent.

Infestations of WHEAT JOINTWORM (Harmolita tritici) in INDIANA, based on 56 samples from 31 counties, showed an average infestation of 7.5 percent, which was an increase over 1961. Infestations in the State ranged 0-88 percent of the stems infested per field sample. Wheat jointworm was noneconomic in KANSAS and below normal in UTAH. The same was true for WHEAT STRAW-WORM (H. grandis) in UTAH. WHEAT STEM SAWFLY (Cephus cinctus) infested 9 percent of wheat stems in spot check of counties north and west of Minot, NORTH DAKOTA.

CEREAL LEAF BEETLE (Oulema melanopa) was the most important cereal insect problem in MICHIGAN in 1962. The infestation, found on small grains and other grass in Berrien and Cass Counties, caused considerable concern. This was the first recorded occurrence of this important pest in the Western Hemisphere. The specific determination was made in July 1962. Cereal leaf beetle was reported for the first time in INDIANA in August 1962, when infestations were found in St. Joseph and La Porte Counties. Its first occurrence in these two counties of Indiana and the adjacent area in Michigan suggests that cereal leaf beetle may have entered the United States by way of the St. Lawrence Seaway. The total infested area in the two states is approximately 960 square miles, 900 in MICHIGAN and 60 in INDIANA. State quarantines became effective in Michigan on October 15, 1962, and in Indiana on November 12, 1962. Commodity treatments and other certification procedures are being used to permit products that present a hazard of spread to move in commerce. In addition, surveys will be conducted this spring throughout the generally infested area to delimit the infestation, and detection surveys will be conducted in other small grain-producing areas to determine their freedom from infestation. Also, chemical treatments of known infestations will be accomplished as the initial step toward eradication.

The first infestation of a TENEBRIONID (Blapstinus substriatus) in large numbers since 1931 was reported in 1962 in eastern Teton and northern Cascade Counties, MONTANA. Damage was not severe and controls were not necessary. RICE WATER WEEVIL (Lissorhoptus oryzophilus) and a LEAF BEETLE (Maecolaspis sp.) were about normal on rice in LOUISIANA.

WIREWORMS were especially serious in fall-seeded wheat in several south central MICHIGAN counties during 1962. Limonius spp. caused considerable damage to small grains in WYOMING, with the largest populations being present in Goshen, Laramie, Platte, Hot Springs, Big Horn, Park and Sheridan Counties. In SOUTH CAROLINA, SAND WIREWORM (Horistonotus uhlerii) was not reported as a pest of small grains. A BILLBUG (Sphenophorus sp.) was observed in a high percentage of wheat fields in southern MICHIGAN, but BILLBUG damage to small grains was markedly reduced in SOUTH CAROLINA.

In CALIFORNIA, medium populations of a tadpole shrimp (Triops longicaudatus) occurred in all rice districts in Butte County; damage was associated with a WATER SCAVENGER BEETLE digging in young rice to get the shrimp.

A BARLEY THRIPS (Limothrips denticornis) was active in NORTH DAKOTA, but generally did not reach economic levels. It was also present again in MINNESOTA, but in lower numbers, being found only in west central and northwest districts. In MARYLAND, unspecified THRIPS were again abundant and caused noticeable streaking of barley and wheat.

BROWN WHEAT MITE (Petrobia latens) occurred in significant numbers on wheat in the TEXAS Panhandle, but it was impossible to evaluate the damage caused because of the accompanying freeze and drought damage. In NEW MEXICO, light to unusually

heavy infestations damaged wheat and alfalfa in most counties where these crops are grown. In southeastern COLORADO, where drought conditions existed, populations of brown wheat mite varied from 10 to 120 per linear foot of drill row in wheat and caused losses of 10 to 40 percent. It was numerous enough in Garfield County, Colorado, to require the use of controls where counts averaged 20 to 30 per plant. Reduction in barley production by insects was negligible in 1962 in most areas of Colorado. However, early in the spring, brown wheat mite was present on barley in Baca County in sufficient numbers to require controls. Trace numbers of the mite were present in other areas of Colorado, but did not cause any loss to barley. Some controls were applied to prevent damage, however. Light, spotted infestations were present in Cheyenne County, NEBRASKA, wheat in May, and the mite was not present in economic numbers in KANSAS. Numbers were below normal in UTAH and lighter than in 1961 in NEVADA, but heavy infestations occurred on alfalfa and small grains in White Pine County, Nevada, during June.

WINTER GRAIN MITE (Penthaleus major) occurred in damaging numbers on small grains in several north central TEXAS counties and controls were applied in many instances. Populations were not economic in KANSAS and below normal in UTAH. WHEAT CURL MITE (Aceria tulipae) caused 5 to 75 percent reduction in yield of wheat in Pueblo and Huerfano Counties.

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Cooperative
ECONOMIC INSECT
REPORT

Edited by

PERM PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

COOPERATIVE ECONOMIC INSECT REPORTS

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

This Cooperative Economic Insect Report is presented as a service to American Agriculture. The contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and plant agricultural workers. In releasing this material the Director serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

**Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D.C.**

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ALFALFA WEEVIL eggs present on alfalfa in Spalding, Paulding, Polk and Fulton Counties, Georgia; no larvae present as of February 21 in latter three counties. (p. 139). GREEN PEACH APHID appearing on alfalfa (p. 139), lettuce (p. 140) and annual plants (p. 141) in Arizona. Also heavy on chrysanthemums in area of Santa Cruz County, California. (p. 141).

CUTWORMS present in some alfalfa in Maricopa and Yuma Counties, Arizona, and causing serious damage to lawns in areas of Mohave and Maricopa Counties, Arizona. (p. 139).

POTATO PSYLLID damaged early potatoes locally in Iron County, Utah; and POPLAR PETIOLE GALL APHID moderate on cabbage roots and creating problems in areas of Hidalgo County, Texas. (p. 140).

EASTERN SUBTERRANEAN TERMITE winged forms collected locally in North Carolina and Rhode Island. (p. 143).

DETECTION

A LEAFHOPPER (Texananus gladius) reported for first time in California. (p. 141).

FORECASTS

Potential threat of CHINCH BUG exists in much of eastern and central Illinois. (p. 153). MEADOW SPITTLEBUG expected to be low generally in Illinois and Ohio in 1963. (p. 158). ALFALFA WEEVIL potential severe in Oregon and other Western States, as well as in the East. (pp. 161-163). Potential large population of BLISTER BEETLES present in Indiana. (p. 165).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 142).

Summary of Insect Conditions in the United States - 1962

Cereal and Forage Insects (continued from page 136, CEIR 13(8):2-22-63).

Corn, Sorghum and Sugarcane Insects - (p. 144).

Alfalfa, Clover, Sweetclover, Vetch and Bean Insects - (p. 155).

Lawn, Pasture and Rangeland Insects - (p. 168).

Soybean and Peanut Insects - (p. 171).

Flax, Sunflower, Mustard and Safflower Insects - (p. 175).

Reports in this issue are for week ending February 22, unless otherwise indicated.

WEATHER OF THE WEEK ENDING FEBRUARY 25

The week's weather was highly variable over the Nation, but most notable was a midweek cold snap east of the Rocky Mountains. Early period temperatures, which rose to near spring-like levels, cooled rapidly, lowering daily minima to new extremes at many stations from the Great Plains to the Atlantic coast. A 59° reading at St. Louis, Missouri, on the 20th, was lowered to 22° in 3 hours from the cold air influx. Record daily minima were set on 3 consecutive days ending the 23d, at Louisville, Kentucky. On the 22d, when Pellston, Michigan, had an icy -35° low, new records for the date were set from Albany, New York, to Little Rock, Arkansas, and Atlanta, Georgia, with 8°, beat its old reading by 11°.

By the end of the week, temperatures were again moderating over the eastern half of the Nation, but not nearly enough to keep weekly averages generally below normal. Departures ranged to over 12° below seasonal throughout much of the Ohio and Mississippi Valleys and the western Great Lakes. New England and Pennsylvania logged below-normal temperature averages for the 5th and 6th consecutive week, respectively.

Over the Far West, daily temperatures were mostly normal or above, and averages exceeded 6° above normal over a wide area from Canada to Mexico. Helena, Montana, registered the largest departure with 12° above normal. Daily maxima at Cut Bank, Montana, were near 50° on 6 days.

Precipitation throughout the Far West was mostly insignificant. However, measurable amounts were recorded in all sections of the Pacific Northwest and Idaho. Little snow fell and depths still remain at near record low levels. Crater Lake, Oregon, reported a 34-inch cover, lower than any previous February measurement in over 30 years of record. General, mostly light precipitation fell in Colorado and north-central New Mexico.

Very little moisture was received over the four-state area of Kansas, Missouri, Arkansas and Oklahoma. However, Texas received good rains on the 18th, as did all the Gulf States, from an offshore storm which went on to produce a severe squall line over the central Florida Peninsula on the 19th. Winds to 75 m.p.h. were reported from downtown St. Petersburg and airplanes were damaged by an unofficial tornado which hit the Lakeland Airport. As the system moved up the east coast, precipitation amounts were locally heavy and fell as snow in the interior mountain areas. Falls of 8 inches were common in the Appalachians of the Virginias, and Canaan Valley, West Virginia, had 19 inches on the ground on the 19th. In New England, the storm dropped from 5 to 14 inches in southern interior areas.

A similar storm system worked its way from the Gulf up the east coast area, producing rain and snow over the Mississippi and Ohio Valleys on the 23d and nearly all the Nation east of the Mississippi River on the 24th. Charleston, South Carolina, received 2.25 inches on the latter day. Periodic heavy snow squalls to the lee of the Great Lakes left up to 18 inches of new cover in western New York. End-of-the-week snow depths ranged up to 50 inches in Maine and to 40 inches locally at Norfolk, Connecticut. Watertown, New York, measured nearly 5 feet. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRAIN APHIDS - OKLAHOMA - Populations of APPLE GRAIN APHID (Rhopalosiphum fitchii), ENGLISH GRAIN APHID (Macrosiphum avenae*) and CORN LEAF APHID (R. maidis) continue at very low levels. (Okla. Coop. Sur.). ARKANSAS - Surveys in Washington County, northwest, negative for common aphids generally found on winter small grains except for Macrosiphum avenae*, which ranged 1-5 per linear foot in oats that made good growth prior to cold weather. (Ark. Ins. Sur.).

GREENBUG (Schizaphis graminum*) - OKLAHOMA - Populations continue at noneconomic level throughout State; ranged 0-5 per linear foot. Negative findings still common in many areas. (Okla. Coop. Sur.).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - ARKANSAS - Studies made in 5 Washington County fields show survival to February 12 was only 1.74 percent. (Ark. Ins. Sur.).

ALFALFA WEEVIL (Hypera postica) - GEORGIA - Eggs present in 15 of 100 stems examined in Spalding County. (Tippins). Eggs noted in alfalfa stems in Paulding, Polk and Fulton Counties. As of February 21, no larvae have been found. (Johnson).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Appearing on alfalfa and on many weeds surrounding alfalfa, especially in Yuma County; few appearing in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum*) - NEW MEXICO - Only an occasional light infestation noted in alfalfa checked in Dona Ana County. (N. M. Coop. Rpt.). OKLAHOMA - Ranged 0-0.5 per square foot of crown area in Sequoyah County. (Okla. Coop. Sur.).

CUTWORMS - ARIZONA - Unspecified species present in some alfalfa in Maricopa and Yuma Counties. Causing serious injury to lawns in new housing projects in Kingman area, Mohave County; also injurious to many lawns in Maricopa County. (Ariz. Coop. Sur.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Larvae medium in soil and roots of dichondra lawns in Wasco, Kern County. (Cal. Coop. Rpt.).

BLACK CUTWORM (Agrotis ipsilon) - CALIFORNIA - Populations of half-grown larvae medium in field of safflower in Brawley, Imperial County. (Cal. Coop. Rpt.).

FRUIT INSECTS

SIX-SPOTTED MITE (Eotetranychus sexmaculatus) - FLORIDA - Moderate on Litchi chinensis at Pahokee, Palm Beach County (Feb. 5). (Fla. Coop. Sur.).

TEXAS CITRUS MITE (Eutetranychus banksi) - FLORIDA - Moderate on Citrus sinensis at Bradenton, Manatee County (Feb. 11), and on Citrus sp. at Sarasota, Sarasota County (Feb. 13). (Fla. Coop. Sur.).

CITRUS RED MITE (Panonychus citri) - FLORIDA - Moderate on Citrus sp. at Sarasota, Sarasota County (Feb. 13). (Fla. Coop. Sur.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Medium on dooryard lemon in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

* See CEIR 13(5):84.

TRUCK CROP INSECTS

POTATO PSYLLID (Paratrioza cockerelli) - UTAH - Damaged 2 small fields of early potatoes at Newcastle, Iron County; resulted in complete loss of 8 acres of potatoes. (Knowlton, Hall).

POTATO TUBERWORM (Gnorimoschema operculella) - UTAH - No potatoes showing infestation found in areas of Washington, Iron, Millard and Beaver Counties, where infestations sometimes occurred in recent years. (Knowlton, Hall).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Heavy in mustard and turnip greens and roots in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

CABBAGE APHID (Brevicoryne brassicae) - FLORIDA - Infested 2,500,000 cabbage plants at Bartow, Polk County (Feb. 5). (Fla. Coop. Sur.).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - TEXAS - Moderate populations on cabbage roots continue to create problems in widespread areas of Hidalgo County. (Texas Coop. Rpt., Espensen).

THRIPS - NEW MEXICO - Populations very low on onions in Dona Ana County. (N. M. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Few being reported on lettuce. (Ariz. Coop. Sur.).

BEEET ARMYWORM (Spodoptera exigua) - ARIZONA - Injury to some lettuce continues. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Continues to cause injury to some lettuce. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Active broods found in scattered, lightning-struck trees in Hardin, Liberty, Polk, San Jacinto and Tyler Counties. No new multiple-tree infestations found. (Williamson).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - TEXAS - Damage to loblolly and shortleaf pines reported on National Forest land in Trinity and southern Houston Counties. Logging and lightning contributing factors. Beetles continue to cause additional mortality around periphery of older, inactive D. frontalis infestations throughout epidemic area. (Williamson).

PINE BARK APHID (Pineus strobi) - NORTH CAROLINA - Heavy on sample of white pine collected by resident in Person County; 20 percent of pines bordering lawn affected. (Jones).

HICKORY SHUCKWORM (Laspeyresia caryana) - OKLAHOMA - Overwintering populations of 6, 16, 21, 22 and 25 percent recorded from pecan shucks collected in Garvin and Murray Counties. Percent infestations based on shucks equivalent to 100 nuts. (Okla. Coop. Sur.).

A BIRCH APHID (Euceraaphis gillettei) - CALIFORNIA - Medium on alder trees in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

A JUNIPER TWIG MOTH (Periploca nigra) - CALIFORNIA - Larvae heavy in nursery stock of Juniperus sp. in Chula Vista, San Diego County. (Cal. Coop. Rpt.).

A STENOMID MOTH (Anteotricha manzanitae) - CALIFORNIA - This species and a tortricid (Amorbia sp.) present on leaves of manzanita in Vandenburg Military Reservation,

Santa Barbara County. (Cal. Coop. Rpt.).

CONIFER APHIDS (*Cinara* spp.) - CALIFORNIA - *Cinara* sp., near *curvipes*, heavy on *Pinus canariensis*, and *Cinara* sp. near *ponderosae*, heavy on specimen pines in Riverside, Riverside County. *Cinara* sp., near *sibiricae*, heavy on *Juniperus chinensis torulosa* in Capistrano Beach, Orange County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (*Myzus persicae*) - CALIFORNIA - Heavy in chrysanthemum plantings in Watsonville, Santa Cruz County. Chrysanthemums in several areas severely affected by aphids this fall and winter. (Cal. Coop. Rpt.). ARIZONA - Appearing on roses and many annual plants in Phoenix and Mesa areas, Maricopa County. (Ariz. Coop. Sur.).

WHITEFLIES - FLORIDA - *Odontaleyrodes rhododendri* moderately infested *Rhododendron* sp. at Green Cove Springs, Clay County (Jan. 16). Det. by L. M. Russell. (Fla. Coop. Sur.). NORTH CAROLINA - Undetermined species infesting gardenia at a Dare County location. (Robertson).

A LEAFHOPPER (*Texananus gladius*) - CALIFORNIA - Nymphs and adults heavy on leaves of *Saintpaulia* sp. (African-violet) in private collection in Pomona, Los Angeles County. Collected October 2, 1962, by J. Manning and D. Estes. Det. by J. P. Kramer. This is a new State record. (Cal. Coop. Rpt.).

EUONYMUS SCALE (*Unaspis euonymi*) - OKLAHOMA - Light to moderate in Bryan and Washington Counties. (Okla. Coop. Sur.).

Coccids in Florida - *Aspidiotus lataniae* moderate on *Ligustrum* sp. at Tampa, Hillsborough County (Feb. 20). *Ceroplastes floridensis* ranged light to medium on *Platynerium* sp. at same location (Feb. 20). *Fiorinia theae* moderately infested *Camellia* sp. at Brooksville, Hernando County (Feb. 13), and at Tampa (Feb. 20). *Pseudaonidia paeoniae* was light on 1,000 *Camellia japonica* plants at Gainesville, Alachua County (Feb. 14). *Phenacaspis cockerelli* was moderate on 200 *Strelitzia* sp. at Tampa (Feb. 20). (Fla. Coop. Sur.).

AN ACARID MITE (*Caloglyphus* sp., near *spinitarsus*) - FLORIDA - Ranged moderate to severe on calladium corms at Winter Garden, Orange County (Feb. 6). (Fla. Coop. Sur.).

INSECTS AFFECTING MAN AND ANIMALS

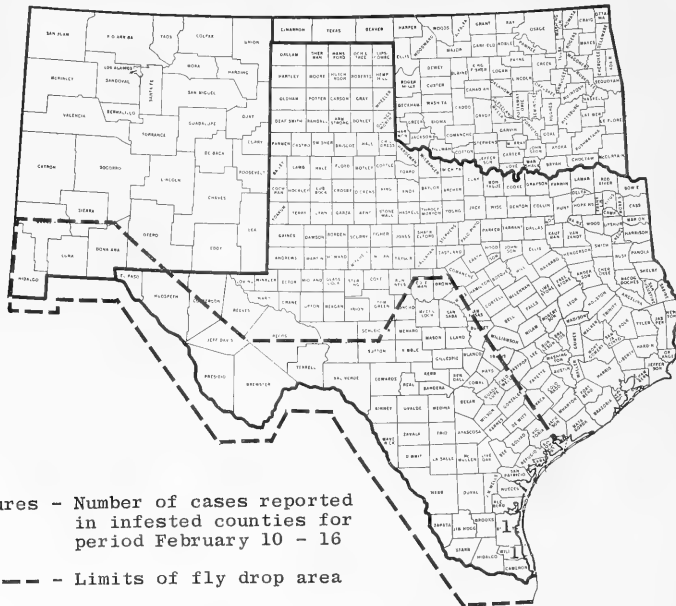
CATTLE GRUBS (*Hypoderma* spp.) - GEORGIA - No *H. lineatum* found on 6 of 14 cattle herds examined in 9 counties during period February 6-20. The 8 infested herds had 15-117 animals infested with 1-30 grubs per animal; averaged 4 per animal. (Roberts). OKLAHOMA - *H. lineatum* generally light to moderate, with few heavy infestations reported throughout State; 0-20 per head noted in Bryan County. Counts of 0-11 (average 4) per head recorded from yearling calves in Kay County; ranged 0-9 (average 2) per head in Payne County. (Okla. Coop. Sur.). UTAH - *Hypoderma* spp. grubs numerous in some cattle herds in Fremont-Loa area, Wayne County; moderate in some untreated cattle in northern Sanpete County; controls applied to 600 cattle in Kane County. (Knowlton).

SHEEP KED (*Melophagus ovinus*) - UTAH - Light on range sheep in western Millard County; much more numerous in farm flocks at Flowell. One range flock of 4,000 head treated after shearing last spring in western portion of county. (Knowlton).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

Specimens from only 2 infestations submitted for identification from Kenedy and Willacy Counties, Texas, during period February 10-16. This area receiving intense surveillance and additional sterile fly releases. The sterile fly barrier zone has been established and sterile flies are being released 25-50 miles into Mexico, and about 50 miles into those portions of Texas and New Mexico not receiving standard pattern of fly release

During the period February 10-16, a total of 69,422,500 sterile flies was released and only 2 screw-worm cases were submitted and confirmed. (Anim. Dis. Erad. Div.).



CATTLE LICE - GEORGIA - During period February 6-20, examinations made of 14 herds in 9 counties consisting of 301 head of cattle. No lice found on 5 herds. On remaining 9 herds, infestations of *Linognathus vituli* ranged light to moderate, with most infestations light. *Bovicola bovis* light on cattle in Whitfield County. (Roberts). **OKLAHOMA** - Several species continue active over State, with light to heavy populations reported. Some buildup evident in Logan County. (Okla. Coop. Sur.). **UTAH** - Controls applied to 75 percent of cattle in Orderville area, Kane County, and to 50 percent of cattle in remainder of county. (Knowlton, Hatch). Controls applied to 7,000 cattle in eastern Millard County. Treatments applied to fewer cattle than usual in Delta area of Millard County and in Nephi-Levan area of Juab County to February 20. (Knowlton).

HOG LOUSE (*Haematopinus suis*) - **OKLAHOMA** - Continues active; infestations heavy in Cotton County, medium to heavy in Bryan and Stephens Counties. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

DRUGSTORE BEETLE (Stegobium paniceum) - OKLAHOMA - Causing some concern in few homes in Stillwater area, Payne County. (Okla. Coop. Sur.).

FURNITURE CARPET BEETLE (Anthrenus flavipes) - MARYLAND - Adults observed in home at Towson, Baltimore County. (U. Md., Ent. Dept.).

MEDITERRANEAN FLOUR MOTH (Anagasta kuhniella) - OKLAHOMA - Causing concern in few homes in Stillwater area, Payne County. (Okla. Coop. Sur.).

INDIAN-MEAL MOTH (Plodia interpunctella) - MARYLAND - Larvae infested dogfood and other food in home at Baltimore. (U. Md., Ent. Dept.).

COCKROACHES - UTAH - Blatta orientalis a problem in several homes and public buildings in Delta area, Millard County. B. orientalis and Supella supellectilium infesting several homes and school buildings at Kanab and Orderville, Kane County. Several species a problem in homes and motels in Saint George-Santa Clara area, Washington County. (Knowlton). MARYLAND - S. supellectilium adults collected in home at Annapolis, Anne Arundel County. (U. Md., Ent. Dept.).

A PSYLLID (Pachypsylla celtidisvesicula) - OKLAHOMA - Reported very annoying at locality in Pawnee County; active on elm and hackberry. Activity also reported in Cushing area, Payne County. (Okla. Coop. Sur.).

A SPRINGTAIL (Entomobrya assuta) - NORTH CAROLINA - Found near bath tub and kitchen cabinets in home in Rowan County, February 10. Det. by D. L. Wray. (Jones).

CLOVER MITE (Bryobia praetiosa) - UTAH - Entered few homes in Iron County during recent warm weather. (Knowlton). NORTH CAROLINA - Caused some concern in Wake County. (Axtell, Cooper).

SUBTERRANEAN TERMITES - UTAH - Unspecified species damaging a hotel, a restaurant and a number of homes at Saint George, Washington County. (Knowlton). NORTH CAROLINA - Reticulitermes flavipes swarmed in basement in Wake County. (Cooper). RHODE ISLAND - R. flavipes alates collected indoors, Feb. 22, at Cranston. (Mathewson).

STORED-PRODUCT INSECTS

DRUGSTORE BEETLE (Stegobium paniceum) - CALIFORNIA - Larvae medium in chocolate in warehouse in Santa Maria, Santa Barbara County, and adults heavy in residence in Fort Bragg, Mendocino County. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

RING-LEGGED EARWIG (Euborellia annulipes) - NEW MEXICO - Present in dairy barn near Eunice, Lea County. (N. M. Coop. Rpt.).

LIGHT TRAP COLLECTIONS

FLORIDA, Gainesville (Feb. 20) - No collections of economic importance.

GEORGIA, Tifton (Feb. 14-20) - No collections.

SOUTH CAROLINA, Charleston (Feb. 11-17) - ARMYWORM (Pseudaletia unipuncta) - 3; FALL ARMYWORM (Laphygma frugiperda) - 4; BLACK CUTWORM (Agrotis ipsilon) - 1. Charleston (Feb. 18-24) - ARMYWORM - 3; YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - 1; BLACK CUTWORM - 4.

SUMMARY OF INSECT CONDITIONS
(continued from page 136)

CEREAL AND FORAGE INSECTS (continued)

Corn, Sorghum and Sugarcane Insects

Highlights:

The EUROPEAN CORN BORER was more damaging in 1962 than in 1961 in North Dakota, South Dakota, Nebraska and Illinois, but less damaging in Pennsylvania, Delaware, and Maryland. Populations between these two areas were generally about the same as in 1961, with some shifting of population levels within the States reporting. SOUTHWESTERN CORN BORER was damaging in areas of Arizona, Texas, Louisiana and Arkansas, and new distribution records of the pest were recorded in Missouri, Tennessee, Mississippi and Louisiana. SUGARCANE BORER was practically eliminated from Louisiana by the January freeze. Relatively heavy CORN EARWORM populations were recorded in Ohio, Indiana and Wisconsin, but notable damage was limited to only a few areas. Corn earworm was also a problem in several southern and southwestern States. CORN ROOTWORM resistance problems spread to all areas of Nebraska and to some northern Kansas counties. Western corn rootworm was recorded in additional counties in Minnesota, Iowa and Missouri. CORN LEAF APHID was more abundant than 1961 in Wisconsin and Indiana; losses increased 4 percent in the latter State. TWO-SPOTTED SPIDER MITE was a problem in Colorado in 1962 on both corn and sorghum.

EUROPEAN CORN BORER (*Ostrinia nubilalis*) seasonal populations and development in NEBRASKA were about two weeks ahead of 1961. The spring carryover was low. The first generation was generally spotted; relatively high in some areas but low in others. The second generation built up to high numbers. Considerable stalk breakage was evident in the central area of Nebraska in August. Fall surveys in that State showed an average of 60.8 percent infestation and 201 borers per 100 plants as compared with 37.8 percent infestation and 55.5 borers per 100 plants in 1961 and 64.8 percent infestation and 135 borers per 100 plants in 1960. In SOUTH DAKOTA, the winter mortality survey showed an average mortality of 29 percent throughout the corn-growing regions of the State. The week of June 16-22 was the first indication of the adult stage being present in South Dakota, when 28 specimens were trapped in a blacklight trap at Brookings. In the east central region, egg mass counts ranged from 8 to 96 and averaged 46 on the first of July. At this time, 52 percent of the plants in Brookings County showed "shotholing", indicating that hatching was well underway. The first European corn borer pupa of the season were found on July 24 in Turner and Yankton Counties. Previous records show that there was a heavier infestation in 1962 than for the last few years. During the fall survey in South Dakota, observations in Turner, Hutchinson and Lake Counties showed a high percentage of plants broken off below the ear causing considerable losses. The State average for the percent of plants infested in 1962 was 39.6 compared with 58 in 1961, and the average number of borers per 100 stalks was 160.3 compared with 119 in 1961. The south central region of South Dakota had very low populations, probably due to heavy rains during the egg-laying stage and also during the first stages of larval growth.

Infestations of European corn borer were heavy in some fields in 5 extreme southeast NORTH DAKOTA counties. Mortality during the winter of 1961-62 was 31 percent. The 1962 fall survey showed 79 percent of the plants infested and 285 borers per 100 plants. In MINNESOTA, overwintering mortality in the spring of 1962 was the lowest in many years, averaging 16 percent. Cool and extremely wet weather in May and June delayed corn plantings; as a result, borer development was ahead of corn. Corn fields planted early had the highest numbers of borers. Late in June, corn 20 inches or more in height had the majority of egg masses and first-stage

larvae. First-generation European corn borer moth flights continued until the end of July. The southwest and west central districts of Minnesota had the highest populations of first-generation borers. There were, however, great variations in infestations between fields depending upon early or late plantings. The second-generation moth emergence started in late July and extended well into September. Second-stage larvae were found in a number of fields the first week of October. The fall abundance survey reflected the adverse weather conditions by showing a population drop in most districts. The west central and northwest districts showed the only increases. The following district counts of European corn borers per 100 plants were derived from the survey of 69 counties: Southwest - 92, south central - 34, southeast - 20, west central - 184, central - 30, east central-17, northwest - 90.

Moths of European corn borer began appearing in blacklight traps in Dane County, WISCONSIN, on May 15. The peak flight of the first generation occurred at about the same time as in 1961 although the magnitude was about half. Second-generation peak flight more closely coincided with that of 1961 in Wisconsin, and the fall larval infestation survey revealed fewer than the previous year. Investigations showed a near cessation of pupation in most counties after mid-August, and second and third-stage larvae were common in the lower tier of counties in September. The extent of injury was light in Wisconsin although sweet corn required extensive treatment in a few cases. Winter survival in ILLINOIS was about 75 percent. Populations were heavier than in 1961 and about the same as in 1960. The first-generation borer survey showed an average of 7 borers per 100 plants. The annual fall survey showed 102 borers per 100 plants. An estimated 129,226 acres were treated in Illinois. These treatments returned an estimated profit of \$516,904 to the farmers.

European corn borer survival surveys in IOWA showed winter mortality to be 15.9 percent. Some damaging populations were present the latter part of June and, by mid-July, the borer was rated as an important pest. The first-brood survey showed an average of 36 percent of plants infested, with highest percentage (57) in the western half and northern third of Iowa. The number of borers per 100 plants averaged 58, with the highest number (77) in the eastern half and central third. Some second-brood moths were observed week ending July 20. The second-brood survey showed an average of 89 borers per 100 plants, with 64.2 percent of the plants infested. In KANSAS, there was a slight increase in European corn borer populations, but damage remained at a low level. European corn borer survival surveys that were made in early April in MISSOURI showed no reduction of overwintering larvae from 1961 fall counts in the southeast area and approximately a 20 percent reduction in the northwest area. The first pupa was observed (in cage) in the central area of the State the first week of May and the first pupa was observed in the field in the northwest area the week of May 14. High egg mass counts and a high incidence of leaf feeding by larvae were observed in the central and northern areas during the first brood. For some unknown reason, a high percent of the larvae never entered the stalks. Light to moderate European corn borer infestations were observed in susceptible fields in these areas of Missouri during the second brood. High populations of third-brood borers severely damaged late corn in the southeast area. This area had an average of 63.76 percent of the plants infested with 263 borers per 100 plants at the time of the fall survey. European corn borer surveys in ARKANSAS showed that there was little change in infestations when compared with 1961. There were three full generations in the State. In MISSISSIPPI, depredations remained about the same as in previous years. The European corn borer did not cause any measurable damage to corn in LOUISIANA, but the species is slowly spreading southward and westward.

European corn borer showed a general increase in borers per 100 plants in INDIANA, except for the far south where a decrease occurred. A localized, heavy infestation and moth flight occurred in Jasper County both in the first and second generations. A light trap operated at this location caught an average of 65 moths per night, May 28-June 4; 100 per night, June 5-11; 50 per night, July 10-17; and 100 per night, July 18-31. The fall corn survey in this same area revealed 52.7 percent infestation with an average of 87.3 borers per 100 plants. The overall

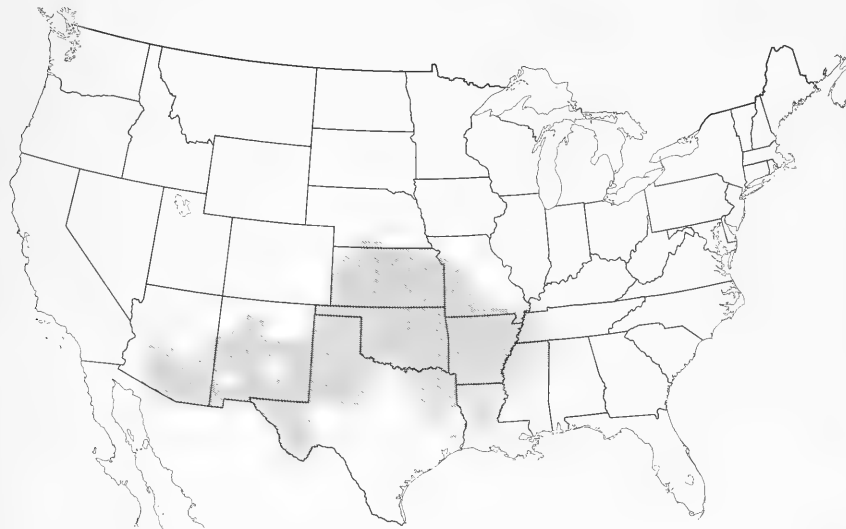
State average was 24.7 percent of the plants infested and 28.9 borers per 100 plants. The fall survey in MICHIGAN revealed that European corn borers were more numerous in the southern tiers of counties than further north. Even in most heavily infested areas, losses due to this insect in field corn were probably less than 3 percent in 1962. (This takes into consideration nutritional plant injury in addition to stalk breakage.) Borers averaged about 0.5 per stalk in the sampled area, or a 1.5 percent loss on a statewide basis. Apparently modern hybrids planted in Michigan have a high degree of European corn borer tolerance bred into them. Other factors such as soil type, weather conditions, fertilizer usage, plant population, hybrid selection and weed control appear far more important in corn production in Michigan than is borer control. European corn borer populations were very low in northwestern OHIO during midsummer, averaging about 2.3 larvae per 100 plants in Van Wert County. Fall populations were higher than in 1961, with the highest numbers being recorded in the northwestern counties. The borer caused less damage in PENNSYLVANIA than in 1961.

This borer required multiple treatments of sweet corn in the Hudson Valley of NEW YORK. Abundance normal; control good. First brood lighter than normal upstate. In VERMONT, there was a slight increase in overwintering larvae, but no extensive damage to corn was noted. European corn borer was moderately abundant in NEW HAMPSHIRE, with some noticeable increase in the second brood in the southern area. Light infestations and damage were reported in mid-July from Westbrook, Cumberland County, MAINE, and similar infestations and damage levels were noted in the Monmouth area, Kennebec County, and Orono area, Penobscot County, in August. In RHODE ISLAND, eggs were first noted in Kingston, Washington County, on June 22. Larvae caused early damage in occasional fields. European corn borer was regarded as unusually light in CONNECTICUT. Survival surveys in NEW JERSEY showed winter mortality to be 65.4 percent. Egg masses were noted June 7 in Middlesex County. In DELAWARE, the average of 138 borers per 100 plants found during the spring of 1962 indicated a high overwintering survival rate. Pupation of overwintering borers was first noted on April 3. The State average of 68 borers per 100 corn plants in the fall of 1962 represented an enormous decline in the population compared with 1961's 376 borers per 100 plants.

First-generation European born borer larval infestations in MARYLAND ranged from 9 to 61 percent in corn planted May 1 or earlier. Second-generation damage during July and early August was generally light. Adult activity reached a seasonal peak during the last week of August in Queen Annes County. The fall population survey showed borer numbers relatively low in Maryland, the State average being 59 per 100 plants, down 61 from 1961. Dry weather during July and August is probably the reason for the sharp decrease. In VIRGINIA, infestations in corn were statewide and severe infestations were reported in large fields of wheat in Westmoreland and Caroline Counties. European corn borer was recorded in Davie, Rowan and Stanly Counties, NORTH CAROLINA, during the year for the first time. Heavy infestations were present in Bibb County, GEORGIA. Several other Georgia counties were infested, but populations were lighter. For complete information on the fall European corn borer survey, see CEIR 13(3):33-40.

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) was very heavy in ARIZONA grain sorghum in early October, especially those fields planted to sorghum in 1961. The borer caused heavy damage to corn and grain sorghum in the northeastern one-fourth of TEXAS, and caused more damage to corn in LOUISIANA than at any time since its appearance in 1955. Late plantings in the upland areas of the northern tier of Louisiana parishes were destroyed in many areas. This insect has now spread into 32 of the 64 Louisiana parishes. The infested area extends southward to highway 190 and eastward to the Mississippi River. For the third consecutive year, a survey of the percentages of corn lodged as a result of infestations was conducted in ARKANSAS. In 1962, 12.3 percent was lodged as compared with 10.9 percent and 5.8 percent in the previous two years, respectively. This species is regarded as more damaging than European corn borer in the State. There were three full generations of southwestern corn borer in Arkansas in 1962. A special survey of overwintering larvae was conducted. January 1962 had the coldest weather the State has had since the species entered the State. Lows of

-5 to -10 degrees F. were recorded. In some areas, heavy snow cover during the low temperatures appeared to protect the larvae. Percentage of survival was as follows: Northwest - 12.9; northeast - 6.1; southwest - 57.9; and west central - 43.8. Southwestern corn borer again was of economic importance in KANSAS only in a few fields in the southern areas. The insect was present in OKLAHOMA. This insect was recorded for the first time in Mississippi, Scott and Texas Counties, MISSOURI, in 1962. Damage to corn in the southwest area was about the same as in 1961. With the new records, all the counties in the "bootheel" area of southeast Missouri are infested. Severe damage to late corn was observed in this area in 1962. Several fields were 100 percent infested. The 1962 survey showed that the county average in the infested area ranged from 0.2 to 43.7 percent of the stalks girdled. In TENNESSEE, some new counties in the western area have been found infested. They are Gibson and Crockett. In addition, the following counties are also infested: Shelby, Tipton, Lauderdale, Dyer, Obion, Fayette, Haywood, Hardeman, Madison, McNairy and Hardin. Chester County is suspected of being infested. A survey in MISSISSIPPI during 1962 showed 38 counties to be infested. Damage also continues to increase in the State.



Distribution of Southwestern Corn Borer

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) caused heavy, local damage to grain sorghum in Hidalgo County, TEXAS. This pest was generally distributed in low numbers in the northeast part of the State. Damage to corn was light to medium in Orange County, CALIFORNIA, and unusually heavy infestations were reported in MISSISSIPPI where corn and sorghum were damaged. It was also heavy on grain sorghum in GEORGIA.

STALK BORER (*Papaipema nebris*) excited great concern in RHODE ISLAND in July by its damage to corn. Light infestations were observed in several areas of Cumberland County, MAINE, causing light damage to corn. In VIRGINIA, stalk borer

occasionally infested corn in several areas. The borer returned to low population levels in INDIANA and was of little economic importance. Several rather heavy infestations of SOUTHERN CORNSTALK BORER (Diatraea crambidoides) were present in early corn in Kent and Sussex Counties, DELAWARE. This pest appears to be increasing during the past 2-3 years.

SUGARCANE BORER (Diatraea saccharalis) was virtually eliminated from LOUISIANA by the severe January freeze. Only a few fields in the extreme southern part of the State developed populations which justified insecticidal control measures. Sugarcane borer was heavy in Brazoria County, TEXAS, on grain sorghum, but generally light in other areas. Locally heavy infestations occurred on rice in Jackson County, Texas.

Localized outbreaks of ARMYWORM (Pseudaletia unipuncta) on sorghum and corn were reported from Northampton County, VIRGINIA, in mid-August. Damage to corn was also reported heavy on the Eastern Shore during an outbreak that occurred about May 15. Medium infestations were encountered on corn in Hanover County, Virginia. On April 25, a total of 111 adults was taken in the light trap at Painter, Accomack County; this was three times the largest catch taken on a comparable date since the trap survey began in 1958. This outbreak also extended into MARYLAND, where corn in Worcester County needed treatments. Heavy armyworm feeding was observed on grass and lower leaves of corn in grassy corn fields in ILLINOIS, but little damage was done to the corn. Armyworm caused some damage to corn in WISCONSIN and isolated, economic infestations of corn were observed in NORTH DAKOTA. Armyworm was relatively scarce in NEW HAMPSHIRE; a few adults were taken in black-light traps the first week of November. It was not a problem in NEW YORK.

FALL ARMYWORM (Laphygma frugiperda) caused considerable "ragging" of late-planted grain sorghum in scattered, localized areas of OKLAHOMA. The first activity was reported in mid-July, with continued activity being observed until mid-October. In TEXAS, this pest was numerous and caused heavy damage to grain sorghum and corn ears over the eastern two-thirds of the State. However, fall armyworm was light on corn in MISSOURI and of minor importance in KANSAS. Populations in LOUISIANA, MISSISSIPPI, ALABAMA and GEORGIA were relatively heavy; light to heavy numbers were present on millet and grain sorghum in the latter State. In COLORADO, 40 percent of the corn plants in some southeastern fields were damaged. Moderate to heavy numbers were present in the western area of Colorado, but no controls were considered. Localized outbreaks were detected on corn and sorghum in mid-August in Northampton County, VIRGINIA, and infestations in late corn were spotty in MARYLAND, although infestations of over 50 percent of plants occurred in Frederick and Talbot Counties during August. Fall armyworm appeared in scattered groups of whorl-stage sweet corn in the Hudson Valley of NEW YORK, but almost no entries in ears. Low populations were present in INDIANA in 1962.

CORN EARWORM (Heliothis zea) infestations and injury were generally light in Cumberland County, MAINE; this is the only report of the pest in 1962 in the State. The insect was very scarce throughout NEW HAMPSHIRE, of little concern in RHODE ISLAND and much less abundant than usual on sweet corn in MASSACHUSETTS. Appearance was late in CONNECTICUT and not troublesome in treated fields. In NEW YORK, it appeared in tassels of sweet corn in June in the Hudson Valley and seemed likely to be abundant in summer and fall. Infestation of unsprayed ears was light in July and August. Cool conditions in summer resulted in prolonged subterranean or pupal periods of 4-5 weeks. Moth flights, beginning about August 25, caused moderate infestation in September. The infestation in July and August was controlled with sprays. Infestation developed after September 1 in western New York. Infestations in corn in MARYLAND were above normal during late August and September, and damage was statewide in VIRGINIA. It shattered whorls of field corn the second week of June in NORTH CAROLINA; 10 percent of plants in several east central counties were infested, but tassels were not high enough to be injured. Eggs, 3-5 per silk, were present on field corn in Columbus and Robeson Counties the last week of June, and early instars were common on ear tips the following week. Late instars pupated in southeastern counties the fourth week of July, but were primarily in the fourth stage in the east central area. It was a problem, as usual, on sweet corn in North Carolina. In GEORGIA, light to moderate infestations were present on grain sorghum and millet, and damage by corn earworm was about the same in MISSISSIPPI as in previous years.

Populations of corn earworm were so heavy on OHIO sweet corn that growers were unable to control the pest. Light to moderate damage was reported, especially on sweet corn. Economic losses in field corn could not be estimated with any degree of accuracy. In INDIANA, moths and larvae were generally scarce until late August as substantiated by both observation and light trap catches. A pronounced rise in late moth abundance suggested the possibility of an unusually heavy fall infestation in Indiana. Cold, rainy weather in early September reduced the seriousness of this problem except in corn that was silking at that time. Losses in Indiana were about double those of 1961, with the greatest increase in the southern part of the State. In WISCONSIN, adults of corn earworm were caught in insignificant numbers near Arlington during the second week of July for the last 2 years. Heavy larval infestations were observed in the area this past season earlier in the year and late season flights were much heavier than in 1961, as were late-season larval infestations. Treatments were necessary for sweet corn in the southern portion of Wisconsin where some fields had as high as 80 percent of the silks infested by the first week of September. Fields of late and midseason field corn contained above normal numbers of the pest, although the loss factor was insignificant.

Corn earworm was reported feeding in the whorls of corn in southeast MISSOURI during early May. Counts in corn during August in the northwest area showed that from 8 to 73 percent of the ears were infested. Infestations in NEBRASKA were very light during 1962 and damage to field corn and sorghum continued at a relatively low level in KANSAS. However, on sweet corn in the latter State, the pest was severe all during the season in the Sedgwick County area. No infestations occurred in early harvested sweet corn in northeast Kansas, but they were severe with almost 100 percent infestation in August and September. Corn earworm appeared a month earlier in OKLAHOMA than records show for the previous three years. First notations were made in southeast Oklahoma during the week of April 14 and activity continued into mid-October. By late June, 75 to 90 percent of the corn ears on plants were infested in the southeast, with high counts of 600 to 1,000 per 100 heads present in grain sorghum in late July. Moderate populations started to decline by mid-August in grain sorghum.

Corn earworm took its usual heavy toll of sweet and field corn in all areas of TEXAS, and infestations in grain sorghum heads were heavy in some fields in the north central, northwest, south plains and Brazos-Burleson-Milam County areas. Infestations in south central Texas were more widely distributed on grain sorghum, but generally less severe. Corn earworm was a problem on NEW MEXICO sweet corn. It caused severe damage, especially in southern counties. Trace numbers of corn earworm were present in southeast COLORADO and losses were light; however, moderate to heavy numbers were present in the western area, but no controls were considered. Corn earworm was present in trace numbers in northern and north-eastern Colorado and caused little or no damage to corn.

Corn earworm infestations were light on untreated sweet corn in ARIZONA, but controls were very effective when applied. Numbers were below normal for the year in UTAH. Infestations in southern NEVADA were heavy as usual and above the 1961 levels in other areas of the State. In CALIFORNIA, corn earworm was persistent on field corn in many locations of the State late in 1962. Infestations ranged from light to medium in San Diego, Butte, Kern, Santa Barbara, Merced, Riverside and Monterey Counties. Damage to sweet corn in California was not as great as in 1961. Populations of corn earworm were high in OREGON, but below those observed in 1961 in the Hermiston area. Controls were effective. Abundance was normal or below elsewhere in Oregon and control good. Corn earworm apparently did not overwinter in the Columbia Basin of WASHINGTON and was more completely winter-killed in the Yakima Valley than usual. A survey revealed 100 percent mortality down to 3 inches of soil. Development was slow during the cool summer, with only one-seventh to one-tenth as many moths trapped by August 1 as for the same time of the previous three seasons. Many control programs in Washington were reduced or entirely deleted during midsummer.

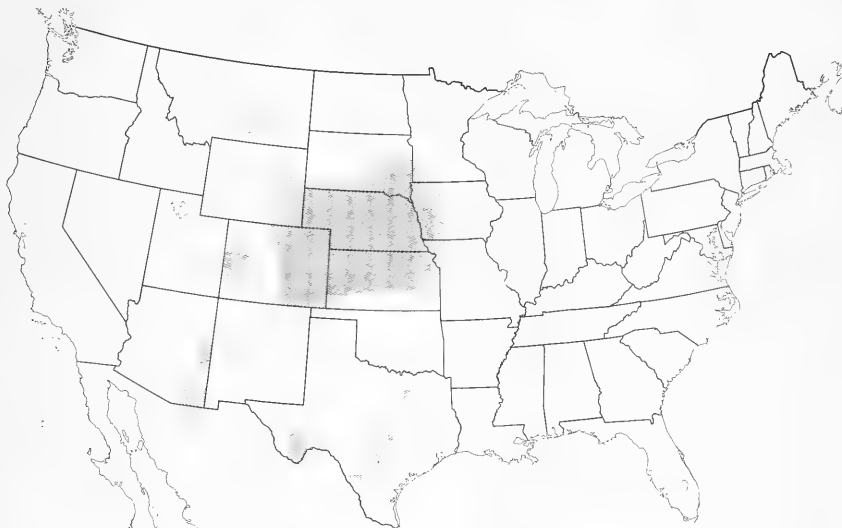
BLACK CUTWORM (Agrotis ipsilon) was lighter in 1962 than in 1961 in ILLINOIS, but many corn fields were severely damaged in the northern two-thirds of the State. An estimated 172,081 acres were treated thus saving farmers an estimated \$860,405. Some losses to corn were caused by black cutworm in INDIANA early in the season. The cutworm was not of economic importance in KANSAS generally, but it was a problem on young corn in the eastern area of the State. Black cutworm was light in Lancaster County, NEBRASKA, corn in early July, and heavy populations occurred in milo, lentils and corn plantings locally in Butte County, CALIFORNIA. In MISSOURI, light black cutworm and DINGY CUTWORM (Feltia subgothica) infestations were first reported in corn in the northern and southeast areas in early May. These were isolated infestations in river and creek bottom fields, and persisted in areas until early July when corn in the north central area that had been delayed by drought was severely damaged by high numbers of cutworms. Several fields in this area of Missouri had to be replanted. By the end of July, parasites had reduced the populations until they were no longer a problem. WESTERN BEAN CUTWORM (Loxagrotis albicosta) caused minor damage to corn in the northwest district of KANSAS. Larvae of the NOCTUID (Simyra henrici) were found in small numbers feeding in 8.9 percent of the corn fields in northwest, west and west-southwest districts of ILLINOIS during July 22-27, and in 3.3 percent of the fields in the northeast and 10 percent of the fields in the east district July 30 to August 3.

SORGHUM WEBWORM (Celama sorghiella) infestations were generally noneconomic in TEXAS except for a few fields in the southern area where considerable damage resulted. Sorghum in most areas of Texas was nearing maturity when peak populations appeared and damage was relatively negligible. First observations in OKLAHOMA were made in late July with activity continuing through late September. Except for localized conditions, not much damage was inflicted. The webworm was noneconomic in KANSAS. Infestations of sorghum webworm in GEORGIA were light to moderate on sorghum and millet. CORN ROOT WEBWORM (Crambus caliginosellus) caused light, local damage to two fields and severe damage in a third field of seedling corn in Pittsylvania County, VIRGINIA. A BANDED WEBWORM (Thaumatopeis pectinifer) caused slight damage to corn on sandy soil during July in Antelope County, NEBRASKA.

WESTERN CORN ROOTWORM (Diabrotica virgifera), NORTHERN CORN ROOTWORM (D. longicornis) and SOUTHERN CORN ROOTWORM (D. undecimpunctata howardi) were all three present in NEBRASKA during 1962. Resistance problems spread to all areas of the State with the exception of the extreme western area. Populations and development were about 10 to 14 days ahead of 1961. The first larval damage was found in early June and continued through mid-August. First adult emergence was found in late June. Egg deposition occurred from late July to freezing temperatures. In SOUTH DAKOTA, the southern corn rootworm was first reported feeding on small grains during the first part of June. Populations at this time were low and no damage was observable. Southern corn rootworm was first found feeding on cucurbits toward the latter part of June. During the middle of July, Diabrotica spp. larvae were reported in Turner County, South Dakota, with populations of 10-12 per plant. The larvae ranged from first stage to fully grown. Some pupae were also found. In the month of August, adults of Diabrotica were very plentiful in the corn-growing region of the State, with counts as high as 40 per plant; southern corn rootworm, northern corn rootworm and western corn rootworm were all involved in the infestations. The three aforementioned species of Diabrotica were observed causing some lodging of corn plants in north central and northeast KANSAS. Chlorinated hydrocarbon-insecticide resistant rootworms were found in some of the northern Kansas counties. Larval damage by rootworms in MISSOURI was observed in untreated fields throughout the northern area of the State. The first pupa was observed in the northwest area the first week in July. From mid-July to early August, light to moderate populations of Diabrotica spp. were present on silks of corn throughout much of Missouri. Damage was also noted in IOWA during the year.

Western corn rootworm populations in WYOMING were found only in the southeastern corner of the State. Very light infestations were found in Goshen, Laramie and

Converse Counties. Platte County had the largest populations in Wyoming, 10 to 20 per corn plant, but little damage was found. After the first heavy frost, 700 to 800 beetles per 100 sweeps were found in alfalfa adjacent to corn fields. In MONTANA, western corn rootworm causes heavy damage where chemical control or rotation is not practiced. Infestations of economic importance are still confined to Yellowstone County. Populations of western corn rootworm were high in Montrose County, COLORADO, with 5 to 7 adults per 100 plants and controls used in some fields of corn. In northern and northeastern Colorado, the western corn rootworm has continued to be a problem requiring control at planting time in those fields where corn is planted year after year. Western corn rootworm was found again in Rock and Pipestone Counties, MINNESOTA, and in Nobles County for the first time. Populations were extremely low and accounted for only a small fraction of the rootworms present in the State. Western corn rootworm was recorded for first time in Cherokee, Pocahontas, O'Brien, Lyon and Plymouth Counties, IOWA, and in Atchison, Holt, Nodaway, Worth, Gentry, Andrew and De Kalb Counties, MISSOURI, during 1962.



Distribution of Western Corn Rootworm

Typical northern corn rootworm damage was less apparent in MINNESOTA than in 1961. This may have been due to increased use of soil insecticides and/or extremely wet weather. Larvae of northern corn rootworm stunted 20 percent of the corn plants in one out of six fields in west-southwest ILLINOIS, June 10-15. Adults were common and larval damage evident in many corn fields in the northwest, west and west-southwest districts of Illinois July 22-27. During July 30-August 3, adults were observed in 55 percent of the corn fields in northeast and 33.3 percent in the east district. They were commonly observed feeding on silks and ear tips throughout the northern half of Illinois August 12-17. In late August, adults were abundant in clover and alfalfa throughout the northern half of the State.

Northern corn rootworm is becoming more of a problem in INDIANA, especially where farmers are following a program of continuous corn. Losses in general were negligible in 1962, as growing conditions were good. Beetles feeding on corn silks were reported from a few counties. In OHIO, heavy adult populations of northern corn rootworm were found during a spittlebug survey in the northern area. Counts were 125-150 adults per 50 sweeps in late September. Severe damage to corn roots by larvae and barren ears produced by adults feeding were observed in several cases. Infestations of northern corn rootworm increased in southern MICHIGAN as more farmers went to continuous corn. No evidence of resistance to chlorinated hydrocarbon insecticides was observed, however. Northern corn rootworm was found feeding heavily on corn silks in north central PENNSYLVANIA.

Southern corn rootworm adults were found feeding on corn plants in the east central district of ILLINOIS May 20-25. Larvae caused some stunting and "goosenecking" of corn in 1962. The species was present on corn in INDIANA and common in OKLAHOMA.

CORN FLEA BEETLE (*Chaetocnema pulicaria*) was generally more abundant this past season in DELAWARE and caused noticeable feeding injury to young corn plants during early and mid-May. It was abundant and statewide by mid-July in Delaware. Some early damage to corn was also noted in PENNSYLVANIA and it infested some corn fields in southwestern ILLINOIS in late May with counts up to 6 adults on some plants. Damage to corn in Illinois was negligible, however. Corn flea beetle was light on corn in MISSOURI and of little importance in KANSAS. Infestations of DESERT CORN FLEA BEETLE (*C. ectypa*) were heavier than usual in young corn and sorghum throughout ARIZONA in April, May and June; counts of 5-10 adults per stalk were common in many fields. About normal numbers of desert corn flea beetle were present in UTAH. Unspecified species of FLEA BEETLES were a problem on sweet corn in several areas of NEW MEXICO and were very abundant on sweet corn in PENNSYLVANIA, but were light on corn and other crops except potatoes in CONNECTICUT. Corn flea beetle required no control in NEW YORK'S Hudson Valley.

BLACK BLISTER BEETLE (*Epicauta pennsylvanica*) was very common in ILLINOIS corn fields during August. Feeding and cutting of silks from ear tips was noted, with 3-5 adults per ear tip common. Corn had pollinated, so no damage was done.

Damaging populations of unspecified WIREWORMS were present in INDIANA. In Montgomery County, a high population caused serious losses in a field of mixed corn and grain sorghum. SAND WIREWORM (*Horistonotus uhlerii*) and *Melanotus* spp. were light on corn in MISSOURI. Undetermined wireworms caused little damage to corn in ILLINOIS. Damage was observed May 20-25 in the southwest, but it did not exceed 0.5 percent in any field. Likewise, 0.6 percent of the plants were damaged in east-southeast district of Illinois. Wireworms caused local damage to seedling corn in some localities in VIRGINIA, and *Melanotus* spp. damaged seedling corn in Franklin and Windham Counties, VERMONT.

DUSKY SAP BEETLE (*Carpophilus lugubris*) was very heavy in field corn in DELAWARE during the first half of August and, during the summer, this species and some other sap beetles were somewhat below normal in ears and tassels of corn in all sections of MARYLAND. A SAP BEETLE (*Stelidota geminata*), in conjunction with other species of sap beetles, were occasional pests of sweet corn in VIRGINIA; and *Carpophilus* spp. were light on corn in MISSOURI and not serious in NEW YORK.

JAPANESE BEETLE (*Popillia japonica*) adults caused considerable concern in some parts of the Shenandoah Valley of VIRGINIA by feeding on corn silks. Damage was light in all instances, but a large number of acres was treated with insecticides. In MARYLAND, adults were more than usually abundant on silks of sweet and field corn in sections of Frederick, Montgomery and Queen Annes Counties. An infestation in Benton and Newton Counties, INDIANA, caused some damage to silks of corn. Feeding on corn silks in one heavily infested field reduced pollination on some ears to the extent of yield reduction of 25 percent. In RHODE ISLAND, heavy populations of Japanese beetle were found feeding on corn silks during the late summer.

MAIZE BILLBUG (Sphenophorus maidis) adults caused moderate injury to young sweet corn in Harford County, MARYLAND. Infestations of S. callosus were light to heavy on corn in GEORGIA, but much lighter than in previous years. In INDIANA, S. callosus continued to cause serious damage to corn plants in Montgomery County. The area is a muck soil area and is heavily infested with chufa (Cyperus esculentus), the preferred host plant of this billbug. Reduction of stand from this billbug feeding was about 25 percent, while 85 percent of the remaining corn plants showed typical leaf injury. Reports from St. Joseph and Decatur Counties, Indiana, indicated an abundance of the insect in those areas. Two other species of BILBUGS (S. zeae and S. rectus) have also been collected and identified from Indiana. RICE WEEVIL (Sitophilus oryzae) damage in SOUTH CAROLINA is low due to widespread planting of resistant varieties. Some localized damage did occur, however.

Infestations of SORGHUM MIDGE (Contarinia sorghicola) in TEXAS were generally less severe in the eastern half of the State than in 1961 except in latest-planted fields where the damage was heavy. In the south plains area of Texas, infestations were rather general, but less severe in 1962 due to earlier plantings and preventive treatments in many areas. However, late-planted and nontreated sorghum in the area supported moderate to heavy populations and yield losses were significant. Infestations in ARIZONA were heavy in late-planted sorghum in Cochise and Graham Counties; however, there was a noticeable decline in the acreage of sorghum planted late. The insect was not picked up outside the five-county area infested in 1961.

A severe infestation of CORN BLOTCH LEAF MINER (Agromyza parvicornis) caused damage to sweet corn in the Canton area of Oxford County, MAINE. During June, populations of this insect were observed in corn scattered throughout MISSOURI. Counts ran as high as 2-8 miners per leaf. An unspecified species of LEAF MINER FLY heavily infested about 250 acres of field corn in Charles City County, VIRGINIA, in July. The foliage was also infested with a bacterium and uniform, heavy flecking was evident on the older foliage. The latter was possibly caused by a type of air pollution, probably ozone.

CHINCH BUG (Blissus leucopterus) infestations were less significant on grain sorghum in TEXAS than in 1961 or 1960. The species was present in OKLAHOMA and KANSAS, but at noneconomic levels. Moderate populations were present in Thayer County, NEBRASKA, corn in October, and light on corn in MISSOURI. Populations in ILLINOIS were generally low in corn and small grains, with very few fields needing treatment. However, populations were higher than in 1961. The annual survey shows a potential threat in much of eastern and central Illinois in 1963. In ALABAMA, several heavy populations were observed in the central and southern portions of the State. Millet was the prime target of this pest. Chinch bug was very light during 1962 on SOUTH CAROLINA sorghum. Medium infestations of the PLANT BUG (Largus cinctus californicus) occurred on corn in the Sacramento River district of Yolo County, CALIFORNIA. In addition, Lygus spp. were medium to heavy in field corn in Monterey County, California.

CORN LEAF APHID (Rhopalosiphum maidis) was light to heavy on CALIFORNIA sweet corn during the growing season, and light to heavy populations developed on field corn in Monterey and Santa Cruz Counties, same State. Infestations were rather severe in NEVADA, but below normal in UTAH. Infestations in WYOMING were much smaller than in 1961. The most serious ones occurred in Platte County where controls were applied to a few corn fields. In southeast COLORADO, corn leaf aphid was present on corn in trace numbers and losses were light. In some corn fields in northern and northeastern Colorado, the aphid infested 10 percent of the plants, but losses were negligible. The aphid was also present on sorghum at various population levels in Colorado, but in most cases did not appear to be at economic levels although controls were applied in a few instances. Also, corn leaf aphid was present on broomcorn in moderate numbers in the State and caused some discoloration and malformation of the brush on some varieties.

Corn leaf aphid was present on corn and sorghum in noneconomic numbers over much of KANSAS and did not reach economic levels in NORTH DAKOTA corn. The aphid was widespread on MINNESOTA corn, but the colony size was much smaller than in past years. Predation was generally high in 1962. The appearance of corn leaf aphid in WISCONSIN was about 2 weeks later than in 1961, but populations increased rapidly and were more abundant than during the past few years. Colonies appeared the second week of July. There was probably some correlation between these aphid numbers and poor kernel formation in fields examined in the fall. Corn leaf aphid again showed an increase over 1961 in INDIANA. Average infestations for the year showed a 4 percent increase, with the percent loss increasing from 3.0 in 1961 to 3.6 in 1962. Increases were apparent in the following regions of Indiana: North-northwest, north-northcentral, south central and south-southwest; decreases were significant in the southeast, south-southcentral and south-southeast. Corn leaf aphid lightly infested 17.8 percent of the corn fields in the northwest, west and west-southwest districts of ILLINOIS July 30-August 3. A general explosion occurred August 5-10, with winged aphids moving into 77.3 percent of the plants. Parasites, predators, disease and heavy rains effectively brought the infestation under control. Populations were generally light during the summer in MARYLAND, but some heavy infestations developed on late field corn in several counties. In VIRGINIA, corn leaf aphid heavily infested sorghum and some corn in Prince George County, but it was soon brought under control by predators. Small populations were noted locally in RHODE ISLAND, and the aphid was abundant on tassels of sweet corn in the Hudson Valley of NEW YORK in August, but was easily controlled on ears and seemed to disappear in September.

Corn leaf aphid attacked young grain sorghum in widely scattered areas of TEXAS, but most infestations were left uncontrolled and little yield reduction was noted as beneficial insects brought these infestations under control. Fall infestations in ARIZONA sorghum were heavy in combination with the RUSTY PLUM APHID (*Hysteroneura setariae*). Populations of the two aphids remained high until harvest. Rusty plum aphid does not occur in Yuma County, Arizona. In CALIFORNIA, Rhopalosiphum fitchii-padi complex was a pest of corn in several locations over the State.

Unspecified THRIPS were again abundant in MARYLAND and caused noticeable streaking on young corn. Unspecified species of thrips were also common in ILLINOIS corn, with up to 30 per leaf being counted June 3-8 in the west district. Considerable "silvering" occurred in this area in June and July.

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) caused losses of 3 to 15 percent in corn in southeastern COLORADO. In the western area of Colorado, high populations of the mite caused considerable damage and there was an increase in the number of growers using controls for this pest. Two-spotted spider mite was also present on sorghum at various population levels in all fields of sorghum, but not economic in most cases. A few controls were applied, however. This mite appears to be infesting sorghum more each year in Colorado and could develop into a serious problem. In CALIFORNIA, two-spotted spider mite was light to medium on field corn in the delta region of Sacramento County and heavy on corn in the Watsonville area of Santa Cruz County. In IDAHO, two-spotted spider mite was controlled in some hybrid sweet corn seed fields in the southwestern area. Heavy infestations of SPIDER MITES (*Oligonychus* spp. and/or *Tetranychus* spp.) developed on corn in Churchill County, NEVADA, in August and September.

High populations of MILLIPEDS were present in corn fields in Saline, Seward, York and Hall Counties, NEBRASKA, during October.

Alfalfa, Clover, Sweetclover, Vetch and Bean Insects

Highlights:

PEA APHID caused considerable losses to alfalfa in Idaho, Washington and Oregon, but was generally not a problem in the other Western States. Pea aphid infestations in Texas constituted the most serious legume insect problem and early season infestations were damaging in Maryland and Delaware. SPOTTED ALFALFA APHID did not become the pest it was in previous years, but it migrated further north in 1962 than it had been known to do before. It was found in La Moure County, North Dakota, in June (a new State record) and penetrated South Dakota further than in any previous year. It was found again in Washington and Indiana, but late in the year. In Nebraska, the fall survey showed oviparous forms of spotted alfalfa aphid were present in a much larger area than in 1960 and 1961.

MEADOW SPITTLEBUG infestations ranged light to heavy in Pennsylvania and were a serious problem on alfalfa and clover in Indiana. The annual fall surveys in Illinois and Ohio indicated that populations would be lower in 1963 in those States. POTATO LEAFHOPPER caused severe yellowing of alfalfa in Wisconsin and continued to be one of the major insect pests in Indiana. Some yellowing was also reported in parts of Illinois and Missouri. Potato leafhopper reduced yields of alfalfa in Ohio and was exceptionally high in Vermont. Some yellowing was also evident in other Eastern States. LYGUS BUGS were a general pest in many of the Western States and controls were applied in numerous instances. TARNISHED PLANT BUG was numerous in several Eastern States.

ALFALFA WEEVIL continued to spread in areas where it occurs. An infestation was found in Vermont for the first time in 1962. Damage to alfalfa in the Northeast was quite severe in many instances, with dry weather complicating the condition. To a large degree, alfalfa weevil has contributed to the reduction of alfalfa production in Georgia. Populations in the Western States again caused considerable damage to alfalfa in Wyoming, Utah, Montana, Idaho, Oregon and Nevada. Alfalfa weevil was rated as the most damaging crop pest in Wyoming during 1962. Another weevil (Hypera brunneipennis) caused damage to alfalfa in parts of Arizona. SWEETCLOVER WEEVIL was recorded for the first time in New Mexico during 1962. CLOVER HEAD WEEVIL was heavy on white and crimson clover in Louisiana, and CLOVER SEED WEEVIL was a problem to control in Washington and Idaho because of the delayed emergence of adults.

ALFALFA LOOPER activity was extremely heavy in 1962 in areas of Montana, Wyoming, Idaho, Oregon, Utah and Nevada. Damage to alfalfa was sometimes rather heavy. ALFALFA CATERPILLAR was heavier than usual in Arizona and New Mexico in 1962. Damage continued into the fall months.

PEA APHID (Acyrtosiphon (Macrosiphum) pisum) populations began building up in IDAHO alfalfa in the Lewiston area during May, with population counts of 1-10 per sweep recorded during the remainder of that month. During early June, population counts fluctuated, running near one per sweep in the Moscow area to 20 per sweep at Lewiston. Meanwhile, populations remained below normal on alfalfa in the southern area of Idaho. By July, the population counts in southwestern area alfalfa began increasing, with 40 per sweep common, and by mid-July, controls were required in many fields in Canyon and Elmore Counties. By late July, more than 30,000 acres of second-cutting hay contained economic levels of aphids in Canyon County, Idaho, alone. These population levels were maintained until late August when counts declined rapidly. Most alfalfa in eastern Idaho never experienced a severe buildup, possibly due to adequate parasite-predator pressures. Pea aphid was extremely abundant on alfalfa in the Columbia Basin of WASHINGTON

where entire cuttings of hay were missed when control measures were improperly applied. In OREGON, populations in the Willamette Valley legume fields exceeded those observed in the past three years by July 28. A combination of high temperatures and predators contributed to lower infestations in early August. In Umatilla County, Oregon, pea aphid was an economic problem from early June, necessitating chemical controls in many instances. Over 2,000 acres of alfalfa required control measures during August in Klamath County. Elsewhere in Oregon, pea aphid was a normal, persistent pest. Infestations in CALIFORNIA were medium to heavy in the San Fernando and Antelope Valleys of Los Angeles County; medium in Yolo and Fresno Counties; light to medium in Monterey County; and generally light in Imperial, Orange and Siskiyou Counties on alfalfa. Below normal populations were present on vetch in Butte County. Infestations of pea aphid in NEVADA were generally below economic levels in the southern counties, except in alfalfa seed fields in April. Extremely heavy infestations in the central and northern counties of Nevada in July and early August were reduced primarily by hymenopterous parasites and, to a lesser extent, by predators. In ARIZONA, heavy infestations were present in alfalfa statewide during March and April.

Pea aphid populations in NEW MEXICO were much lighter than usual in most areas, probably due to unusually abundant populations of lady beetles, nabids, syrphid fly larvae and green lacewings. Normal numbers were reported from UTAH; and COLORADO populations were moderate to high, with the high populations occurring in the southeastern and western areas. In most cases, pea aphid was controlled by cutting alfalfa in Colorado. The most serious damage from this aphid in WYOMING occurred on second-cutting alfalfa. Populations were not as large as in 1961, with the largest populations occurring during late July and early August. Very light, nondamaging populations, ranging from one to 350 per sweep, were present throughout NEBRASKA on legumes. Pea aphid was present, but not in damaging numbers, in 1962 in KANSAS and NORTH DAKOTA.

Pea aphid infestations constituted the most serious legume insect problem in TEXAS, damaging clovers, field peas, vetch and alfalfa. The aphid was occasionally found in OKLAHOMA in overwintering alfalfa in early January. Counts remained light until early April when populations increased until heavy numbers caused damage from mid-April to mid-May, then populations declined and remained low throughout the season. Activity virtually ceased during August and September in Oklahoma, but very light populations were again evident in the southern part of the State in early October. The populations in April and May were heavier than usual. In MISSOURI, low populations of pea aphid were present during the early spring in fields of alfalfa and clover throughout the State. The high counts ran no more than 15 to 30 aphids per sweep and this insect never became a problem during the growing season. Infestations in ARKANSAS during the spring season were comparable with those of past years. Some stunting occurred, but practically no treatments were applied. Infestations in the fall were heavier than those of 1961, probably due to cooler and wetter weather.

Pea aphid populations were extremely high on alfalfa by late June and early July in all districts of MINNESOTA. Damage to alfalfa was not evident due to abundant rainfall and rapid plant growth the entire summer. Nymphs were observed on alfalfa in WISCONSIN from April to October 26. Winged forms were not found until the third week of May, about one week later than the previous year. Populations seldom reached the point where controls were needed in Wisconsin and were generally less of a problem than in 1961. Populations of pea aphid were low in ILLINOIS. A few legume fields had 500-600 aphids per sweep in mid-May. An estimated 11,585 acres of legumes were treated in 1962. Populations of pea aphid on MARYLAND alfalfa were above normal in all sections. During early May, numbers on the Eastern Shore ranged from 300 to over 1,000 per sweep. Populations were also heavy on crimson clover and vetch in southern Maryland. In DELAWARE, the first nymphs of the season were active on alfalfa by mid-March, and became fairly common by mid-April. Most noticeable injury occurred to alfalfa in Kent and Sussex Counties during early May and to several fields in New Castle County in mid-July. Pea aphid was very abundant on alfalfa in southern PENNSYLVANIA and,

although many predators were present in some cases, the aphid maintained its large population until harvest time. Pea aphid was also common on alfalfa and other legumes from May through September in RHODE ISLAND. It built up in late May and late July. Pea aphid was the predominant species of aphids on forage crops in a survey made during October in MASSACHUSETTS. Aphids comprised 63.8 percent of the total forage-crop insects collected. In NEW YORK, pea aphid was very abundant in Tompkins County in the spring, with a peak of about 600 per 10 sweeps. The aphids were relatively scarce during June and July, as is usually the case, but there was a rapid buildup of the population in early August to a peak of about 850 per 10 sweeps.

The three expected buildups of SPOTTED ALFALFA APHID (Therioaphis maculata) in the spring, summer and fall were light in all areas of ARIZONA, and damage from this insect was very low in 1962. Populations were unusually light in central and northern NEVADA. Infestations were heavy in Clark and southern Nye Counties in April and in seed fields in the latter county in July and August. Only trace to light populations were present in central Nevada in the late summer and fall, and none were found in the northern counties. Spotted alfalfa aphid varied considerably over CALIFORNIA. Some areas had few or no aphids this past season. The medium to heavy populations occurred in Los Angeles, Kern, Imperial, Butte, Shasta, Tulare, Riverside and San Bernardino Counties. Most of these infestations were local. Spotted alfalfa aphid was not a problem in OREGON during 1962, although light populations did appear in the alfalfa-growing areas previously infested. In WASHINGTON, light populations were first discovered in 1962 on alfalfa during October, as usual, in lower Benton County. Adults and nymphs became noticeable in IDAHO on new alfalfa seedings in western Canyon County in late August. Populations, however, remained low in these fields during the late summer and fall.

Winged forms of spotted alfalfa aphid were taken from alfalfa in June in La Moure County, NORTH DAKOTA. Populations were noneconomic. This is the first time the insect was found in the State. The first report of the aphid in SOUTH DAKOTA for 1962 was during the spring, on April 30, when a population of 4 per 100 sweeps was counted in Gregory County, indicating that this insect apparently overwintered in the State for the first time. The following week, population levels took a sizable leap to cause a little concern. At the middle of May, counts tended to decrease in South Dakota, probably due to the cold and wet weather. The first alate forms were found during the middle of July when the populations again showed a sharp increase and also when the insect started to migrate northward. The insect penetrated South Dakota further in 1962 than in any previous year. Its northernmost reported advance in the State was to the middle of Spink County. Checks were kept during the summer for oviparous forms of this aphid. The first oviparous female aphids were found October 8 in Charles Mix and Gregory Counties. The first and second nymphal stages were found in Howard County, NEBRASKA, on April 19. Counts of 1-40 per 10 sweeps occurred in north and central Nebraska in early May. Populations dropped considerably throughout June. First reports in southern and southwestern Nebraska occurred in late June. Through the remainder of the season, populations remained at a low level in most areas of the State. The fall survey showed oviparous forms were present in a much larger area of Nebraska than in 1960 and 1961. In KANSAS, a limited survey revealed the presence of the egg-laying form of spotted alfalfa aphid in Norton County; however, parthenogenic forms were only of minor importance over the State.

Occasional heavy infestations of spotted alfalfa aphid required controls in NEW MEXICO. Damage was much less severe statewide than it has been for several years, with the exception of 1961. Spotted alfalfa aphid was not a problem in TEXAS except in areas of Glasscock County, where heavy local damage occurred, although it was widely distributed over the State. Infestations in ARKANSAS were very low in general. Populations rose during dry weather in August, but later they declined. The first spotted alfalfa aphid of the season in OKLAHOMA was noted in the southeast in early February. By early March, populations began

to build up across the State until high populations were causing some damage to nonirrigated stands of alfalfa during April in the southwest. Populations declined and remained low until mid-July, when heavy infestations again caused sticky foliage in the southwest and west central areas. Populations remained low in Oklahoma on established plantings for the remainder of the year, but some damage was evident to newly planted fields in Kingfisher and Muskogee Counties in mid-October. By mid-November, however, these counts declined, but limited activity continued through December. Losses were minimal in Oklahoma considering the hot, dry conditions during the summer months. In the Arkansas Valley of COLORADO, spotted alfalfa aphid built up to 4,500 per 100 sweeps during August and, in some fields of newly planted alfalfa, seedling plants were killed. In other areas of Colorado, spotted alfalfa aphid did little or no damage. Populations were below normal for the year in UTAH.

Spotted alfalfa aphid was present in low numbers in alfalfa in the southern portion of MISSOURI during the late summer, but not of economic importance. For the sixth consecutive year, spotted alfalfa aphid was not successful in surviving the winter in INDIANA. Infestations were not found in the State until mid-September when the insect was collected in small numbers in Harrison, Floyd and Clark Counties. Winged forms were taken in the latter two areas.

CLOVER APHID (Anuraphis bakeri) increased rapidly to above economic levels during July in red clover seed fields in Canyon County, IDAHO. In some of these fields, population counts reached 400 per head. Clover aphid was considered abundant enough to require control in the northern Willamette Valley of OREGON during July.

Trace populations of GREEN PEACH APHID (Myzus persicae) developed on alfalfa in Fresno County, CALIFORNIA, and light populations were present in Siskiyou County, same State. In OREGON, the aphid was light in Klamath County. Hazard for infestations in 1963 is dependent on the severity of the winter. Green peach aphid built up in the Willamette Valley during July.

Light populations of soil MEALYBUGS occurred on alfalfa plantings in the Tyler Island area of CALIFORNIA, and they were heavy in some locations in the delta region. Rhizoecus kondonis infested alfalfa in the Clarksburg area of Yolo County, California.

MEADOW SPITTLEBUG (Philaenus spumarius) nymphs were first observed in DELAWARE on alfalfa in New Castle County during early May. Populations were generally much reduced over the previous year. Nymphal populations in MARYLAND were about normal and economic injury was caused to red clover in Frederick, Harford and Washington Counties. Meadow spittlebug was present in many areas of PENNSYLVANIA. Infestations ranged from light to very heavy. There is a gradual increase in spittlebug populations in recent years in the State, probably due to the inadequacy of alfalfa weevil (Hypera postica) treatments to control them and the general lessening of specific control measures. Spittle masses and nymphs were first noted May 24 in RHODE ISLAND and increased rapidly in forage legumes wherever present. Populations dwindled at the end of June and were not an economic problem. Meadow spittlebug comprised 1.9 percent of the total forage-crop insects during October in MASSACHUSETTS. Although meadow spittlebug populations were higher in NEW YORK than in 1961, only relatively low numbers of spittle masses, 1 to 2 per square foot, were noticed in Tompkins County.

Meadow spittlebug populations were lower than in previous years in OHIO, being at subeconomic levels except in the central and south central areas. The fall survey results indicated even lower populations in 1963. However, meadow spittlebug was again a serious insect problem on alfalfa and clover in INDIANA. It was most abundant in the southeastern counties. Each year infestations become of greater significance in the southwestern part of the State from Terre Haute to Evansville. They were higher in 1962 in this area than in previous years. In ILLINOIS, populations were light and continued the gradual decline of the past

few years. An estimated 9,356 acres were treated in 1962. The annual adult survey showed the lowest populations since the survey was started in 1951. The State average of adults per sweep was 0.82. Meadow spittlebug eggs began hatching in WISCONSIN about the first of May, a week earlier than in 1961. Populations rarely were heavy enough to warrant control in Wisconsin and, except for a few southern counties, were insignificant. Low populations were found this year in Houston, Fillmore, Mower, Freeborn, Olmsted, Winona and Goodhue Counties, MINNESOTA. Meadow spittlebug continued very abundant in alfalfa and clover fields in northern IDAHO during late spring and early summer. Counts of 10 nymphs per stem in alfalfa were not uncommon in Kootenai, Bonner and Boundary Counties.

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) was heavy on alfalfa in ARIZONA from June through November in most areas. Damage from girdling was reported in several cases. Populations in NEW MEXICO remained about constant throughout the season; only minor damage was noted. The insect was normal in abundance and injury in UTAH. Peak populations in TEXAS occurred in late July and early November in the Brazos-Burleson County area, when considerable stem girdling was noted. In OKLAHOMA, the first activity of the season was noted in mid-June, but populations were not common until early September. Light activity continued in alfalfa until mid-December. The late summer-early fall populations were considerably reduced over 1961. Three-cornered alfalfa hopper caused local damage to alfalfa in SOUTH CAROLINA.

POTATO LEAFHOPPER (Empoasca fabae) adults were first caught this past season in WISCONSIN at Madison on May 15, 2 days later than in 1961. Numbers increased on alfalfa and severe yellowing was observed in scattered areas of the State. Generally, however, crops were harvested before more than half the leaves had dropped. In NEBRASKA, light populations were present on alfalfa throughout the season. Yellowing of alfalfa was found in scattered areas of the State. From late June to mid-July in MISSOURI, light populations were present in alfalfa throughout the State. During July and early August, populations of potato leafhopper increased in the north central and northeast areas of Missouri until yellowing was evident throughout these areas. Counts in alfalfa in the infested areas ranged from 15 to 50 per sweep. Populations of potato leafhopper in ILLINOIS were light, seldom exceeding 10 adults and nymphs per sweep. The one exception was an area covering parts of the west, west-southwest and central districts where populations ran as high as 60 adults and 188 nymphs per sweep in alfalfa in early July. At this time, 23 percent of the alfalfa fields in this area of Illinois showed some yellowing. Approximately 12,292 acres of alfalfa were treated in 1962. Potato leafhopper continued to be one of the major insect pests in INDIANA. On alfalfa and clover, there was considerable yellowing and stunting in July and August. Plantings of the new alfalfa variety, Culver, which was developed for insect resistance, showed very little damage from either potato leafhopper or meadow spittlebug in comparison with other varieties. Potato leafhopper was damaging to second and third cuttings of alfalfa over OHIO. This damage, combined with drought conditions, resulted in greatly reduced yields in many parts of the State. It was also damaging to clover in Ohio. The pest did not reach economic proportions in 1962 in PENNSYLVANIA, although some damage was evident in the northern section. Potato leafhopper was exceptionally high on alfalfa in VERMONT and was the second most abundant leafhopper on alfalfa in the eight MASSACHUSETTS counties surveyed in October. Populations of potato leafhopper in the Finger Lakes area of NEW YORK continued the trend of recent years toward lower numbers. In western New York and the Hudson Valley, populations were not great, but they did cause great damage when coupled with the drought conditions. In northern New York, there was more moisture, populations were greater, but damage was less apparent. Some yellowing of alfalfa was noted in NEW JERSEY and numbers on alfalfa in MARYLAND were about normal, with characteristic injury being noted in Carroll, Montgomery and Queen Annes Counties in the latter State. Populations of potato leafhopper in VIRGINIA were generally moderate from mid-July to late August, being most abundant in Nansemond and Surry Counties. Light to medium infestations were noted on alfalfa in several locations of the State in late July.

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) was the third most abundant leafhopper species in alfalfa in the eight MASSACHUSETTS counties surveyed in October, and the leafhopper was considered normal for the year in UTAH. PAINTED LEAFHOPPER (Endria inimica) was the most abundant leafhopper found in alfalfa surveyed during October in MASSACHUSETTS, and this species and SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) were abundant on alfalfa in southern RHODE ISLAND. Also in MASSACHUSETTS, Erastumus ocellaris was conspicuously abundant for the first time in Berkshire County alfalfa, comprising 4.7 percent of all the leafhoppers present in the October survey. Several species of LEAFHOPPERS were active in small grains and alfalfa in OKLAHOMA from mid-February through early November, with the highest populations present in June, July and August.

LYGUS BUGS (Lygus spp.) were again a general pest of CALIFORNIA forage crops. Infestations of alfalfa were medium to heavy in the Dixon area of Solano County; medium in Santa Clara County, in the Borrego Valley (San Diego County); in Siskiyou County, in San Bernardino County, and on seed alfalfa in the Antelope Valley, Los Angeles County; light to medium in the Arvin-Wheeler areas of Kern County and in Butte County; and heavy on alfalfa in Stanislaus County. They also required controls on seed clover in Tehama County. Populations were above normal in Umapine area of Umatilla County, OREGON, by June 16. Controls were necessary through midseason and fall. In the Ontario-Adrian area of Oregon, lygus bugs required control in seed acreages. Counts of 10-12 per sweep were common in Malheur and Klamath Counties during August. Jackson County seed yields were lowered by lygus bug damage. In WASHINGTON, a reduced control problem on alfalfa raised for seed was noted during the cool 1962 season. Lygus hesperus and L. elisus were the dominant species. Overwintered adults of lygus bugs began appearing spottedly in Canyon County, IDAHO, in late March and, during April, low numbers were found in all alfalfa fields sampled in that area. By June 1, lygus bugs were common to abundant in alfalfa fields in southwestern Idaho, with counts of 10 per sweep noted in the Grandview area. Generally, lygus bugs remained at or below normal population levels during the summer.

Populations of lygus bugs in NEVADA were normal for the season, with periodic insecticide treatments required in alfalfa seed fields. However, heavy infestations were present in alfalfa throughout ARIZONA much of the year, and controls were required in some seed fields. Lygus bugs caused considerable damage in seed alfalfa fields in Chaves, Eddy and Dona Ana Counties, NEW MEXICO; and lygus bugs numbered 100-250 per 100 sweeps on alfalfa left for seed production in the Arkansas Valley of COLORADO, and an average of two applications of insecticides were applied to these fields.

TARNISHED PLANT BUG (Lygus lineolaris) was quite abundant on alfalfa in April and May in PENNSYLVANIA, but gradually tapered off toward the end of the season. In NEW YORK, the late spring populations of tarnished plant bug were slightly higher than those of 1961, with a peak number of 30 adults per 10 sweeps. The second population peak, which normally occurs in late July, was less than in 1961, with about 10 adults per 10 sweeps. Noticeable feeding was observed on legumes in VERMONT, and the species was one of the principal plant bugs on red clover and alfalfa near maturity in all sections of MARYLAND. It was very abundant in that State. Tarnished plant bug was present in clover and alfalfa in ILLINOIS in normal numbers, and above normal numbers were present in KANSAS, but damage appeared to be negligible in the latter State. In OKLAHOMA, light, scattered populations of tarnished plant bug first appeared in early February and activity continued into November. Populations began building up during May in alfalfa in all areas of the State, with 15-25 per 10 sweeps being common in most areas. Heaviest populations in Oklahoma occurred in the southeast, with counts up to 250 per 10 sweeps. Moderate to heavy populations continued in the southeast through August. Lighter counts were generally present in other areas of the State. Adult abundance of tarnished plant bug in NEBRASKA ranged from one to 15 per 10 sweeps throughout the State on legumes. High nymphal populations occurred in Saunders County during May. Adult activity was very noticeable on corn plants in the eastern area during the last week of November.

RAPID PLANT BUG (*Adelphocoris rapidus*) was one of the principal plant bugs on red clover and alfalfa near maturity in all sections of MARYLAND. It was very abundant in 1962 in Maryland and evident on alfalfa in PENNSYLVANIA. Populations on alfalfa and clover in ILLINOIS were normal. Nymphal counts of rapid plant bug averaged 40 per 10 sweeps in Saunders County, NEBRASKA, alfalfa in May. Adults averaged 4 per 10 sweeps on alfalfa throughout the season.

A movement of ALFALFA PLANT BUG (*Adelphocoris lineolatus*) to the southern portion of WYOMING was noted again in 1962. Populations were about the same as in 1961 except in Goshen, Platte, Converse and Fremont Counties, where larger populations were found in nearly all of the alfalfa fields. Only sporadic infestations were found in these same counties in 1961. Nymphal populations of alfalfa plant bug in NEBRASKA averaged 35 per 10 sweeps in Saunders County alfalfa in May. Elsewhere in Nebraska, populations were light throughout the season. More than normal numbers were present in KANSAS in 1962, but damage appeared to be negligible. Normal numbers were present in ILLINOIS and the pest did not reach economic proportions in NORTH DAKOTA.

Both tarnished plant bug and rapid plant bug were light in legumes in MISSOURI, and another PLANT BUG (*Ilnacora stalii*) was evident on alfalfa in PENNSYLVANIA. MEADOW PLANT BUG (*Leptopterna dolabratus*) was present in normal numbers in clover and alfalfa in ILLINOIS.

Heavy populations of STINK BUGS developed on alfalfa in Imperial County, CALIFORNIA, but they were reported light on legumes in MISSOURI.

ALFALFA WEEVIL (*Hypera postica*) was recorded in VERMONT for the first time in 1962. It was collected at Westminster and Bellows Falls, Windham County, and Pownal, Bennington County, on June 26. In MASSACHUSETTS, as many as 12 larvae and adults were collected per sweep in Berkshire County in May. Highest counts of fall survey included 14 adults and 27 larvae per 100 sweeps in Easton, Bristol County; 6 adults and 27 larvae in Southwick, Hampden County; and 3 adults and 10 larvae in Topsfield, Essex County. Counts in other counties of Massachusetts averaged fewer than 10 per 100 sweeps. Also, alfalfa weevil was collected during the year on Marthas Vineyard Island, Dukes County, which is off the southeast coast. This was the last uninfested area of the State. A survey of a field in South Kingstown, Washington County, RHODE ISLAND, on May 10 revealed adults, no larvae and a count of 5 egg masses per 60 stalks. Actively feeding larvae were found in this and other alfalfa in county by May 17. Between June 2 and June 22, the larval count per 100 sweeps in a South Kingstown field rose from 40 to 1,936. Populations of alfalfa weevil then subsided, but periodic checks through September continued to show a significant breeding population.

Alfalfa weevil caused more injury to alfalfa in NEW YORK during 1962 than in any previous year. In Dutchess County, the first larvae did not appear until early May, which is about 10 days later than normal. The peak of the larval population occurred in late May, when as many as 1,850 larvae were taken in 10 sweeps. By mid-June, nearly all of the larvae had pupated, the number of larvae remaining below 5 per 10 sweeps for the rest of the year. Alfalfa weevil is now found in all except four counties in PENNSYLVANIA, viz., Forest, Mercer, Venango and Crawford, all in the northwestern section of the State. Prolonged drought conditions this past spring and summer accentuated damage and accelerated development so that at the time of the first cutting the majority were pupae and adults, with only a few larvae present. Untreated fields were almost completely defoliated at cutting time and, in many instances, adults remained in the fields and fed on the developing bugs thus preventing any new growth for as long as four weeks after the first cutting. In NEW JERSEY, larval damage was reported heavy in untreated alfalfa in parts of the State in May. Populations had been very low in April. First and second-stage larvae were first noted on alfalfa in DELAWARE during the last week of March. Counts of spring-laid eggs reached 4.8 per stem in old growth by April 19 in south New Castle County. Feeding injury

remained light until late April in untreated fields and, by mid-July, injury in these fields was rather heavy. In MARYLAND, numbers of larvae were about normal and reached a peak in mid-May. Damage to untreated first-growth alfalfa ranged from moderate to heavy. Adults were also responsible for stunting second-growth alfalfa in several counties.

Alfalfa weevil continued to spread during 1962 to new areas in southeastern OHIO. It was found in 7 additional counties, making a total of 20 counties now known to be infested. Populations were low in most areas. A few fields known to be infested for several years had severe damage. Due to warm weather, most eggs hatched within a short period of time and most larvae matured in late May. In VIRGINIA, heavy statewide infestations of alfalfa weevil larvae were observed on untreated alfalfa, especially in areas in which this species appeared for the first time in 1962. New county records for the year were Buchanan, Dickenson, Lee, Scott and Wise. Sussex County is the sole county for which this species has not been officially recorded as being present. Adults of the weevil were common on beans and other crops in some areas of Virginia in late May and early June. For the first time in Virginia larvae caused damage to third and fourth cuttings of alfalfa. Light to medium infestations were encountered from early August through mid-October in several counties. Adults returned to fields and caused marginal leaf and stem damage in Bath and Montgomery Counties in late September.

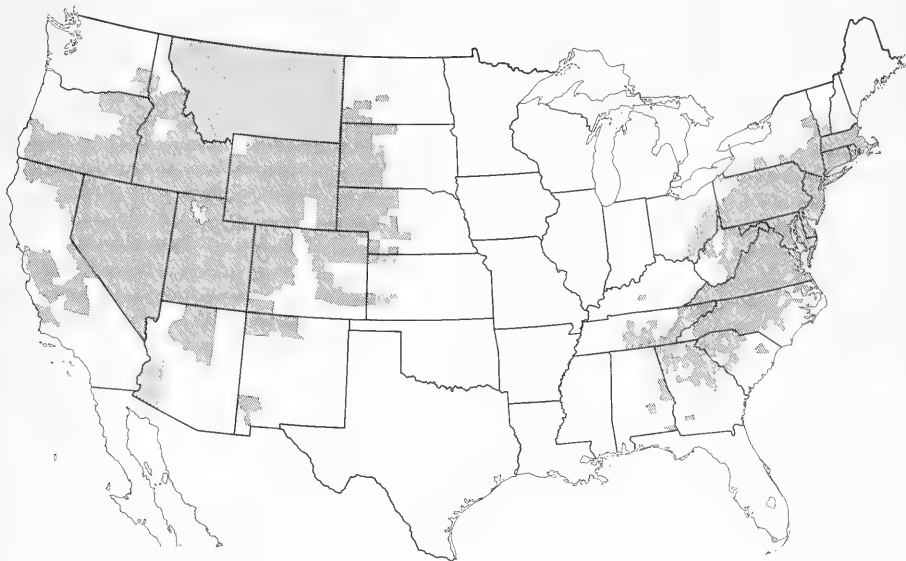
Peak emergence of alfalfa weevil adults in NORTH CAROLINA occurred the first week of May in the central Piedmont region. Unusually heavy damage occurred to alfalfa on the lower slopes of the mountains, 2,000 feet and under, in the Asheville-Hendersonville area. Much less damage occurred to alfalfa in SOUTH CAROLINA than in years past, which reflects control efforts. Alfalfa weevil infestations in GEORGIA were light to heavy. Fields treated with a recommended chlorinated hydrocarbon insecticide in the fall of 1961 had good control. Many fields which were treated with less than the recommended rate had poor control. Eggs, larvae and adults were present in alfalfa as early as February in Georgia. To a large degree, alfalfa weevil has contributed to the reduction of the acreage of alfalfa in Georgia. In 1959, when this insect was first found in the State, approximately 45,000 acres of alfalfa were being grown. The acreage at the end of 1962 was 25,000. Damage in ALABAMA was severe in the northern and central portions of the State. In many instances, first cuttings of alfalfa were lost where the populations were heavy. In TENNESSEE, larvae were appearing in the eastern and central third of the State in early March. At least 9 new counties were reported during the year. Treatments have been recommended over the entire infested area.

Alfalfa weevil was detected in four new KANSAS counties during 1962, all in the western area. They were Kearny, Rawlins, Decatur and Finney. Very light populations, approximately 1 per 10 sweeps, were present in Dundy County, NEBRASKA, and averaged 25 per 100 sweeps in Scotts Bluff County in June. In COLORADO, considerable variation occurred throughout the State in the amount of insect damage to alfalfa. The highest losses occurred in areas where growers failed to use an early application for control of alfalfa weevil, or weather conditions prevented such an application. The loss of alfalfa due to all insects varied from 1 to 16 percent. The alfalfa weevil caused the greatest amount of loss in Colorado to the first cutting in those areas where loss occurred, with larval populations ranging from 100 to 500 per 100 sweeps.

Alfalfa weevil was the most damaging crop pest during 1962 in WYOMING. Infestations were larger than in 1961. Possible resistance to recommended chemicals has been reported in Big Horn County. Heavy rainfall prevented control efforts in some areas of the State. In UTAH, control failures again occurred in the Smithfield-Richmond area of Cache County and in some other areas, as was the case in 1961. Over most of the State, spring treatments of certain chlorinated hydrocarbon insecticides continued to give effective control. Damage to the second crop, and even to the third-crop alfalfa, was the worst in the memory of some older farmers. The pest was considered to be more abundant than normal.

Alfalfa weevil continues to spread in MONTANA and is now a problem in most alfalfa-producing areas of the State. Severe damage has occurred this past year in Lincoln, Gallatin and Broadwater Counties. Control measures should be practiced wherever the weevil is present in Montana. For all practical purposes, the entire State should now be considered infested. In IDAHO, overwintered adults became noticeably active during early April. Egg laying was noted during late April and early May and first-stage larvae began appearing in the Lewiston area in mid-May, and by May 25 in the southwestern area. Larval feeding damage became severe by late June in many fields in the western and south central areas. Damage was particularly heavy in parts of Nez Perce, Owyhee, Canyon and Ada Counties.

Alfalfa weevil was moderately damaging in the eastern and southern OREGON counties. Klamath County losses were estimated at 5-7 percent, with most losses suffered in fields not receiving early season controls. Losses were in quality of first hay crop harvested. Damage was particularly evident along field edges. Adult populations observed in July and August indicated a serious potential for 1963. Crook County was recorded for the first time in 1962. In NEVADA, infestations of alfalfa weevil were heavier and damage more widespread than usual. Adult activity and egg laying began in the second and third weeks of March and extended into the first weeks of June. Larval development was normal, with peak populations present in mid-June. Pahrangat Valley, Lincoln County, Nevada, experienced its heaviest damage in several years, and heavy populations occurred in all counties except Clark. In some areas, recommended chemicals for adult control failed to give satisfactory results. Heavy populations developed during April in Siskiyou County, CALIFORNIA, alfalfa fields. Alfalfa weevil damaged alfalfa in San Juan County, NEW MEXICO, and larvae and adults were also found in alfalfa fields near Chama, Rio Arriba County.



Distribution of Alfalfa Weevil

Heavy infestations of an ALFALFA WEEVIL (Hypera brunneipennis) damaged alfalfa on the Yuma Mesa in Yuma County, ARIZONA, during February, March and early April. Infestations were also heavier than usual in the Yuma and Gila Valleys, but damage was not generally heavy. In CALIFORNIA, local, light populations of this weevil developed in Orange, San Bernardino and Riverside Counties, and areas of San Diego and Imperial Counties had fairly heavy populations of the insect.

Populations of CLOVER LEAF WEEVIL (Hypera punctata) in ILLINOIS were higher in early April of 1962 than at any time since 1954. Approximately 8,154 acres of clover were treated. Populations became noticeable in southwestern WISCONSIN and extensive damage occurred in a few fields. Very low populations were observed on alfalfa and red clover throughout MISSOURI during the early spring. The only visible damage in the State was to a few red clover fields in the southwest area. In KANSAS, larvae and adults of clover leaf weevil were present in large numbers in alfalfa over most of the State but, with a few exceptions, were not of economic importance. Larval activity in NEBRASKA was commonly observed during April in the eastern area on sweetclover. The pest caused noticeable damage to forage crops in local areas of TEXAS, but was not widespread. Clover leaf weevil was considered about normal for the year in UTAH and IDAHO. Medium populations developed early in the year on alfalfa in the Scott and Shasta Valleys of Siskiyou County, CALIFORNIA.

Adults of LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) were abundant in a field of red clover in Worcester County, MARYLAND, in September and early October. Larvae caused conspicuous injury to the axils and buds of first-growth red clover in most sections of Maryland. Larvae infested 50-100 (average 87) percent of the red clover stems in the southeast and southwest districts of ILLINOIS May 6-11. Two fields which had 100 percent of the stems infested had 33 and 48 percent, respectively, of the terminal buds severely damaged or killed. Lesser clover leaf weevil extended its range in LOUISIANA, but still has not appeared in appreciable numbers west of the Mississippi River. The weevil was not severe in OHIO, but it was present in damaging numbers in the southern area. Adults averaged 4 per 10 sweeps in the southern area of NEBRASKA and 10 per 10 sweeps in the southeast area of the same State in June and July. About normal numbers of the weevil were present in IDAHO.

CLOVER HEAD WEEVIL (Hypera meles) populations were heavy on white and crimson clovers throughout LOUISIANA. Losses in seed yields ranged from 40 to 75 percent in untreated fields.

CLOVER ROOT CURCULIO (Sitona hispidula) was more numerous in alfalfa in MASSACHUSETTS during the fall survey than in 1961. It represented 41.6 percent of all beetles in this crop. Larvae were responsible for scarring roots in 12 acres of alfalfa in Frederick County, MARYLAND, and low numbers occurred in MISSOURI during the year. The pest was not of economic importance during 1962 in KANSAS and about normal numbers were present in UTAH and IDAHO. Adults averaged one per 10 sweeps on beans in the eastern area of NEBRASKA during September. Light populations occurred on alfalfa in the Fowler area of Fresno County, CALIFORNIA.

SWEETCLOVER WEEVIL (Sitona cylindricollis) was collected for the first time in NEW MEXICO on sweetclover at Regina, Rio Arriba County. The weevil was considered to be below normal for the year in UTAH, but larger populations were found in WYOMING than in 1961 and 1960. Increases in the amount of sweetclover occurred in all areas of Wyoming, which may account for the increases in weevil population. In NEBRASKA, moderate populations caused noticeable damage to seedling sweetclover in the eastern half of the State from April to July. Counts ranged from 3 per 100 sweeps during the daytime to 406 per 100 sweeps at night. About normal numbers were present in IDAHO, and Ferry County, WASHINGTON, was found infested for the first time. A WEEVIL (Sitona scissifrons) averaged 14 adults per 10 sweeps in Stanton County, NEBRASKA, alfalfa in September.

CLOVER SEED WEEVIL (*Miccotrogus picirostris*) was found for the first time in Clark and Will Counties, ILLINOIS, during 1962, and in MARYLAND. In IDAHO, prolonged, cool spring weather apparently extended the period of emergence of adults from hibernation throughout the west central area. Peak concentrations of clover seed weevil adults in white and alsike clovers occurred during the first week of July, with 20 per sweep commonly recorded along field margins. Examination of maturing seed heads during early July revealed larvae in all stages of development. In WASHINGTON, the brown bloom development was 13 days later, and the first weevil migration into fields was 20 days later than in 1961, in white clover seed fields in Asotin County. Farmers had difficulty with timing of their control programs, often ending up with two ineffective treatments.

CLOVER ROOT BORER (*Hylastinus obscurus*) was much in evidence in some areas of PENNSYLVANIA in 1962. In one large field of first-year clover, most of the plants were dead or wilted before cutting. The first adults of the season in ILLINOIS were collected in La Salle County on May 16. This was also a new county record. In WISCONSIN, a localized infestation of clover root borer occurred in the Arlington area (Columbia County) and severe injury resulted to fields of clover. VETCH BRUCHID (*Bruchus brachialis*) caused its usual amount of damage to seed vetch in TEXAS.

BLISTER BEETLES were about normal for the year in UTAH and very low numbers were present on alfalfa in KANSAS. *Lytta cyanipennis* became locally abundant in IDAHO and caused spotted damage to some alfalfa and clover fields in Bonner County during mid-June. Populations of ASH-GRAY BLISTER BEETLE (*Epicauta fabricii*) were heavy on alfalfa and sweetclover in some NORTH DAKOTA fields, and *Epicauta* sp. averaged 22 per 10 sweeps on alfalfa in Lancaster County, NEBRASKA, in September. Small isolated spots of alfalfa and soybeans were damaged by *Epicauta* sp. in MISSOURI during the dry period of August; and BLACK BLISTER BEETLE (*E. pennsylvanica*), MARGINED BLISTER BEETLE (*E. pestifera*) and *Epicauta* sp. were present in alfalfa fields in many areas of ILLINOIS in late July and August. In INDIANA, a pronounced increase of *Epicauta* spp. was observed in alfalfa. The 1962 population, coupled with a high grasshopper year, indicates a potential for a large population in 1963.

BEAN LEAF BEETLE (*Cerotoma trifurcata*) adults ranged 3 to 10 per sweep on legumes in the eastern area of NEBRASKA. Light populations of a FLEA BEETLE (*Systema taeniata*) developed in clover plantings in the Galt area of Sacramento County, CALIFORNIA. Also in California, light, larval populations of an ELATERID BEETLE (*Cardiophorus* sp.) were reported infesting alfalfa in the Reedley area of Fresno County, and required treatments on blackeye peas in the Arlington area of Riverside County. JAPANESE BEETLE (*Popillia japonica*) adults were occasionally reported as feeding on alfalfa in VIRGINIA, but they caused only negligible damage.

SALT-MARSH CATERPILLAR (*Estigmene acrea*) was light to medium on alfalfa locally in Orange County, CALIFORNIA, in 1962.

CORN EARWORM (*Heliothis zea*) was generally lighter than in the past two years on white and crimson clovers in LOUISIANA, although a few spotty infestations caused moderate damage in some areas. Also, this species, in conjunction with beet armyworm (*Spodoptera exigua*), caused serious damage to alfalfa in the Red River Valley area of Louisiana near Shreveport in late September and October. In OKLAHOMA, heavy populations of 40-75 corn earworm larvae per 10 sweeps were again found in late September in some south central areas where they damaged alfalfa. Moderate, scattered counts of 8-10 per 10 sweeps were noted as late as mid-October in alfalfa in Garfield County. Green vetch pods in the north-east vetch-growing areas of TEXAS were damaged considerably during May and early June by corn earworm, and controls were applied in several instances.

ALFALFA LOOPER (*Autographa californica*) adult and larval activity was extreme in Umatilla County, OREGON, alfalfa acreages from mid-May, and the pest was light to medium on alfalfa in Yolo County, CALIFORNIA. An extremely heavy

infestation was present in many alfalfa fields in Yellowstone, Carbon, Big Horn and Stillwater Counties, MONTANA. Adults began appearing in large numbers in light traps at Twin Falls, IDAHO, in early June. By late June and early July, larvae were extremely abundant in Idaho alfalfa fields, particularly in the south central and southeastern areas, frequently causing 10 days to 2 weeks delay in the second cutting of hay. Larval counts of up to 12 per square yard were often encountered in the State. Alfalfa looper was a serious pest during the spring in UTAH, but damage decreased markedly about the time hot summer weather arrived. The insect was considered more abundant/or damaging than normal in 1962 in Utah. Infestations and damage were heavy in northern NEVADA. Infestations varied from light to heavy in the central and northern counties in July, with some seed alfalfa fields being severely damaged. Alfalfa looper was not a problem in 1961 in WYOMING, but large numbers appeared the latter part of July in the Big Horn Basin in 1962. Moderate to severe damage was caused to alfalfa. When controls were applied to alfalfa, the loopers moved into adjoining sugar beet fields, causing light damage. The looper was present on alfalfa in COLORADO, but populations of economic importance did not develop.

CABBAGE LOOPER (Trichoplusia ni) was generally only light on alfalfa in OKLAHOMA from mid-May to late June.

GREEN CLOVERWORM (Plathypena scabra) larvae ranged from light to moderate on alfalfa during July and August in most sections of MARYLAND, and were common on alfalfa in Sussex County, DELAWARE, during early September. Low numbers were reported feeding on legumes in MISSOURI. It was first observed on clover and alfalfa in southern ILLINOIS on May 9. Populations were low throughout the season in Illinois, MINNESOTA and KANSAS. In OKLAHOMA, light populations of green cloverworm were first observed in late February in the southeast on alfalfa. Activity continued until early November, with the peak activity observed the week of September 22 when counts of 50-125 per 10 sweeps were noted in Bryan and Carter Counties.

BEE T ARMYWORM (Spodoptera exigua) was light on alfalfa in Yolo County, CALIFORNIA, and noneconomic in KANSAS. However, beet armyworm caused damage to alfalfa in the Brazos-Burleson County area of TEXAS and light damage in several north central counties of the same State. In addition, this species, in conjunction with corn earworm (Heliothis zea), was heavy and caused serious damage to alfalfa in the Red River Valley area of LOUISIANA near Shreveport in late September and October.

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) adult flights peaked in the Milton-Freewater area of OREGON blacklight trap collections between July 17-28. Larval infestations appeared in Umatilla County alfalfa fields in mid-August, with populations observed along edges of fields averaging 6 per square yard over several hundred acres. This type of infestation also occurred in Malheur and Baker Counties, Oregon. Infestations varied from light to heavy in NEVADA, with heavy damage occurring in northern Washoe County alfalfa. Light to medium infestations were present on alfalfa in Butte, Kern and Fresno Counties, CALIFORNIA. Below-average numbers were encountered in UTAH in 1962. YELLOW-STRIPED ARMYWORM (P. ornithogalli) damage in Utah has been generally local, being below normal in larger alfalfa seed-growing areas of the State.

VARIEGATED CUTWORM (Peridroma saucia) populations on white and crimson clovers were generally lighter than in the last two years in LOUISIANA, although a few spotty infestations caused moderate damage in some areas. In MISSOURI, light infestations were reported in legumes in the southeast, central and northeast areas, but very little damage resulted. The insect was not of economic importance in KANSAS in 1962. Variegated cutworm severely damaged alfalfa in Elko and Eureka Counties, NEVADA, and caused light damage in Lander County, same State. In CALIFORNIA, medium to heavy populations were present in alfalfa in Escondido-Cajon area of San Diego County and light on the same crop in Orange County. Unspecified CUTWORMS damaged newly seeded alfalfa in 2 VIRGINIA counties.

A CLOVER BUD CATERPILLAR (Grapholitha conversana) appeared at about normal population levels in west central IDAHO during 1962.

ALFALFA CATERPILLAR (Colias eurytheme) damaged alfalfa in September and October in some areas of Graham and Yuma Counties, ARIZONA. Populations were generally heavier than normal statewide. Infestations in NEW MEXICO were heavier than usual on alfalfa statewide. Damage was evident in many fields throughout the summer months. Normal numbers were present in UTAH. In CALIFORNIA, the species was light on alfalfa in eastern Fresno County, medium in Yolo County and light in the Coachella Valley, Riverside County. Alfalfa caterpillar severely damaged an alfalfafield in Clark County, WASHINGTON; and feeding damage appeared in alfalfa in Payette County, IDAHO, with populations largely second instars by June 1. During late June in Idaho, numbers averaged one larva per stem in alfalfa in Camas County and continued abundant in that area of the State through early July. Adult alfalfa caterpillar activity was very evident in NEBRASKA legume fields; larval counts averaged 26 per 10 sweeps in Lancaster County alfalfa in September. The insect was present on alfalfa in COLORADO, but it did not become economic. In OKLAHOMA, the first alfalfa caterpillar activity was noted on alfalfa in late April, and activity continued until mid-October. Generally, light populations existed throughout the season in Oklahoma, with very little damage attributed to this species. Light infestations were widely distributed on alfalfa in TEXAS, but it was generally noneconomic. However, vetch in Harris County was heavily damaged in late October by this pest. Alfalfa caterpillar populations on alfalfa and clover in all sections of MARYLAND during the season were generally light.

GARDEN WEBWORM (Loxostege similalis) became active in OKLAHOMA in early June and continued until early December in the south central area. However, only light populations existed in alfalfa, with some localized damage being reported in Kingfisher and Blaine Counties in late August. In TEXAS, the webworm caused noticeable forage damage in local areas, but was not widespread. Heavy flights of adults were observed in central and northern MISSOURI the first week of July. Damage to alfalfa in the central area was light, and spots in the northeast showed moderate to heavy damage following these flights of moths. ALFALFA WEBWORM (L. commixtalis) appeared during August in local areas of Burleson County, TEXAS, and Loxostege spp. caused minor damage to alfalfa in the eastern area of KANSAS. Unspecified WEBWORMS damaged 60 acres of alfalfa in SOUTH CAROLINA.

AN ALFALFA SEED CHALCID (Bruchophagus roddi) was found for the first time in NEVADA'S major seed-producing area of Humboldt County. Below-normal numbers were present this year in UTAH. A CLOVER SEED CHALCID (B. platyptera) developed in clover fields in the Galt area of Sacramento County, CALIFORNIA.

THRIPS infestations on alfalfa were generally light to moderate in NEVADA, but heavy infestations occurred in Clark, Lincoln and Nye Counties in April and in Humboldt County in July. In CALIFORNIA, thrips populations were heavy on alfalfa in Monterey County.

A SNOWY TREE CRICKET (Oecanthus sp.) was common on alfalfa throughout the northern half of ILLINOIS in late August. In CALIFORNIA, FIELD CRICKETS (Gryllus spp.) ranged light to fairly heavy in alfalfa plantings in Imperial County and light in fields in San Benito County.

MITES in general were not active in most locations of CALIFORNIA until April. In seed alfalfa in the Imperial Valley, Imperial County, heavy populations developed in April. SPIDER MITE (Tetranychus spp.) infestations in NEVADA were generally light on alfalfa and red clover, except in Humboldt County where heavy infestations severely defoliated red clover in July and assisted in defoliating seed alfalfa in October. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was of concern in Jackson County, OREGON, to alfalfa seed growers from early June to harvest. Controls were necessary from July to prevent the devitalization of plants. In IDAHO, two-spotted spider mite reportedly became abundant

in alfalfa fields at Nampa and Homedale in late May. Otherwise, populations remained generally low in alfalfa and clovers during the growing season. STRAW-BERRY SPIDER MITE (T. atlanticus) seriously injured red clover in Caroline, Harford and Queen Annes Counties, MARYLAND, in 1962.

Several insects were reported causing damage to beans grown for forage in CALIFORNIA. ALFALFA LOOPER (Autographa californica) was light to medium in Santa Clara County; CORN EARWORM (Heliothis zea) medium in Butte County, needed controls in Tehama County and medium in Merced County; SALT-MARSH CATERPILLAR (Estigmene acrea) generally medium in Monterey County and Santa Cruz County and medium to heavy in Santa Clara County. Corn earworm persisted in many locations of the State late in 1962. LYGUS BUGS (Lygus spp.) were heavy in Butte and Orange Counties; BEAN APHID (Aphis fabae) was light to medium in Merced and Orange Counties; and THRIPS were medium in Monterey and Yolo Counties and light in Riverside County.

Lawn, Pasture and Rangeland Insects

Highlights:

FALL ARMYWORM was in outbreak proportions in Texas and Louisiana and heavy in several other Southern States. Damage to pastures and lawns was rather heavy. SOD WEBWORMS (Crambus spp.) were abundant in lawns in Ohio, Indiana, Illinois, and parts of Kansas, Nebraska and Colorado. RANGE CATERPILLAR was a major pest of rangeland in New Mexico. Larvae denuded large sections of land in an area of Colfax County. JAPANESE BEETLE, GREEN JUNE BEETLE and other WHITE GRUBS were a problem on turf in several states. CHINCH BUGS caused considerable damage to St. Augustine grass in the South, and to turf in Connecticut and Ohio. A WHEATGRASS BUG (Labops hesperius) was recorded for the first time in Arizona. RANGE CRANE FLY was a pest in California for the second season in many years. A BERMUDA GRASS MITE (Aceria neocynodonis) was recorded for the first time in Florida and Georgia, and the mite continued to cause damage to Bermuda grass in areas of New Mexico, Arizona and Nevada.

FALL ARMYWORM (Laphygma frugiperda) began to build up in TEXAS in the northeast area during late August and, by November 10, had spread over the eastern two-thirds of the State to an approximate line running from Childress to Del Rio. Heavy damage to pastures, grasses and lawns was commonly reported from throughout the area. This outbreak was comparable to the 1960 outbreak and considerably heavier than in 1961. In LOUISIANA, fall armyworm appeared early in the season and developed populations of outbreak proportions in some areas. Untreated pastures and hay meadows were severely damaged in many areas. Infestations in ARKANSAS were heavier in 1962 than in 1961, but not so heavy as in 1960. It was most prevalent in pastures in the southern area of the State during the fall. Fall armyworm was locally destructive in MISSISSIPPI. Damage in ALABAMA was rather severe in the southern and central portions of the State. Extremely dry weather, coupled with this insect problem, caused serious reductions in pasture and hay products in 1962. Heavy infestations remained active until cold weather. Light to heavy infestations of fall armyworm were present on Bermuda grass in GEORGIA, but the threat to this crop in SOUTH CAROLINA did not materialize.

SOD WEBWORMS (Crambus spp.) caused local damage to lawns in VIRGINIA, MARYLAND and DELAWARE. Adults were commonly in flight at night in Kingston area of Washington County, RHODE ISLAND, in August. In OHIO, C. trisectus was abundant throughout the State and particularly destructive to much turf in the south central

section of the State. Crambus spp. were much more abundant in INDIANA than for several years, doing extensive damage to lawns and turf throughout the State. Economically, sod webworms are one of the most important groups of insects of the year in Indiana. They were also abundant and caused more damage to lawns in ILLINOIS than they have caused for many years, especially in the central and east districts. Damage to lawns in eastern NEBRASKA was also very noticeable and unspecified species caused damage to lawns and turf in some areas of COLORADO. Crambus spp. caused severe injury in KANSAS and, in many instances, completely destroyed blue grass lawns in the eastern area. Hot, dry weather in May favored large damaging populations early in the summer in Kansas. In WASHINGTON, sod webworms, especially C. topiaris, are building up and causing damage as turf and grass seed production acreage is increasing in the Columbia Basin.

Other WEBWORMS (Acrolophus spp.) were found causing considerable injury to lawns locally in VIRGINIA, MARYLAND and ILLINOIS. GRANULATE CUTWORM (Feltia subterranea) damaged Bermuda grass lawns in the Odessa area of western TEXAS; and BRONZED CUTWORM (Nephelodes emmedonia) caused occasional, local damage to lawns in VIRGINIA.

RANGE CATERPILLAR (Hemileuca oliviae) eggs began to hatch in NEW MEXICO in June. The infestation was much more widespread than in 1961 in the State. Heavy populations severely damaged rangeland grasses in Farley-Abbott area, Colfax County, and small areas in Union and Harding Counties. It continued to spread in the northern area of New Mexico. SAGEBRUSH DEFOLIATOR (Aroga websteri) became epidemic on sagebrush and bitterbrush in brushlands of Modoc County, CALIFORNIA, causing complete defoliation of browse plants in the area, but populations and damage by this pest were generally below normal for the year in UTAH. Larvae, probably MOMPHID or GELECHIID MOTHS, heavily damaged roots of Astragalus sp., a potentially useful native legume, in ALASKA.

JAPANESE BEETLE (Popillia japonica) was the most common turf insect in the eastern half of OHIO despite the fact that the population was less than in 1961. Larvae, or grubs, caused occasional, local damage to lawns in VIRGINIA, and there were more instances than usual of grub damage to blue grass in the western part of PENNSYLVANIA. Almost complete destruction of some Pennsylvania fields was observed. Japanese beetle was scarce in CONNECTICUT, except in localized areas where some heavy infestations were noted in turf. Japanese beetle grubs caused damage to isolated lawns and to a watershed in Scituate, Providence County, RHODE ISLAND. In most cases, however, ASIATIC GARDEN BEETLE (Maladera castanea) and WHITE GRUBS (Phyllophaga spp.) were found in association with the Japanese beetle infestations in Rhode Island. WHITE GRUBS (Phyllophaga spp.) were abundant throughout OHIO and caused considerable damage to turf, particularly in the south central section. Light to heavy infestations were also present in lawns in the northern area of GEORGIA; and some lawn turfs in certain east central counties of TEXAS and areas of COLORADO were damaged. In NEBRASKA, damaging populations of all stages of Phyllophaga anxia, ranging from 2 to 30 per square foot and ranging in depth from 2 to 18 inches, were present in wet meadows in the northern sandhills. In addition, spotted larval infestations of a CHAFFER (Cyclocephala sp.) caused damage to blue grass lawns in Lancaster County, Nebraska.

GREEN JUNE BEETLE (Cotinis nitida) grubs caused more damage than usual in the western part of PENNSYLVANIA to blue grass; almost complete destruction of some fields was observed. The pest was abundant and active locally in a ladino clover field in Wicomico County, MARYLAND, and in a pasture in Kent County, same State. Grubs infested pastures in 2 VIRGINIA counties and occasionally damaged lawns in the State. Light to heavy green June beetle infestations were present in northern GEORGIA lawns, and the pest continued heavy on some golf courses in northwestern ARKANSAS. In the latter case, however, some golf course managers feel that the species is beneficial.

NORTHERN MASKED CHAFER (Cyclocephala borealis) was abundant throughout OHIO and particularly destructive to much turf in the south central area. During late June and early July, adults of northern masked chafer were again extremely abundant at dusk and about lights in sections of Prince Georges County, MARYLAND.

Square foot soil samples taken in Wayne, Ontario and Onondaga Counties, NEW YORK, for third-stage larvae of EUROPEAN CHAFER (Amphimallon majalis) revealed low numbers (an average of about 3 per square foot) to be present, as has been the case for the past four years.

Heavy infestations of a CERAMBYCID (Derobrachus brevicollis) were present on 200 acres of Bahia grass in Miller County, GEORGIA. This insect is known to be present in Seminole, Miller and Dougherty Counties, Georgia. A BILLBUG (Sphenophorus sp.) was present in small numbers in lawns in Pershing County, NEVADA.

A ST. AUGUSTINE GRASS CHINCH BUG (Blissus leucopterus insularis) severely damaged many lawns in TEXAS from Corpus Christi to Beaumont along the coast, into the eastern area and as far north as Dallas. The bug caused serious damage to St. Augustine grass lawns throughout LOUISIANA and continued to damage lawns, especially St. Augustine grass, in many sections of MISSISSIPPI. Relatively more damage is continually being caused each year in the north central part of Mississippi. Infestations in GEORGIA were moderate to heavy on St. Augustine grass. Moderate to heavy infestations are common from year to year. Damage in FLORIDA continued as usual. The bug also damaged lawns in Charleston and in the Piedmont area of SOUTH CAROLINA all summer.

HAIRY CHINCH BUG (Blissus leucopterus hirtus) was abundant throughout OHIO, particularly in the south central section where much turf was damaged. It was also abundant in CONNECTICUT during the fall season, especially in the southwestern lower tier of towns, where many lawns were heavily infested. FALSE CHINCH BUGS (Nysius spp.) were general in grassland in Sonoma County, CALIFORNIA.

A WHEATGRASS BUG (Labops hesperius) infested intermediate wheatgrass plantings in the Weiser area of IDAHO during May. In WYOMING, one very severe infestation was found damaging wheat strips that bordered soil bank lands in Goshen County. The wheat strips were very severely damaged. Control efforts were successful in decreasing the population and in stopping further damage. Several infestations were present on range areas, but little damage was present. Population levels of the bug on crested wheatgrass in COLORADO made it necessary to consider the use of controls in Park and Rio Grande Counties. L. hesperius was found for the first time in ARIZONA during the year. It was collected on intermediate wheatgrass in Coconino County. A PACIFIC GRASS BUG (Thyrrillus pacificus) - First report of damage in the Columbia Basin Project of WASHINGTON on crested wheatgrass.

Light to heavy infestations of a SPITTLEBUG (Prosapia bicincta) were present on Bermuda grass pastures in GEORGIA, with most infestations being light to moderate. Infestations on lawns were light to heavy, with most being light to moderate. In SOUTH CAROLINA, unspecified species of SPITTLEBUGS caused damage to coastal Bermuda grass in trace amounts.

Large populations of a CICADA (Okanagana luteobasilis) occurred on range in many areas of WYOMING, mainly in the western half. No crop damage was reported.

RHODES-GRASS SCALE (Antonina graminis) was a serious pest of Bermuda grass lawns in the Las Cruces area of Dona Ana County, NEW MEXICO. Another SCALE INSECT, probably Odonaspis ruthae, appeared in heavy, localized infestations in Bermuda grass lawns in the Fort Worth area of TEXAS.

Light populations of RANGE CRANE FLY (Tipula simplex) developed in alfalfa plantings in Siskiyou County, CALIFORNIA. Severe damage, requiring treatment, occurred in the Exeter area of Tulare County on rangelands. This crane fly was also a problem in foothill areas in Fresno, Mendocino and Marin Counties. This was the second season of the range crane fly being a pest in California in many years. Also in California, FRIT FLY (Oscinella frit) developed to heavy proportions in local golf courses in San Diego County. Other areas of California where infestations were heavy in 1961 were not affected during the 1962 season. In addition, a SOD FLY (Metoponia rubriceps) infested lawns in the South San Francisco area of San Mateo County. MARCH FLIES (Phila spp.) became a problem in a sod area in Los Angeles County during November.

HARVESTER ANTS (Pogonomyrmex barbatus and P. occidentalis) were present in about normal numbers in UTAH, and SOUTHERN FIRE ANT (Solenopsis xyloni) was common in lawns in east central TEXAS.

A BERMUDA GRASS MITE (Aceria neocynodonis) was collected at Patrick Air Force Base, Brevard County, FLORIDA, on April 18, 1962, on Bermuda grass. This constitutes the first record for the Eastern United States. It is now found in Florida in scattered locations from Cocoa Beach, Brevard County, to Miami, Dade County. The eriophyid mite was also found for the first time in GEORGIA during 1962. The collection was made from Bermuda grass in Tift County. In NEW MEXICO, infestations of the mite were widespread in Bermuda grass lawns in Las Cruces area of Dona Ana County, and in the Carlsbad area of Eddy County. Damage was severe where it was not controlled. Populations in ARIZONA damaged Bermuda grass lawns and pastures throughout the Bermuda-growing season. Infestation in Bermuda grass in Clark County, NEVADA, increased. In CALIFORNIA, the mite showed a slight northward spread, but was not commercially important during 1962.

A complex of MITES, Galumna nervosum, Amblyseus sp. and Zygoribatula sp., damaged lawn grasses, principally Bermuda grass, in the Midland-Odessa vicinity of TEXAS.

A BUD MITE (Aceria paracalifornicus) occurred as heavy populations on Artemisia californica in the Gustine area of Merced County, CALIFORNIA. Sage in most parts of the State fared very poorly from drought and insects/mites during 1962.

Heavy populations of an undetermined SLUG damaged clover pastures in the Point Reyes area of Marin County, CALIFORNIA.

Soybean and Peanut Insects

Highlights:

LESSER CORNSTALK BORER was more severe than previous years in Georgia and was of major importance in Alabama. Losses to peanuts were estimated at \$2,209,245.00 in Georgia and in the millions in Alabama. Infestations of CORN EARWORM on soybeans in eastern Virginia were more widespread and heavier than during the two previous years. An outbreak of corn earworm was noted on soybeans in southeast Arkansas and heavy infestations were present in northeast Louisiana. SOUTHERN CORN ROOTWORM was a major problem in several southwest Georgia counties and damage to untreated peanuts in Virginia ranged from noneconomic to quite heavy. MEXICAN BEAN BEETLE was the major pest of soybeans in South Carolina and Virginia, and BEAN LEAF BEETLE continues to be an important pest of soybeans in North Carolina. Damage by bean leaf beetle was also noted in Virginia and Maryland. THRIPS infestations on Virginia peanuts were the heaviest in the past 10 years.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations were more severe than in previous years in GEORGIA. County agents estimate a loss of \$2,209,245.00 to peanuts from damage caused by this pest. Infestations were heavy on a number of crops including soybeans, southern peas, beans and tomatoes. This insect infested 156,314 of the 238,025 acres of peanuts grown in Georgia. Damage ranged from light to 90 percent of the crop. In ALABAMA, heavy populations caused millions of dollars of damage to peanuts and soybeans in the southern and central portions of the State. Dry weather conditions were also very conducive to the tremendous buildup of this pest. Several peanut yields were reduced as much as 90 percent due to the presence of lesser cornstalk borer. The borer caused unusually heavy damage during 1962 in MISSISSIPPI. Specimens were collected from field peas and other crops. The species was the principal pest of peanuts in TEXAS in 1962. Heavy damage occurred in the Waco area, central section, and in Colorado, Frio and Atascosa Counties.

CORN EARWORM (Heliothis zea) injury to soybeans in DELAWARE was evident only in the late-planted fields during late September when larvae were rather abundant. During September, outbreak numbers infested foliage and pods of late soybeans on the lower Eastern Shore of MARYLAND; damage was heaviest in Wicomico County. Infestations of soybeans in eastern VIRGINIA were more widespread and heavier than during the two previous years. Light infestations first appeared on August 16 in Charles City and New Kent Counties. Light to heavy infestations were reported from several localities on soybeans. Corn earworm was light on both fruit and seed of soybeans in SOUTH CAROLINA, but locally serious in some fields. Infestations on peanuts in GEORGIA were light to moderate and lighter than in previous years. Infestations on soybeans in that State were light to heavy, with most being light to moderate. Corn earworm caused some damage to soybeans throughout most of ALABAMA. In ARKANSAS, about 40 fields in the southeast were surveyed weekly. Inventory data were obtained, in addition to data on seasonal buildup. These data permitted detection of an outbreak on soybeans as it developed. Although confined mainly to 6 counties, the outbreak was heavy in 5 Arkansas counties and resulted in nearly one-half the acreage in these counties being treated. A special survey was conducted for the fourth consecutive year on the early season egg deposition on soybeans. (See CEIR 13(7):109-112). Heavy corn earworm infestations developed on soybeans in LOUISIANA during September and October in the alluvial areas of the northeast. Serious damage occurred in many untreated fields. In TEXAS, peanut foliage in the Frio-Atascosa County and Hill-McLennan County areas was severely "ragged" during late July. Foliage feeding by this species was also heavy on peanuts in Montague, Parker and Fannin Counties (north central).

GREEN CLOVERWORM (Plathypena scabra) larvae ranged from light to moderate on soybeans during July and August in most sections of MARYLAND, and very light populations were present in soybean fields examined the latter half of September in NORTH CAROLINA. The insect was present on soybeans in SOUTH CAROLINA in its usual numbers, and very common, but noneconomic, on soybeans in ARKANSAS. Disease was important in holding down infestations in the latter State. Green cloverworm was first observed on soybeans in ILLINOIS in the west-southwest district on June 12. Populations were low throughout the season, however.

FALL ARMYWORM (Laphygma frugiperda) infestations on peanuts in GEORGIA were light to moderate and lighter than in previous years. It was also light on soybeans in Charles City and New Kent Counties, VIRGINIA, in mid-August. YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) caused some "ragging" of peanut foliage in the north central area of TEXAS. CABBAGE LOOPER (Trichoplusia ni) infestations on soybeans in GEORGIA were light to heavy, with most being light to moderate; and cabbage looper was light in soybean fields examined the latter half of September in NORTH CAROLINA. GRANULATE CUTWORM (Feltia subterranea) infestations on GEORGIA peanuts were light to moderate. Infestations were general over the peanut-growing area in that State, but with less defoliation than in the past. Unspecified CUTWORMS caused unusually heavy damage to peanuts

locally in SOUTH CAROLINA; other fields in the area were not affected. VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) caused some damage to soybeans throughout most areas of ALABAMA and infestations of peanuts in GEORGIA were light to moderate and lighter than in previous years. Infestations of soybeans in the latter State were light to heavy, with most being light to moderate. Velvetbean caterpillar attacks on soybeans in SOUTH CAROLINA were light and late and were very light in NORTH CAROLINA.

RED-NECKED PEANUTWORM (Stegasta basqueella) was present on peanuts in OKLAHOMA and light to moderate infestations were present in GEORGIA. GARDEN WEBWORM (Loxostege similalis) became active in early June in OKLAHOMA and continued until early December in the south central area. Heavy populations were reported defoliating soybeans in the Vinita area of Craig County in mid-July.

Summer-long collections of STINK BUGS on soybeans in ARKANSAS showed that GREEN STINK BUG (Acrosternum hilare) is by far the most important species in that State. SOUTHERN GREEN STINK BUG (Nezara viridula) and BROWN STINK BUG (Euschistus servus) were of lesser importance on soybeans in Arkansas. Southern green stink bug is more common in southeast Arkansas than in other areas. Southern green stink bug and brown stink bug populations on soybeans in LOUISIANA were lighter than during the last several years. Southern green stink bug caused some damage to soybeans throughout most of ALABAMA. In NORTH CAROLINA, undetermined STINK BUGS averaged 5 adults and 11.7 nymphs per 50 feet of row in soybean fields in central coastal counties during the week of September 17. Part of these fields resurveyed during the second week of October. Populations had declined approximately 40 percent by that time. Eleven of the fields which had initially averaged 24.6 stink bugs per 50 feet of row sustained an average of 2.5 percent damage. Soybeans in the other eastern areas of North Carolina averaged from 6 to 15 stink bugs per 50 feet of row during late September and early October.

A BURROWING STINK BUG (Pangaeus bilineatus) infested peanuts in GEORGIA at about the same degree as in recent years, with the exception of 1959 when this insect was a serious pest in several counties. THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) damage was noted to soybeans in 3 widely separated locations of SOUTH CAROLINA; and it was observed on peanutvines in Montague County, TEXAS, but no damage was evident. All stages of a WHITEFLY (Trialeurodes sp.) were abundant in many soybean fields on the Eastern Shore of MARYLAND.

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) was a major problem on peanuts in several southwest GEORGIA counties. The acreage infested was approximately that of 1961 (3,500 acres). Infestations ranged from light to heavy. As of the end of the year in Georgia, this pest had not been found on peanuts outside the southwest area. In NORTH CAROLINA, adults of southern corn rootworm began moving into peanut fields in Bertie and Gates Counties about July 20, which was almost 2 weeks later than the previous year. Infestations and damage were not as severe as in 1961, probably because of dry conditions during the egg-laying period. In VIRGINIA, approximately 60,000 acres of a total of 104,000 acres of peanuts were successfully treated. Effects of infestation in untreated fields ranged from no injury to quite heavy damage.

MEXICAN BEAN BEETLE (Epilachna varivestis) infestations in GEORGIA soybeans were light to heavy, with most being light to moderate. Mexican bean beetle was the major pest of soybeans in SOUTH CAROLINA in 1962. It caused heavy, localized damage to foliage. In NORTH CAROLINA, larvae and adults of the beetle fed on soybeans from June to September in the east central part of the State. This insect is generally not a serious problem in North Carolina at the present time, but it may become more important on soybeans, particularly in the east central area. Feeding was generally not noticeable on soybeans in other areas of North Carolina. Mexican bean beetle heavily infested soybeans in several counties in eastern VIRGINIA in August and September. Infestations and damage were heavier than any other time in recent years. In MARYLAND, the pest caused light to moderate injury to soybeans on the Eastern Shore and in southern Maryland.

BEAN LEAF BEETLE (*Cerotoma trifurcata*) continued to be an important pest of soybeans in NORTH CAROLINA. It fed on newly emerging soybeans in late May and also caused some pod damage later in the season. In VIRGINIA, medium to heavy infestations of soybeans were reported in several counties. Adults were common again in MARYLAND, and caused conspicuous foliage injury to soybeans on the Eastern Shore. Bean leaf beetle was present in most ARKANSAS soybean fields, but was noneconomic. Low numbers were found feeding in MISSOURI. Populations were again low in the south central district of MINNESOTA, and a slight buildup during July caused some damage to soybeans in NEBRASKA.

Adults of a LEAF BEETLE (*Maecolaspis* sp.) were first observed on soybeans in ILLINOIS on June 12. Populations went as high as 0-80 (average 32.5) per 100 sweeps in soybeans and 20-100 (average 57.5) per 100 sweeps in clover in the west-southwest district in late June, but little damage was done.

TOBACCO WIREWORM (*Conoderus vespertinus*) larvae damaged 50 to 75 percent of a stand of emerging peanuts in a 3-acre field in Greene County, NORTH CAROLINA, around the first of May. Some lessening of stand due to wireworms was noted in a few locations in Bertie County and may have also occurred elsewhere in the State.

JAPANESE BEETLE (*Popillia japonica*) adults caused noticeable feeding injury to soybeans during July in some areas of DELAWARE. One infestation in Newton and Benton Counties, INDIANA, occurs in a rural area where the adults feed on the foliage of smartweed and soybeans. Although the infested area on the Indiana side of the State line is some 180,000 acres, heavy populations of Japanese beetle occur only over 2,000 acres. Losses to soybeans from beetles feeding on the foliage have run as high as 33 percent in some fields. A WHITE GRUB (*Phyllophaga hirticula*) damaged soybeans in Burt County, NEBRASKA, during August and September; larvae averaged 8 per row foot.

THRIPS infestations were light to heavy on peanuts in GEORGIA, but most infestations were light to moderate. Infestations in Georgia were comparable with those of 1961, but lighter than in previous years. Damage to peanuts in SOUTH CAROLINA was the same as usual. In VIRGINIA, the heaviest infestation for the past 10 years occurred on peanut seedlings, especially in Southampton and Sussex Counties. Thrips also heavily infested several large soybean fields in Essex, Mathews and Northumberland Counties, Virginia, in late June. In MARYLAND, thrips damaged soybeans during the spring and summer. SPIDER MITES were general and heavy on peanuts in GEORGIA late in the season throughout the peanut-growing area of the State. STRAWBERRY SPIDER MITE (*Tetranychus atlanticus*) and some other spider mites caused noticeable injury to several soybean fields in Queen Annes, Talbot and Wicomico Counties, MARYLAND, in 1962.

Extensive surveys for SOYBEAN CYST NEMATODE (*Heterodera glycines*) throughout the soybean-producing States have confirmed infestations on more than 70,000 acres in nine States (Arkansas, Illinois, Kentucky, Mississippi, Missouri, North Carolina, South Carolina, Tennessee and Virginia). The total infested acreage is estimated at more than 350,000. (Estimate was based on a careful study of the pattern of proven infestations). During 1962, surveys were conducted in 25 States on more than one and one-half million acres. New infestations were confirmed on 10,500 acres. The destructive potential of soybean cyst nematode was observed during the 1962 crop season in several localities in the States of TENNESSEE, NORTH CAROLINA, MISSOURI and ARKANSAS. The nematode is most troublesome in those areas where soybeans are grown continuously without rotation.

Flax, Sunflower, Mustard and Safflower Insects

Highlights:

DIAMONDBACK MOTH caused economic damage to cultivated mustard in parts of North Dakota and Montana.

CORN ROOTWORM (*Diabrotica* spp.) adults were observed feeding on sunflower heads in SOUTH DAKOTA during the late summer; counts were up to 20 per blossom. Larvae of a FLEA BEETLE (*Systema frontalis*) were found feeding on the underground parts of flax near Northwood, NORTH DAKOTA.

DIAMONDBACK MOTH (*Plutella maculipennis*) was a problem on cultivated mustard in the north central section of NORTH DAKOTA in 1962. A number of economic infestations were observed. Larvae were observed working on the foliage and pods of plants. Most reports came from the north central section of the State. In MONTANA, extremely large adult flights were observed during 1962, and infestations were heavy on most mustard plantings both west and east of the Continental Divide. Insecticidal controls were applied to approximately 20,000 acres of mustard.

In Imperial County, CALIFORNIA, VARIEGATED CUTWORM (*Peridroma saucia*) was heavy on flax, while CABBAGE LOOPER (*Trichoplusia ni*) and BEET ARMYWORM (*Spodoptera exigua*) were both light on the same crop. In northeastern Kings County, California, SUNFLOWER MOTH (*Homoeosoma electellum*) caused as much as 50 percent damage to sunflowers. FOXGLOVE APHID (*Acyrtosiphon (Myzus) solani*) populations were trace on safflower and flax in Fresno County, California; and PLANT BUGS (*Lygus* spp.) ranged from light to medium on safflower in Butte County, same State.

TURNIP MAGGOT (*Hylemya floralis*) severely damaged bird rape (*Brassica campestris*) at Matanuska Station, ALASKA. This crop is being grown for evaluation as an oilseed crop.

UNITED STATES DEPARTMENT OF AGRICULTURE

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ECONOMIC INSECT
REPORT

Edited by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL PEST CONTROL SERVICE

PLANT PEST CONTROL DIVISION

REPORTS AND OPERATIONS OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a guide to the agricultural community. Its content is accomplished from information supplied by cooperating State, Federal and industrial entomologists and other agricultural workers. In releasing this material, the Division assumes no liability for omissions or errors, but does assume responsibility for the accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D.C.

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ARMY CUTWORM active and causing damage to wheat in southwest Kansas, and damaging legumes and wheat locally in Oklahoma. GREENBUG populations continue low, along with other grain aphids in the Southwest. ALFALFA WEEVIL adults active in Utah, and Hypera brunneipennis damaging alfalfa in areas of Arizona and California. PEA APHID controls may soon be needed in Arizona. (p. 179).

OLIVE SCALE apparently damaged more olive fruit in central California in fall of 1962 than at any time since 1954. Parasite buildup was less than normal in spring of 1962, and survival of young forms of olive scale during June, July and August was much higher than normal. (p. 180).

TERMITES continue to cause considerable annoyance to homeowners in central Arizona. (p. 184).

In California, BEET LEAFHOPPER treatments on desert annuals in Imperial Valley to begin soon, and CITRUS WHITEFLY survey continues to extend boundaries of infestation in Sacramento, Sacramento County. Also in California, eggs and larvae, believed to be those of the scarab (Ceratophyus sp.) which was found for the first time in the United States in 1962, were recovered from nests approximately three feet beneath the ground surface. (p. 184).

FORECASTS

A widespread, spring GREENBUG infestation does not appear probable in Texas at present. (p. 179). LEAF CRUMPLER constitutes a potential threat to early buds and leaves of apple in Kaufman and Dallas Counties, Texas. (p. 180).

DETECTION

WALNUT HUSK FLY recorded for the first time in Solano County, California (p. 180); and EUROPEAN APPLE SAWFLY increased its range in New York, spreading northward toward Albany in the Hudson Valley during 1962 (p. 194).

CORRECTIONS

See page 185.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 182). Only four screw-worm specimens submitted for identification during period February 17-23. The sterile fly barrier has now been established.

Hawaiian Insect Notes. (p. 186).

(Continued on following page)

Summary of Insect Conditions in the United States - 1962

Fruit Insects

- Pome Fruit Insects - (p. 188).
- Stone Fruit Insects - (p. 197).
- General Deciduous Fruit Insects - (p. 202).
- Nut Crop Insects - (p. 203).
- Grape Insects - (p. 205).
- Blueberry, Cranberry, Currant and Gooseberry Insects - (p. 207).
- Avocado Insects - (p. 207).
- Fig Insects - (p. 208).
- Citrus Insects - (p. 208).

Reports in this issue are for week ending March 1, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MARCH 1963

The Weather Bureau's 30-day outlook for March calls for an appreciable moderation over the eastern half of the Nation, with temperatures averaging from ten to fifteen degrees higher than in February. Part of this trend will be due to seasonal adjustment and part to a change in expected departures from normal. However, temperatures are expected to average somewhat below seasonal normals over the northeast quadrant of the country and also in the Far Southwest. Above-normal temperatures are indicated for the West Coast States, and also for the northern and central Plains. In unspecified areas, about normal temperatures are anticipated. Precipitation is expected to exceed normal in the South and along the Atlantic seaboard as well as over the Pacific Northwest. Subnormal amounts are expected from the Great Lakes westward to the Continental Divide and also in the Far Southwest. Otherwise, near normal amounts are in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price \$4.80 a year, \$2.40 a half year.

WEATHER OF THE WEEK ENDING MARCH 4

As representative of their areas, Pennsylvania registered its seventh consecutive week of below-normal temperatures, and this was the fourth successive week of generally above-normal averages in Oregon. Proof of this winter's extremes can be seen in such reports as Lake Michigan being frozen clear across from Milwaukee, Wisconsin, to Muskegon, Michigan, for the first time in 27 years, and the mountain snowpack of the Far West being below normal due to a combination of unseasonable warmth and little precipitation.

East of the Plains States, temperature averages were mostly below normal, with Indianapolis, Indiana, having the largest reported deficiency of 17°. An early-in-the-week cold snap was enough to offset spring-like warming during the latter half of the period. New daily lows were set at many stations in the Great Lakes and East Coast States on the 26th and 27th. On Tuesday, a -22° minimum at Springfield, Illinois, was also a new record for February.

(Weather continued on page 185)

CEREAL AND FORAGE INSECTS

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - Found in all wheat fields examined in Meade County, southwest; ranged 1-9 per square foot. Larvae ranged small to medium in size, with most being small. Reported damaging wheat in Gray County, southwest. (DePew). Counts ranged 1-9 per foot of row in wheat in Hodgeman County, southwest. Some reports of treatments having been applied. (Peters). OKLAHOMA - Heavy populations of 15 per linear foot noted causing some damage to legumes in isolated spot in Garfield County. Heavy populations also reported causing some damage to wheat in localized area of Harper County. (Okla. Coop. Sur.).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - ARKANSAS - Survival of overwintering larvae 2 percent in field of corn in Cross County, east central. This field was very late corn in 1962 and originally 90 percent infested with overwintering larvae. (Ark. Ins. Sur.).

GREENBUG (Schizaphis graminum*) - TEXAS - During period January 28 to February 20, survey made in following 27 northwest counties: Randall, Deaf Smith, Parmer, Castro, Oldham, Potter, Swisher, Briscoe, Floyd, Hale, Armstrong, Childress, Hardeman, Wilbarger, Wichita, Taylor, Jones, Stonewall, Kent, Dickens, Crosby, Hutchinson, Hansford, Ochiltree, Gray, Roberts and Carson. Greenbug not found in Childress, Hardeman, Hutchinson, Hansford, Ochiltree, Gray, Roberts and Carson Counties. Populations generally low in other 19 counties; ranged from less than one to 10 per linear foot. Highest count taken in Parmer County; one field infested with up to 25 per linear foot. Recent extended cold weather lowered populations considerably. During first part of January, some fields in Parmer, Deaf Smith and Castro Counties had as many as 200 per linear foot; however, populations currently much lower. Foliage of wheat in panhandle area dry and brown from recent cold weather; however, plants generally green at ground level and not showing much winter kill as yet; but, with these conditions, food available to greenbug should be scarce for a period and probably prevent rapid buildup. A widespread, spring greenbug infestation does not appear probable at present. (Daniels). ARKANSAS - Few fields of small grain infested during fall of 1962 found to have low populations at present time. Ranged 1-2 per linear foot. (Ark. Ins. Sur.). ALABAMA - Medium infestations of 7-10 per plant observed on approximately 450 acres of pasture in Tallapoosa County. (Barwood).

GRAIN APHIDS - OKLAHOMA - Populations of GREENBUG (Schizaphis graminum*), ENGLISH GRAIN APHID (Macrosiphum avenae*), APPLE GRAIN APHID (Rhopalosiphum fitchii) and CORN LEAF APHID (R. maidis) remain at noneconomic levels throughout State, with negative reports continuing from many areas. Some plant recovery has begun as temperatures begin to moderate. Extensive winter kill of barley and oats is reported. (Okla. Coop. Sur.).

ALFALFA WEEVILS (Hypera spp.) - CALIFORNIA - H. brunneipennis medium to heavy on alfalfa in Edna area, San Luis Obispo County. Larvae and adults of Hypera sp., probably postica, heavy on alfalfa in Salinas, Monterey County. (Cal. Coop. Rpt.). ARIZONA - H. brunneipennis infesting alfalfa in some areas of Maricopa County. (Ariz. Coop. Sur.). UTAH - H. postica adults active in Duchesne area, Duchesne County. (Knowlton).

PEA APHID (Acyrtosiphon pisum*) - ARIZONA - Causing some injury to alfalfa in some areas of Maricopa and Pinal Counties. Controls may soon be needed. (Ariz. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Small numbers appearing in some fields of alfalfa. (Ariz. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Present in some alfalfa fields in Phoenix and Yuma areas. (Ariz. Coop. Sur.).

SPIDER MITES - ALABAMA - Undetermined species ranged medium to heavy (2-7 per leaflet) on approximately 500 acres of vetch in Tallapoosa County. (Barwood).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Appearing on safflower. (Ariz. Coop. Sur.).

FRUIT INSECTS

LEAF CRUMBLER (Acrobasis indigenella) - TEXAS - Overwintering larvae very common on apple twigs in Kaufman and Dallas Counties and constitute potential threat to early buds and leaves. (Lewis, Newton).

APPLE TWIG BORER (Amphicerus bicaudatus) - TEXAS - Overwintering adults very common in twig axils in mixed orchard of pecan, apple and pear trees in Garza County. (Conner).

AN ARMORED SCALE (Aspidiotus lataniae) - FLORIDA - Moderately infested loquat (Eriobotrya sp.) at Pierson (Jan. 29) and at De Leon Springs (Jan. 30), Volusia County. (Fla. Coop. Sur.).

PEACH SILVER MITE (Aculus cornutus) - CALIFORNIA - Heavy on dooryard nectarines in Sacramento, Sacramento County. At present, a few leaf buds have been deformed; this is first observation of bud damage in peaches. Normal and reported damage is of 3 other types: Spring, longitudinal leaf rolling (upward) on glandless leaves; spring yellow spotting on glandless leaves; summer and fall silvering of leaves. Specimens involved in this bud damage were overwintering females in deutogyne stage. Deutogenes overwinter back of the buds, not in them. (Cal. Coop. Rpt.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Specimens collected in traps during late summer of 1962 in walnut trees in Fairfield, Solano County. This new county record includes Solano County in the infested area and fills in the section between San Joaquin and Napa Counties, where this fly has been known to occur for several years. Natural spread probably accounted for several of the infested counties rather than other types of introduction. This species is now causing commercial damage in northern part of State. (Cal. Coop. Rpt.).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Apparently damaged more olive fruit in central part of State in fall of 1962 than any time since 1954. Orchards on regular control program affected as well as those dependent upon biological control. Lack of parasites is attributed to abnormally severe and prolonged high temperatures during summer of 1961, followed by unusually mild spring and summer temperatures of 1962. Aphytis parasites, which usually control P. oleae, were reduced in numbers by high temperatures of 1961. This resulted in less than normal parasite buildup in spring of 1962. Mild spring and summer temperatures in 1962 favored a much higher than normal survival of young forms of P. oleae during June, July and August, at which time the parasites are normally ineffective in controlling the scale. P. oleae populations exploded during the August-September reproductive period. Mild summer weather favored both scale and parasite development, with an increase in the scale population; however, benefit of the parasite will not be evident until spring of 1963, when a much higher degree of control should result. Aphytis parasites are very effective on overwintering scales. A more recently introduced parasite, Coccophagoides sp., can tolerate the hot summer weather in the State. The 2 parasites together have given excellent control in a limited number of orchards where Coccophagoides has colonized. During 1962, more than 2 million Coccophagoides were released in olive scale areas over the State and large numbers will be released during 1963. Some time will be required to reestablish a favorable biological balance. (C. B. Huffake, C. E. Kennett, K. W. Opitz, Ext. Serv.).

TRUCK CROP INSECTS

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - TEXAS - Continues to cause damage to cabbage roots in lower Rio Grande Valley. Estimated 75 percent of fields in southern half of area have economic infestations. (Garner).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - General on lettuce in the Salt River Valley; controls underway. Also appearing on sugar beets grown for seed. (Ariz. Coop. Sur.).

BEE TERN ARMYWORM (Spodoptera exigua) - ARIZONA - Continues to appear where controls not practiced on lettuce; also appearing on several other vegetable crops. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Continues to appear on lettuce where no controls are applied. Also appearing on other vegetable crops. (Ariz. Coop. Sur.).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Collections made from wild cotton at Cape Sable, Monroe County, Feb. 11. Det. by W. Breidenbach. (Fla. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A JUNIPER TWIG MOTH (Periploca nigra) - CALIFORNIA - Heavy locally on juniper (Juniperus sp.) in El Cajon, San Diego County. (Cal. Coop. Rpt.).

BEE TERN ARMYWORM (Spodoptera exigua) - FLORIDA - This species and CABBAGE LOOPER (Trichoplusia ni) light on 800 chrysanthemum plants at Punta Gorda, Charlotte County (Feb. 18). (Fla. Coop. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Male moths numerous in black-light trap in Riley County, northeast. (Peters).

Coccids in Florida - Aspidiotus perniciosus severely infested 100 pear trees (Pyrus sp.) at Jacksonville, Duval County (Feb. 11). Fiorinia theae severely infested 116 Camellia japonica at Jacksonville, Duval County (Feb. 11), and 10 plants at Seffner, Hillsborough County (Feb. 12); also ranged light to severe on Camellia spp. at Hialeah, Dade County (Feb. 15), at Cocoa, Brevard County (Feb. 19), at Fairville, Orange County (Feb. 21), and at De Land, Volusia County (Feb. 21). Antonina bambusae and Odonaspis penicillata were moderate on 100 bamboo plants at Pembroke, Polk County (Feb. 21). Ferrisia virgata was moderate on 10 Codiaeum sp. at De Land (Feb. 21). Howardia biclavata was light on Camellia japonica at Hialeah (Feb. 15) and severe on Ixora sp. at Largo, Pinellas County (Feb. 22). Phenacaspis cockerelli was moderate on Magnolia sp. and Strelitzia reginae at Bradenton, Manatee County (Feb. 19), and light on Michelia fuscata at Fairville (Feb. 21). Pinnaspis aspidistrae infested 100 Aspidistra sp. at Pembroke (Feb. 21). Pinnaspis strachani was moderate to severe on Citrus sinensis at Cocoa (Feb. 19). Pseudaulacaspis pentagona was moderate on 200 Allamanda sp. at Miami, Dade County (Feb. 15). Pseudaonia duplex was severe on Camellia sp. at De Land (Feb. 19). Aspidiotus juglansregiae was moderate on Ilex sp. at Tampa, Hillsborough County (Feb. 20). Unaspis citri severely infested Citrus sinensis at Sanford, Seminole County (Feb. 22), and was light on C. sinensis, C. paradisi, and C. aurantium at Ocoee, Orange County (Feb. 25). (Fla. Coop. Sur.).

Coccids in California - Medium populations of BARNACLE SCALE (Ceroplastes cirripediformis) occurring locally on privet in Riverside, Riverside County. Medium population of Aspidiotus degeneratus present on camellias in Madera, Madera County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (*Myzus persicae*) - ARIZONA - Still appearing on roses and many annuals in central portion of State. (Ariz. Coop. Sur.).

CHRYSANTHEMUM LACE BUG (*Corythucha marmorata*) - FLORIDA - Severe on crownbeard (*Verbesina* sp.) at Lauderdale-by-the-Sea, Broward County (Jan. 30). Det. by R. F. Hussey. (Fla. Coop. Sur.).

CLOVER MITE (*Bryobia praetiosa*) - CALIFORNIA - Medium on small-leaf English ivy in San Luis Obispo, San Luis Obispo County. (Cal. Coop. Rpt.).

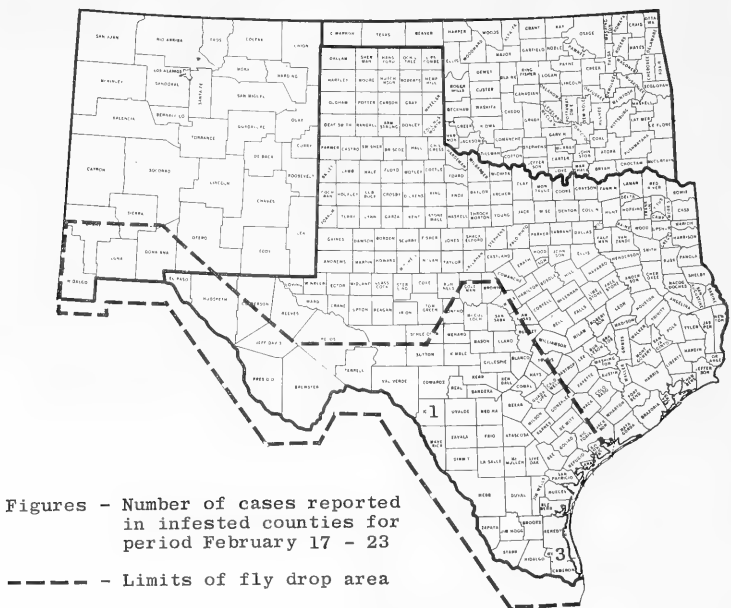
A TARSONEMID MITE (*Tarsonemus confusus*) - FLORIDA - Severely infested 50 arborvitae trees (*Thuja* sp.) at Winter Haven, Polk County (Jan. 18). (Fla. Coop. Sur.).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

Only 4 screw-worm specimens submitted for identification during period February 17-23 from Willacy and Kinney Counties, Texas. Animals on these premises and adjoining ranches have been sprayed. "Hotspot" treatment by plane and automobile was begun immediately.

The sterile fly barrier has now been established and is being flown weekly, 25 miles deep into Mexico from the Gulf of Mexico to 25 miles west of the New Mexico-Arizona border. Two additional areas, where climate or heavy livestock populations favor screw-worm propagation, receiving flies in zone reaching 50 miles into Mexico. First of these areas is in region south of Brownsville, Texas, and other is in region immediately southwest of the Del Rio-Eagle Pass area. A total of 77,956,250 sterile screw-worm flies was released during the period February 17-23. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period February 17 - 23
----- - Limits of fly drop area

CATTLE GRUBS (Hypoderma spp.) - OKLAHOMA - Counts of H. lineatum declining in Stillwater area, Payne County; ranged 0-6 (average 1.5) per head. (Okla. Coop. Sur.). NEW MEXICO - Larvae of H. lineatum abundant in backs of cattle in some Curry County herds. (N. M. Coop. Rpt.). UTAH - Hypoderma spp. infesting several herds of cattle in Garfield, Piute, Wayne and Sevier Counties. (Knowlton).

CATTLE LICE - IOWA - May be of great significance in feedlots until occurrence of warmer weather. (Iowa Ins. Inf., Feb. 18). UTAH - Infesting several beef herds in Garfield, Piute, Wayne and Sevier Counties. (Knowlton). Infestations serious on many cattle herds in Duchesne County. (Knowlton, Smith). OKLAHOMA - Light to moderate activity by several species continues throughout State; light numbers of Linognathus vituli (1 per hair part) noted on yearling calves in Stillwater area, Payne County. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Activity continues over State, with moderate populations observed in Pawnee County area. (Okla. Coop. Sur.).

LICE - ARIZONA - Apparently very common on sheep grazing in Salt River Valley. Also reported on many livestock in many portions of State. (Ariz. Coop. Sur.).

CHICKEN BODY LOUSE (Menacanthus stramineus) - OKLAHOMA - Heavy infestations noted on chickens in Pawnee County. (Okla. Coop. Sur.).

FLEAS (Ctenocephalides spp.) - OKLAHOMA - Causing concern around several homes in Stillwater area, Payne County. (Okla. Coop. Sur.).

WINTER TICK (Dermacentor albipictus) - TEXAS - Controls underway on cattle at some ranches in Throckmorton County. No counts given. (Newton).

BROWN DOG TICK (Rhipicephalus sanguineus) - MARYLAND - Engorged females found on dog and nymphs found about premises of home in Baltimore. Engorged female also found in home at Phoenix, Baltimore County. (U. Md., Ent. Dept.).

HOUSEHOLD AND STRUCTURAL INSECTS

SPIDER BEETLES (Ptinus spp.) - CALIFORNIA - Medium populations of P. clavipes and P. ocellus present in Merced, Merced County, and in Eureka, Humboldt County. Several occurrences reported during past several weeks, which is more than normal. (Cal. Coop. Rpt.).

BLACK CARPET BEETLE (Attagenus piceus) - MARYLAND - Found in home at Lutherville, Baltimore County. (U. Md., Ent. Dept.).

CIGARETTE BEETLE (Lasioderma serricorne) - FLORIDA - Light in cereal in kitchen at Gulf Breeze, Santa Rosa County (Feb. 13). (Boyd).

A PSYLLID (Pachypsylla celtidisvesicula) - OKLAHOMA - Continues to cause some concern in Oklahoma City, Tulsa and Bartlesville areas. (Okla. Coop. Sur.).

COCKROACHES - CONNECTICUT - One infestation each of Blatta orientalis and Blattella germanica reported in homes during February. (Johnson, Savos). MARYLAND - Blattella germanica infested home at Lutherville, Baltimore County. (U. Md., Ent. Dept.). UTAH - Unspecified species infested several homes and other buildings at Moab, Grand County, and at Duchesne, Duchesne County. (Knowlton).

BLACK CARPENTER ANT (Camponotus pennsylvanicus) - CONNECTICUT - Reported active on 10 separate occasions during February. (Johnson, Savos). PENNSYLVANIA - Numerous in homes at Philadelphia, Allegheny County, and at Altoona, Blair County. (Adams).

PAVEMENT ANT (Tetramorium caespitum) - PENNSYLVANIA - Numerous in home at Pittsburgh, Allegheny County, February 18. (Udine).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Present in homes in Yuma and Phoenix areas. (Ariz. Coop. Sur.). UTAH - Moderate numbers moved into several homes in Salt Lake County recently. (Knowlton).

TERMITES - CONNECTICUT - Reticulitermes flavipes reported on 5 occasions during February. (Johnson, Savos). NEW MEXICO - Winged forms of an undetermined species noted flying in fields and around farms in Curry County. (N. M. Coop. Rpt.). ARIZONA - Unspecified species continue to cause considerable annoyance to many homeowners in central area. (Ariz. Coop. Sur.).

STORED-PRODUCT INSECTS

HIDE BEETLE (Dermestes maculatus) - ALABAMA - Medium infestation observed on imported fishmeal; approximately 178,000 one-pound bags infested. (Seibels).

RICE WEEVIL (Sitophilus oryzae) - ALABAMA - Moderate to heavy on stored corn in Tallapoosa County. Populations extremely heavy where shucks were split, allowing free entry. (Buttram).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - PENNSYLVANIA - Numerous in home at Mill Hall, Clinton County, and in cereals in Centre County. (Adams).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Feeding damage light on tobacco in the plant bed in several southern counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Feeding damage light on tobacco in the plant bed in several southern counties. (Johnson).

MISCELLANEOUS INSECTS

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Mapping of desert annuals on west side of Imperial Valley, Imperial County, concluded, with more than 20,000 acres recorded. Nymphs averaging 2 per 10 sweeps found throughout much of area. It is anticipated that treatment to prevent damage to cultivated croplands will begin shortly. In the San Joaquin Valley, scattered, light populations occurred in restricted areas along foothills where winter vegetation was favorable. (Cal. Coop. Rpt.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Survey continues to extend boundaries of infestation in Sacramento, Sacramento County. To date, established pattern indicates definite "carry-outs" from infested area. Overall infested area now measures approximately 15 square miles, as infestations are in irregular pattern involving much larger area. Estimated involvement now approaching 1,000-block unit of treatment. Over 300 blocks treated to date; due to spring weather, trees and plants breaking dormancy rapidly. Additional equipment to be added in next 10 days. If weather remains favorable, treatment will be applied prior to emergence of whiteflies. (Cal. Coop. Rpt.).

A SCARAB (Ceratophyus sp.) - CALIFORNIA - Recently damaged lawns in model homes in Vanderburg Air Force Village, Santa Barbara County. Two cans baited with Japanese beetle bait (anethole-eugenol) captured 5 specimens; 2 cans using ammonium carbonate as bait caught 7 beetles. Eggs and larvae, believed to be this species, dug from nest approximately 3 feet beneath ground surface. Should these prove to be this beetle, they will be first obtained. Depths of nests this season, compared with 1962, are 6-8 feet and deeper than in 1962. Possibly moisture is a determining factor in depth of beetle mines. The fact that 1962 was excessively dry could account for the variation found at this time. (Cal. Coop. Rpt.).

TACHINA FLIES - NEW MEXICO - Unspecified species very abundant in many areas of Curry County. (N. M. Coop. Rpt.).

LIGHT TRAP COLLECTIONS

FLORIDA, Gainesville (Feb. 20) - No collections of economic importance.

GEORGIA, Tifton (Feb. 21-27) - No collections.

SOUTH CAROLINA, Charleston (Feb. 28-March 3) - ARMYWORM (*Pseudaletia unipuncta*) - 5; YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) - 1; SOUTHERN CORNSTALK BORER (*Diatraea crambidoides*) - 1.

CORRECTION

CEIR 13(5):77 - Ornamental and Forest Insects: Third line - A PHYTOSEIID MITE (*Phytoseiulus persimilis*)* should read "... occurred on violets in Tripolintania." This species is an important predator of spider mites.

Weather of the week ending March 4 (continued from page 178)

Over the Great Plains and Far West, weekly averages were mostly above normal, with slightly below seasonal temperatures in the Utah-Colorado border area. The largest departures were in north-central Montana where Glasgow was 15° above normal for the week. A mid-April temperature of 67° was the high at Reno, Nevada, on the 28th, and maxima in southern Texas on the final day exceeded 90°, but general cooling was in effect over the Far West as the period came to a close.

Little or no precipitation fell from southern and western Texas westward across the southern two-thirds of California. Moderate to locally heavy snows fell in the Rockies late in the week from northern New Mexico into northwestern Wyoming. Amounts ranged to 9 inches in the extreme north of New Mexico, to 8 inches at Denver, Colorado, and to 10 inches at Rawlins, Wyoming, from a storm on the 3d which also produced 10 inches at Sidney, Nebraska. Lighter falls were reported from elsewhere in Nebraska, Iowa and northern Kansas. Several inches of new snow were added to the cover in the Cascade Mountains, but the precipitation fell as rain in the lower elevations of the Pacific Northwest, mostly on the 25th. Tatoosh Island, Washington, received 3.27 inches of rain for the week.

Major storm systems with attendant precipitation produced important rain and snow during most of the period over large areas from the Great Plains eastward. Rain-fall totals over 1 inch covered an area from eastern Texas into southern Illinois and western Kentucky. Much of the Florida Peninsula had similar totals, as did northern Georgia.

Where the precipitation fell as snow, amounts were often heavy. Vincennes, Indiana, was covered with a 10-inch fall on the 1st. Like amounts were measured in all states to the north and east of Indiana. Boston, Massachusetts, had a 9-inch snowfall on the 2d, as 4 to 10 inches fell over most of southern interior of New England, and much of New York and Pennsylvania. (Summary supplied by U. S. Weather Bureau).

HAWAIIAN INSECT NOTES

The following notes were submitted by the Hawaiian Entomological Society and were extracted from the "Notes and Exhibitions" in the minutes of the January 14, 1963, and February 11, 1963, meetings.

A STINK BUG (Brochymena quadripustulata) was again observed at a farm in Lualualei Valley, Oahu, the location of the original find; a good number of adults were found under and in wooden boxes and cardboard cartons, under boards and paper fertilizer bags, and under a nearby mango tree. No nymphs were seen and none of the bugs were observed on plants. (N. L. H. Krauss, Jan. 14 notes). Dr. W. Mitchell reported that adults of this pentatomid bug have been found under eaves in an area 1-2 miles distant from the original find. (J. Kim, Feb. 11 notes).

Two BILLBUGS (Sphenophorus venatus vestitus and S. cariosa) have become established in Hawaii during recent years, but little information is available concerning adult longevity. Adults of S. cariosa were collected in mid-August 1962 from around roots of nutgrass near Waipahu, Oahu. They have been kept in large test tubes and supplied biweekly with fresh nutgrass since their capture. The beetles were of undetermined age when caught, but only about one-third of the original colony has died. During this time, they have been observed to mate freely, and females have deposited viable eggs in succulent tissue just below the growing point of the nutgrass. Adults feed regularly and frequently upon this part of the nutgrass plant. Adults of S. venatus vestitus were collected on Molokai early in October 1962. They have been provided biweekly with split sections of young, green sugarcane stems upon which they feed regularly and in which they deposit viable eggs. (J. W. Beardsley, Jan. 14 notes).

The appearance of SOUTHERN GREEN STINK BUG (Nezara viridula) on windward Oahu was first reported from Waimanalo about 6 months ago, followed by reports of its presence at Kaneohe and Kaolua. On January 12, 1963, southern green stink bug was observed breeding on Asystasia coromandeliana at Lanikai, for a new locality record. On the basis of age levels observed, it appears that the bug has gone through one generation at this new locality. (C. J. Davis, Jan. 14 notes).

A specimen of a large SPIDER (Agriope sp.) was collected at Kailua, Oahu. Both the markings on the spider and the shape of an egg mass produced in the laboratory indicate that this is a species of Agriope that may be new to the State. (F. Bianchi, Feb. 11 notes).

Specimens of a WATER STRIDER (Halobates sericeus) were collected at the height of the recent Kona storm, January 31, on Diamond Head Beach. Many thousands had been washed above the high-water mark along a sector of beach about 150 feet long and had massed in depressions in the sand and under accumulations of seaweed. When kept in a jar partly filled with moist sand, they had shown no inclination to cannibalism and had lasted 5 days in good condition. (F. Bianchi, Feb. 11 notes).

A shipment of 1,080 adults of a COCCINELLID BEETLE (Hyperaspis trilineata) was received from Barbados. This shipment is to be the nucleus of a breeding program designed to establish the species in the State, where it is expected to assist in the control of pink and gray mealybugs of sugarcane. (F. Bianchi, Feb. 11 notes).

A PARASITIC TACHINA FLY (Trichopoda pennipes), introduced to control southern green stink bug (Nezara viridula), may possibly be established. Single eggs of the fly were attached to each of 5 adults of the stink bug collected February 4 in the Nuuanu area. The last release of the parasite in the Nuuanu area was

made December 7, 1962. The life cycle of T. pennipes being approximately 4 weeks supports the evidence that the eggs were oviposited by second-generation flies. No adult flies were observed in the area. (J. Kim, Feb. 11 notes).

A survey in the Tantalus-Round Top area of Oahu indicates that the CARNIVOROUS SNAIL (Gonaxis quadrilateralis), released in 1957 for the control of the GIANT AFRICAN SNAIL (Achatina fulica), has become well established and widely scattered in an area of approximately 40-50 acres. (J. Kim, Feb. 11 notes).

SUMMARY OF INSECT CONDITIONS - 1962
(continued from page 175)

FRUIT INSECTS

Pome Fruit Insects

Highlights:

CODLING MOTH control was generally good during 1962. It was abundant in several Western States, but damage was largely restricted to unprotected trees. Populations were relatively low in 1962 in the Eastern States. RED-BANDED LEAF ROLLER was not a problem in 1962. FRUIT-TREE LEAF ROLLER was more abundant than usual in Utah, Wisconsin and several other States, but was generally well controlled. TARNISHED PLANT BUG caused unusually heavy injury in New York, and APPLE APHIDS were of some concern to growers in several States, but were controlled in most cases before injury occurred. PEAR PSYLLA was recorded in a number of California counties for the first time in 1962. EUROPEAN APPLE SAWFLY increased its range in New York, spreading northward toward Albany in the Hudson Valley. APPLE MAGGOT was more abundant than in 1961 in Wisconsin, Illinois, Ohio and Michigan, and home orchardists were troubled in several Northeastern States as well. Untreated orchards in Indiana were almost 100 percent infested, and commercial growers adjacent to such areas experienced difficulty in preventing oviposition in their fruits.

EUROPEAN RED MITE was a serious problem in most New York orchards and was the most important pest of apples in Pennsylvania. It was also severe in Vermont, New Hampshire and Massachusetts, and was a major pest in Virginia and North Carolina. European red mite was the most important pest of all fruits in Ohio and outbreak numbers occurred in Michigan. Other Midwestern States also experienced problems with this mite. TWO-SPOTTED SPIDER MITE was one of the main arthropod problems in Colorado, extremely prevalent in California and serious in pear orchards in Jackson County, Oregon, from early season to harvest. Another spider mite, Tetranychus mcDanieli, was the major apple pest in the Yakima Valley of Washington, with increasing resistance to the latest acaricides. Damage by this species was also heavy in areas of New Mexico. PEAR RUST MITE was serious in western New York, and some infestations were severe in Yuba, El Dorado and Placer Counties, California. The mite was also very damaging in several Jackson County, Oregon, orchards. Pear rust mite was found in the Hudson Valley of New York for the first time, and it seriously infested a pear orchard in the Columbia Basin of Washington. The latter is the first positive identification of the mite from Washington in five years. PEAR LEAF BLISTER MITE continued serious in new pear plantings in the Columbia Basin of Washington.

ELM SPANWORM (Ennomos subsignarius) caused some damage to untreated apple foliage in Oconee County, SOUTH CAROLINA; and APPLE-AND-THORN SKELETONIZER (Anthophila pariana) was more abundant than usual in western WASHINGTON, where untreated apple trees were completely browned by late summer. A LEAF BLOTCH MINER (Lithocolletis blancardella) caused severe damage to an apple orchard in Calhoun County, ILLINOIS; it was also observed in other locations of the State. An UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) and a SPOTTED TENTIFORM LEAF MINER (Lithocolletis crataegella) increased during 1962 in NEW YORK. One of the two species could be found in most sections of the State. The former species was found locally in MISSOURI. EASTERN TENT CATERPILLAR (Malacosoma americanum) caused some damage to apple in the Bismarck area of Burleigh County, NORTH DAKOTA. GREEN FRUITWORM (Lithophane antennata) populations increased in most

areas of MAINE, with particularly heavy infestations being observed in Monmouth, Kennebec County, and Turner, Androscoggin County, on young apple trees. However, less fruit injury was observed in 1962 in the Champlain Valley of NEW YORK. Light populations of WESTERN TUSSOCK MOTH (Hemerocampa vetusta) developed on pear in local areas of Contra Costa, Santa Clara and Tuolumne Counties, CALIFORNIA. YELLOW-NECKED CATERPILLAR (Datana ministra) caused defoliation of apple trees in IDAHO at Sandpoint, Bonner County, during mid-August. Infestations were also reported on apples at Saint Maries, Benewah County, during late August.

CODLING MOTH (Carpocapsa pomonella) was kept under control in WASHINGTON by control programs; however, a survey of 330 untreated trees in the upper Yakima Valley showed 50 percent infestations on fruit at harvesttime. Codling moth emergence in OREGON began in Jackson County May 5, with first eggs tagged May 9. In the Willamette Valley, first adults were collected at blacklights June 2, a second generation appearing from August 24. This species was practically nonexistent in all Oregon orchards that followed recommended programs. In IDAHO, codling moth continued common to abundant in apple orchards throughout the State, with heavy infestations generally restricted to neglected orchards and backyard trees. Adult flights were noted at Moscow, Latah County, May 30. General infestations were present in deciduous fruits requiring control in CALIFORNIA; and infestations were severe as usual in apples and pears in NEVADA and UTAH, although injury was less severe than in 1961 in the latter State.

Control of codling moth in apple orchards in COLORADO was exceptionally good again in 1962, with 98-100 percent clean fruit. Traps were run in Mesa, Montrose, Delta and Garfield Counties in cooperation with growers. Spray dates were posted from this information. With some of the newer insecticides having as long as 20-day residuals, some of the growers vary their spray programs to fit their own particular orchard and area, and may use only four cover sprays through the summer. All of the growers in Colorado use the timing of the first cover spray to establish their spray program, then may vary their sprays according to material being used. Control on pears was good in all areas of the State, with 97-100 percent control. Flights of codling moth in northern NEW MEXICO countries were much lighter in 1962 than usual. Damage to fruit, however, was evident in untreated orchards in these counties and in Hondo Valley, Lincoln County, where fruit was damaged by hail. Pears in Robertson County, TEXAS, were damaged during late August by codling moth larvae. Approximately 50 percent of the nearly mature fruits were damaged.

Codling moth infestations in commercial orchards in KANSAS were generally light, except in Doniphan County where spraying was curtailed in some orchards because of severe hail damage, and in one orchard in Sedgwick County. Heavy rains in May and June helped to keep the insect under control. Untreated check trees in an experiment orchard in Doniphan County averaged only 41 percent "wormy" fruits. Normal infestation would average 75-90 percent "wormy" fruit. Codling moth was of minor importance in MISSOURI apple orchards. Populations of codling moth were low and injury generally light in WISCONSIN. Adults were caught in a blacklight trap at Madison, Dane County, as late in the season as October 10. Codling moth in ILLINOIS was influenced by two periods of unusually warm weather, the last week of April and middle two weeks of May. Hatch appeared early because of the warm, dry weather in the southern half of the State. Fungicide sprays were not necessary at frequent intervals and the "first codling moth spray" came after hatch in some orchards. However, damage by codling moth continued to decline in Illinois as it has the past five years. In INDIANA, it was expected that this species would cause difficulties in 1962 due to the 1961 season's buildup. The potential was there and persistent efforts were necessary to contain the pest. Eggs continued to hatch well into October. Control in MICHIGAN was generally good although some late-season injury occurred in the western area. Emergence and activity in OHIO were earlier than usual and the hot, dry season threatened to make control of this pest difficult. However, most commercial growers had no control difficulties.

Codling moth was present only in poorly treated orchards in PENNSYLVANIA, and injury to treated apples was negligible in the Hancock area of Washington County, MARYLAND. Codling moth caused very little damage in northern VIRGINIA and no injury in central Virginia. It first appeared in NORTH CAROLINA in Wilkes County bait pails on May 9. Bait pail catches were extremely low for the season in that State. However, a buildup did occur in some apple orchards in SOUTH CAROLINA.

Average populations of codling moth were noted in MAINE, and the insect was at low levels for the year throughout NEW HAMPSHIRE. Codling moth was increasingly more difficult to find in CONNECTICUT. The dry spring and early summer delayed emergence in VERMONT. Populations were at a low level for the second year in that State. Codling moth was about normal during 1962 in NEW YORK.

EYE-SPOTTED BUD MOTH (*Spilonota ocellana*) was at low population levels throughout NEW HAMPSHIRE, and average population levels were noted in MAINE. In OHIO, there was one report of light to moderate eye-spotted bud moth damage in an orchard during 1962. Eye-spotted bud moth was found on new growth of untreated apple in Kingston, Washington County, RHODE ISLAND, May 23, and persisted into early June. In WISCONSIN, larvae were observed feeding on foliage and buds of apple trees in Door County about the fourth week in May; however, populations were generally low in both this area and at Gays Mills, Crawford County.

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) was first caught in bait pails in Wilkes County, NORTH CAROLINA, on April 24. Populations were also much less than those of the previous year in the western apple-growing areas of North Carolina. Injury was less than normal in central VIRGINIA. Practically no injury was caused during the first and second generations in this area of the State, but a slight buildup occurred during the third brood which caused some injury to several orchards. Red-banded leaf roller caused very little injury in northern Virginia. Only slight damage to untreated checks in all commercial orchards was noted in MARYLAND and populations remained low in PENNSYLVANIA. Red-banded leaf roller, a serious problem over the past six years in NEW YORK, was at extremely low levels during 1962. Low population levels were noted in VERMONT, NEW HAMPSHIRE and RHODE ISLAND. Average levels were observed in MAINE.

Red-banded leaf roller was unusually light in 1962 in OHIO, and commercial injury was less than in recent years in MICHIGAN. Most problems in the latter State were largely due to injury in September. Low numbers were again present in INDIANA although considerable damage did occur in October to apples in common storage. The insect was well controlled in ILLINOIS, except in a few orchards where the carryover will be high. Populations were high in the Door County area of WISCONSIN, but were still apparently less of a problem than during the 1961 season. Catches in the Gays Mills area of Wisconsin indicate this insect to have been present in significant numbers. Red-banded leaf roller varied in density from light to heavy across MISSOURI, but it was easily controlled in commercial orchards and no severe problem developed. In KANSAS, egg masses were easily collected during the last week of April, with 15 or more found on some trees in Doniphan County area. Damage to fruit and leaves was light in Kansas until September. The infestation was checked by heavy rainfall during the egg-hatching period in May. A large carryover is indicated for 1963 in Kansas. No red-banded leaf rollers have yet been found in the south central fruit-growing areas of the State. No infestations of red-banded leaf roller were found in Sandoval and Bernalillo Counties, NEW MEXICO, where this pest has been a problem the previous two years.

FRUIT-TREE LEAF ROLLER (*Archips argyrospilus*) was more abundant and/or more damaging than normal in UTAH. Late instars were considerably abundant on apple and pears during late June in the Moscow area of Latah County, IDAHO. Only an occasional larva was found in apple orchards in Taos County, NEW MEXICO, during the summer. This is the second consecutive summer that infestations have remained

low in New Mexico. In WISCONSIN, larvae were observed feeding on foliage and buds in Door County during the fourth week of May. Populations were generally high and appeared more abundant in the Gays Mills area, Crawford County, than in the past few years. Fruit-tree leaf roller varied in density from light to heavy across MISSOURI. It was easily controlled in commercial orchards and no severe problem developed. Fruit-tree leaf roller was more abundant than usual on apples in the Hancock area of Washington County, MARYLAND, but regular treatment programs kept it under control. Average populations were noted in MAINE, and it was troublesome in young orchards in VERMONT.

Apple trees in Hill County, MONTANA, were heavily infested with UGLY-NEST CATERPILLAR (Archips cerasivoranus).

General infestations of PEAR THRIPS (Taeniothrips inconsequens) occurred in pear orchards in Sonoma County, CALIFORNIA, but the pest was below average in numbers and importance in UTAH.

A COREID BUG (Leptocoris rubrolineatus) infested pear orchards in Mendocino County, CALIFORNIA, and HICKORY PLANT BUG (Neolygus caryae) was abundant in some pear orchards in CONNECTICUT. TARNISHED PLANT BUG (Lygus lineolaris) was reported light to moderate in many MAINE orchards, with injury (dimpling of fruit) observed in midseason, being generally light but of moderate intensity in a few locations. This species was abundant in some pear orchards in CONNECTICUT, present in VERMONT orchards and caused unusually heavy injury in NEW YORK. Injury increased in Columbia County, New York, orchards, and injury was more widespread in the Champlain Valley of the same State. Hot weather, just before and during bloom, favored tarnished plant bug in the latter area of New York. Tarnished plant bug and other plant bugs were more abundant than in 1961 on apple in PENNSYLVANIA. STINK BUGS (Euschistus spp.) caused some early season injury to apples in central MISSOURI.

APPLE APHID (Aphis pomi) populations reached substantial numbers and caused moderate leaf rolling by late June and early July in MAINE. In most areas, infestations were at about normal levels. Apple aphid was present in RHODE ISLAND but not a problem. However, the aphid was a problem during the summer in most sections of NEW YORK. In PENNSYLVANIA, very heavy early season infestations were present, but disease, predators, parasites and chemical controls brought them under control before any damage occurred. Populations of apple aphid were noticeable in some apple orchards in the Hancock area of Washington County, MARYLAND, during June, but were kept under control. Apple aphid populations reached levels that needed controls in several areas of WISCONSIN. Where a reasonably good control program was already in effect in the State, this insect was of minor concern. Infestations were lighter than usual in OHIO, although there were a few reports of heavy primary infestations in some commercial orchards. Apple aphid was present all season in MISSOURI; however, the population density varied considerably from month to month and from orchard to orchard. The aphid was below normal this season in UTAH generally, although spottedly numerous. It was, however, more abundant and/or more damaging than normal in the spring. In IDAHO, population levels of apple aphid were generally below those of 1961. It was common to abundant, particularly during June, in neglected orchards in the western part of the State. Infestations in WASHINGTON were generally light in the Yakima Valley. Development was late, with high populations during late June in north central Washington requiring controls during July and August. In CALIFORNIA, heavy apple aphid populations developed on apple trees in Humboldt County in July.

APPLE GRAIN APHID (Rhopalosiphum fitchii) was very heavy early in the season in PENNSYLVANIA, but disease, predators, parasites and chemical controls brought it under control before any damage occurred. In OHIO, infestations were heavy on apple buds in early season. Heavy fall migration to apple trees occurred in some orchards, causing constant annoyance to pickers. Apple grain aphid was

not a problem in MISSOURI, and was occasionally encountered on apple foliage in conspicuous numbers in UTAH. In KANSAS, it was numerous in April, with about 50 percent of the untreated apple buds being infested. Counts ranged 0-25 per bud (average 5 per bud).

ROSY APPLE APHID (Anuraphis rosea) caused damage in VIRGINIA in Frederick and adjoining counties where no controls were used early in the season. No economic infestations occurred on commercial orchards in the Hancock area of Washington County, MARYLAND, and the aphid was controlled by disease, predators, parasites and chemicals after being very heavy earlier in PENNSYLVANIA. In RHODE ISLAND, occasional small infestations were present on untreated trees in Kingston, Washington County, and Johnston, Providence County, in the spring, but no general buildup occurred. Injury was frequently noted in OHIO, although no commercial damage was reported. Average or below average numbers were present in INDIANA, and the aphid was not a problem in MISSOURI. Rosy apple aphid caused slight damage during 1962 in the Doniphan County area of KANSAS, although the damage was moderate to severe in 1961. The aphid was of little importance to most apple growers in COLORADO. Loss of one percent was attributed to this insect in that State. Rosy apple aphid was below normal this past season in UTAH, being worst in the spring. In CALIFORNIA, populations developed on apple plantings in Butte and Sonoma Counties. Generally, light infestations occurred.

WOOLLY APPLE APHID (Eriosoma lanigerum) was a very local problem on apples in CALIFORNIA and apparently was not as common as usual. The pest appeared more abundant than normal in orchards in the Willamette Valley of OREGON, but it was a problem only in those orchards not receiving a full control program. In WASHINGTON, woolly apple aphid was confined to pruning wounds of large limbs in the Yakima area, Yakima County. It became a problem in scattered areas of north central Washington, requiring special control measures for the first time in several years. Woolly apple aphid was generally below normal this past season in UTAH; however, it was spottedly numerous. It was exceptionally numerous in a few isolated orchards in southern INDIANA, not a problem in MISSOURI, and present in VERMONT.

Various species of APHIDS were important pests of apples in the western part of NORTH CAROLINA, and populations were similar to those of 1961. In MISSOURI, extremely heavy overwintering populations of eggs of various species on apple caused considerable apprehension early in the season, but dormant and delayed-dormant treatments resulted in excellent control. Undetermined species of SPITTLEBUGS caused concern in areas of east TEXAS by their attacks on pear and plum trees.

APPLE LEAFHOPPER (Empoasca maligna) was observed in two orchards in the Champlain Valley of NEW YORK where it caused considerable foliage injury and fruit speckling. It also caused severe damage in one block of apple nursery stock in OHIO. Approximately normal numbers and/or injury were observed in UTAH.

A few local, heavy infestations of a SOFT SCALE (Lecanium kunoensis) were present on apple trees in Paradise, Butte County, CALIFORNIA. However, this scale insect is not widespread in California. Infestations of OYSTERSHELL SCALE (Lepidosaphes ulmi) were commonly noted on neglected fruit trees throughout IDAHO; one moderate infestation recorded in May on crab apple trees at Cottonwood, Idaho County.

A small percent of apple fruits, infested with SAN JOSE SCALE (Aspidiotus perniciosus), caused an export problem in WASHINGTON in 1961, but this was largely overcome by a more extensive control program in 1962. Only two instances of heavy San Jose scale infestations on apple twigs were recorded during 1962 in OHIO.

BUFFALO TREEHOPPER (Stictocephala bupalus) was prevalent in newly planted apple trees in VERMONT, and GRAPE MEALYBUG (Pseudococcus maritimus) was locally heavy on apples in Humboldt County, CALIFORNIA.

PEAR PSYLLA (*Psylla pyricola*) increased rapidly during May and June in central **WASHINGTON**, encouraged by early season control failures and favorable weather. The pest was greatly reduced in the Yakima area of Yakima County by high temperatures in July and control chemicals. Resistance, which appeared in 1961 to the latest phosphate control material, became a serious problem in 1962. Populations of pear psylla were low throughout the season in western Washington. Control of the psylla in Jackson County, **OREGON**, was excellent. Only a few negligent growers were bothered by this pest in the Hood River or the Willamette Valley in 1962. Population levels of pear psylla in **IDAHO** were apparently below those recorded during the past few years, particularly in the Moscow-Lewiston area of Latah and Nez Perce Counties. In **CALIFORNIA**, several counties not previously recorded as having pear psylla were added in 1962. The counties reported were Alpine, Butte, Glenn, Kern, Mono, San Diego, Tuolumne and Ventura. This insect probably received more attention in 1962 than in previous years in California since it is suspected of being a vector of pear decline. Pear psylla was abundant in home orchards in **CONNECTICUT** during 1962, and nymphs were common on neglected trees June 26 and August 2 in **RHODE ISLAND**.



Distribution of Pear Psylla

APPLE TWIG BORER (*Amphicerus bicaudatus*) damaged apple trees in Baylor County, **TEXAS**; and **FLATHEADED APPLE TREE BORER** (*Chrysobothris femorata*) killed about 30 percent of the trees in a young apple orchard near Belen, Valencia County, **NEW MEXICO**. Larval counts in the latter case were often as high as 5 per tree. **FULLER ROSE BEETLE** (*Pantomorus godmani*) was reported light on apple trees in Humboldt County, **CALIFORNIA**.

PLUM CURCULIO (*Conotrachelus nenuphar*) was about normal for the year in **NEW YORK** and **MAINE**, somewhat less troublesome in **NEW HAMPSHIRE**, but it was the number two pest of home orchard apples in **MASSACHUSETTS**. Plum curculio was a minor pest of apples in western **MARYLAND** and **MISSOURI** in 1962, and not generally severe on that crop in **OHIO**. Adults began appearing in **WISCONSIN** May 14 in Dane County,

and feeding scars were observed in Door County during the latter part of May. Populations were heavier than in 1961 in Wisconsin, and were numerous enough that some adults were caught in blacklight traps. ROSE CHAFER (Macrodactylus subspinosus) caused severe injury to developing apple fruit in NORTH CAROLINA; May 22 in a Henderson County orchard and the first week of June in an Avery County orchard.

PEAR-SLUG (Caliroa cerasi) was very scatteredly abundant throughout IDAHO, and caused some damage to backyard cherry trees in the southwest area during late July. Medium populations developed in a few pear plantings in northern CALIFORNIA, and infestations were above normal in the central and northern counties of NEVADA. Pear-slug was common in UTAH, but damage was less than normal in 1962. In NEW MEXICO, light infestations were found on pears in Sandoval County.

The range of the EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) increased during 1962 in NEW YORK, spreading northward toward Albany in the Hudson Valley. It was found at Schodack Landing, southern Rensselaer County, for the first time. Although previously reported in east central MASSACHUSETTS, the sawfly increased in activity in that area of the State, especially where ineffective or no insecticide was used before calyx stage. Larvae of European apple sawfly were recovered from untreated apple in Johnston and Kingston, Washington County, RHODE ISLAND, on June 6.

APPLE MAGGOT (Rhagoletis pomonella) was not troublesome in NEW HAMPSHIRE until very late in the season, and egg laying was observed as late as the first week in October. Cold July weather contributed to the late development. Activity was also very late in VERMONT and about normal for the year in NEW YORK although it was delayed by the dry weather. In MASSACHUSETTS, apple maggot was more troublesome on apples than blueberries. It continued as the number one pest of apples in home orchards in Massachusetts. Activity in 1962 was unusually late in the season. Apple maggot was abundant on Delicious varieties of apple in poorly or nontreated home orchards in CONNECTICUT and was common in fruit from home gardens throughout RHODE ISLAND. Emergence of apple maggot in MAINE was somewhat delayed by unseasonal temperatures in May and June. Emergence began on June 30, peaked on July 22 and ended on September 14. Ninety-nine percent of total adults recovered had emerged by August 17 in the State. Generally, populations of apple maggot were higher than during 1961 in OHIO, although trap records showed that flies were not present as late in the season. Many reports of severe injury were received from home fruit growers. The maggot infested almost 100 percent of the fruit in small, untreated orchards in northern INDIANA. Commercial growers adjacent to such locations experienced difficulty in preventing oviposition in their apples. Apple maggot was more numerous than normal in ILLINOIS; a high population was discovered in an abandoned orchard in Calhoun County, considerably south of its normal range in Illinois. Adult emergence in MICHIGAN was approximately two weeks earlier than usual. Populations were up from 1961. Some late August problems occurred in southwestern Michigan. In WISCONSIN, the first adults appeared in Door County on June 27, and populations appeared to be somewhat heavier than in 1961 in that area. Sticky boards used in Winnebago County failed to show any significant adult activity although observations by at least one grower indicated a number of heavily infested windfalls in that area. Adults of apple maggot were first taken in MINNESOTA on sticky traps in the Lake Minnetonka area west of the Twin Cities, Hennepin County, on July 6. By July 13, adults were reported throughout the southern half of Minnesota, but emergence was considered to be light in total numbers. First adults were reported at Duluth, St. Louis County, on August 15. High populations were reported by July 27 in southeastern Minnesota. Adults remained active through August and were observed laying eggs on August 24 in La Crescent area, Houston County.

EUROPEAN RED MITE (Panonychus ulmi) was a serious problem in most orchards in NEW YORK. Above-average overwintering populations, plus favorable early season temperatures and a low rainfall, contributed to the rapid buildup of mites.

European red mite was the most important pest of apples in PENNSYLVANIA, and was severe during August in VERMONT and NEW HAMPSHIRE when populations increased rapidly. It required continual attention in commercial orchards in MASSACHUSETTS in spite of cool conditions, and was prevalent in NEW JERSEY during the year. In MAINE, European red mite was well controlled in most commercial blocks. Only four generations were observed in the Monmouth area, Kennebec County; the first three were light, but the fourth showed considerable buildup and caused moderate to heavy damage in early August in untreated or poorly treated plantings. European red mite was more difficult to control with standard acaricides than usual in all orchard areas of northern VIRGINIA. In central Virginia, it built up to injurious levels during midseason and was difficult to control. The mite continues to be a major pest of apples in the western part of NORTH CAROLINA; populations were about the same as in 1961.

European red mite was the most important pest of all fruits in OHIO during 1962. In MICHIGAN, unseasonably warm weather in May produced populations of outbreak proportions. High populations persisted until August. Many apple growers experienced difficulty in obtaining control. Populations in INDIANA started building up before petal fall and continued persistent and, in many cases, high through August 10. This species has become resistant to most of the acaricides labeled for use during the postbloom period in Indiana. In ILLINOIS, this species is now expected to be an annual problem to fruit growers. It was generally well controlled in 1962. Populations in WISCONSIN were generally low throughout most of the State and failed to attain significant numbers. European red mite overwintering eggs were extremely heavy on apple trees in MISSOURI and caused considerable apprehension early in the season, but dormant and delayed-dormant treatments resulted in excellent control. The pest caused bronzing of apple foliage during a warm, dry period in early May in the Doniphan County area of KANSAS.

European red mite continued to be scarce on apples in the Yakima area of Yakima County, WASHINGTON. Populations resistant to the latest acaricides continue to develop in north central Washington (since 1959). Resistance is also developing on pears. European red mite caused local damage to fruit in OREGON. It was important in a few Hood River orchards when controls were abbreviated. Infestations in CALIFORNIA were reported medium to heavy on apples and pears in Sonoma, Humboldt, El Dorado, Santa Clara, Mendocino and Santa Barbara Counties.

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) was one of the main arthropod problems in COLORADO, with several apple orchardists reporting poor control with some of the better acaricides on the market. Mite populations were high from the middle of the summer on, and high temperatures helped to put stress on the acaricides as well as the extended spray intervals that many growers use. There was a good crop of pears in all the pear-growing districts; this species was the most important arthropod pest of pears. Mite injury was evident in a number of pear orchards, with blackened foliage on many of the trees. This occurs during July and early August and often during harvest. Many growers reported only fair to poor control with some of the better acaricides on the market. A mite study and evaluations of new acaricides that will soon be available, as well as some of the present acaricides now in use, was conducted in the Leman Pond pear orchard in Clifton, Mesa County, Colorado. Two-spotted spider mite was extremely prevalent in most areas of CALIFORNIA and was a serious problem in pear orchards in Jackson County, OREGON, from early season to harvest. Populations in the latter area were observed in tree bole and top situations in early May. Browning and leaf drop was common symptom in the dry midseason. Chemical control with the previously effective material proved unreliable in many orchards in this area of Oregon, but the multiple applications of short-residual acaricides prevented serious loss of the crop.

Two-spotted spider mite caused some bronzing of apple foliage during early May in the Doniphan County area of KANSAS. No other damage occurred until late August when it again increased in numbers. This species caused severe bronzing

of apple foliage in Rilev County during late July and August. In MISSOURI, two-spotted spider mite threatened apple orchards statewide from midseason to late season, but it was eliminated successfully. Infestations were present on apple and crab apple in various areas over NORTH DAKOTA. This species usually does not become a problem in ILLINOIS until late July, but in 1962 it required controls by late May in some orchards. Two-spotted spider mite was prevalent in many INDIANA orchards from mid-June into late August, but it was not so severe in September as it was in 1961. This species is highly resistant to most acaricides labeled for its control in Indiana. Populations in OHIO were more numerous and injurious to apples than usual, and they built up on apples and pears during August in MICHIGAN. The mite was injurious during midseason in some central VIRGINIA orchards where it was difficult to control. Two-spotted spider mite was generally less troublesome in MASSACHUSETTS except in occasional orchards, and was normal in NEW YORK compared with other years.

SCHOENE SPIDER MITE (*Tetranychus schoenei*) was more difficult to control in northern VIRGINIA with the standard acaricides than usual. In RHODE ISLAND, a FRUIT-TREE MITE (*Bryobia rubrioculus*) was common on untreated apple trees in Johnston, Washington County, in late June. Unspecified MITES were an early threat to apple orchards in SOUTH CAROLINA, but were mitigated by weather and control efforts.

A SPIDER MITE (*Tetranychus mcDanieli*) was the major apple pest in the Yakima Valley of WASHINGTON, with increasing resistance to the latest acaricides. During 1962, populations resistant to both the most used summer acaricides were found for the first time in the north central area, leading to considerable foliage injury and poor commercial control. Late flareups caused 10 percent cullage on poor maturity of apples in Yakima County. There was also about 20 percent cullage of pears in the upper Yakima Valley due to fruit injury from oil-insecticide combinations. In CALIFORNIA, a rather unusual occurrence of this mite, which is not usually encountered in the State, occurred in apple plantings in the Yucaipa area of San Bernardino County in medium populations. *T. mcDanieli* damaged foliage of apple trees in areas of NEW MEXICO: Hondo area, Lincoln County, and in Bernalillo, Sandoval, Santa Fe and Rio Arriba Counties. Damage was severe in Rio Arriba County where infestations were not treated because of spring freeze which killed the fruit. The same species caused concern in the San Antonio area of Bexar County, TEXAS, by feeding in the blossom end of young apples.

PEAR RUST MITE (*Epitrimerus pyri*) infested pears in Yuba, El Dorado and Placer Counties, CALIFORNIA; some infestations were severe. The mite badly damaged foliage and fruit in several Jackson County, OREGON, pear orchards. Bartlett and Doyenne du Comice varieties of pear were particularly affected. Development in WASHINGTON was delayed 2-3 or more weeks. The mite seriously infested a pear orchard in the Royal Slope area of the Columbia Basin. This is the first positive identification of this mite from Washington in five years. Pear rust mite was a serious problem in western NEW YORK orchards. It was also found for the first time in the Hudson Valley area of the State.

PEAR LEAF BLISTER BEETLE (*Eriophyes pyri*) continues to be a serious pest of new pear plantings in the Columbia Basin of WASHINGTON. Failure of growers to apply postharvest sprays is the main reason for problems. Light infestations occurred spottedly over IDAHO. Moderate damage to pear foliage was reported from Orofino, Clearwater County, and from Saint Maries, Benewah County. Pear leaf blister mite was extremely light in all pear-growing areas of COLORADO, with little injury noted on fruits or foliage. In UTAH, approximately normal numbers and/or injury were observed in 1962. Infestations of pears in CALIFORNIA occurred in Marin, Humboldt and Los Angeles Counties. Populations were light to heavy.

APPLE RUST MITE (*Aculus schlechtendali*) development in WASHINGTON was delayed 2-3 or more weeks. It was less of a problem than in 1960-61. This mite was identified in NEW YORK from specimens collected in Orleans, Orange and Clinton Counties, one county in each of the three major apple-production areas. Damage, if any, was not reported or assessed.

AN ERIOPHYID MITE (*Eriophyes* n. sp.) seriously infested a pear orchard in the Royal Slope area of the Columbia Basin in WASHINGTON. This is the first record of this new species in the State.

Stone Fruit Insects

Highlights:

The control of PEACH TREE BORER continues to be the major insect problem in Georgia, and the general infestation in that State continues heavier than an average year. It was also a problem in North and South Carolina, and in local areas of Iowa and Michigan. WESTERN PEACH TREE BORER increased in Washington and was damaging in California. Infestations of LESSER PEACH TREE BORER were heavier in Virginia than they have been for a number of years. The borer also increased in Pennsylvania and was a primary pest of peaches in Ohio and Indiana. Western Michigan sweet cherries and peaches also suffered from attacks, and localized damage was reported in Iowa, Illinois, Missouri and New Mexico. PEACH TWIG BORER was a considerable problem which required controls in California, and the borer caused extreme losses in Jackson County, Oregon, peach orchards. Infestations of peach twig borer in west central Nevada were the heaviest in recent years. Blacklight traps in Colorado helped establish spray dates which were beneficial in holding losses down. ORIENTAL FRUIT MOTH infestations in Georgia were somewhat heavier than in 1961, and the pest was a considerable local problem to cling peaches in the upper San Joaquin and lower Sacramento Valleys of California.

Development of a CHERRY FRUIT FLY (*Rhagoletis cingulata indifferens*) was late in Washington and most fruit escaped damage. PLUM CURCULIO was well controlled in Georgia and infestations in South Carolina were probably as low as they have ever been. Plum curculio appeared to be well controlled in most other States although some damage was reported in local areas. SHOT-HOLE BORER caused some damage in New Mexico and California; controls were required. MITES were important in several areas of the country during the year. EUROPEAN RED MITE populations on plum and peach in Ohio were the heaviest in several years, and TWO-SPOTTED SPIDER MITE was a serious problem in Oregon peach orchards. Two-spotted spider mite and PEACH SILVER MITE were both a problem in Colorado. PLUM RUST MITE was delayed 2-3 weeks in Washington and many crops escaped injury.

PEACH TREE BORER (*Sanninoidea exitiosa*) populations were somewhat lighter than the preceding year in GEORGIA, but they continued heavy in some orchards, causing considerable damage. The control of this insect continues to be the major insect problem in the State, and the general infestation continues heavier than that of an average year. A buildup was noted on peaches in some areas of SOUTH CAROLINA, and the pest continues important on peaches in the sandhills area of NORTH CAROLINA. Normal populations of peach tree borer were present in LOUISIANA and it was not a problem in MISSOURI. Peach tree borer is well under control in most commercial orchards in KANSAS where control measures have been applied. However, the pest did cause considerable damage to peach and plum trees in nurseries where control measures were not taken. Peach tree borer was reported severe during June in Des Moines County, IOWA, and caused considerable injury in southwestern MICHIGAN following a winter that was damaging to peach trees. Infestations in OHIO were generally light during 1962. WESTERN PEACH TREE BORER (*S. exitiosa graefii*) increased in peach and prune orchards throughout WASHINGTON during 1961-62; two-season control program was usually required. This borer also caused quite widespread damage to stone fruits in CALIFORNIA from Merced County north. In NEW MEXICO, *Sanninoidea* sp. severely injured peach trees in Valencia, Bernalillo, Sandoval, Santa Fe and Rio Arriba Counties.

LESSER PEACH TREE BORER (*Synanthedon pictipes*) infestations in VIRGINIA were heavier than they have been for a number of years. A number of trees in the eastern part of the State were killed by the feeding of this insect. The winter carryover was heavy. Lesser peach tree borer was heavy in two peach orchards in Washington County, MARYLAND, and reported increasing on peaches, plums and prunes in PENNSYLVANIA. Some mortality to prunes was reported in the latter State. The insect continued as a primary pest in OHIO peach orchards, especially where peach canker disease is prevalent, and lesser peach tree borer was very abundant on sweet cherries and peaches in western MICHIGAN. It was probably the most important insect pest in orchards in the Vincennes area of INDIANA in early June, and increased in some peach orchards in ILLINOIS following light winter injury. Lesser peach tree borer was reported to be severe in Des Moines County, IOWA, in June, and one peach orchard in southeastern MISSOURI had a problem with this species. However, it was not a problem statewide in Missouri. Normal populations were present in LOUISIANA. Infestations in the GEORGIA peach belt were a little heavier than in 1961 and 1960, which were somewhat less than those of some previous years. This may be partially due to more winter injury or dying trees in 1962 than in 1961 or 1960. Lesser peach tree borer was found damaging to peach trees in orchards near Espanola, Rio Arriba County, NEW MEXICO.

PEACH TWIG BORER (*Anarsia lineatella*) occurred statewide in CALIFORNIA and was a considerable problem which required control from early spring through the summer. In OREGON, the borer caused extreme losses in Jackson County peach orchards not receiving the protection of a treatment program. Slight damage to Willamette Valley peach and prune orchards was reported. Infestations in NEVADA were the heaviest in recent years in the west central counties, and damage in UTAH was common, above normal, and equal to injury of that of 1961. In COLORADO, special emphasis was placed on this pest due to losses to peaches during the previous two years. Losses had run from 8 to 25 percent due to poor timing and application of treatments. Blacklight traps were used in 1962 in the timing of peach twig borer sprays and were run at two different locations in Mesa County. Two spray dates, June 20 and July 9, were posted in Mesa County and one in Delta County, July 20. With growers following these established spray dates, losses were held to less than one percent in the majority of orchards in Mesa County. The Paonia area of Delta County had a higher loss (10-20 percent), pointing out the need for light trap data in that area for more exact timing.

Medium populations of FALL CANKERWORM (*Alsophila pometaria*) developed in prunes in the Winters area of Yolo County, CALIFORNIA; and EASTERN TENT CATERPILLAR (*Malacosoma americanum*) was widely distributed in the central part of TEXAS where up to three tents per tree were observed on 50 percent of the peach and plum trees in some areas. Light populations of WESTERN TUSSOCK MOTH (*Hemerocampa vetusta*) developed on prune and apricot in local areas of Contra Costa, Santa Clara and Tuolumne Counties, CALIFORNIA. Also in California, RED-HUMPED CATERPILLAR (*Schizura concinna*) infested prunes from Fresno County north in the State. Infestations occurred much later in 1962 than in past years. Generally, the pest was very local and particularly damaging to young trees.

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) infestations in GEORGIA were somewhat heavier than in 1961. Twig injury in several commercial orchards caused alarm during the year, and the general infestation in 1962 was somewhat heavier than that of an average year. Oriental fruit moth caused some twig damage to untreated, young peach orchards in SOUTH CAROLINA, but caused no injury in central VIRGINIA. However, the pest caused heavy injury to early peaches in Baltimore County, MARYLAND, and to late peaches in Montgomery County, same State. Oriental fruit moth damaged new growth of peach in Washington and Providence Counties, RHODE ISLAND, early in the season. In CONNECTICUT, the pest is becoming increasingly more difficult to find.

Oriental fruit moth continues to be present in ARKANSAS, but controls are effective. It was not a problem in treated peach orchards in MISSOURI, but considerable damage was done in early season on untreated nonbearing trees. In KANSAS,

oriental fruit moth was moderate to severe in late-maturing peaches in the Arkansas River Valley, south central area. Nearly 50 percent of the fruit was "wormy". A favorable period for egg laying occurred in ILLINOIS, and populations became established in a few orchards where they persisted until harvest. Injury in MICHIGAN resulted from the fourth generation which appeared in August. In OHIO, first-brood injury by oriental fruit moth was general, but there were no outstanding reports of injury by later broods.

Oriental fruit moth was a considerable local problem to cling peaches in the upper San Joaquin Valley and lower Sacramento Valley of CALIFORNIA, and occurrence of the pest in IDAHO was spotty in orchards and backyard fruit trees throughout the western portion of the State, with population levels apparently below those noted during 1961. Surveys in OREGON indicate that a very low population is maintaining itself in the Salem area; only 3 adult specimens were collected in two known infested properties.

CHERRY FRUITWORM (Grapholitha packardii) appeared to be a greater problem in Door County, WISCONSIN, than in 1961, and it caused more damage than usual during 1962 in OHIO. Populations were normal in UTAH. CODLING MOTH (Carpocapsa pomonella) infested a large number of peaches in Washoe County, NEVADA, during the summer. LEAF CRUMPLER (Acrobasis indigenella) became a moderate, local problem in Wharton County, TEXAS, by boring into plum twigs and destroying terminals. FRUIT-TREE LEAF ROLLER (Archips argyrospilus) infested prune and apricot plantings in Santa Clara County, CALIFORNIA. Populations were light to heavy. Late instars were quite abundant on prunes during late June in Moscow area of Latah County, IDAHO.

RUSTY PLUM APHID (Hysteroneura setariae) and MEALY PLUM APHID (Hyalopterus pruni) were approximately normal in numbers and/or injury in UTAH, and the latter species developed to heavy numbers on apricot in Clark County, NEVADA, in May. BLACK PEACH APHID (Anuraphis persicaeniger) was below average in numbers and in importance in UTAH. GREEN PEACH APHID (Myzus persicae) overwintering egg survey in COLORADO peach orchards showed a definite increase in the numbers of eggs over the previous two years, and growers were alerted to this situation. An intensive spray program was carried out early in the season which eliminated the usual aphid problem in the late spring when it is much harder to control. BLACK CHERRY APHID (Myzus cerasi) caused some injury to fruits and foliage of cherries in COLORADO where no attempts were made to control it early in the season by the grower. It was easily controlled wherever the grower applied a treatment early in the season before the leaves became curled and colonies established. The cherry crop was light in most Colorado orchards due to frosts after the bloom period. Black cherry aphid damage was spotty, below normal generally in central and northern UTAH.

PERIODICAL CICADA (Magicicada septemdecim) caused moderate damage to peaches in an orchard in St. Marys County, MARYLAND.

WHITE PEACH SCALE (Pseudaulacaspis pentagona) was quite abundant in peach orchards in Barney, Brooks County, GEORGIA, and caused considerable damage in some orchards in that locality. Summer sprays have proven to be ineffective against this scale insect in Georgia. In TEXAS, light to moderate infestations of white peach scale were present in the Fort Worth-Weatherford area, north central section. This pest is becoming more widespread each year in Texas. SAN JOSE SCALE (Aspidiotus perniciosus) infestations in GEORGIA were about like those of the last three years, less than that of 1958 or that of an average year. Infestations were common on peach trees in central and north central TEXAS, but reduced on stone fruits in WASHINGTON. At The Dalles, Wasco County, OREGON, San Jose scale was occasionally a problem in cherry orchards.

OLIVE SCALE (Parlatoria oleae) was locally medium to heavy in peach, plum and olive orchards in a limited number of CALIFORNIA counties. Biological control has been very effective, and parasite liberation by the University of California is continuous in many areas of the State. Also in California, light populations

of EUROPEAN FRUIT LECANIUM (Lecanium corni) occurred on apricot and prune orchards in western Yolo County. Overwintering nymphs of this latter species also infested peach trees in a Washington County, MARYLAND, orchard.

CATFACING INSECTS were generally present in OHIO peach orchards, but no serious infestations were reported except at Wooster, Wayne County, where severe damage by Lygocoris omnivagus and L. quercalbae was observed. Catfacing insects were well controlled in eastern MASSACHUSETTS. STINK BUGS (Euchistus spp.) caused some injury to peaches late in the season in southeastern MISSOURI. Unspecified STINK BUGS and COREID BUGS did not deform and gnarl peaches as badly in GEORGIA. This may be due to special sprays for sucking bugs early in the 1962 spray season, which were prompted by a heavy infestation in previous years. HICKORY PLANT BUG (Lygocoris caryae) and TARNISHED PLANT BUG (Lygus lineolaris) were abundant in some CONNECTICUT peach orchards, and the latter species and other unspecified PLANT BUGS were more abundant than in 1961 on peaches in PENNSYLVANIA. In CALIFORNIA, medium populations of a PLANT BUG (Largus convivus) developed on peach in the southern part of Yuba City, Sutter County, and a COREID BUG (Leptocoris rubrolineatus) infested prune orchards in Mendocino County.

Development of a CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) in western WASHINGTON was very late because of cool weather and, although it became numerous, most fruit escaped damage. Adults of this species emerged May 18 in Jackson County, OREGON, and June 11 in Benton County, same State. Control in Oregon was excellent in 1962. BLACK CHERRY FRUIT FLY (R. fausta) populations were very high during 1962 in OHIO.

In CALIFORNIA, PEAR-SLUG (Caliroa cerasi) developed to medium populations in cherry plantings in the northern area. Also, a LONCHEID FLY (Daslops alveofrons) attacked sound apricots in the Modesto area of Stanislaus County. This situation has developed in a few other local, widely separated areas within the State in past years.

PLUM CURCULIO (Conotrachelus nenuphar) infestations in GEORGIA peaches were very light throughout the year, and were much less than those of an average year, as it was in 1961 and 1960. This insect is now under excellent control in the Georgia peach belt as a result of the development of new insecticides, spray schedules and equipment for the application of insecticides during recent years. The hibernating population of adults in the peach belt of Georgia in the winter of 1962-63 is much less than that of an average year. Infestations in SOUTH CAROLINA peach orchards were low, probably as low as they have ever been. However, plum curculio continues to be an important pest of peaches in the sand-hills area of NORTH CAROLINA, and a moderately heavy second generation developed in central VIRGINIA, but insecticides kept injury to harvested fruits very low in the latter State. Plum curculio again was very light in peach orchards in western MARYLAND and was present only in poorly treated orchards in PENNSYLVANIA. Adults were jarred from a tree in Kingston, Washington County, RHODE ISLAND, on May 30; feeding and oviposition were general by June 5.

Plum curculio larval damage to unsprayed or poorly sprayed stone fruits in OHIO was rather heavy. Larval emergence from dropped plums occurred about June 1 at Wooster, Wayne County, which was earlier than usual. In ILLINOIS, controls were satisfactory in 1962. It emerged quickly from winter hibernation during the two early warm periods during the last week of April and the middle two weeks of May. Plum curculio was troublesome in some poorly treated peach orchards in southeast MISSOURI. It was not severe in KANSAS, but slightly above the 1961 level. Injury was readily found in isolated plum and peach trees in Doniphan County. Plum curculio attacked peach and plum in moderate numbers in central, northeast and north central TEXAS in 1962. A few orchards supported heavy infestations, particularly in the Forth Worth-Weatherford area, north central section of the State.

PLUM GOUGER (Anthonomus scutellaris) infested plum locally in Morton County, NORTH DAKOTA. GREEN JUNE BEETLE (Cotinis nitida) threatened to take out what few peaches there were in the northwest part of MISSOURI in late July, and JAPANESE BEETLE (Popillia japonica) was a problem on peaches and plums in some OHIO orchards.

SHOT-HOLE BORER (Scolytus rugulosus) was prevalent during 1962 in GEORGIA, in devitalized, weak or diseased trees in neglected orchards and in orchards with dying trees. There were reports of damage by this insect to healthy trees in Georgia. Localized attacks in parts of peach orchards in SOUTH CAROLINA reflected poor cleanup. Damage in CALIFORNIA varied over the State in cherry, plum and peach. Cultural and some chemical control was required. In NEW MEXICO, moderate to heavy infestations damaged peach trees in Bernalillo, Valencia, Sandoval, Rio Arriba, Santa Fe and San Juan Counties. Shot-hole borer was especially severe on trees in New Mexico that were damaged by a peach tree borer (Synanthedon sp.).

Infestations of MITES in peach orchards in GEORGIA were less than those of 1960 and there were very few cases where controls were required. Mites appeared generally in CALIFORNIA in April and were heaviest from June through August. In some cases on peach, heavy buildups developed after the fruit was harvested. PACIFIC SPIDER MITE (Tetranychus pacificus) was locally heavy on apricots in Hollister area of San Benito County. In NEW MEXICO, T. mcDanieli damaged foliage of peach trees in the Hondo area, Lincoln County, and in Bernalillo, Sandoval, Santa Fe and Rio Arriba Counties. Damage by this mite was severe in Rio Arriba County where infestations were not treated because of the spring freeze which killed fruit.

EUROPEAN RED MITE (Panonychus ulmi) was the most important pest of all fruits in OHIO in 1962. Populations on peaches and plums were the heaviest that have been noted for several years. Dry weather and high temperatures during May apparently caused very high populations by mid-June. Good control was usually obtained by orchardists who recognized the situation and applied extra sprays. European red mite was not well controlled in some southeastern MISSOURI peach orchards, and by midseason it was a serious problem there. In CALIFORNIA, infestations were reported on prune in Sonoma, Humboldt, El Dorado, Santa Clara, Mendocino and Santa Barbara Counties. It caused local damage to fruit in OREGON, particularly prunes and late peaches, in the Willamette Valley. This mite was of importance in a few Hood River orchards when spray programs were abbreviated. Infestations on stone fruits in WASHINGTON were little or no problem.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) built up on peaches in MICHIGAN in August, and it threatened peach orchards statewide in MISSOURI from midseason to late season, but it was eliminated successfully in that State in all but a few orchards in the southeast. Two-spotted spider mite caused severe bronzing of peach foliage in the Sedgwick County area of KANSAS during late July and August. The mite was a serious problem in peach orchards from midseason to harvest in OREGON. Populations were observed in tree bole and top situations in early May. Browning and leaf drop was a common symptom in the dry midseason. Chemical control with previously effective materials proved unreliable in many orchards, but the multiple applications of short-residual acaricides prevented serious loss of crop. Two-spotted spider mite and PEACH SILVER MITE (Aculus cornutus), which occur from midsummer on, were definitely a problem in COLORADO, and some of the small size of peach fruit that was present at harvest could be attributed to foliage injury by these two species. Peach silver mite was approximately normal in numbers and/or injury in UTAH in 1962. PLUM RUST MITE (Aculus fockeui) development was delayed 2-3 or more weeks in WASHINGTON. It built up slowly during the cool season, becoming numerous after harvest and causing extensive damage in cherry orchards where postharvest treatments were not applied. In COLORADO, heavy populations of ERIOPHYID MITES were present in the Paonia area of Delta County on cherries, which mainly occurred after harvest and made a postharvest spray necessary.

General Deciduous Fruit Insects

GRASSHOPPERS caused some damage to home orchards in outlying areas of CALIFORNIA, and Melanoplus spp. threatened several young tree plantings early in the season in ILLINOIS but, with sufficient warning, little damage was observed following control attempts in the latter State.

In general, THRIPS were extremely abundant on both cultivated and wild host plants in CALIFORNIA. Frankliniella occidentalis was present from spring through the summer in varied populations from light to heavy. Because of the occurrence on native plants, truck crops and ornamentals, light populations were present on most fruit trees. Damage was not as severe in California as it has been in past years.

PERIODICAL CICADA caused moderate damage to apples in an orchard in St. Marys County, MARYLAND, and appeared in the general areas predicted in VIRGINIA. A total of 35 Virginia counties were infested, and damage caused by oviposition was conspicuous in some sections.

SAN JOSE SCALE (Aspidiotus perniciosus) is building up in many Jackson County, OREGON, orchards. Control appears directly related to the adequacy of coverage. Tall trees are the most susceptible. Treetops harbor reservoirs of infestations. A few orchards have as high as 70 percent of the fruit infested, but the bulk of orchards average about one percent of fruit damage. San Jose scale continued a problem in orchards throughout NEW MEXICO, especially where trees were neglected and control measures not used. San Jose scale is of general occurrence in CALIFORNIA on deciduous fruits and many ornamentals. In areas where control practices were not followed, local, heavy infestations developed. The scale insect seems to have increased slightly over 1961 in KANSAS, although infestations remain light.

PACIFIC FLATHEADED BORER (Chrysobothris mali) caused considerable damage to deciduous fruit trees over CALIFORNIA; young trees suffered considerably. The borer continues to attack young fruit tree plantings in OREGON. Girdling damage to a La Grande, Union County, cherry orchard was reported. A SCARAB (Cotinus texana) damaged deciduous fruit in local areas in San Diego County, CALIFORNIA, and occasionally in Riverside County, same State.

MITES in general began showing in April in CALIFORNIA, although they were present earlier, but remained static. Populations developed on most deciduous fruit trees. Populations were heaviest from June through August and were only spotted from then on. Light populations of a FRUIT-TREE MITE (Bryobia rubrioculus) occurred on deciduous fruit trees in several locations over California, with an occasional heavy infestation noted. This same mite caused less than normal orchard damage in UTAH and damaged foliage of fruit trees throughout NEW MEXICO. It was especially heavy in untreated orchards in the latter State. In OREGON, a SPIDER MITE (Tetranychus mcdanieli) was a problem on all fruit trees in the Milton-Freewater area, with damage intensifying as temperatures rose. Low dosages, poor coverage and possible resistance were believed contributing to infestations. Unspecified SPIDER MITES were among the most numerous fruit pests in NEVADA generally. In MARYLAND, populations of spider mites ranged light to heavy in many orchards in the Hancock area of Washington County, and summer applications of acaricides were required to prevent damage. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was extremely prevalent in most areas of CALIFORNIA where practically no fruit escaped attack, but the effects were not so drastic as in 1961. Populations of this mite in OHIO were heavier on all fruit trees than for several years. Two-spotted spider mite and Tetranychus mcdanieli appeared a week or two later than usual in UTAH orchards, but caused normal damage, often severe. FOUR-SPOTTED SPIDER MITE (T. canadensis) required control measures in some ILLINOIS orchards in late May. This species normally appears in late May in large enough numbers to warrant controls in Illinois.

FALL WEBWORM (Hyphantria cunea) was more prevalent than usual in 1962 in OHIO, particularly in the northeast. It caused severe defoliation of all fruit trees in the eastern half of OKLAHOMA. First activity was noted in late June and continued into late September. Fall webworm was a minor problem on fruit trees in NEW MEXICO in 1962.

Nut Crop Insects

Highlights:

FALL WEBWORM caused severe defoliation of nut trees in eastern Oklahoma, and populations were heavier than in 1961 in Texas. Heavy defoliation was also reported in north Florida and south Georgia. PECAN NUT CASEBEARER caused heavy losses to the light pecan crop in Texas, and this species and PECAN LEAF CASEBEARER reduced the already short crop of pecans rather seriously in southern and central Alabama. BLACK-MARGINED APHID was rather numerous in Arizona and New Mexico; honeydew was noticeable. PECAN PHYLLXERA appears to be increasing in Oklahoma and Texas. WALNUT HUSK FLY is widespread in California. This was the first year that economic damage has occurred in that State. Walla Walla and Asotin Counties, Washington, were reported infested for the first time.

FALL WEBWORM (Hyphantria cunea) infestations were somewhat heavier in TEXAS than in 1961. Average-sized trees in the central third of the State supported up to 10 webs per tree. It was a minor problem on pecans in NEW MEXICO in 1962. Fall webworm caused severe defoliation of nut trees in the eastern half of OKLAHOMA, and caused unsightly webs on walnuts and pecans in KANSAS in mid-July. First activity in Oklahoma was noted in late June, and it continued into late September. Pecan and hickory, primarily pecan groves, were heavily defoliated in north FLORIDA and south GEORGIA. Control on private land has been conducted by landowners. Larvae about one week old were observed on pecan at Fort Valley, Georgia, on June 17. The infestation in 1962 was less than that of an average year in that area of the State.

PECAN CARPENTERWORM (Cossula magnifica) was locally heavy on pecans in SOUTH CAROLINA, and WALNUT CATERPILLAR (Datana integerrima) appeared on pecan in scattered areas over the eastern half of TEXAS. RED-HUMPED CATERPILLAR (Schizura concinna) infested walnuts in CALIFORNIA from Fresno County north. Infestations occurred much later in 1962 than in past years. Generally, the pest was very local and damaging to young trees in that State. HICKORY SHUCKWORM (Laspeyresia caryana) caused considerable damage to pecans in scattered areas of OKLAHOMA and caused less damage than usual in MISSISSIPPI. CODLING MOTH (Carpocapsa pomonella) infestations were general in CALIFORNIA and required controls. FILBERTWORM (Melissopus latiferreanus) adults emerged in Lane and Benton Counties, OREGON, on July 12. Control was excellent in Oregon where control recommendations were followed. Filbertworm became a problem in dooryard walnuts in Santa Clara County, CALIFORNIA.

PECAN NUT CASEBEARER (Acrobasis caryae) caused moderate damage in scattered areas of the pecan-producing section of OKLAHOMA. The rather light pecan crop in TEXAS suffered heavy losses to this pest. Heavier than usual losses were caused by second-generation larvae in addition to damage by the first generation. Infestations in GEORGIA were light to moderate on pecans. The heaviest infestations of pecan nut casebearer were found in the counties near the Georgia-Florida State line. In ALABAMA, pecan nut casebearer and PECAN LEAF CASEBEARER (A. juglandis) reduced the already short crop of pecans rather seriously in the southern and central portions of the State. Infestations of these pests were rather severe, especially in Mobile and Baldwin Counties. Light to moderate infestations of

pecan leaf casebearer were present in GEORGIA; however, little defoliation was done as the trees leafed out rapidly. Pecan leaf casebearer was common in many areas of TEXAS, but damage was generally light. Also in Texas, another CASEBEARER (A. caryivorella) damaged walnut tree terminals in Eastland County during June by boring into the shoots and twigs.

A LEAF ROLLER (Archips rosanus) was observed damaging buds in Willamette Valley, OREGON, filbert orchards in mid-April. Infestations were general and heavy. Adults emerged in large numbers from July 5.

BLACK-MARGINED APHID (Monellia costalis) infestations on pecans in ARIZONA were heavy statewide during the summer and fall. Honeydew was a problem to homeowners in many cases. In NEW MEXICO, heavy populations built up on pecan foliage in Mesilla and Pecos Valleys; honeydew was very noticeable. WALNUT APHID (Chromaphis juglandicola) was moderately numerous in 1962 on English and black walnuts in Washington County, UTAH. Approximately normal numbers and/or injury were reported statewide. Medium to heavy populations of walnut aphid occurred in most walnut-growing areas of CALIFORNIA, with some local areas little affected. Infestations occurred from April through September in California. Heavy populations of BLACK PECAN APHID (Myzocallis caryaefoliae) built up on pecan foliage in Mesilla and Pecos Valleys of NEW MEXICO. Honeydew was noticeable. Light infestations of black pecan aphid appeared in early September in north central TEXAS. A FILBERT APHID (Myzocallis coryli) developed slowly in the Willamette Valley, OREGON, filbert orchards until favorable weather in June and July permitted a general increase in populations. Average leaf counts of the species were 25 on May 31, 59 on June 25 and 100 plus on July 7. High temperatures in late July caused a decrease in infestations. Unspecified APHIDS were severely abundant early in the summer on pecans in UTAH, but less numerous in late summer. Filbert aphids and pecan aphids were approximately normal in numbers and/or injury in 1962.

PECAN SPITTLEBUG (Clastoptera achatina) reports on pecan were numerous in SOUTH CAROLINA in areas of heavy rainfall. Moderate infestations of several species of SPITTLEBUGS were reported on pecans in southern GEORGIA.

PECAN PHYLLOXERA (Phylloxera devastatrix) - Light to heavy infestations were common in many areas of OKLAHOMA. Many of the infestations were said to be heavier than in past years. In TEXAS, pecan trees in most areas supported light to heavy infestations. This pest seems to be increasing in prevalence each year in Texas. A COREID BUG (Leptocoris rubrolineatus) infested almonds in Tehama County, CALIFORNIA.

OLIVE SCALE (Parlatoria oleae) was locally medium to heavy in almond orchards in a limited number of CALIFORNIA counties. Biological control has been very effective, and parasite liberation by the University of California is continuous in many areas. Also in California, medium populations of a SOFT SCALE INSECT (Lecanium prunosum) developed in walnuts in southern Fresno County. This scale insect has become quite limited and local in occurrence in the State. The same species of scale insect, L. prunosum, infested many Douglas County, OREGON, walnut orchards.

EUROPEAN EARWIG (Forficula auricularia) was a general pest in most of northern CALIFORNIA. It was generally a nuisance, but damaging walnut fruit in the husk in Calaveras County.

PECAN WEEVIL (Curculio caryae) activity was noted in the Denton, Denton County, and Comanche, Comanche County, areas of TEXAS in early September, with considerable nut damage evident. The light set of the pecan crop in SOUTH CAROLINA, probably the lowest ever experienced, may reduce the carryover of this species and other insects. In TEXAS, larvae of a WEEVIL (Conotrachelus sp.) were found in abundance in Hamilton County during May boring into pecan shoots and twigs. SHOT-HOLE BORER (Scolytus rugulosus) damage to almonds in CALIFORNIA varied.

Cultural and some chemical controls were required. APPLE TWIG BORER (Amphicerus bicaudatus) damaged pecan twigs in the Plainview area of Hale County, TEXAS, by feeding on growth just above the buds and in the axils. PACIFIC FLATHEADED BORER (Chrysobothris mali) continues to attack young nut tree plantings in OREGON. Girdling damage to a Washington County filbert orchard was reported.

ELM SAWFLY (Cimbex americana) was a problem on pecan trees in several south central TEXAS counties, and larvae of undetermined SAWFLIES damaged pecan foliage in east central and north central areas of the same State. Infestations of the latter were light to moderate.

WALNUT HUSK FLY (Rhagoletis completa) is now widespread within CALIFORNIA. This was the first year that economic damage has occurred in walnuts in the northern part of the State. In WASHINGTON, new county records were obtained for Walla Walla and Asotin. Numbers and/or injury in UTAH were approximately normal for 1962. Trap collections of a WALNUT HUSK FLY (Rhagoletis suavis) in OHIO indicated that adults were more numerous in 1962 than in 1961.

In CALIFORNIA, MITES in general began showing up in April although they were present earlier but remained static. Populations developed on almonds and walnuts. Populations were heaviest from June through August and were only spotted from then on. In some cases, heavy buildups developed on almonds after the fruit was harvested. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was extremely prevalent in most areas of California. Practically no nut crop escaped. The effects were not so drastic as in 1961. Infestations of EUROPEAN RED MITE (Panonychus ulmi) were reported on walnut in Sonoma, Humboldt, El Dorado, Santa Clara, Mendocino and Santa Barbara Counties, California. A FRUIT-TREE MITE (Bryobia rubrioculus) occurred on almonds in California, with the heavier populations usually later in the year. Undetermined MITES caused noticeable defoliation of pecan trees in several areas of TEXAS during August and early September.

PECAN INSECTS were not unusually troublesome in any area of LOUISIANA in 1962.

Grape Insects

Highlights:

GRAPE ROOT BORER was again very destructive in Missouri. WESTERN GRAPE LEAF SKELETONIZER was found in two new areas of California in 1962, and GRAPE LEAF SKELETONIZER heavily damaged grapevines over large areas of central and east central Texas. WHITEFLIES were serious on grape in Indiana and GRAPE SCALE continues a problem in Arkansas. A LEAFHOPPER became severe on grape in a few local areas of California; considerable treatments were used.

GRAPE ROOT BORER (Vitacea polistiformis) again was very destructive in MISSOURI, particularly during the drought period from July to September. In DELAWARE, very heavy infestations were present in one or two old vineyards and in greenhouse grapes in New Castle County. EIGHT-SPOTTED FORESTER (Alypia octomaculata) damaged grapevines in Guadalupe County, TEXAS; and CUTWORMS damaged grape plantings in several locations of CALIFORNIA.

GRAPE BERRY MOTH (Paralobesia viteana) populations in MICHIGAN were noticeably lower than in recent years. Low populations were also noted in the grape-growing areas of PENNSYLVANIA, near Erie in Erie County. It was reported on grapes at Nauvoo, Hancock County, ILLINOIS, but was controlled. Grape berry moth was not severe in MISSOURI, and lighter than in 1961 in ARKANSAS. It was of little economic importance in OHIO vineyards receiving normal, recommended spray schedule. Grape berry moth was present in SOUTH CAROLINA, but only a minor factor on grapes. Numbers in UTAH were about normal for the year.

GRAPE LEAF FOLDER (Desmia funeralis) was locally light in grape-growing areas of CALIFORNIA. However, some heavy infestations developed in grapes in Stanislaus County. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) required extra control measures in PENNSYLVANIA; very few specimens were noted at harvesttime in the grape-growing area near Erie, Erie County. A GRAPE LEAF MINER (Phyllocnistis vitigenella) was found on cultivated grapes in New Castle County, DELAWARE. A new State record.

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) populations were light to medium on grapes in Escondido, San Diego County, CALIFORNIA. Two new areas of the State became infested in 1962; one in Kerman, Fresno County, and one in Livermore, Alameda County. The Fresno and Alameda County infestations are receiving eradivative treatment as no infestations have been found in commercial grape vineyards. Infestations in NEVADA were greatly reduced in the original infested area, but this pest spread to other areas of Las Vegas and to North Las Vegas, Clark County. Injury in Washington County, UTAH, was very light in 1962. The pest was below normal in numbers and importance in Utah during the year. GRAPE LEAF SKELETONIZER (H. americana) heavily infested grapes at one locality in Pittsylvania County, VIRGINIA, and the species heavily damaged domestic and wild grapevines over large areas of central and east central TEXAS.

A LEAF BEETLE (Glyptoscelis squamulata) caused some damage to grape plantings in local areas of Riverside County, CALIFORNIA, and generally in Madera County, same State. Occurrence of this beetle is quite varied in California.

GRAPE CANE GALL MAKER (Ampelogypter sesostris) was almost absent from INDIANA after three years of heavy attacks in some vineyards. Another species of the same genus, A. ater, was slightly more prevalent during 1962 in OHIO, but in no instances was there any appreciable loss. A. ater infested grape canes locally in Halifax County, VIRGINIA, and one moderate infestation of the species was found in a neglected vineyard in PENNSYLVANIA. In WASHINGTON, Brachyrhinus rugosostriatus was recovered under concord grape trellis in Branch County, but this species is less than one percent of the Brachyrhinus spp. population in the lower Yakima Valley of Washington.

JAPANESE BEETLE (Popillia japonica) adults were slightly more prevalent than in 1961 in OHIO, but there was no instance of any appreciable commercial loss to grapes. GREEN JUNE BEETLE (Cotinis nitida) adults were much less numerous on grapes in SOUTH CAROLINA than in past years. This may be a result of natural control and climatic factors such as drought during the emergence period. In CALIFORNIA, heavy populations of DARKLING BEETLES (Blapstinus spp.) damaged grapes in the Rutherford area of Napa County.

Medium populations of a PLANT BUG (Largus convivus) developed on grapevines in the southern part of Yuba City, Sutter County, CALIFORNIA. WHITEFLIES were serious on grape in southern INDIANA. GRAPE SCALE (Aspidiotus uvae) was prevalent in a grape planting in Prince Georges County, MARYLAND, and infestations continue to be a problem in ARKANSAS. Populations of a LEAFHOPPER (Erythroneura sp.) occurred in most grape-growing areas of CALIFORNIA, and it became severe in a few local areas of that State. Considerable treatments were used to control infestations. Unspecified LEAFHOPPERS were present in untreated vineyards in SOUTH CAROLINA. MEALYBUGS were present on grapes in local areas of CALIFORNIA; dooryard plantings were quite frequently reported infested. GRAPE MEALYBUG (Pseudococcus maritimus) was light in grape vineyards in CALIFORNIA and was not severe on grape in MISSOURI.

A GALL MIDGE (Cecidomyia viticola) was reported as infesting grapes in five locations in VIRGINIA. A VINEGAR FLY (Drosophila melanogaster) caused some losses in isolated OHIO vineyards due to bird damage and early ripening of grapes. Unspecified VINEGAR FLIES, although heavy, were held in check on grapes in SOUTH CAROLINA by control efforts.

EUROPEAN RED MITE (Panonychus ulmi) caused some bronzing of grape foliage late in the season near Erie, Erie County, PENNSYLVANIA. In CALIFORNIA, PACIFIC SPIDER MITE (Tetranychus pacificus) was light to medium on grape plantings in Napa and Fresno Counties, and Eotetranychus willamettei infested grape vineyards in Fresno, Stanislaus and Amador Counties. Heavy populations of this latter species of spider mite developed in most areas of California.

Blueberry, Cranberry, Currant and Gooseberry Insects

New infestations of BLUEBERRY THRIPS (Frankliniella vaccini) were reported in several areas of Washington County, MAINE. This pest has been increasing in numbers for the past three years in that Maine county.

An undetermined species of CLEARWING MOTH was found infesting blueberry plantings in western MICHIGAN. Some plantations showed as much as 60 percent infestation by this previously unknown pest. BLACK-HEADED FIREWORM (Rhopobota naevana) was less abundant on cranberries in MASSACHUSETTS than for many years. A BLUEBERRY TIP BORER (Hendecaneura shawiana) is common in the more sandy blueberry sites in southwestern MICHIGAN, and the species was more damaging in OHIO than in previous years. An olethreutid, tentatively identified as H. shawiana, appeared in an experimental planting at Carbondale, ILLINOIS, but only light damage occurred. CRANBERRY FRUITWORM (Acrobasis vaccini) was much less destructive than normal in MASSACHUSETTS, but some late infestations developed. ORANGE TORTRIX (Argyrotaenia citrana) was light to heavy on bushberries in Santa Cruz County, CALIFORNIA. A LEAF BLOTCH MINER (Gracilaria vacciniella) was very prevalent in blueberry plantations in western MICHIGAN in 1962.

A FLEA BEETLE (Altica sylvia) was moderate and reported causing light to moderate damage to blueberries in a few locations of MAINE in early June. BLACK VINE WEEVIL (Brachyrhinus sulcatus) and STRAWBERRY ROOT WEEVIL (B. ovatus) attacked currants and gooseberries in OREGON. Adults appeared in fields in mid-May.

IMPORTED CURRANTWORM (Nematus ribesii) caused heavy defoliation of currants in Fargo area of Cass County, NORTH DAKOTA, and other eastern areas. In MAINE, light numbers of GALL MIDGES, probably Contarinia vaccini, were reported in Cumberland County, and heavy numbers in Stockton Springs, Waldo County, where damage was light to moderate, respectively.

BLUEBERRY MAGGOT (Rhagoletis pomonella) was less troublesome on blueberries in MASSACHUSETTS than on apples. It was less troublesome than usual in the State because of the drought conditions and cool weather in the southeastern area. Blueberry maggot emergence began on June 27 in the Jonesboro area of Washington County, MAINE, and was essentially completed by July 19 when 99.2 percent of the total flies recovered had emerged. The last adults were taken on July 25 in Maine. Populations appeared to be normal or slightly below normal in most lowbush blueberry-producing areas of the State.

CURRANT FRUIT FLY (Epochra canadensis) control in OREGON was exceptional in the Willamette Valley due to timely insecticide use. In UTAH, approximately normal numbers and/or damage were present in 1962.

Avocado Insects

In CALIFORNIA, an ARMORED SCALE (Aspidiotus lataniae) was generally light in avocados, with a few heavy local infestations in the Poway area of San Diego County. FULLER ROSE BEETLE (Pantomorus godmani) was light on avocado trees in local areas of San Diego County, and GREENHOUSE THRIPS (Heliothrips haemorrhoidalis) was light on coastal avocados in Santa Barbara County. Biological

control kept greenhouse thrips populations within bounds. Light to medium populations of AVOCADO BROWN MITE (Oligonychus punicae) developed on coastal avocados in Santa Barbara, Orange and San Diego Counties. Some biological control held the mites down.

Fig Insects

A SCARAB (Cotinis texana) damaged figs in local areas of San Diego County, CALIFORNIA, and occasionally in Riverside County, same State. Of special interest was an infestation of a BARK BEETLE (Pycnarthrum hispidum) on large fig trees in Hidalgo County, TEXAS. This is the first report of this species in Texas.

Citrus Insects

Highlights:

MEDITERRANEAN FRUIT FLY was found for the third time in Florida during the year. As of the end of December 1962, over 483,000 acres were treated. The first infestation in the current campaign was found during June in Miami, Dade County. Subsequent infestations were found in Palm Beach and Broward Counties. The program was believed to be quite successful in that the detection program was instrumental in making it possible with a minimum of time and money.

BROWN SOFT SCALE was greatly reduced in Texas, but a heavy and general infestation developed in the San Joaquin Valley of California. BLACK SCALE was at a high level during March in Florida and YELLOW SCALE was a serious problem in about three percent of Florida groves from July through September. FLORIDA RED SCALE and PURPLE SCALE appeared to be well controlled by parasites in the latter State. GLOVER SCALE was at the highest level at any time in 11 years of record at the end of March in Florida, and it continued abundant throughout the year. CHAFF SCALE was also abnormally abundant in Florida.

A GREEN STINK BUG was heavy on citrus in Cameron County, Texas, and CITRUS THRIPS required controls in areas of California and Arizona.

CITRUS RED MITE was active and one of the worst mites on citrus in southern California. It was not a problem in Florida, with infestations in mid-November being the lightest for any November in 12 years of record. TEXAS CITRUS MITE was unusually abundant in Florida and record levels were established. Damage was widespread in that State during the third quarter, but it was serious mainly in young groves. CITRUS RUST MITE was the most important species in Florida during the first quarter, but the mite dropped to the lowest levels in 11 years of record during the second quarter. A PINK CITRUS RUST MITE (Aculus pelekassi) was identified from the United States and Florida for the first time in 1962.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) was found for the third time in FLORIDA in 1962. The current eradication campaign, which is the third, began on June 8, 1962, with the find of a single adult in a Steiner trap at 1600 N. W. 85th Street, Miami, Dade County. This trap was one of the 8,000 traps operated in Florida since the completion of the second eradication program in November of 1957. The second campaign started in 1956. Certainly this detection program has paid off, with an early discovery before the pest had a chance to become widespread and cause much damage. During the height of the campaign in the summer of 1962, as many as 22,000 traps were in operation. At the completion of the year, 328,115 acres had been sprayed from the air and considerable areas were

treated with ground equipment. The approximate cost in 1962, shared by the U. S. Department of Agriculture and Florida Department of Agriculture, was one million dollars. The last find for the year was November 2 at Pompano Beach, Broward County. Only Dade, Palm Beach and Broward Counties were found infested in 1962. No Mediterranean fruit flies were found in Dade County since July 14 and Palm Beach County since August 26. It is believed that the program has been quite successful in Florida in that the detection program was instrumental in making it possible with a minimum of time and money.

FLORIDA WAX SCALE (*Ceroplastes floridensis*) was above normal during the first quarter of the year in FLORIDA, but of only minor importance. It continued to be of minor importance the remainder of the year. Also in Florida, *Coccus acuminatus* was of minor importance, although it was more abundant than normal during the first quarter.

BROWN SOFT SCALE (*Coccus hesperidum*) populations in TEXAS were greatly reduced following the January freeze, and infestations remained generally light through the summer. However, one of the heaviest and most general infestations in many years developed during 1962 in the San Joaquin Valley, CALIFORNIA, citrus during the summer. Biological control effectively controlled most of the infestations by mid-August. A few local infestations developed in other northern California counties. Also in California, **CITRICOLA SCALE** (*Coccus pseudomagnoliarum*) was light on citrus in Fresno County.

PYRIFORM SCALE (*Protopulvinaria pyriformis*) was at above normal abundance during the first half of the year in FLORIDA citrus, but it was of minor importance.

BLACK SCALE (*Saissetia oleae*) was generally light on citrus in CALIFORNIA, with an occasional local, medium to heavy population. Control practices were required. In many instances, however, biological control was sufficient. In FLORIDA, the overwintering population of black scale at the end of March was at a higher level than in any prior March despite a marked decrease during the period. It continued at above average abundance throughout the second quarter, being present in 76 percent of the groves on July 1 and still increasing. Heavy infestations occurred in about 23 percent of the groves, but only a portion of these were of concern to growers. Black scale reached a high level peak in late July in Florida. Unlike prior years, the August brood was not decimated rapidly by natural factors and September populations, although unimportant, were at a record high. Populations dropped to near normal abundance in mid-November and below normal by the end of November. The freeze of December 12-14 practically eliminated existing populations.

CALIFORNIA RED SCALE (*Aonidiella aurantii*) was common on new growth of citrus in the lower Rio Grande Valley of TEXAS, but no serious infestations developed. This scale was probably less than normal in most areas of CALIFORNIA, but well scattered over the State. Several pest control districts are in operation in California to eliminate infestations in commercial citrus-growing areas.

YELLOW SCALE (*Aonidiella citrina*) was of minor importance during the first half of the year in FLORIDA, but it was above normal in abundance. The persistent, high infestations made it a serious problem during the period July through September in about three percent of Florida groves. Populations continued more prevalent than usual until the December 12, 13 and 14 cold spell. In CALIFORNIA, light to medium populations were present on citrus in Tulare County and light in Glenn County. It was also a local, dooryard citrus pest in a few northern California locations.

FLORIDA RED SCALE (*Chrysomphalus aonidum*) populations were below average in FLORIDA during the first quarter of the year; less than 2 percent of the groves harbored heavy infestations. The parasitic eulophid (*Aphytis holoxanthus*) was common in all areas. Although Florida red scale was present in a majority of

Florida groves during the period April-June, this species remained at noninjurious level except in 3 percent of the groves. Populations after mid-July were lighter than in any prior year in Florida due to parasitism by *A. holoxanthus*. Florida red scale was common on new growth of citrus in the lower Rio Grande Valley of TEXAS, but no serious infestations developed.

PURPLE SCALE (*Lepidosaphes beckii*) abundance in FLORIDA was similar to that of the past two years during the period January-March. Although present in about 82 percent of the groves, the parasitic eulophid (*Aphytis lepidosaphes*), destroyed a large percent of the scales; less than two percent of the groves developed important infestations. Purple scale continued present during the second quarter in a majority of the groves, but remained at noninjurious level except in three percent of the Florida groves. *A. lepidosaphes* held purple scale to unimportant status in nearly all groves during the third and fourth quarters. In CALIFORNIA, trace populations were present in citrus in Orange County. This scale was once a major pest of citrus in the county.

GLOVER SCALE (*Lepidosaphes gloverii*) increased markedly in FLORIDA and, by the end of March, it had attained the highest population recorded at any time in 11 years of record; 49 percent of the groves were infested, 2 percent moderate to heavy. It continued in high record numbers during the second quarter. Heavy infestations were found in the interior canopy of Florida trees in 8 percent of the groves. Glover scale continued its above average abundance into the third quarter despite a decrease in August and September; it was important in about 5 percent of the groves. Populations continued to be more abundant than normal during the last quarter in Florida until the December freeze. Afterwards, populations were very low.

CHAFF SCALE (*Parlatoria pergandii*) continued at above average abundance during the first quarter of the year in FLORIDA, increasing slightly during the period; 66 percent of the groves were infested, with two percent moderate to heavy. It was abnormally abundant during the second quarter. About 72 percent of Florida groves harbored this scale, but nearly all infestations were light. Chaff scale continued above average abundance and was important in about five percent of the groves during the period July through September, despite a decrease in August and September. Abundance continued above normal during the last quarter, with some increase noted the last part of October. Numbers were drastically reduced in December, however. In CALIFORNIA, light, local infestations of chaff scale were observed on citrus in the Escondido area of San Diego County. This is the only place it occurs on citrus.

A SNOW SCALE (*Unaspis citri*) was of minor importance in FLORIDA during the first quarter, but it was above normal abundance. It was one of the few pests that did not decline to lower level by December 31. Also in Florida, an ARMORED SCALE (*Pinnaspis strachani*) was above normal in abundance during the first half of the year, but it was of minor importance. COTTONY-CUSHION SCALE (*Icerya purchasi*) was light and spotty on citrus trees in the Rio Grande Valley of TEXAS.

CITRUS MEALYBUG (*Pseudococcus citri*) infestations occurred in coastal Santa Barbara and San Diego Counties, CALIFORNIA. Biological control was effective in these areas. Unspecified MEALYBUGS were above average in February in FLORIDA and were present in local areas on some CALIFORNIA citrus. Dooryard plantings were quite frequently reported infested in the latter State.

An undetermined APHID occurred in spotted infestations on new growth of freeze-damaged citrus trees during May in Cameron County, TEXAS; and numerous aphid infestations appeared during March in FLORIDA, but few were heavy and the population remained below average. MELON APHID (*Aphis gossypii*) infestations were generally light on scattered citrus over CALIFORNIA; however, medium populations of SPIREA APHID (*A. spiraeicola*) developed on citrus in Ventura and Fresno Counties, California. Also in California, trace to light populations of BLACK CITRUS APHID (*Toxoptera aurantii*) developed on citrus in Fresno County.

Heavy populations of a GREEN STINK BUG, probably Nezara viridula, occurred on grapefruit trees in Cameron County, TEXAS. As much as one bushel of damaged fruit was noted under some trees. Also in Texas, a LEAFHOPPER (Homalodisca coagulata) was noted on citrus trees with lush, new growth in Cameron County during May. As many as 20 nymphs and adults were present on small trees. In FLORIDA, WHITE-FLIES increased strongly to above average level in March and were again unusually numerous in September.

Infestations of CITRUS THRIPS (Scirtothrips citri) began on CALIFORNIA citrus in April and required control the rest of the year. All California citrus districts were affected. Heaviest populations probably occurred in Tulare County. In ARIZONA, light infestations of citrus thrips were present in Maricopa and Yuma Counties on citrus beginning in late March. The population became high in untreated groves during April. Insecticide treatments were generally very effective.

In CALIFORNIA, FRUIT-TREE LEAF ROLLER (Archips argyrospilus) infested citrus locally in Los Angeles County, ORANGE TORTRIX (Argyrotaenia citrana) was trace to light on citrus in Orange County, a BLASTOBASID MOTH (Holocera iceryaella) was trace locally in oranges in Santa Ana area of Orange County, and medium larval infestations of a SWALLOWTAIL BUTTERFLY (Papilio zelicaon) occurred in young citrus plantings in Tulare County.

FULLER ROSE BEETLE (Pantomorus godmani) infestations were light on citrus in local areas of San Diego County, CALIFORNIA, and GRASSHOPPERS became unusually numerous in FLORIDA citrus groves in September.

CITRUS RED MITE (Panonychus citri) was active and one of the worst mites on citrus in the southern part of CALIFORNIA. Treatment kept the mites to a general light to medium condition. Occasionally, heavy populations developed. All citrus areas in California from Santa Barbara to San Diego Counties were affected. In FLORIDA, this species continued at the record low level, during the first quarter, that had existed since October 1961. Only scattered groves had troublesome infestations. It dropped to the lowest level in 11 years of record during the second quarter and developed important infestations in scattered groves only. Citrus red mite continued generally low throughout the third and fourth quarters in Florida. Infestations in mid-November were lighter and less numerous than in any November in 12 years of record.

SIX-SPOTTED MITE (Eotetranychus sexmaculatus) was scarce during the first quarter in FLORIDA and continued at a low level the remainder of the year. In CALIFORNIA, trace populations developed on citrus in the Irvin area of Orange County. YUMA SPIDER MITE (Eotetranychus yumensis) was light on citrus during the summer and fall in Yuma County, ARIZONA. Another SPIDER MITE (Eotetranychus lewisi) developed to trace numbers on citrus in the northern part of Orange County, CALIFORNIA.

TEXAS CITRUS MITE (Eutetranychus banksi) became more abundant during March in FLORIDA than in prior years, but the population was only slightly above the low level typical of this first quarter. This species became present in more groves (75 percent) during the second quarter, and more groves had moderate to heavy infestations (55 percent) than in any prior year. Damage was widespread in Florida, but it was serious mainly in young groves. During the period July through September, Texas citrus mite continued the previous pattern of being more abundant than in any prior year. The peak level persisted through July, dropped to the yearly low in mid-September, which was above average, and then started the gradual autumn buildup. The population at the end of November was the highest on record for that month, and the trend continued into December when record levels were established prior to the freeze.

CITRUS RUST MITE (Phyllocoptruta oleivora) was the most important species in FLORIDA during the first quarter of 1962 when pest problems generally were below average throughout the State. This species was present in economic

numbers in 34 percent of the groves compared with a norm of 39 percent; infestations were lighter than normal. During the period April through June, citrus rust mite dropped to the lowest levels in 11 years of record; important infestations developed only in a few scattered Florida groves. This April through June period was also characterized by very low populations of the major citrus pests. Localized areas developed troublesome infestations, but for the State as a whole, growers had fewer pest problems than usual. Control measures were very effective. Populations of citrus rust mite remained much below average until the summer peak in mid-August, when this species reached average levels. Infestations on fruit remained high and destructive through September, but leaf infestations declined to low levels. A general decrease began in October and, by mid-November, populations were below normal throughout the State for the time of year. Populations continued below normal for the remainder of the year. In CALIFORNIA, citrus on coastal Santa Barbara County required treatment for this pest during the summer to keep populations to a light level.

CITRUS BUD MITE (Aceria sheldoni) populations were light to medium on citrus from March to September in Santa Barbara County, CALIFORNIA, and medium on lemons in the Escondido area of San Diego County and in Orange County, same State.

A PINK CITRUS RUST MITE (Aculus pelekassi) was found for the first time in the United States at Orlando, Orange County, FLORIDA, sometime in 1961 by Dr. A. K. Burditt and identified in March 1962 by H. H. Keifer. It was described in 1958 from specimens taken in Greece and has since been recorded in several countries. In Florida, it has been collected on Mandarin oranges, Murcott orange seedlings and loose-skin oranges. It is presently known from the following Florida counties: Alachua, Baker, Citrus, Lake, Marion, Orange, Pinellas, Putnam, Seminole and Volusia. Since it is so widespread in Florida, eradication is impractical and quarantines are established with a spray schedule and reinspections made before the infested plants can be moved.

CITRUS FLAT MITE (Brevipalpus lewisi) was present in light numbers during the summer and fall in Yuma County, ARIZONA, citrus. Light infestations were also present on citrus in Maricopa County, Arizona, and Brevipalpus sp. was above normal abundance during the period April through June in FLORIDA.

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PLANT PEST CONTROL DIVISION

AMERICAN WORM DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division acts as a clearinghouse and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ARMY CUTWORM ranged from less than one to 18 per foot of row in wheat in central, south central and southwest Kansas. Entire area not uniformly infested, but localized areas of damage occur throughout general area. Army cutworm controls undertaken in several northwest and panhandle areas of Oklahoma. GRAIN APHIDS continue generally light in Southwest; some PEA APHID activity noted. (pp. 215-216).

PEACH TREE BORER infestation rather high in North Carolina. (p. 216). TEXAS CITRUS MITE population above normal on Florida citrus with little or no freeze damage; moderate to heavy infestations expected to be more prevalent than usual. (p. 217). Infestations and damage by ONION THRIPS heavy on green onions in Moapa Valley of Nevada. (p. 218).

EAR TICK present in ears of most animals in several cattle herds checked in Sierra County, New Mexico. (p. 220).

FORECASTS

Survey of POTATO PSYLLID in overwintering areas of Arizona and California indicates a potentially light to moderate infestation in 1963. (p. 218).

SOME FIRST APPEARANCE RECORDS

ALFALFA WEEVIL adults active and mating in Nevada; GRASSHOPPER nymphs noted in Curry County, New Mexico; PEAR PSYLLA active and laying eggs since March 1 in Jackson County, Oregon; PEACH TWIG BORER emerged from hibernation in same area of Oregon and now feeding in buds of peach; POTATO PSYLLID appearing on potatoes in Maricopa County, Arizona; LONE STAR TICK becoming active in Oklahoma; COMMON CATTLE GRUB adults active in Oklahoma; first-stage larvae of a MOSQUITO (*Aedes canadensis*) noted in Delaware; winged forms of SUBTERRANEAN TERMITES noted in Delaware, Maryland, Nevada and Florida; winged forms of PAVEMENT ANT noted in Maryland; and *Camponotus* sp. and *Formica* sp. adults found in Michigan.

DETECTION

SWEETCLOVER WEEVIL collected in southwest Oklahoma; first ARS record of this species in the State. (p. 216). IMPORTED FIRE ANT recorded in Issaquena County, Mississippi, and Lamar County, Georgia, for the first time. (p. 223).

SPECIAL REPORTS

Citrus Insect Situation in Florida - End of February 1963. Special Comment. (p. 216). Populations in Freeze-defoliated Groves. (p. 216). Populations in Groves with Little or No Freeze Damage. (p. 217).

Potato Psyllid Survey, Spring Breeding Areas of Arizona and California - 1963. (p. 218).

Status of the Screw-worm in the Southwest. (pp. 220-221). No specimens submitted during period February 24 to March 2.

(Continued on following page)

Summary of Insect Conditions in the United States - 1962

Truck Crop Insects

- Eggplant, Pepper, Potato and Tomato Insects - (p. 224).
- Bean, Pea and Other Legume Insects - (p. 229).
- Beet, Sugar Beet and Spinach Insects - (p. 233).
- Crucifer Insects - (p. 235).
- Cucurbit Insects - (p. 238).
- Asparagus and Onion Insects - (p. 240).
- Artichoke and Lettuce Insects - (p. 241).
- Carrot Insects - (p. 242).
- Sweetpotato Insects - (p. 242).
- Mint Insects - (p. 243).
- Bramble Insects - (p. 243).
- Strawberry Insects - (p. 244).
- Miscellaneous Truck Crop Insects - (p. 245).
- Tobacco Insects - (p. 246).

Reports in this issue are for week ending March 8, unless otherwise indicated.

WEATHER OF THE WEEK ENDING MARCH 11

Few, if any hydrometeors of interest were reported from the Far West during the past week. However, as if to balance the scales, heavy to excessive rains fell over a large area from the central Great Plains eastward, extending over much of the Northeast. Amounts exceeding 4 inches fell locally in Arkansas, Georgia, South Carolina, North Carolina, Tennessee, Kentucky, West Virginia and Ohio, as the storm passed from the Midwest on the 4th over New England on the 6th. Rain falling on snow and ice covered and frozen ground was subject to immediate runoff, causing severe localized flooding over most of the Ohio River Basin. Three lives were reported lost as a result of the stormy weather in Indiana. Flood stages were reached or exceeded on all streams and rivers in Ohio, setting some new record high marks. Ice jamming caused local flooding from Iowa to Pennsylvania when streams were swollen from rain and snowmelt.

The storm, which also gave heavy snows to New Mexico and Colorado during the previous week, left heavy amounts across northwest Kansas, much of Nebraska, Iowa, southern Wisconsin, Lower Michigan, Pennsylvania, New York and New England. Typical amounts ranged to 8 inches in Kansas, over 12 inches in Wisconsin and near Lake Ontario in New York, and to 10 inches in northern New England. Little snow cover was left at the close, except in the Northeast, where there is still 4 to 5 feet in northern areas of New Hampshire and Maine. Average temperatures over much of the Nation departed very little from normal. Only in Maine, eastern Upper Michigan and much of Colorado and southeastern Wyoming were departures deficient more than 6°. The largest departures were at Denver, Colorado, and Cheyenne, Wyoming, where average temperatures were 12° below normal. Significant, but not excessively above-normal temperatures were recorded in a small area from eastern Kentucky and West Virginia to the coast, and in most of Montana. Havre, Montana, had a weekly average of 12° above normal.

Heralding the start of damaging spring storms were the severe thunderstorms in the Gulf States. On the 5th, an afternoon tornado at Bessemer, Alabama, inflicted some damage and injuries. Large hail fell near Dallas, Texas, on the 10th. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - Survey conducted in central, south central and southwest areas to check problem created by this species on wheat. Counts ranged from less than one to 18 per foot of row; damage variable over area. Entire area not uniformly infested, but localized areas of damage occur throughout general area. Early planted fields appear much more heavily infested than late planted fields. Early planted wheat made good growth during fall of 1962, but leaves have been winterkilled; as a consequence, little new growth is evident. In heavily infested areas, larvae keep new growth eaten off as it appears. Area with heavier damage also lacking in soil moisture, which is preventing wheat from making good growth. In areas of low moisture, larval counts as low as 2-3 per foot appear to be economic. Weather has hindered insecticide applications. Controls that have been applied have produced variable results. Problem area lies in band between Reno and Finney Counties, extending from southern part of State to as far north as Russell County and possibly farther. Time and weather conditions did not permit surveying farther north. (Somsen, Peters). OKLAHOMA - Controls undertaken in several areas of northwest and panhandle regions. Counts up to 12-14 per linear foot of row noted in Grant County; average 6-8 per linear foot. Damage observed in Texas County, panhandle area, with counts up to 12 per linear foot. Light counts of 0-1 per linear foot observed in southwest counties; similar counts noted in Noble-Pawnee County area. (Okla. Coop. Sur.). NEVADA - Half-grown larvae averaged 1 per crown or 2-3 per square foot in alfalfa in Lovelock, Pershing County. (Arnett, Lauderdale).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - OKLAHOMA - Of 25 stalks inspected, 24 showed damage. Only one of 14 larvae recovered was alive. Counts in same field in fall of 1962 showed a high percentage of live larvae. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum*) - OKLAHOMA - Populations continue noneconomic throughout State with counts averaging less than 5 per linear foot in fields checked in southwest. Only occasional winged forms observed. (Okla. Coop. Sur.).

GRAIN APHIDS - ARKANSAS - Activity remains low. Surveys in northwest area negative for GREENBUG (Schizaphis graminum*) and ENGLISH GRAIN APHID (Macrosiphum avenae*). (Ark. Ins. Sur.). OKLAHOMA - Populations of ENGLISH GRAIN APHID (M. avenae*) and APPLE GRAIN APHID (Rhopalosiphum fitchii) continue very light in all fields checked in southwest. (Okla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Light populations found in wheat in Beckham, Jackson and Tillman Counties, southwest; highest counts of 50-75 per foot of row in Jackson County. These occurrences found in areas which did not receive rain earlier in period. With continued dry conditions in these areas, populations could build up and surveillance is warranted. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Only very light populations observed in scattered southwestern areas. (Okla. Coop. Sur.).

LEAFHOPPERS - ARIZONA - Injuring some lawns in Salt River Valley. (Ariz. Coop. Sur.). OKLAHOMA - Becoming active in wheat and alfalfa. (Okla. Coop. Sur.).

ALFALFA WEEVIL (Hypera postica) - NEVADA - Adults active and mating in Churchill, Douglas, Pershing and southern Washoe Counties. (Arnett, Bechtel, Cooney, Lauderdale, Martinelli).

AN EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Reported in many alfalfa fields in all portions of Maricopa County; also appearing in some alfalfa in northwestern edge of Pinal County. (Ariz. Coop. Sur.).

* See CEIR 13(5):84.

SWEETCLOVER WEEVIL (Sitona cylindricollis) - OKLAHOMA - Light larval populations found in alfalfa in Beckham, Jackson and Tillman Counties. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum*) - ARIZONA - Reported on alfalfa in Yuma, Maricopa, Pinal and Pima Counties. (Ariz. Coop. Sur.). OKLAHOMA - Very light counts observed in overwintering alfalfa in Beckham, Jackson and Tillman Counties. (Okla. Coop. Sur.). NEW MEXICO - Occasional light infestations found in alfalfa in Artesia area, Eddy County. Populations extremely light in alfalfa checked in Dona Ana County. (N. M. Coop. Rpt.). ARKANSAS - None found in northwest. (Ark. Ins.

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Only occasional specimens found in a field in Frederick area, Tillman County. (Okla. Coop. Sur.).

STEM NEMATODES - ARIZONA - Unspecified species causing considerable damage to alfalfa in Maricopa County. (Ariz. Coop. Sur.).

A DARKLING BEETLE (Blapstinus sp.) - ARIZONA - Injuring safflower in experimental plots in Pima County. (Ariz. Coop. Sur.).

GRASSHOPPERS - NEW MEXICO - Occasional nymphs of unspecified species noted in fields in Curry County. (N. M. Coop. Rpt., Mar. 1).

FRUIT INSECTS

PEACH TREE BORER (Sanninoidea exitiosa) - NORTH CAROLINA - Infested nearly 100 percent of 90 two-year-old budded peach trees recently dug in Wake County. Total of 1,000 trees of this size present in block; those undug appear to be 70 percent or more infested. Some trees dead, many badly injured. Up to 13 larvae recovered from a single tree and 7-8 larvae per tree found in most of 10 trees closely examined. Reported badly infesting 5-acre peach orchard of established trees at Rocky Mount, Edgecombe and Nash Counties; nearly all trees infested. Orchard not treated during summer and fall of 1962. (Mount).

PEACH TWIG BORER (Anarsia lineatella) - OREGON - Has emerged from hibernation in Jackson County peach orchards and now feeding in buds. (Berry). CALIFORNIA - Heavy in peach seedlings in Auburn, Placer County. (Cal. Coop. Rpt.).

AMERICAN PLUM BORER (Euzophera semifuneralis) - CALIFORNIA - Damaging peach trees in Loomis, Placer County. Damage in bark around bud union. (Cal. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - OREGON - Has been active and laying eggs since March 1 in Jackson County. Small numbers of eggs observed at Hood River, March 4. (Ellertson, Berry).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - OREGON - Ranged 20-30 per unopened bud cluster in Jackson County pear orchards. Populations concentrated in tops of trees and on sheltered tree trunk areas. (Berry).

PEAR RUST MITE (Epitrimerus pyri) - OREGON - Active in Jackson County fruit orchards. Populations observed in quantity under bud scales. (Berry).

Citrus Insect Situation in Florida - End of February 1963

Special Comment - The Florida citrus industry was very fortunate in that no prolonged period of subfreezing weather occurred over wide areas of the citrus belt after severe freeze of December 12-14, 1962. Extent of cold damage became readily apparent the latter part of February. In severely damaged groves, new growth was absent or confined to central limbs. Groves with lesser damage had developed new leaves over part or all of canopy. Where new leaves were still

undersized by mid-February, many such leaves began to wither or fall, indicating further dieback of weak canopy wood. Some additional withering and dieback is to be expected during March in most December-defoliated groves. Melanose infection is common and expected to be heavier than usual on both leaves and fruit. Insects and mites are still scarce on new flush.

Populations in Freeze-defoliated Groves (Canopy entirely 1963 leaves) - CITRUS RUST MITE (*Phyllocoptruta oleivora*) infested 16 percent of groves; 8 percent economic. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested <1 percent of groves. CITRUS RED MITE (*Panonychus citri*) infested 5 percent of groves; less than 2 percent economic. SIX-SPOTTED MITE (*Eotetranychus sexmaculatus*) infested less than 1 percent of groves. APHIDS infested 20 percent of groves; less than 1 percent economic. WHITEFLIES infested 4 percent of groves; none economic. Populations of SCALE INSECTS are low. Scale insects are not present on new flush.

Populations in Groves with Little or No Freeze Damage (Canopy mostly 1962 leaves) - CITRUS RUST MITE infested 54 percent of groves; 40 percent economic. Populations near normal but increasing. Highest districts are Bartow and Indian River. TEXAS CITRUS MITE infested 44 percent of groves; 24 percent economic. Population is above normal; moderate to heavy infestations expected to be more prevalent than usual. Highest districts are ridge and Indian River. CITRUS RED MITE infested 33 percent of groves; 15 percent economic. Although population will continue to be much below normal, a few heavy infestations will occur. SIX-SPOTTED MITE infested 2 percent of groves; none economic. APHIDS infested 11 percent of groves; none economic. Population is near normal low level at present but will increase in March. WHITEFLIES infested 89 percent of groves; 31 percent economic. Population of larval stage on undersurface of old leaves is much greater than normal. PURPLE SCALE (*Lepidosaphes beckii*) infested 82 percent of groves; 21 percent economic. Infestations are heavier than normal for February but few are a serious threat at this time. Most are still in young stages, not yet susceptible to parasite attack. BLACK SCALE (*Saissetia oleae*) infested 14 percent of groves; none economic. FLORIDA RED SCALE (*Chrysomphalus aonidum*) infested 21 percent of groves; 3 percent economic. Population is below average and infestations are very light. GLOVER SCALE (*Lepidosaphes gloverii*) infested 60 percent of groves; 7 percent economic. CHAFF SCALE (*Parlatoria pergandii*) infested 51 percent of groves; 5 percent economic. Populations of both species continue to be above normal. Very few infestations are important at this time. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS BLACKFLY (*Aleurocanthus woglumi*) - MEXICO - Biological Control Zone - First find of this species in Yucatan; 36 trees found infested in City of Merida. Infestation considerable distance from principal citrus-producing area in Yucatan. Total of 30,045 citrus trees inspected on 31 properties in Tamaulipas; light infestations found on 1,399 trees on 6 properties. Low temperatures killed many parasites in Tamaulipas. Total of 198,400 parasites received for release in groves in Michoacan, San Luis Potosi, Guerrero and Chiapas. Also, 300,000 specimens of a parasitic eulophid (*Prospaltella opulenta*) were captured in San Luis Potosi and 3,080 specimens were captured in Puebla and liberated in groves in those locations. Chemical Control Zone - One adult found near fruit packing-shed in Allende, Nuevo Leon. Very light infestations found on 2 other properties; treatments begun immediately. Inspection of 108,603 citrus trees on 2,927 properties in States of Nuevo Leon, Coahuila, Tamaulipas, Sonora and Baja California showed only 9 trees on 3 properties in Allende infested. This was first find of live citrus blackfly since February 1962. In this area, 52,839 trees on 78 properties received first application; this included 37,100 citrus nursery trees and 8,000 secondary host nursery trees. (PPC, Mex. Reg., Jan. Rpt.).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - TEXAS - One male specimen taken in Cameron County and one female in Willacy County; these are first finds of the season. (PPC, South. Reg., Jan. Rpt.). MEXICO - Inspections in Baja California and northern Sonora negative. (PPC, Mex. Reg., Jan. Rpt.).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Infested Citrus sinensis at Arcadia, De Soto County (Feb. 28). (Fla. Coop. Sur.).

TRUCK CROP INSECTS

Potato Psyllid Survey, Spring Breeding Areas of Arizona and California - 1963

The 1963 potato psyllid (Paratrioza cockerelli) survey was conducted March 7-9 in the overwintering areas of Arizona and California. Weather conditions over much of the area surveyed have apparently been unfavorable for development of wild Lycium, preferred host plant in the breeding area. Lycium plants in the Tucson-Phoenix area were in good condition; however, those in the Blythe-Needles-Barstow area were relatively void of any foliage. The desert area from Needles north was especially dry. Throughout the survey the weather was warm, clear and calm. Psyllids were collected at better than 95 percent of the stops except where there was no foliage on plants. At about 5 percent of the stops, nymphs were numerous and eggs were observed. The survey indicates a potentially light to moderate infestation this season. A comparison of potato psyllid populations found during the spring surveys 1957 through 1963 is shown in the following table. (PPC, West. Reg.).

Potato Psyllid Survey on Overwintering Host
Average No. per 100 Sweeps

State	District	1963	1962	1961	1960	1959	1958	1957
Arizona	Phoenix-Tucson	715	2236	149	665	992	93	95
California	Blythe-Barstow	185	909	41	282	237	96	143

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Appearing on potatoes in Maricopa County, especially where fields adjoin desert area. (Ariz. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light on cabbage in Thomas and Colquitt Counties. (Johnson, Feb. 27).

A NOCTUID MOTH (Proxenus mindara) - CALIFORNIA - Larvae light on sugar beets in Woodland area, Yolo County. This species becoming more common each year. (Cal. Coop. Rpt.).

A LEAF TIER (Udea profundalis) - CALIFORNIA - Larvae light on sugar beets in Woodland area, Yolo County. (Cal. Coop. Rpt.).

ONION THRIPS (Thrips tabaci) - NEVADA - Infestations and damage heavy on green onions in Moapa Valley, Clark County. (Zoller).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - Infestation in stored sweetpotatoes found in Coffee County, GEORGIA, for first time since 1955. Several new infestations found in Forrest and Lawrence Counties, MISSISSIPPI. Inspection of stored sweetpotatoes in LOUISIANA revealed 14 newly infested properties. (PPC, South. Reg., Jan. Rpt.).

APHIDS - MARYLAND - Eggs of an undetermined species averaged 25 per 10 leaves on strawberries at Salisbury, Wicomico County. (U. Md., Ent. Dept.). ARKANSAS - Undetermined species found occasionally on roots of strawberries inspected in White and Woodruff Counties. (Ark. Ins. Sur.).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - LOUISIANA - Regulatory inspections removed in Bienville, Claiborne, Grant, Lincoln, Rapides, Union and Webster

Parishes. (PPC, South. Reg., Jan. Rpt.). ARIZONA - Lint cleaner inspections negative, except in Graham County where 21 larvae found on 49 inspections. (PPC, West. Reg., Jan. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - This species and Ips sp. damaging ponderosa pines in groups and single trees in area of Round Mountain adjacent to Zambini Mill, Shasta County. Some 60 acres of timber being damaged where millowner did not follow up on control work begun 2 years ago. Sanitation salvage has been effective in such instances where it is a continuing practice. (V. Osborn, USFS). D. brevicomis severely damaging groups of ponderosa pine trees in 5-acre private stand. Owner will do control work. Sanitation salvage has been recommended to private owners of small plots and program is increasing. (R. Paulus, USFS).

PALES WEEVIL (Hylobius pales) - ARKANSAS - This species and Pissodes spp. active in southern portion of State. (Ark. Ins. Sur.).

GYPSY MOTH (Porthetria dispar) - Temperatures to date not low enough to kill eggs in VERMONT. Many egg clusters parasitized by an encyrtid (Ooencyrtus kuwanai) in central and southwestern Vermont and in NEW HAMPSHIRE. Total of 211 egg clusters found at 32 locations in MASSACHUSETTS. Egg clusters also found in CONNECTICUT, NEW YORK, and NEW JERSEY. (PPC, East. Reg., Jan. Rpt.).

A GEOMETRID MOTH (Hydriomena nubilofasciata) - CALIFORNIA - Adult populations heavy on live oak trees in Pleasanton, Alameda County. (Cal. Coop. Rpt.).

TENT CATERPILLARS (Malacosoma spp.) - ARIZONA - Reported hatching in large numbers in Pima and Gila Counties; probably will appear in Maricopa County, defoliating cottonwood and other shade trees. (Ariz. Coop. Sur.).

A LEAF MINER - NORTH CAROLINA - An undetermined species killed tips of redcedar in Union County; many redcedars in county affected. (Whitfield, Mar. 1).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - UTAH - Heavy on many poplars and willows in Vernal, Roosevelt and Duchesne areas of Uinta Basin, northeast. (Knowlton).

A JUNIPER TWIG MOTH (Periploca nigra) - CALIFORNIA - Heavy populations occurring in twigs of juniper in Menlo Park, San Mateo County. (Cal. Coop. Rpt.).

A PSYCHID MOTH (Apterona crenulella) - CALIFORNIA - Populations heavy on coffee-berry plants in Rough and Ready, Nevada County. (Cal. Coop. Rpt.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ARKANSAS - Usual heavy infestations present on trees heeled in last year. (Ark. Ins. Sur.). NORTH CAROLINA - Apparently this species responsible for damage to roots of crab apple in Greensboro, Guilford County; however, no specimens found on roots. (Robertson).

AN ARBORVITAE APHID (Cinara tujafilina) - NEW MEXICO - Abundant on arborvitae throughout Dona Ana County; honeydew very noticeable. (N. M. Coop. Rpt.). NEVADA - Light to medium on arborvitae nursery stock recently introduced from out of State. (Bechtel).

APHIDS - NEW MEXICO - Light to moderately heavy infestations of unspecified species reported on chrysanthemums in Las Cruces area, Dona Ana County. (N. M. Coop. Rpt.). ARKANSAS - Probably Lachnus sp., active on pussy willow in Jonesboro, Craighead County, northeast. (Ark. Ins. Sur.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Populations heavy on camphor-trees in Tulare, Tulare County. (Cal. Coop. Rpt.).

Coccids in Florida - Fiorinia these moderately infested Camellia japonica at Dade City, Pasco County (Feb. 27), and Poncirus trifoliata at Grapeville, Seminole County (March 4). Pseudaulacaspis pentagona severely infested Ligustrum sp. at Orange Park, Clay County (Feb. 25), and lightly infested Diospyros sp. at Punta Gorda, Charlotte County (Feb. 27). (Fla. Coop. Sur.).

A MEALYBUG (Trionymus diminitus) - CALIFORNIA - Eggs, nymphs and adults occurring in medium numbers on leaves of Phormium sp. in a nursery in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

DOGWOOD CLUB-GALL MIDGE (Mycodiplosis alternata) - NORTH CAROLINA - Infesting dogwood in New Hanover County. Det. by C. F. Smith. (Mount).

CYCLAMEN MITE (Steneotarsonemus pallidus) - DELAWARE - Heavy on cyclamen plants at a locality in New Castle County. (Burbutis).

A SPIDER MITE (Oligonychus platani) - CALIFORNIA - Heavy on leaves of pyracantha shrubs in Tulare, Tulare County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

EAR TICK (Otobius megnini) - NEW MEXICO - Present in ears of most animals in several cattle herds checked in Sierra County. (N. M. Coop. Rpt.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Becoming active in southeast, with 10-15 per head reported on cattle in Pushmataha County. (Okla. Coop. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - DELAWARE - Heavy infestations in homes reported on numerous occasions throughout the winter months in New Castle and Kent Counties. (Burbutis). WISCONSIN - Several specimens collected in Milwaukee, Milwaukee County; one specimen engorged. (Wis. Ins. Sur.).

TICKS - ARIZONA - Unspecified species reported troublesome in Maricopa and Gila Counties; most reports concern appearance of ticks inside homes. (Ariz. Coop. Sur.).

CATTLE BITING LOUSE (Bovicola bovis) - NEVADA - Unusually heavy on several beef calves in Yerington, Lyon County. (Lundholm).

CATTLE LICE - OKLAHOMA - Several species remain active around State. (Okla. Coop. Sur.). NEW MEXICO - Have become a minor problem on range cattle in Sierra County. (N. M. Coop. Rpt.).

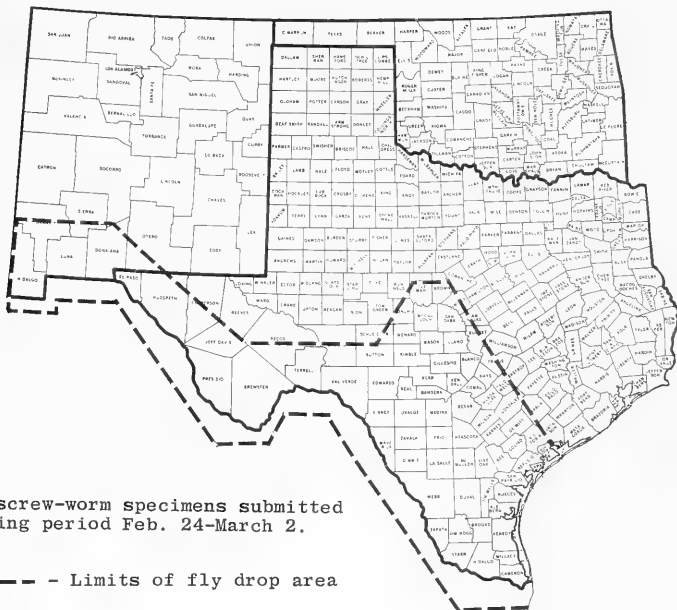
CATTLE GRUBS (Hypoderma spp.) - MICHIGAN - Larvae, up to half grown, present in backs of Holstein heifers shipped in from out of State. (Dowdy). NEVADA - Mostly out of backs of cattle in west central counties. Average 5 per head in one untreated herd in Lovelock, Pershing County. (Arnett, Lauderdale). OKLAHOMA - H. lineatum activity declining. Counts per animal ranged 0-3 on mature cows and 0-6 on steers in Stillwater area, Payne County; ranged 0-1 per head on yearling calves checked at Ponca City, Kay County. Some adult activity noted in Noble, Payne and Creek Counties. (Okla. Coop. Sur.).

MOSQUITOES - DELAWARE - First-stage larvae of Aedes canadensis noted in woodland pools in New Castle County March 7. (R. Lake).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

No screw-worm specimens were submitted for identification during the period February 24 to March 2. This has been the longest period during which no screw-worm specimens have been identified since eradication efforts began in February 1962.

The warming trend in the release area, with no expectation of additional cold spells, makes it extremely critical that all incipient screw-worm infestations must be disclosed immediately to preclude any possible buildup of population in the Southwest. A total of 97,611,450 sterile screw-worm flies was released during the period February 24 to March 2. (Anim. Dis. Erad. Div.).



No screw-worm specimens submitted during period Feb. 24-March 2.

----- - Limits of fly drop area

HOUSEHOLD AND STRUCTURAL INSECTS

BLACK CARPET BEETLE (*Attagenus piceus*) - NORTH CAROLINA - Infested wool carpet in a Cleveland County residence. (Robertson, Mar. 1). WISCONSIN - Reports of infestations beginning to increase. (Wis. Ins. Sur.).

LARDER BEETLE (*Dermestes lardarius*) - MICHIGAN - Adult sample collected in Ottawa County indicated infestation. (Dowdy).

CIGARETTE BEETLE (*Lasioderma serricorne*) - OKLAHOMA - Causing some concern in Lawton area, Comanche County. (Okla. Coop. Sur.).

CONFUSED FLOUR BEETLE (*Tribolium confusum*) - SOUTH DAKOTA - Pestiferous in a Kingsbury County home. (Mast).

SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) - UTAH - Heavy in flour in home at Logan, Cache County. (Hanson, Knowlton).

INDIAN-MEAL MOTH (*Plodia interpunctella*) - OREGON - Infesting cereals in homes in Medford, Jackson County. (Berry).

A PSYCHID MOTH (*Apterona crenulella*) - UTAH - Cases extremely numerous on exterior of home at Logan, Cache County. (Knowlton).

FACE FLY (Musca autumnalis) - SOUTH DAKOTA - Reported as general pest in homes throughout eastern half of State. (Mast)

BOXELDER BUGS (Leptocoris spp.) - UTAH - L. trivittatus annoying in a number of homes in central area of State. (Knowlton). NEVADA - L. rubrolineatus causing concern to home and motel owners in Reno, Washoe County. (Lauderdale).

BROWN-BANDED COCKROACH (Supella supellectilium) - UTAH - Infesting several apartments in a building at Logan, Cache County. (Knowlton). WISCONSIN - Infestations being reported. (Wis. Ins. Sur.).

CLOVER MITE (Bryobia praetiosa) - NEVADA - Causing concern in homes in Reno, Washoe County. (Lauderdale). UTAH - Moderate numbers entering homes in Roosevelt, Duchesne County. (Knowlton). ARIZONA - Infesting some homes in Gila County. (Ariz. Coop. Sur.). NORTH CAROLINA - Infested exterior of home in Wake County. (Mount).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - DELAWARE - First swarms of R. flavipes of season noted March 6 in area of New Castle County. (MacCreary). MARYLAND - Reticulitermes sp. caused severe damage to a building in Langley Park, Montgomery County. Winged reproductive forms noted swarming in and around several homes in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.). FLORIDA - R. flavipes collected in Steiner trap in tangerine tree at Longwood, Seminole County, Feb. 18, and at Clearwater, Pinellas County, February 25. Det. by L. A. Hetrick. (Fla. Coop. Sur.). NEVADA - Unspecified species swarmed in southern Washoe County during last week of February. (Cooney).

PAVEMENT ANT (Tetramorium caespitum) - MARYLAND - Winged forms noted in a Howard County home March 6. (U. Md., Ent. Dept.).

STORED-PRODUCT INSECTS

Stored-product Insects in Oregon - Surveys of warehouses in the Willamette Valley during early March revealed large numbers of VETCH BRUCHID (Bruchus brachialis) on vetch seed at Harrisburg, Linn County, and infestations of RICE WEEVIL (Sitophilus oryzae) and RED FLOUR BEETLE (Tribolium castaneum) in grain at Eugene, Lane County. (Larson).

A PHYCITID MOTH (Ephestia sp.) - WISCONSIN - Reported infesting flax seed. (Wis. Ins. Sur.).

BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - Limited activity of several species observed in alfalfa and wheat checked in southwest area. (Okla. Coop. Sur.).

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Becoming active in wheat and alfalfa checked in southwest area. (Okla. Coop. Sur.).

FLOWER FLIES - NEW MEXICO - Large numbers noted flying around grass and flowers in Valencia and Bernalillo Counties. (N. M. Coop. Rpt.).

AN ICHNEUMON (Banchus cressonii) - FLORIDA - Collected on Citrus sp. at Lake Jem, Lake County, February 20 by W. P. Henderson. This is the second representative of this internal parasite of caterpillars for the Florida State Collection of Arthropods. (Fla. Coop. Sur.).

MISCELLANEOUS INSECTS

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Infestations in Sacramento

continue to extend area of known occurrence, indicating there have been "carry-outs" during time pest has been building up. Area of 15 square miles now involved, which will require treating approximately 1,000 city blocks. Eradicative treatment already applied to 300 blocks; delimiting survey and treatment continuing. Weather has been favorable for treatment; however, predicted rain could slow program materially for several days. Publicity has been good and public cooperation exceptional. (Cal. Coop. Rpt.).

LYGUS BUGS (Lygys spp.) - NEW MEXICO - Abundant on wild mustard in northern Dona Ana County. (N. M. Coop. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - Treatment of 52 acres in Earle, Crittenden County, ARKANSAS, completed. Eradication effort on 100 acres in Tuscaloosa County, ALABAMA, attempted. Larval specimens collected from 3 properties near infestation found at Destrehan, St. Charles Parish, LOUISIANA. (PPC, South. Reg., Jan. Rpt.).

JAPANESE BEETLE (Popillia japonica) - TENNESSEE - Treatments made with aircraft and ground equipment in areas of Blount, Cocke, Johnson, Loudon, Morgan and Roane Counties. (PPC, South. Reg., Jan. Rpt.).

POPLAR BORER (Saperda calcarata) - SOUTH DAKOTA - Specimen, tentatively determined as this species, found in home in Brookings, Brookings County, February 25. Presumably brought into house in poplar firewood. (Spawn).

EARWIGS - ARIZONA - Unspecified species continue a problem in all areas of central and southern portions of State. (Ariz. Coop. Sur.).

DRAIN FLIES - DELAWARE - Undetermined species common in school in New Castle County. (MacCreary).

IMPORTED FIRE ANT (Solonopsis saevissima richteri) - Survey in San Antonio, Bexar County, TEXAS, completed; approximately 250 acres found infested. Some extensions found in Union and Ashley Counties, ARKANSAS; inspections in other counties negative. Inspections and delimiting surveys made in 23 parishes in LOUISIANA indicate no new infestations, but some extensions of known areas. Infestation involving 25 sections found at new location in Sharkey County, MISSISSIPPI, and a small infestation found for the first time in Issaquena County. Appraisal surveys in ALABAMA continue to show good results. New infestation found in Hernando County, FLORIDA, and in Lamar County, GEORGIA. Surveys in NORTH CAROLINA negative except in Carteret County. Extensions of known infestations found in Charleston, Orangeburg and Horry Counties, SOUTH CAROLINA. (PPC, South. Reg., Jan. Rpt.).

ANTS - MICHIGAN - Winged Camponotus sp. adults emerged from infested quarters in Lansing area, Ingham County, March 8. Winged adults of Formica sp. collected in Detroit area, Wayne County. (Dowdy).

LIGHT TRAP COLLECTIONS

FLORIDA, Gainesville (March 4) - No collections of economic importance; Northeast Gainesville (March 5) - GRANULATE CUTWORM (Feltia subterranea) - 17.

GEORGIA, Tifton (Feb. 28-March 6) - No collections.

SOUTH CAROLINA, Charleston (March 4-10) - ARMYWORM (Pseudaletia unipuncta) - 7; FALL ARMYWORM (Laphygma frugiperda) - 1; YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - 3; BLACK CUTWORM (Agrotis ipsilon) - 4; GRANULATE CUTWORM - 10.

SUMMARY OF INSECT CONDITIONS - 1962
(continued from page 212)

TRUCK CROP INSECTS

Eggplant, Pepper, Potato and Tomato Insects

Highlights:

COLORADO POTATO BEETLE adults were extremely abundant on the Eastern Shore of Virginia, being almost unbelievably numerous in early June. Further north on the Delmarva Peninsula, Colorado potato beetle was recorded as light to heavy. Most other States indicated only locally heavy populations. Colorado potato beetle was a serious pest of potatoes in central Washington where treatment was required throughout the season. POTATO FLEA BEETLE caused extensive damage to potatoes in Ohio and on the Eastern Shore of Virginia. In the latter area, tuber damage was greater than any experienced in recent years. WESTERN POTATO FLEA BEETLE was responsible for considerable damage to potato tubers in the Gallatin Valley of Montana. Resistance to previously effective soil insecticides for control of TUBER FLEA BEETLE was noted in Oregon. EUROPEAN CORN BORER was more abundant in potatoes on the Virginia Eastern Shore than at any time since 1959. Locally in Indiana, 100 percent of the potato plants had borer infestations. TOMATO FRUITWORM was much heavier than usual in southern New Mexico. Infestations of LESSER CORNSTALK BORER in Georgia were more severe than in recent years; a number of crops including tomatoes and beans were damaged. APHIDS on solanaceous crops ranged light to heavy, but retreatment was necessary in Massachusetts for control of POTATO APHID. POTATO LEAFHOPPER was the most important insect attacking vegetables in Ohio, and continued to be one of the major insect pests in Indiana. A LEAFHOPPER (Empoasca filamenta) caused extensive damage in Oregon potato fields. The POTATO PSYLLID outbreak in Utah was the most severe in approximately 20 years. VINEGAR FLIES, particularly Drosophila melanogaster, continue to plague the canning industry. In Indiana, this species is the major insect problem confronting the canning industry. A SPRINGTAIL (Entomobrya unostriata) caused severe damage in California to tomato plants.

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) adults were extremely abundant on the Eastern Shore of VIRGINIA, being almost unbelievably numerous in the Painter-Nandua section, Accomack County, in early June. As many as 5 adults per plant were present. Most of the growers on the Eastern Shore were forced to treat three times, but they were successful in checking the chlorinated hydrocarbon-resistant adults with a carbamate or a phosphate. Emergence of the spring brood in Virginia was at a peak around June 12. Staggering of this brood resulted in considerable egg deposition, with the result that adults were quite numerous in some sections and caused damage by feeding on the harvested tubers in late June. Adults of the second brood were still causing considerable damage to some crops in mid-August. Pepper transplants were hard hit in some sections of the Eastern Shore of Virginia; some newly hatched larvae were observed in late September, indicating a partial third brood. In MARYLAND, Colorado potato beetle ranged light to heavy on potatoes and tomatoes. The heavier infestations occurred in home gardens. Eggplants in Montgomery County, Maryland, were also infested. Generally, Colorado potato beetle was under good control in most large commercial acreages of potatoes in DELAWARE; large populations were observed only on small truck farms on potatoes and tomatoes in that State. Adults in NEW JERSEY were abundant and laying eggs in New Brunswick area,

Middlesex County, and in Burlington County on May 22. Colorado potato beetle was of great concern to commercial potato growers in Kent, Washington and Newport Counties, RHODE ISLAND, in late May. Hungry, roaming adults nipped shoots that emerged late due to drought. Hatching was evident in the State by June 15. Controls in Rhode Island were effective during the season. The beetle was serious in nontreated fields in CONNECTICUT and normal on Long Island, NEW YORK. However, populations of Colorado potato beetle were lighter than normal in upstate New York.

Only light infestations of Colorado potato beetle were reported in GEORGIA. These were, however, on commercial tomatoes in the southern area. Populations of the pest caused light to moderate damage to potatoes in south central TEXAS, and light to moderate numbers were present on potatoes in southeast MISSOURI. Also in the latter State, light infestations were observed on widely scattered potato patches in the central and southwestern areas.

Colorado potato beetle in NORTH DAKOTA generally caused little concern during 1962. Sporadic infestations occurred in Park and Fremont Counties, WYOMING, but controls were required only on a few potato fields. Damage was considered very light in nearly all areas. This species apparently infested potatoes for the first time in Cache County, UTAH; statewide it was considered more abundant and/or more damaging than normal. Colorado potato beetle became the most serious pest of potatoes in central WASHINGTON where it required treatment throughout the season. Small numbers were observed in Malheur County, OREGON, in potato fields during June. Light infestations were also noted in potatoes in the Powell-Butte area of Crook County in early July. The edges of the fields showed the most damage in this latter area.

POTATO FLEA BEETLE (*Epitrix cucumeris*) was reported feeding on all solanaceous crops throughout the State of MAINE in early June. It was heavy on tomatoes in the Sacro-Wells area, York County. Summer generation adults were present. In moderate numbers, causing moderate damage to eggplants in the Monmouth area, Kennebec County, in late August. The beetle was common on potatoes in RHODE ISLAND and a buildup appeared likely in late July, but it was not a problem in commercial fields. Potato flea beetle was numerous to abundant on potatoes in some areas of Kent and Sussex Counties, DELAWARE, by mid-May. Feeding injury was very noticeable in several large fields. *Epitrix* spp. were again abundant and troublesome on eggplants and potatoes in all sections of MARYLAND. Newly transplanted tomatoes and peppers on the lower Eastern Shore were held back by TOBACCO FLEA BEETLE (*E. hirtipennis*). Potato flea beetle was relatively light on the Eastern Shore of VIRGINIA and never did cause much foliage damage. However, tuber damage was heavier than any experienced in recent years. Quite a few potatoes were rejected by State Inspectors and some potatoes were turned down on arrival at out-of-State destinations. Potato flea beetle caused extensive damage to potatoes in OHIO where the crop had not been treated adequately. Adult feeding injury began appearing in WISCONSIN on tomato and potato crops near the end of May. Populations remained relatively low in most areas, and the second generation, which commenced about the last week of July, was also low in numbers. The beetle was of little concern in NORTH DAKOTA.

Unspecified FLEA BEETLES were very abundant on potatoes and tomatoes in PENNSYLVANIA, prevalent on potatoes in CONNECTICUT, and a problem on potatoes in Torrance County, NEW MEXICO.

TUBER FLEA BEETLE (*Epitrix tuberis*) populations of 50-100 per 100 sweeps developed in COLORADO on potatoes in Montrose County early in July. Controls were recommended and no loss has been reported. In UTAH, both the potato flea beetle and the WESTERN POTATO FLEA BEETLE (*E. subscrinata*) were approximately normal in numbers and/or injury. This latter species in MONTANA was responsible for considerable damage to potato tubers in the Gallatin Valley during the past several years. Tobacco flea beetle was heavy and damaging to tomato plantings in San Benito County, CALIFORNIA, and light to medium in Butte County, same

State. In OREGON, tuber flea beetle has exhibited resistance to previously effective chlorinated hydrocarbon soil insecticides in one area of Clackamas County.

Undetermined WIREWORMS damaged potatoes in the Fairbanks area of ALASKA, and a wireworm (Cardiophorus sp.) infested tomatoes and potatoes in many locations of CALIFORNIA. Preplant crops were used in several areas of the latter State. SOUTHERN POTATO WIREWORM (Conoderus falli) was abundant in SOUTH CAROLINA on potatoes, but control efforts resulted in satisfactory commercial production. A BLISTER BEETLE (Meloe sp.) was present in moderate numbers on tomatoes in South Kingstown and Narragansett, Washington County, RHODE ISLAND, in September; and some other BLISTER BEETLES (Epicauta spp.) were again common on many crops in INDIANA, especially on tomatoes and potatoes in localized areas. DARKLING BEETLES (Blapstinus sp. and Metoponium sp.) damaged tomatoes in Yolo County, CALIFORNIA.

EUROPEAN CORN BORER (Ostrinia nubilalis) egg masses were common in DELAWARE on pepper seedlings, potatoes and weeds by May 15. Borer infestations in main stems of untreated pepper transplants averaged 15 percent. Late-season borer infestations in mature pepper pods from untreated plots averaged only 10 percent in Sussex County, Delaware. Entries in potatoes and peppers on the lower Eastern Shore of MARYLAND were below normal. The first entries were noted July 25 in Worcester County; little, if any, treatment was applied. More borers were present on potatoes on the Eastern Shore of VIRGINIA than any year since 1959. European corn borer infestation in an area of Jasper County, INDIANA, was 100 percent in potatoes. The overall average was 27 percent infestation and 32 borers per 100 plants. Egg masses were found on peppers in WISCONSIN on August 6 in Marquette County. They were found in Walworth County on August 13. Egg incidence was low and the degree of larval infestation appeared minor.

TOMATO FRUITWORM (Heliothis zea) was relatively scarce throughout the State of NEW HAMPSHIRE. Great concern was excited statewide in RHODE ISLAND due to damage to peppers and tomatoes by the STALK BORER (Papaipema nebris). In MARYLAND, BLACK CUTWORM (Agrotis epsilon) caused moderate injury to late potato tubers in Wicomico and Worcester Counties. CABBAGE LOOPER (Trichoplusia ni) locally infested tomatoes in that State. Cocoons on tomatoes caused a removal problem in a cannery at Baltimore, Maryland. This same species caused some damage to trellised tomatoes in Northampton County, VIRGINIA. Larvae caused rather heavy damage to fall potatoes in northern Accomack County on the Eastern Shore of Virginia in September.

Tomato fruitworm was light to moderate on tomatoes in GEORGIA, caused heavier than usual damage to tomatoes in LOUISIANA and tomato fruits in Zavala County, TEXAS, were severely damaged. Tomato fruitworm was much heavier than usual in NEW MEXICO, and caused severe damage in tomato and chill fields, especially in southern counties. Tomato fruitworm was below average in numbers and in importance in UTAH, and it was present in only light to moderate numbers on tomatoes in COLORADO where it did no damage. Damage in CALIFORNIA was probably not as great as in 1961; tomatoes and peppers were infested.

HORNWORMS (Protoparce spp.) ranged light to heavy on commercial tomatoes in south GEORGIA; caused spotted, medium to heavy damage throughout Westmoreland County, VIRGINIA; and caused conspicuous damage to several tomato fields near harvest in MARYLAND in Talbot County. They were also light to moderate on peppers and tomatoes on the lower Eastern Shore of Maryland. Hornworms were about average abundance in RHODE ISLAND in mid-August. TOBACCO HORNWORM (Protoparce sexta) caused little damage in INDIANA to tomatoes. Fewer larvae were observed on plants and adult flight numbers were down. Protoparce spp. caused some damage to tomato foliage in NORTH DAKOTA in the Jamestown area of Stutsman County, and caused considerable damage to tomato foliage in TEXAS. They were present in trace numbers on tomatoes in COLORADO, and approximately normal in numbers and/or damage in UTAH during the season. Hornworms ranged light to medium in most tomato-growing areas of CALIFORNIA.

POTATO TUBERWORM (Gnorimoschema operculella) appeared on fall potatoes on the Eastern Shore of VIRGINIA and caused rather severe damage to the foliage in late September. Potato tuberworm was below average in numbers and importance in UTAH. In CALIFORNIA, light to heavy populations developed in most of the potato-growing areas from Santa Barbara County southward. Also in California, TOMATO PINWORM (Keiferia lycopersicella) was locally medium to heavy in tomatoes in Solano and San Diego Counties. Tomato pinworm caused light damage to tomato foliage and fruits in Cherokee County, TEXAS.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations in GEORGIA were heavy on a number of crops including tomatoes. Infestations were more severe than in recent years. SALT-MARSH CATERPILLAR (Estigmene acrea) occurred statewide in CALIFORNIA and it was damaging to tomatoes.

An APHID (Hyalopterus atriplicis) was the main species collected in water traps in ALASKA potato fields.

GREEN PEACH APHID (Myzus persicae) was abundant on potatoes in WASHINGTON near Zillah, Yakima County, where it required treatments in early June. No treatments were needed in Columbia Basin areas until two to three weeks later. Leaf counts in COLORADO averaged fewer than 10 per leaf on potatoes. Green peach aphid was very heavy in several pepper fields in DELAWARE where control measures were not adequate from mid-July to September. It was common to abundant at various times throughout the season on tomatoes, potatoes and other crops in that State. The aphid ranged generally light to moderate on peppers on the Eastern Shore of MARYLAND, and it was light to moderate on potatoes and eggplants at Fairland, Montgomery County, during September. Green peach aphid ranged moderate to heavy in PENNSYLVANIA potato fields; common but controlled in commercial potato fields in RHODE ISLAND; was abundant on potatoes, peppers and eggplants in OHIO; and was abundant during August and September in CONNECTICUT.

POTATO APHID (Macrosiphum euphorbiae) developed to light numbers on potatoes in Siskiyou County, CALIFORNIA. This species was below normal for the year in UTAH and was not an important species. Potato aphid populations in western COLORADO and in the San Luis Valley of that State were light to heavy on potatoes depending on the location of the fields in relation to the naturally occurring host plants. Potato aphid caused concern in TEXAS in the Winter Garden area of Dimmit County, and caused considerable damage in MASSACHUSETTS where it required additional treatments in many cases. This species was common in RHODE ISLAND, but controlled in commercial potato fields. Potato aphid was generally under good control on potatoes in most areas of DELAWARE. Heaviest numbers occurred on tomatoes in New Castle County during early July. This aphid occurred on potatoes in Montgomery and Worcester Counties, MARYLAND, and was fairly abundant in PENNSYLVANIA potato fields.

Unspecified APHIDS were spotty in CONNECTICUT, but they carried virus to some crops, especially tomato and vine crops. Aphids were heavy on potatoes.

Unspecified LEAFHOPPERS were present on the VIRGINIA Eastern Shore in June on potatoes. They were especially troublesome where the potatoes were held for potato chip use. Several species of leafhoppers severely damaged potatoes in the Winter Garden area of TEXAS, and they were very abundant in CALIFORNIA where light to heavy populations occurred on potatoes.

Populations of POTATO LEAFHOPPER (Empoasca fabae) increased significantly in MARYLAND, and economic numbers were common on untreated potatoes in most sections. The leafhopper was common on potatoes in RHODE ISLAND throughout the season with some buildup noted around August 1. Potato leafhopper was the most important insect attacking vegetables in OHIO where it caused serious damage to potatoes, peppers, eggplants and other crops; and it was destructive to potatoes in INDIANA. In MICHIGAN, this species was present, but it caused no serious problems in 1962. Potato leafhopper built up to moderate numbers

in MISSOURI during late May and early June. Both nymphs and adults were reported feeding on potatoes in the southeast area at that time. Potato leafhopper was not of much concern in NORTH DAKOTA during the 1962 season, and was approximately normal in both numbers and/or injury in UTAH.

BET LEAFHOPPER (Circulifer tenellus) infected 12 percent of the tomato plants in western COLORADO with western yellow blight, and caused a loss of production of 3-4 percent.

A LEAFHOPPER (Empoasca filamenta) caused extensive damage in OREGON to foliage in Malheur County potato fields from midseason when it caused early maturity of the plants. Control was necessary in most fields. Where it was not controlled, E. filamenta was still active September 15.

A WHITEFLY (Aleyrodes spiraeoides) was less prevalent than usual in WASHINGTON and it did not become a serious pest of the fall crop of potatoes in the central area. WHITEFLIES were pests of peppers and tomatoes over the State of CALIFORNIA. Various species were more abundant in occurrence in 1962 than in former years. A WHITEFLY (Trialeurodes sp.) was heavy on potatoes, tomatoes and eggplants in the Winter Garden area of Dimmit County, TEXAS.

POTATO PSYLLID or TOMATO PSYLLID (Paratrioza cockerelli) population pressure was greater than normal on potatoes in ARIZONA during March, April and May when infestations became heavy in some untreated fields. In UTAH, the early season outbreak of this species was the most severe and extensive to occur in approximately 20 years. Damage in Utah decreased markedly about the time the hot, summer weather arrived. In WYOMING, potato psyllid was first reported in Goshen County on June 17, but it was not found until 3 weeks later in the Big Horn Basin. Populations of potato psyllid did not reach the proportions that they were expected to reach and were generally smaller than those of 1961. Some damage occurred on late-planted potatoes in Goshen and Laramie Counties, Wyoming. In COLORADO, potato psyllid was found on Lycium sp. early in the season and, as new potato plants emerged, this psyllid was found on potatoes at counts of 2-10 per 100 sweeps. Prevailing hot weather in Colorado and early application of control measures prevented a population buildup and loss of potato yields. Tomato psyllid was present on tomatoes in economic numbers but no loss was reported in Colorado. Light infestations of potato psyllid occurred in NEBRASKA on Lycium halimifolium, potato culls, and early potatoes in Scotts Bluff County from May to July.

STINK BUGS damaged tomato fruits in both SOUTH CAROLINA and CALIFORNIA. In the latter State, tomato fields had heavy to medium numbers in several locations. SOUTHERN GREEN STINK BUG (Nezara viridula), BROWN STINK BUG (Euschistus servus) and E. obscurus were noted in LOUISIANA where all three species caused less than the usual amount of damage to tomatoes. LEAF-FOOTED BUG (Leptoglossus phyllopus) also caused less damage than usual in Louisiana to tomatoes.

TARNISHED PLANT BUG (Lygus lineolaris) seemed somewhat in excess of normal level in MAINE; moderate infestations were reported from Cumberland, Oxford, Androscoggin and Sagadahoc Counties where it caused light to moderate damage to peppers. In June, tarnished plant bug adults and nymphs caused moderate amounts of leaf curl and necrosis to 7 acres of potatoes in Wicomico County, MARYLAND.

TOMATO RUSSET MITE (Aculus lycopersici) was not the general problem over the State of CALIFORNIA that it was in 1961. Local, light to medium infestations developed on tomatoes in Sacramento, Santa Barbara and Merced Counties. This and other mites in general were slow in starting, but developed damaging populations in California, with some serious effects as infestations went unnoticed in many crops due to the type of weather. Tomatoes and eggplants were affected to varying degrees. A late buildup of tomato russet mite was noted in

NEW MEXICO on tomatoes, which caused considerable damage to tomato foliage in Luna County. No infestations of tomato russet mite were observed in tomato fields in UTAH. SPIDER MITES were a problem on tomatoes and potatoes in local areas of central and south central TEXAS. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) developed on eggplants in many areas of OHIO.

VINEGAR FLIES (Drosophila spp.) developed earlier than usual on tomatoes in NEW YORK. Vinegar flies were very heavy during August, but quite light in September. Vinegar flies became a problem on the Eastern Shore of MARYLAND in the summer where several large growers had to apply controls. In INDIANA, D. melanogaster continues to be the major insect problem confronting the canning industry. Even though some fields had been treated in that State with an insecticide on a 3-day schedule, adult populations and egg deposition in baits were quite high in late September. D. melanogaster was not the pest it had been in past years in CALIFORNIA due to sanitation and control used on tomato and fruit dumps.

A LEAF MINER FLY (Liriomyza sp.) was especially troublesome in TEXAS in both the Winter Garden, Dimmit County, and the lower Rio Grande Valley areas; these are two of the major vegetable-growing areas of Texas. Unspecified leaf miner flies caused less damage to tomatoes in SOUTH CAROLINA than in the past. Probably several species of leaf miner flies were involved in DELAWARE which were in tomato foliage during late July and early August.

PEPPER MAGGOT (Zonosemata electa) caused considerable injury to eggplant fruits in PENNSYLVANIA.

A THRIPS (Frankliniella occidentalis) and ONION THRIPS (Thrips tabaci) were variable on tomatoes and peppers in TEXAS, but they required control in scattered plantings within several areas of the State. Onion thrips was the most prevalent thrips of truck crops in CALIFORNIA; it occurred on peppers and other crops. Several species of thrips were abundant in MARYLAND on peppers.

GRASSHOPPERS damaged seedling tomatoes in NEW MEXICO at Deming, Luna County, during early May. Some damage resulted from grasshopper invasions into crops in CALIFORNIA, but this was minimal statewide. Light damage occurred in some tomato fields.

A SPRINGTAIL (Entomobrya unostriigata) caused severe damage to seedbed tomatoes and to field sets of young plants in Yolo County, CALIFORNIA.

Bean, Pea and Other Legume Insects

Highlights:

MEXICAN BEAN BEETLE damage continued relatively heavy in most of the States reporting, with lighter populations and damage on the geographic limits of this pest. In Idaho, an eradication program got underway on June 29. The only serious infestations of Mexican bean beetle in Wyoming are confined to Platte County. Mexican bean beetle, which was first reported in Kansas in 1961, has now been collected in Doniphan County for the first time. Other important beetle pests of legumes were BEAN LEAF BEETLE, WESTERN SPOTTED CUCUMBER BEETLE, PEA LEAF WEEVIL, COWPEA CURCULIO and PEA WEEVIL. The last species was collected for the first time in Skagit County, Washington. NOCTUID MOTHS were important, especially in peas grown for canning, in Washington, Oregon and Wisconsin. However, PEA MOTH development in Washington was delayed 2-3 or more weeks and it was not present in June and July. APHIDS were generally well controlled on legumes. LEAFHOPPERS, particularly POTATO LEAFHOPPER, were serious pests of beans on the Eastern Shore of Maryland and Virginia, and in Ohio, Indiana and Missouri. A SMINTHURID SPRINGTAIL (Onychiurus pseudarmatus) prevented emergence of pole beans in the Puyallup Valley of Washington.

GARDEN SYMPHALAN continues to be the worst general pest of vegetables in southwestern Washington, and it is one of the most important pests in the irrigated areas of Oregon. It is estimated that annual losses exceeding several million dollars may be attributed to this arthropod in Oregon.

MEXICAN BEAN BEETLE (*Epilachna varivestis*) was moderate to heavy on southern peas and beans in GEORGIA. In SOUTH CAROLINA, the beetle was especially damaging to home garden beans, but less so than ten years ago due to improved insecticide use. This species was first reported on beans in NORTH CAROLINA in late May, and it continued to feed on this crop throughout the summer. Untreated beans in North Carolina were skeletonized. Mexican bean beetle was present in VIRGINIA on beans early in the season on the Eastern Shore. For the second year, numbers of this species were above normal on beans in MARYLAND. Treatment of considerable commercial acreages was necessary. Adults and larvae were abundant in untreated fields of beans in eastern Sussex County, DELAWARE, from early June to late August, and the pest caused some damage to beans in NEW JERSEY in late June. Mexican bean beetle population remained very light in NEW YORK as it had for the last 4-5 years, but it was increasing in CONNECTICUT by June 15. Adults were evident in RHODE ISLAND at the end of June in Kingston, Washington County, and Warwick, Kent County. They continued present most of the summer. Mexican bean beetle was relatively scarce in NEW HAMPSHIRE.

Mexican bean beetle is under eradication program in IDAHO. Eradication effort was underway June 29 in that State. Populations were very small in WYOMING in 1962 except in Platte County. As a result of application of controls in most bean fields in the county, little damage occurred. This is the second straight year that the only serious infestation in Wyoming occurred in Platte County. Mexican bean beetle was more abundant and/or more damaging than normal in UTAH, but was extremely heavy in NEW MEXICO where it damaged foliage and often killed bean plants in Espanola Valley, Torrance County, and in Rio Arriba and Santa Fe Counties. Damage to beans in COLORADO has been light this past season. Drought, hail and rain during harvest of dry beans caused a greater loss than did this insect. Mexican bean beetle ranged 0-4 per 10 plants in the Arkansas Valley of Colorado and 1-2 per 100 feet of row on the Western Slope. It did not develop appreciably, and controls kept this and other insects at low levels. Mexican bean beetle was first reported in KANSAS in 1961. This species was found for the first time in Doniphan County in 1962 for a new county record. It caused considerable damage to bean plants in the northeast area of Kansas. Light to moderate numbers of Mexican bean beetle caused some damage to beans in central, west central and north central MISSOURI during the growing season. Infestations in ARKANSAS were somewhat more common than normal, but infestations were below normal in OHIO.

BEAN LEAF BEETLE (*Cerotoma trifurcata*) adults were observed in scattered, large populations on green beans in several areas of DELAWARE during May. Adults caused light to heavy foliage injury to both early and late snap beans on the Eastern Shore of MARYLAND. Some damage to beans occurred in VIRGINIA early in the season. In GEORGIA, bean leaf beetle was moderate to heavy on peas and lima, pole and snap beans. Light numbers of bean leaf beetle were observed throughout the State of MISSOURI on snap beans, and the species damaged beans in northeast KANSAS during the year.

STRIPED FLEA BEETLE (*Phyllotreta striolata*) remained about the same as it was in 1961 in WYOMING. Light damage occurred on beans in most of the bean-producing areas of the State.

WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata undecimpunctata*) damaged Romano pole beans, a new variety, in southwestern WASHINGTON, by biting the pod and causing cullage of 0-6 percent. Adult populations were much lower than in 1961. A LEAF BEETLE (*Diabrotica* sp.) was medium in bean fields in Orange and Yolo Counties, CALIFORNIA.

PEA LEAF WEEVIL (Sitona lineata) damaged peas in the Quincy area of Grant County, WASHINGTON, during the early spring. COWPEA CURCULIO (Chalcodermus aeneus) was a serious problem on southern peas in the lower Rio Grande Valley of TEXAS, and this species caused damage to peas in home gardens in VIRGINIA. PEA WEEVIL (Bruchus pisorum) was collected for the first time in Skagit County, WASHINGTON, at La Conner. This bruchid lightly infested fields in the Blue Mountains area of Umatilla County, OREGON; it was present in normal numbers in the Willamette Valley pea acreages, but controls were effective. In NEW YORK, pea weevil again remained at a very low level.

ALFALFA LOOPER (Autographa californica) was abundant on processing peas in Skagit County, WASHINGTON, during July. The first flights were recorded during April in Walla Walla area, Walla Walla County, where larvae severely damaged peas in June. In OREGON, adult and larval activity was extreme in Umatilla County in pea acreages from mid-May. Adults appeared in numbers by June 10 at Milton-Freewater. Larvae were found in the field from June 19 through pea harvest. Control effectiveness was hampered by heavy vine growth and unfavorable weather. TOMATO FRUITWORM (Heliothis zea) larvae infested beans in CALIFORNIA; damage was probably not as great as in 1961, however.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) was more severe in GEORGIA than in recent years. This phycitid was a serious pest of beans, peas and other vegetables. Lesser cornstalk borer was locally destructive on late-planted home garden beans and southern peas in SOUTH CAROLINA. Light to medium populations developed on string beans in CALIFORNIA late in the season in Orange County.

LIMA-BEAN POD BORER (Etiella zinckenella) damaged lima beans in Quincy area, Grant County, Columbia Basin, WASHINGTON. Damage ranged from 10 to 20 percent. This is the first record of damage in the irrigation project. Very light infestations developed in CALIFORNIA on lima beans in Orange County.

PEA MOTH (Laspeyresia nigricana) development was delayed 2-3 or more weeks in WASHINGTON. It was not present during June and July. Infestation was found in wild hosts in Skagit County, Washington, during late fall, and oviposition continued into October.

SALT-MARSH CATERPILLAR (Estigmene acrea) occurred statewide in CALIFORNIA where it was damaging to beans and other crops. Use of barrier strips prevented considerable damage from migrating larvae.

GREEN STINK BUG (Acrosternum hilare) caused damage to beans in VIRGINIA home gardens. STINK BUGS caused spotted damage to bean pods in SOUTH CAROLINA. SOUTHERN GREEN STINK BUG (Nezara viridula), BROWN STINK BUG (Euchistus servus), E. obscurus and LEAF-FOOTED BUG (Leptoglossus phyllopus) caused less than the usual amount of damage to cowpeas and beans in LOUISIANA.

LYGUS BUGS (Lygus spp.) caused light damage in WYOMING where they attacked beans in the southern part of the State. Numbers were considerably larger in 1962 than those of 1961. No specific controls were applied in Wyoming.

PEA APHID (Acyrtosiphon pisum*) was present on peas in NEW YORK, but it was lighter than usual. It was fairly abundant on peas in PENNSYLVANIA and control measures were necessary in some fields. By the first week of May, pea aphid was fairly common in DELAWARE on peas in Sussex County and, by mid-May, counts of the aphid in several large, untreated fields averaged over 40 per sweep. The applied controls for pea aphid in Delaware appeared adequate in most areas. Pea aphid in WISCONSIN appeared as winged forms in peas the fourth week of May, which is about one week later than in 1961. Populations seldom reached the point where controls were needed and it was generally less of a problem than in 1961. In OREGON, populations of pea aphid were held in check in the Umatilla County area by looper controls.

* See CEIR 13(5):84.

BEAN APHID (*Aphis fabae*) was heavy in commercial lima beans in PENNSYLVANIA, and the aphid increased generally over 1961 on lima beans in areas of New Castle and Kent Counties, DELAWARE, especially from mid-July to late August. Bean aphid was numerous on beans in several gardens in the Ogden area of Weber County, UTAH, during the summer, but was generally normal in numbers and/or damage in the State. The aphid was not so prevalent in CALIFORNIA as in other years. Light to medium populations were experienced in bean plantings in Orange and Merced Counties. Bean aphid began to appear in the Willamette Valley of OREGON in pea fields the first week of July. Colonizing was sufficient that controls were required by July 15. Bean aphid damage was noted in untreated bean fields in western WASHINGTON.

POTATO LEAFHOPPER (*Empoasca fabae*) increased significantly in MARYLAND and economic infestations were common on untreated beans in most sections of the State. LEAFHOPPERS were present and increasing on beans in VIRGINIA in late June on the Eastern Shore. Potato leafhopper remained light to moderate in NEW YORK on beans. In OHIO, this leafhopper was the most important insect attacking vegetable crops during 1962. It caused serious damage to beans. Potato leafhopper also continues to be one of the major insect pests of the State of INDIANA; it was destructive to beans in 1962. Moderate numbers of adults and nymphs were reported feeding on snap beans in MISSOURI during late May and early June in the southeast area.

CLOVER MITE (*Bryobia praetiosa*) locally attacked beans in Orange and San Diego Counties, CALIFORNIA. SPIDER MITES were moderate to heavy on various hosts in NEVADA, especially corn and beans. Statewide, spider mites reached peaks in July-September period. TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) was common in central and northern UTAH beans in the late summer. The damage was sometimes severe. In COLORADO, large populations of this species developed on dry beans in some fields in Weld County. Spider mites were a problem locally on southern peas and beans in central and south central TEXAS. Two-spotted spider mite was very heavy on bean foliage in Washington County, RHODE ISLAND, in mid-August. The heaviest spider mite infestations developed statewide in DELAWARE on lima beans during late July. Two-spotted spider mite developed on beans in many areas of OHIO.

ONION THRIPS (*Thrips tabaci*) was the most prevalent thrips in truck crops in CALIFORNIA where it attacked beans and other crops. BEAN THRIPS (*Hercotrips fasciatus*) was also present over a wide area in California. It was a pest of beans in Yolo County where medium numbers occurred. Bean thrips appeared in approximately normal numbers and/or injury in UTAH. Several species of thrips were abundant on beans in MARYLAND.

A LEAF MINER FLY (*Liriomyza* sp.) was especially troublesome on beans and southern peas in TEXAS in both the Winter Garden, Dimmit County, and the lower Rio Grande Valley areas.

SEED-CORN MAGGOT (*Hylemya ciliocrura*) damaged beans in Prairie County, MONTANA, and seriously damaged bean plantings in the Willamette Valley of OREGON.

A SMINTHURID SPRINGTAIL (*Onychiurus pseudarmatus*) prevented emergence of pole beans in the Puyallup Valley of WASHINGTON.

GARDEN SYMPHALAN (*Scutigerella immaculata*) continues to be the worst general pest attacking vegetables and small fruits in southwestern WASHINGTON; it even damaged pole beans in treated soil and continued to damage plants later than usual, probably due to the very cool, wet spring.

Beet, Sugar Beet and Spinach Insects

Highlights:

Most of the NOCTUID MOTHS reported were not serious on sugar beets, although some loss was reported. YELLOW-STRIPED ARMYWORM caused widespread heavy loss to spinach in Texas. BEET WEBWORM was remarkably low in major sugar beet areas. Light to moderate numbers were reported only from western Colorado. SUGAR-BEET CROWN BORER did cause local, severe damage in California. APHIDS were troublesome on sugar beets and spinach in many States. GREEN PEACH APHID was extremely numerous on sugar beets near peach orchards in Washington. This species developed the worst infestations ever recorded locally in California on sugar beets and spinach. Two major truck garden areas in Texas were severely hit by green peach aphid where populations were heavy enough to kill spinach plants. BEET LEAFHOPPER transmitted curly top to sugar beets in three counties in Wyoming; a reduction of 2-3 tons per acre was recorded in one of these counties. WESTERN POTATO FLEA BEETLE severely damaged or destroyed approximately 500 acres of sugar beets in Montana. A WEEVIL (*Cosmobaris americana*) seriously damaged or destroyed large acreages of sugar beets in California. TWO-SPOTTED SPIDER MITE caused excessive damage to row crops in Washington. When potatoes ripened prematurely, sugar beets were seriously infested by this species.

ARMY CUTWORM (*Chorizagrotis auxiliaris*) development was light in sugar beet planting in the Antelope Valley, Los Angeles County, CALIFORNIA. Mass invasions in 1961 indicated that this noctuid might be a severe pest in 1962, but infestations did not develop. WESTERN YELLOW-STRIPED ARMYWORM (*Prodenia praefica*) and ZEBRA CATERPILLAR (*Ceramica picta*) caused light damage to sugar beets in Churchill County, NEVADA, in July. ALFALFA LOOPER (*Autographa californica*) larvae moved into adjoining sugar beet fields in WYOMING when controls were applied on alfalfa. Various CUTWORMS caused some loss to sugar beets in COLORADO in individual fields in Mesa County. YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) caused widespread, heavy damage in TEXAS to spinach. CABBAGE LOOPER (*Trichoplusia ni*) locally infested spinach in MARYLAND.

BEET WEBWORM (*Loxostege sticticalis*) was very low in numbers in MINNESOTA, with only an occasional larva found on early planted sugar beets in the Red River Valley. Although beet webworm was fairly high in numbers of adults in the field and in light traps in NORTH DAKOTA, little or no larval feeding on sugar beets was reported or observed. Populations were far below those present in 1961 in WYOMING; very little damage to sugar beets was found and then only in a few fields. It was also below average in numbers and importance in UTAH. Economic populations did not occur in eastern COLORADO on sugar beets. Light to moderate populations did occur in the western part of the State. BEET ARMYWORM (*Spodoptera exigua*) developed in central ARIZONA on sugar beets.

SUGAR-BEET CROWN BORER (*Hulstia undulatella*) caused local, severe damage in CALIFORNIA on sugar beets in the Antelope Valley of Los Angeles County. In UTAH, this pest was below average in importance and numbers.

GREEN PEACH APHID (*Myzus persicae*) was extremely numerous on sugar beets near peach orchards in WASHINGTON, but scarce in the Columbia Basin. Populations were much lower than normal in Quincy area, Grant County, presumably because of the abandonment of large peach orchards in Crescent Bar area south of Wenatchee. Green peach aphid was general on most truck crops in CALIFORNIA and required control a greater part of the year. Sugar beets and spinach had the worst infestations ever recorded in the Soledad area, Monterey County. Infestations of green peach aphid on sugar beets in NEVADA were above the 1961 level in Clark County, but lighter than normal. Peak populations occurred in

March and April. Green peach aphid was present and increasing in VIRGINIA on commercial plantings in late April on the Eastern Shore, but most of the spinach had been harvested. There were no rejections because of aphids. The infestations on planting at the Painter Station, Accomack County, were essentially eliminated by a disease or fungus. On the Eastern Shore of MARYLAND, populations ranged light to moderate on spinach during September. Green peach aphid was common in DELAWARE throughout the season on spinach. A very heavy population developed in NEW YORK on the fall spinach crop. Green peach aphid was heavy enough to kill some spinach plants in both Winter Garden, Dimmit County, and the lower Rio Grande Valley areas of TEXAS.

BEEF LEAFHOPPER (Circulifer tenellus) transmitted curly top to sugar beets in Washakie, Big Horn and Hot Springs Counties, WYOMING. The first infected plants were found in late June, but the first beet leafhopper was not picked up until July 17. Although infection in Wyoming was not as high as in 1961, reductions of 2-3 tons per acre occurred in Washakie County. Economic populations did not occur in eastern COLORADO, but beet leafhopper was light to moderate in numbers in western Colorado, with the incidence of curly top at 1-5 percent. In UTAH, beet leafhopper was below average in numbers and importance. LEAFHOPPERS were very abundant in CALIFORNIA where light to heavy populations occurred on sugar beets. Curly top symptoms on spinach in TEXAS in the Winter Garden area, Dimmit County, were minimal.

BUFFALO TREEHOPPER (Stictocephala bupalus) invaded sugar beet plantings in fairly heavy numbers in the Imperial Valley of CALIFORNIA, Imperial County.

WESTERN POTATO FLEA BEETLE (Epitrix subcrinita) larvae attacked sugar beet seedlings in MONTANA in Richland County. Approximately 500 acres were severely damaged or destroyed. High soil moisture content resulting from frequent, heavy rains caused the larvae to feed at or near the surface when they normally feed on the rootlets. Sugar beet fields in Montana, which had been in alfalfa or beans the previous year, were the only fields infested. STRIPED FLEA BEETLE (Phyllotreta striolata) populations were about the same as in 1961 in WYOMING. Some damage was done to sugar beets during May and June in Goshen County and in the Big Horn Basin. SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) caused some leaf damage to spinach in the Winter Garden area, Dimmit County, TEXAS.

SEED-CORN BEETLE (Agonoderus lecontei) caused some damage to sugar beets in Prowers County, COLORADO.

A WEEVIL (Cosmobaris americana) occurred on sugar beets in CALIFORNIA in heavy numbers in the Stockton area of San Joaquin County. This is the only location where this weevil was reported in the State. Large acreages of sugar beets were seriously damaged and some acreage was a total loss.

SPINACH LEAF MINER (Pegomya hyoscyami) caused damage to spinach in Walla Walla, Walla Walla County, WASHINGTON. This species built up in Marion County, OREGON, beet fields through midsummer. Spinach leaf miner was approximately normal in numbers and/or injury in UTAH. In WYOMING, this muscid fly was more numerous on sugar beets in 1962 than in the past several years. However, little damage is done by the feeding of the larvae and for that reason it is not considered a serious crop pest.

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) in UTAH remained at approximately normal numbers and/or injury. Economic populations on sugar beets in COLORADO did not occur in the eastern part of the State. In Walsh and Grand Forks Counties, NORTH DAKOTA, sugar beets were damaged in areas.

LYGUS BUGS (Lygus spp.) caused some damage to sugar beets in all areas of WYOMING where that crop is grown. Populations were considerably larger than those present in 1961, but no specific controls were applied.

BANDED GREENHOUSE THRIPS (*Hercinothrips femoralis*) developed medium populations on sugar beets in Yolo County, CALIFORNIA. ONION THRIPS (*Thrips tabaci*) also occurred on sugar beets in California.

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) caused excessive damage to row crops in WASHINGTON in the Columbia Basin, but less than in previous years due to the cool season. Development of this species was delayed 2-3 or more weeks. Potatoes were ripened prematurely and sugar beets were heavily infested. Sugar beets were affected by MITES in varying degrees in CALIFORNIA.

Crucifer Insects

Highlights:

NOCTUID MOTHS, particularly CABBAGE LOOPER, were again abundant on crucifers in many areas of the country, but controls were generally good except in Georgia where some control difficulty was encountered. IMPORTED CABBAGEWORM and DIAMONDBACK MOTH were two other serious lepidopterous pests of crucifers throughout much of the United States. Large numbers of RED TURNIP BEETLE caused considerable damage to crucifers in Alaska. CABBAGE SEEDPOD WEEVIL resistance to one of the standard control chemicals appears to be developing in Washington. Both CABBAGE APHID and TURNIP APHID and, to a lesser extent, other aphids were abundant on crucifers in Eastern and North Central States. Where colonies of cabbage aphid were established in Wisconsin, infestations could not be eliminated, only checked. Cabbage aphid also developed well in California and Oregon. In the latter State, control was necessary in broccoli fields. TURNIP MAGGOT was serious as usual in Alaska, but infestations appeared one month later than normal. CABBAGE MAGGOT continues to be a problem in western Washington where resistance to soil insecticides was noted. Resistance to insecticides was also noted in Oregon, but the standard controls are still effective in New York. Cabbage maggot was damaging to destructive in California, Montana, Wisconsin, Michigan and Pennsylvania as well.

CABBAGE LOOPER (*Trichoplusia ni*) was again abundant and destructive to several cole crops in all sections of MARYLAND. On the Eastern Shore of VIRGINIA, cabbage looper was present but not numerous on cole crops in late June. It increased in abundance in August due to a period of dry weather, and it did not respond to chemical treatment. At that time, about 10 percent of the larvae on broccoli at the Painter Station, Accomack County, was infected with a nuclear polyhedrosis virus. This looper followed the usual course of building up to very high numbers on cole crops on the Eastern Shore and then being taken out with a virus in September. All insecticides were generally ineffective against cabbage looper. Cabbage looper in NORTH CAROLINA caused considerable damage to commercial cabbage in Pasquotank County in mid-June. This insect and *Pieris rapae* combined to riddle untreated cabbage in many areas of North Carolina. Cabbage looper was abundant on collards locally in SOUTH CAROLINA, and a number of farmers had difficulty controlling the pest in GEORGIA, where light to heavy infestations occurred on cabbage. Cabbage looper also caused severe damage in MISSISSIPPI in several localities.

Cabbage looper developed heavy on cole crops in ARIZONA during the fall. Populations were slow in developing in CALIFORNIA but became general and damaging to many truck crops. Infestations remained unusually late. In OREGON, cabbage looper populations increased rapidly in the crucifer-growing areas of Multnomah, Marion and Washington Counties the week of September 16. It was not observed in northwestern WASHINGTON. Cabbage looper was found only in trace numbers in COLORADO on cabbage; damage was very light. The looper damaged brussels sprouts,

cabbage, broccoli, kohlrabi and mustard in Dimmit County, TEXAS, and in the southeastern area of the State. Cabbage looper was less abundant than usual in OHIO; was of minor importance in MICHIGAN in mid-August; was very light throughout NEW YORK; and was relatively scarce in NEW HAMPSHIRE.

IMPORTED CABBAGEWORM (*Pieris rapae*) infestations in MAINE were observed in only a few locations by mid-July; moderate to heavy infestations were causing severe damage to broccoli and cauliflower in Orono area, Penobscot County; and light numbers and injury were found on cole crops in Cumberland County in late August. Heavy numbers were observed causing severe damage to cauliflower and cabbage in the Presque Isle area, Aroostook County, Maine. Imported cabbageworm was only moderately abundant in NEW HAMPSHIRE. The outer leaves of cole crops were damaged in late summer in RHODE ISLAND. Adults were noted in the State throughout the season. Larvae were usually accompanied by cocoons of a parasitic braconid (*Apanteles* sp.) in Rhode Island. Imported cabbageworm was present early in the season in NEW YORK; however, it never built up beyond a moderate infestation. An incidence of parasitism by *Apanteles* sp. was noted throughout the season. Imported cabbageworm populations in MARYLAND during June and July were heavy on cabbage and other cole crops in most sections of the State. On the Eastern Shore of VIRGINIA, this butterfly was quite numerous in cole crops in late June and present in late September, but in general it was controlled by treatments applied for cabbage looper. Infestations in GEORGIA were light to moderate on cabbage.

Imported cabbageworm was a problem on cabbage in MICHIGAN, especially during May and June. In OHIO, populations were about normal during 1962. Larvae were not observed in WASHINGTON, although adults were numerous. Larvae became a serious threat to crucifer plantings in Multnomah, Washington and Marion Counties in OREGON after September 17. At that date, egg laying was generally observed but control proved effective. Imported cabbageworm was approximately normal in numbers and/or injury in UTAH during the season. Imported cabbageworm caused heavy damage to cole crops in isolated areas of NORTH DAKOTA.

Cabbage looper and imported cabbageworm combined to riddle untreated cabbage in many areas of NORTH CAROLINA, and these two species destroyed nearly 100 percent of the cabbage plantings in northeast KANSAS.

DIAMONDBACK MOTH (*Plutella maculipennis*) developed fairly heavy populations in CALIFORNIA on cabbage in the Thermal area, Riverside County. In OREGON, this species was extremely abundant in Ontario-Nyssa area, Malheur County, crucifer plantings in mid-June. Larvae were not observed in northwestern WASHINGTON, although adults were numerous. During 1962, extremely large flights were observed in MONTANA. Diamondback moth was more damaging and/or abundant than usual in 1962 in UTAH. Only trace numbers were found in COLORADO on cabbage. Damage in that State was very light. Diamondback moth was scarce on the Eastern Shore of VIRGINIA. A few were noted on cole crops in late June and it was present in late September but, in general, diamondback moth was controlled by treatments applied for cabbage looper.

CROSS-STRIPED CABBAGEWORM (*Evergestis rimosalis*) was noted in 2 garden plantings of cabbage in Randolph and Wilson Counties, NORTH CAROLINA, in early July. SOUTHERN CABBAGEWORM (*Pieris protodice*) was heavy on broccoli in Santa Cruz County, CALIFORNIA; and ALFALFA LOOPER (*Autographa californica*) was abundant on processing broccoli in Skagit County, WASHINGTON, during July. Young cabbage in Deaf Smith County, TEXAS, was severely damaged by TOMATO FRUITWORM (*Heliothis zea*).

RED TURNIP BEETLE (*Entomoscelis americana*) was found in large numbers and caused considerable damage to all crucifers in gardens in most of the native villages along the Yukon and Kuskokwim Rivers in northern ALASKA.

STRIPED FLEA BEETLE (*Phyllotreta striolata*) caused damage to crucifer seedbeds early in the season in NEW YORK, and *Phyllotreta* spp. were again abundant on several cruciferous crops in MARYLAND during 1962. Unspecified FLEA BEETLES

damaged cabbage in Dona Ana County, NEW MEXICO; treatments were effective. Striped flea beetle populations in WYOMING were about the same as in 1961. Radishes were heavily damaged in Park County.

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) adults first appeared in north-western WASHINGTON on April 16, which was 2 weeks later than normal. Resistance to one of the standard control chemicals appears to be developing.

HARLEQUIN BUG (Murgantia histrionica) infested collards in MARYLAND in Prince Georges County, and kale and broccoli in Prince Georges and Wicomico Counties, same State. Harlequin bug was a pest of kale, cabbage, turnips and other crops in many areas of TEXAS.

CABBAGE APHID (Brevicoryne brassicae) displayed considerable activity over most of MAINE. Damage was reported heavy in York County and moderate in Orono area, Penobscot County, in early June. Cabbage aphid caused moderate injury to radishes in Kennebunkport, York County, in mid-June. Heavy populations and severe damage occurred in Falmouth area, Cumberland County, in mid-July to turnips. Heavy egg deposits were found in Hancock County during this same period. Cabbage aphid massed on broccoli in RHODE ISLAND in Kingston, Washington County, in mid-August, but it was not economically important. The pest was quite prevalent early in the season in NEW YORK; however, it did not reach the anticipated high number due to the extremely cool conditions which existed throughout the State during the growing season. Cabbage aphid heavily infested some plantings of cabbage in Montgomery and Prince Georges Counties, MARYLAND. Cabbage aphid was generally distributed and caused more damage than usual on the Eastern Shore of VIRGINIA in April. Control measures were hampered by the continued cool weather.

Cabbage aphid was generally a problem in MICHIGAN during May and early June on all crucifers. Populations were generally high also in WISCONSIN in most cabbage-growing areas, although less so in Shawano County than in southeastern counties. Where colonies had once become established, infestations could generally only be checked, not eliminated.

Cabbage aphid caused heavy damage in TEXAS to cabbage in the Winter Garden area, Dimmit County, and in the lower Rio Grande Valley. The aphid developed well in CALIFORNIA because of the cool weather which prevailed. Most crops were infested. Control was necessary on broccoli fields in OREGON in the Gresham area, Multnomah County, from October 13. Cabbage aphid was approximately normal in numbers and/or injury in UTAH.

TURNIP APHID (Hyadaphis pseudobrassicae)* was very common on turnips in OHIO, and averaged up to 75 per leaf on turnips in the Winter Garden area of TEXAS during February. GREEN PEACH APHID (Myzus persicae) was abundant on radishes and turnips in OHIO, and there was a considerable incidence of migrating forms of green peach aphid in NEW YORK early in the season, but no serious infestations developed on cole crops. Undetermined APHIDS were heavy in Baltimore County, MARYLAND, on commercial young turnips, and they were a problem on collards in SOUTH CAROLINA. Various species of APHIDS increased on greens crops late in 1962 in ARKANSAS.

TURNIP MAGGOT (Hylemya floralis) was serious as usual in ALASKA, but infestations on crucifers were not serious until late June instead of late May. Larvae were still active in turnips in mid-September. Normally only pupae are found after the third week in August. SEED-CORN MAGGOT (H. cilicrura) continued to be found in the Matanuska Valley of Alaska, especially on crucifers infested early by the turnip maggot.

* See CEIR 13(5):84

CABBAGE MAGGOT (Hylemya brassicae) continues to be a problem in western WASHINGTON where resistance to soil treatments was noted. It was found to be partially resistant to cyclodiene chemicals at Northwestern Washington Experiment Station. Serious problems on commercial broccoli resulted from control applications being used too late. Resistance was also noted in OREGON where resistance to previously effective soil insecticides is showing up, particularly in the crucifer-growing area of Multnomah County. Cabbage maggot was damaging to several crops in CALIFORNIA; brussels sprouts in Santa Cruz County and turnips in San Benito County were injured. Cabbage plantings in MONTANA, in the Phillipsburg area, Granite County, were destroyed by cabbage maggot. Cabbage maggot became noticeable in cabbages and radishes in WISCONSIN in scattered areas, with infestations of the first generation being the worst in many years in the Racine-Kenosha area. In lower MICHIGAN, untreated radishes were seriously injured in the muck areas. Cabbage maggot caused severe injury to early planted cabbage in the central part of PENNSYLVANIA. Infestations in NEW YORK remained normal. The standard chlorinated hydrocarbon insecticides continued to control this pest under conditions existing in New York. Cabbage maggot was not serious in CONNECTICUT as most commercial fields were treated early, nor was it commercially significant in RHODE ISLAND and NEW HAMPSHIRE.

SNAILS and SLUGS were especially severe on cabbage in coastal villages of southeast ALASKA.

Cucurbit Insects

Highlights:

A LEAF BEETLE (Acalymma gouldi), which had not been found in Indiana since the original type was collected there in 1942, was again found in numbers in 1962. STRIPED CUCUMBER BEETLE was also abundant in Indiana and in Maryland, Rhode Island and Maine. MELON APHID was troublesome locally in Massachusetts, and SQUASH BUG required treatments in Texas. SPIDER MITES were a serious problem in Maryland.

STRIPED CUCUMBER BEETLE (Acalymma vittata) appeared in the middle of May in INDIANA, which is about 2 weeks earlier than usual. On the whole, wilt was much more prevalent than in former years. Adults migrated into commercial fields and home gardens in small numbers over a period of several weeks. As a consequence, fewer acres were treated with sufficient insecticides to check the striped cucumber beetle and thus the bacterial wilt which it helped spread. Counts were lower in OHIO in 1962 than they were in 1961. Adults were again abundant in most sections of MARYLAND and injurious to young cucumbers and squash. In August, late cucumber, squash and pumpkins in Baltimore and Worcester Counties were attacked. Striped cucumber beetle was present early in the season in NEW YORK, but the population is considered to have been lighter than normal. This beetle build up heavily in Washington, Kent and Providence Counties, RHODE ISLAND, in early July. Striped cucumber beetle was reported from numerous locations in MAINE. Population levels varied from moderate to heavy, and damage to cucumbers and squash in particular was moderate to severe. Striped cucumber beetle was observed feeding in MISSOURI gardens. A related LEAF BEETLE (Acalymma gouldi), described by H. S. Barber from specimens collected in INDIANA in 1942, and which had not been collected in that State since, was relatively numerous during the fall of 1962 and was found feeding on wild cucumber, squash, melons and cucumbers.

SQUASH BEETLE (Epilachna borealis) was present in gardens in Peace Dale, Washington County, RHODE ISLAND, July 2 and through September. This species is not widespread nor well known in the State.

MELON APHID (Aphis gossypii) was heavy locally on cucumbers during early August in RHODE ISLAND, and very troublesome on pickling cucumbers in MASSACHUSETTS. It was rather abundant on pumpkin-squash in several areas of DELAWARE during late August and on melons in one area of Kent County. Melon aphid built up heavier-than-normal populations in NEW YORK on cucurbits and attacked cantaloups and watermelons in all areas of TEXAS. Melon aphid damage was below normal this past season in UTAH, although it was locally damaging. In CALIFORNIA, medium populations were noted on squash locally in Santa Cruz County.

LEAFHOPPERS were very abundant in CALIFORNIA and light to heavy populations occurred on melons and squash.

CABBAGE LOOPER (Trichoplusia ni) damaged squash in the Winter Garden area, Dimmit County, and in the southeastern area of TEXAS. Light infestations were present on melons in ARIZONA during the spring. Cabbage looper locally infested pumpkins in MARYLAND, and CUTWORMS damaged young cantaloup plants in Churchill County, NEVADA.

SQUASH VINE BORER (Melittia cucurbitae) adults were in flight in Peace Dale, Washington County, RHODE ISLAND, July 18. No reports of economically significant concentrations were reported. Adults appeared in WISCONSIN beginning the third week of June, and egg laying was common by the first week of July. Larval infestations were severe in several plantings of pumpkins in Dane County where death of the vines and premature ripening of fruit occurred. Squash vine borer heavily damaged squash plants in Trinity County, TEXAS, and MELONWORM (Diaphania hylinata) damaged watermelons and cantaloup plants in south Texas.

SQUASH BUG (Anasa tristis) required treatment on squash and melons in most areas of TEXAS. In MISSOURI, the bug was observed feeding in gardens and on truck crops. This coreid was below average in numbers and importance in UTAH. Populations in NEVADA were lower in the central counties than they were in 1961. It was very heavy in the southern counties.

TARNISHED PLANT BUG (Lygus lineolaris) infestations in MAINE seemed somewhat in excess of the normal level. Moderate infestations were reported from Cumberland, Oxford, Androscoggin and Sagadahoc Counties, causing light to moderate damage to squash and other crops.

Several WHITEFLIES were pests of melons over the State of CALIFORNIA. These whiteflies were more abundant in occurrence in 1962 than in former years.

LEAF MINER FLIES, probably several species, were present to fairly common on pumpkins and squash in DELAWARE in late August. A leaf miner fly (Liriomyza sp.) was especially troublesome on cantaloups and watermelons in both the Winter Garden, Dimmit County, and the lower Rio Grande Valley areas of TEXAS.

SPIDER MITES (Tetranychus spp.) were again a serious problem in MARYLAND in several plantings of cantaloups and watermelons on the lower Eastern Shore. Spider mites were also a problem in local areas of TEXAS on cucurbits in central and south central areas. PACIFIC SPIDER MITE (T. pacificus) developed medium populations on melons in Yolo County, CALIFORNIA, in September.

A THRIPS (Taeniothrips orionis) was numerous on cucumber blossoms in ALASKA where it was noted feeding on pollen in greenhouses in Fairbanks area. Thrips, primarily Frankliniella occidentalis, were light to heavy on melons in ARIZONA during the spring and early summer. F. occidentalis and ONION THRIPS (Thrips tabaci) were variable on melons, but required control in scattered plantings in TEXAS. Several species of THRIPS were abundant on cucumbers and cantaloups in MARYLAND; many infestations were overlooked by the growers.

An EARWIG (Euborellia cincticollis) occurred in fairly heavy numbers in melon fields in Imperial County, CALIFORNIA. Primary damage is the breaking of the skin on the underside of the melons which allows fungi to cause rot.

A SMINTHURID SPRINGTAIL (Onychiurus pseudarmatus) damaged cucumber plants in Skagit County, WASHINGTON.

Asparagus and Onion Insects

Highlights:

ONION MAGGOT caused considerable damage to green bunching onions in Colorado, but lesser amount of damage to dry onions. ONION BULB FLY was found for the first time in Pondera County, Montana; a new State record. ASPARAGUS BEETLE was collected for the first time in Nebraska. ONION THRIPS was the most prevalent thrips on truck crops in California. This species was medium to heavy on green onions and heavier than normal on dry onions in Nevada.

ONION MAGGOT (Hylemya antiqua) caused considerable damage to green bunching onions in COLORADO and lesser amounts of damage to dry onions in Adams and Weld Counties, same State. Onion maggot was found in Montrose County onion fields in July and early August mainly in plants that had been infected with a disease early in the growing season. Loss of dry onions due to insects in Colorado has been less than 1 percent. In areas where losses have been relatively high, the practice of better field sanitation and crop rotation would aid materially in reducing the loss. Onion maggot was approximately normal in numbers and/or injury in UTAH. This fly caused only slight damage in OREGON to onions in the Willamette Valley and Ontario area, Malheur County. Onion maggot was evident early in the season in MICHIGAN in all onion-growing areas, especially at the ends of rows. No evidence of resistance was observed in Michigan to the presently recommended insecticides. Onion maggot continued to be a pest of minor importance in ALASKA.

ONION BULB FLY (Eumerus strigatus) was found in onion fields of COLORADO late in July and early August. Like onion maggot, this fly was found mainly in plants infected with a disease early in the growing season. Onion bulb fly was found for the first time in MONTANA in a tulip bed in Conrad, Pondera County.

ASPARAGUS BEETLE (Crioceris asparagi) and SPOTTED ASPARAGUS BEETLE (C. duodecimpunctata) caused occasional local damage to asparagus in VIRGINIA. Populations of asparagus beetle were above normal on the upper Eastern Shore of MARYLAND early in the season and on brush during the summer. Asparagus beetle adults were first collected in RHODE ISLAND in East Greenwich, Kent County, on May 17; all stages were common by June 14. Adults of spotted asparagus beetle were collected in Rhode Island on May 24 in the same planting; all stages of this species were also common by June 14. Asparagus beetle was recorded for the first time in NEBRASKA in Lancaster County on asparagus. Spotted asparagus beetle was quite abundant on asparagus in Nebraska in Scotts Bluff County in July and August. Both asparagus beetle and spotted asparagus beetle damage in UTAH was below normal this season. Local, medium infestations of asparagus beetle were noted in CALIFORNIA on asparagus in Orange County.

ONION THRIPS (Thrips tabaci) was the most prevalent thrips in truck crops in CALIFORNIA; it occurred on onions and asparagus. In NEVADA, infestations of this species were medium to heavy on green onions in Clark County in April, heavy on dry onions in Eureka County, and heavier than normal on dry onions in Lyon County. In UTAH, the pest was approximately normal in numbers and/or injury.

Onion thrips ranged 5-50 per plant in all onion-growing areas of COLORADO, but populations were kept at low levels by use of controls. A thrips (Frankliniella occidentalis) primarily, and other species, were light to heavy on onions in ARIZONA during the spring and early summer. Populations of F. occidentalis and onion thrips were variable in onions in TEXAS, but they required control in scattered plantings within several areas of the State. Several thrips species were abundant in MARYLAND on onions.

ARMY CUTWORM (Chorizagrotis auxiliaris) was a serious problem on onions in TEXAS in the south central area. Another noctuid, CABBAGE LOOPER (Trichoplusia ni), caused some damage to onions in Dona Ana County, NEW MEXICO.

GRASSHOPPERS caused some damage in CALIFORNIA resulting from invasions into crops, but this damage was minimal statewide. Asparagus was somewhat damaged. An under-terminated native LOCUST caused considerable damage to asparagus plantings in the Coachella Valley, Riverside County, California, the past several years. It was found infesting asparagus fields in Imperial County in 1962.

Several WHITEFLY species were pests throughout CALIFORNIA on onions; whiteflies were more abundant in occurrence in 1962 than in former years.

A SPIDER MITE (Aplonobia myops) developed local, medium populations in CALIFORNIA on asparagus plantings in Orange County.

Artichoke and Lettuce Insects

Highlights:

TOMATO FRUITWORM was much heavier than usual in lettuce fields of New Mexico. A continued program was necessary to reduce populations to noneconomic levels. SIX-SPOTTED LEAFHOPPER was abundant in Maine, New York, Michigan and California. Aster yellows-infected plants were usually less than normal, except in Maine, where a substantial increase over normal level of infection was noted. SNAILS and SLUGS were especially severe on lettuce in southeastern Alaska. SLUGS were also heavy in an artichoke planting in California.

ARTICHOKE PLUME MOTH (Platyptilia carduidactyla) caused damage nearly equal to past years in the artichoke-growing areas of CALIFORNIA. CABBAGE LOOPER (Trichoplusia ni) developed light infestations in lettuce in ARIZONA in the spring, and, in the fall, this species and another noctuid, BEEF ARMYWORM (Spodoptera exigua), were light on lettuce. General control measures were required in some fields. Cabbage looper was also damaging to lettuce in NEW MEXICO in Dona Ana and Valencia Counties. Beet armyworm also damaged lettuce in Dona Ana County during October. TOMATO FRUITWORM (Heliothis zea) was much heavier than usual in lettuce fields of New Mexico; this last species caused severe damage especially in southern counties. A continued control program was necessary for H. zea during the lettuce-growing season in the fall to reduce populations to noneconomic level. Tomato fruitworm damage to lettuce in CALIFORNIA was probably not as great in 1962 as it was in 1961. Trace numbers of cabbage looper was found on lettuce in COLORADO, where growers control practices kept the crop clean. There were no losses reported in that State.

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was reported heavy in York, Cumberland and Oxford Counties, MAINE, on lettuce. Yellows-infected lettuce plants were noted in several locations, with over 20 percent of the infections found in 2 plantings. This represents a substantial increase over normal level of this disease in Maine. Six-spotted leafhopper migration into MICHIGAN in sizeable numbers occurred in May and early June. Problems associated with aster-yellows

virus transmission were not extensive in 1962. In WISCONSIN, adults were first found in the southwestern area on May 7. It first appeared on April 27 in 1961. Populations in Wisconsin remained moderate, with counts as high as 15 per 100 sweeps. Aster yellows became evident in at least one area, but it was not too prevalent. Six-spotted leafhopper was generally of little concern in NORTH DAKOTA.

GREEN PEACH APHID (Myzus persicae) was general in most truck crops in CALIFORNIA. The worst infestations ever recorded on lettuce occurred in the Soledad area, Monterey County.

TARNISHED PLANT BUG (Lygus lineolaris) seemed somewhat in excess of normal levels in MAINE. Moderate infestations were reported in Cumberland, Oxford, Androscoggin and Sagadahoc Counties, causing light to moderate damage to lettuce.

THRIPS, primarily Frankliniella occidentalis, were light to heavy on lettuce and some other crops in ARIZONA during the spring and early summer.

SNAILS and SLUGS were especially severe on lettuce in coastal villages of south-east ALASKA. Slugs were heavy in an artichoke planting in CALIFORNIA at Castroville area, Monterey County.

Carrot Insects

A WIREWORM (Cardiophorus sp.) infested carrots in many locations in CALIFORNIA. Preplant crops were used in several areas. Several WHITEFLY species were also pests of carrots throughout California.

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was heavier than normal in NEW YORK on carrots, but only a small percent of the population carried the aster-yellows virus as indicated by the low incidence of diseased plants. LEAFHOPPERS were abundant in CALIFORNIA, where light to heavy populations occurred on carrots.

Sweetpotato Insects

Highlights:

The heaviest SWEETPOTATO WEEVIL infestations in a decade occurred in Louisiana, and the weevil spread in southern parts of Mississippi in spite of severe freezes in that State. Another WEEVIL (Rhyssomatus palmacollis) was of concern to sweetpotato growers in Arkansas where the larvae of this species showed some control difficulty.

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus), contrary to expectations, developed the heaviest infestations in a decade in LOUISIANA. In spite of severe freezes during the winter of 1961-62, sweetpotato weevil continued to spread in several southern portions of MISSISSIPPI. A WEEVIL (Rhyssomatus palmacollis) larva in sweetpotatoes has been the chief concern to growers in central ARKANSAS, where difficulty of control has been experienced.

BANDED CUCUMBER BEETLE (Diabrotica balteata) was less destructive to sweet-potatoes in LOUISIANA than at any time since 1959. However, it caused serious damage to a significant portion of the crop in the major sweetpotato-producing areas.

SOUTHERN POTATO WIREWORM (Conoderus falli) caused slight damage to sweetpotatoes in a field in Pender County, NORTH CAROLINA, sometime previous to July 24; most of the injury possibly occurred during the previous 1-2 weeks, but this was difficult to ascertain. Larvae were recovered from this field several times from July to October, and were also recovered from a field of sweetpotatoes near Tabor City, and a field near Clinton in southern portion of Sampson County during late October. TOBACCO WIREWORM (C. vespertinus) was also a problem in North Carolina. Larvae of tobacco wireworm were recovered from a 3-acre sweetpotato field in Robeson County on November 12, which was not dug because of wireworm holes and serpentine trails on the surface of the sweetpotato roots. Cause of the latter damage was not determined. Small, shallow wireworm holes were commonly observed on lots of sweetpotatoes going through the Tabor City Market, but they did not generally affect the grade. Observations and reports indicate that wireworm damage to sweetpotatoes in the Benson area was minor.

GREEN PEACH APHID (Myzus persicae) was common to abundant in DELAWARE on sweetpotatoes throughout the season.

Mint Insects

ALFALFA LOOPER (Autographa californica) damaged mint in the Yakima Valley of WASHINGTON. Alfalfa looper populations were hit by a virus in mint fields of Marion County, OREGON, in early July, which kept numbers below economic levels. Adults of VARIEGATED CUTWORM (Peridroma saucia) began to appear in the Willamette Valley of Oregon blacklight traps June 21. Early instars were found in Linn County mint fields July 6. Meadow mint was damaged by several species of CUTWORMS in INDIANA early in the season.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) damaged peppermint near Othello in the Columbia Basin of WASHINGTON.

Bramble Insects

RASPBERRY CROWN BORER (Bembecia marginata) damaged cane fruits at several western OREGON locations in 1962. A GEOMETRID MOTH (Synchlora sp., near or S. denticularia) damaged harvested blackberries in Smith County, TEXAS. ORANGE TORTRIX (Argyrotaenia citrana) larvae contaminated harvested red raspberries in Vancouver area, Clark County, WASHINGTON. A LEAF ROLLER MOTH (Platynota stultana) developed light to medium in Fresno County, CALIFORNIA, on boysenberries, and another LEAF ROLLER MOTH (Choristoneura obsoletana) damaged harvested blackberries in Smith County, TEXAS.

RASPBERRY SAWFLY (Monophadnoides geniculatus) was generally present throughout the entire State of MINNESOTA, but it did not cause serious damage. A EURYTOMID GALL WASP (Eurytoma sp., near incerta) caused very abundant stem-gall formations on wild raspberries growing on Moscow Mountain, IDAHO. Infestations were first noted in June.

RED-NECKED CANE BORER (Agrilus ruficollis) caused local, heavy damage to boysenberry canes in Bastrop County, TEXAS. ROSE STEM GIRDLER (A. rubicola) was below average in numbers and importance in UTAH. EASTERN RASPBERRY FRUITWORM (Byturus rubi) was heavy on raspberry plantings in Kingston, Washington County, RHODE ISLAND. RASPBERRY CANE BORER (Oberea bimiculata) damaged many canes in Anchorage area of ALASKA.

GRASSHOPPER damage to berry crops, particularly to raspberries, has been above normal in central and northern UTAH this past season. Grasshoppers caused some damage to raspberry plantings in CALIFORNIA in Santa Clara County.

SPIDER MITE damage to raspberries, largely by TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) and *T. mcdaniell*, was serious in UTAH. However, they were late in starting and the worst damage often occurred after crop was largely harvested. Two-spotted spider mite required some control in cane fields in the Willamette Valley of OREGON. Two-spotted spider mite ranged light to severe on raspberry plantings in NORTH DAKOTA, especially in the southeastern area. Spider mites were present in moderate numbers in MINNESOTA on raspberry plants.

Strawberry Insects

Highlights:

STRAWBERRY ROOT WEEVIL, which was probably introduced with the plants, was severe locally in Alaska. This weevil also caused severe injury in Whatcom County, Washington, even though soil treatments were applied. Two WEEVILS (*Sciopithes obscurus* and *Nemocestes incomptus*) are becoming a serious threat to strawberry growing in the Willamette Valley of Oregon. STRAWBERRY LEAF ROLLER caused a total loss of the strawberry crop in a 5-acre planting in Kansas. MEADOW SPITTLE-BUG overwintered successfully on strawberries in the Matanuska Valley of Alaska; this is believed to be the northernmost record of this species. TWO-SPOTTED SPIDER MITE damaged strawberries in Washington in the early spring; controls were needed in local areas of Oregon.

STRAWBERRY WEEVIL (*Anthonomus signatus*) adults caused concern to strawberry growers in MARYLAND in Prince Georges and Wicomico Counties. It was also of some concern in WISCONSIN in Waupaca County in mid-June, where it severed strawberry blossoms. In late February and early March, it caused concern to growers in the strawberry belt of LOUISIANA in a few areas. STRAWBERRY ROOT WEEVIL (*Brachyrhinus ovatus*) was severe in strawberry patches in Anchorage, ALASKA. This species was probably introduced with the plants. Strawberry root weevil severely damaged strawberries in Whatcom County, WASHINGTON, even though soil treatments were applied. Both BLACK VINE WEEVIL (*B. sulcatus*) and strawberry root weevil are causing increasing amounts of damage to strawberry plantings in the Willamette Valley of OREGON. Two other WEEVILS (*Sciopithes obscurus* and *Nemocestes incomptus*) are becoming a serious threat to strawberry growing in the northern Willamette Valley.

STRAWBERRY LEAF ROLLER (*Ancyliis comptana fragariae*) infestations in KANSAS were greater than those of 1961. One untreated, 5-acre strawberry field in Sedgwick County was a total loss, with 98 percent of the leaves rolled. Larvae destroyed most of the fruit. Leaves in a planting less than one mile distant, which was well treated, showed only 0.1 percent injury. This leaf roller moth was found in fruiting fields in several locations in MINNESOTA. In WISCONSIN, strawberry leaf roller was common on strawberry leaves in many areas, but it was less abundant than in other years. Some moderate to heavy infestations occurred in MARYLAND in Somerset and Wicomico Counties; and the pest was heavy in small plantings in the Pullman area of Whitman County, WASHINGTON. It was exceedingly abundant and caused extensive damage to strawberries in IDAHO. Scattered infestations occurred statewide in MONTANA during 1962. Strawberry leaf roller continued approximately normal in numbers and/or injury in UTAH.

Two NOCTUID MOTHS (*Diarsia rosaria* and *Proxenus mindara*) developed medium to heavy populations on strawberries in the Watsonville area of Santa Cruz County, CALIFORNIA.

STRAWBERRY APHID (*Pentatrichopus fragaefolii*) was generally light on strawberries in Orange and Santa Barbara Counties, CALIFORNIA. It was abundant in OREGON in the northern Willamette Valley counties in the spring; controls were effective.

FOXGLOVE APHID (Acyrtosiphon solani)* was very numerous in strawberry fields in northwestern WASHINGTON, but not damaging. STRAWBERRY ROOT APHID (Aphis forbesi) and strawberry aphid were below average in numbers and importance in UTAH. MELON APHID (Aphis gossypii), YELLOW ROSE APHID (Acyrtosiphon porosum)* and POTATO APHID (Macrosiphum euphorbiae) developed heavy populations throughout the strawberry-growing sections of LOUISIANA. These species caused noticeable foliage distortion in many fields. Several APHIDS, including Pentatrichopus spp., ranged light to moderate on strawberry plantings in Montgomery, Prince Georges and Wicomico Counties, MARYLAND.

A WHITEFLY was serious on strawberries in southern INDIANA.

MEADOW SPITTLEBUG (Philaenus spumarius) overwintered successfully on strawberries in ALASKA in the Matanuska Valley, which is believed to be the northernmost record. Spittlebugs continue to be numerous in southeastern Alaska on strawberries and other crops. Meadow spittlebug was very numerous on strawberries and other plants in WASHINGTON, starting in May in western Washington. Populations were normal and troublesome in the Willamette Valley of OREGON on strawberry plantings from early April through May. Fields not protected by chemical treatments averaged 3 egg masses per linear foot of row in Polk County, Oregon, May 31. Nymphs of meadow spittlebug were common to abundant on strawberry plants in IDAHO, in northern portions of the State, during June. This spittlebug was less abundant in WISCONSIN strawberry plantings than in 1961.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) damaged strawberries in northwestern WASHINGTON during early spring. In OREGON, this spider mite required control in strawberry plantings in Milton-Freewater area of Umatilla County; and to a lesser degree in Willamette Valley strawberry plantings. Two-spotted spider mite caused injury to strawberry plantings at the experiment fields near Wathena in Doniphan County, KANSAS, in April. This species caused severe damage to strawberries in an ILLINOIS planting in late April. SPIDER MITES were present in moderate numbers throughout MINNESOTA on strawberries. Tetranychus spp. were again a serious problem in several plantings of strawberries on the lower Eastern Shore of MARYLAND. A SPIDER MITE (Tetranychus lobosus) was troublesome on strawberries in LOUISIANA, but damage was not severe.

An outbreak of CYCLAMEN MITE (Steneotarsonemus pallidus) was reported on one strawberry field in Skagit County, WASHINGTON. Cyclamen mite was reported on Red Rich, Evermore, Ogallala, Premier and, to a lesser extent, on other strawberry varieties in MINNESOTA.

Miscellaneous Truck Crop Insects

A LEAF MINER FLY (Liriomyza sp.) was especially troublesome on okra and other crops in both the Winter Garden, Dimmit County, and lower Rio Grande areas of TEXAS.

COTTON APHID (Aphis gossypii) attacked okra in all areas of TEXAS.

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) caused heavy damage to rhubarb in Washoe County, NEVADA.

Larvae of probably a GALL MIDGE infested mushroom spawn in Seward area of ALASKA.

EUROPEAN GRAIN MOTH (Nemapogon granella) developed heavy in a mushroom house in Bellota, San Joaquin County, CALIFORNIA. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) caused excessive damage to row crops in the Columbia Basin of

WASHINGTON, but less than in previous years, due to the cool season. Development was delayed 2-3 or more weeks. Infestations of two-spotted spider mite developed on many truck crops in CALIFORNIA. Most infestations were light, probably due to growers taking the precautions of acaricides after the damage caused to most truck crops the previous year. Spider mites were noted in gardens and on truck crops in MISSOURI. Spider mites were abundant in MISSISSIPPI.

GARDEN SYMPHALAN (*Scutigerella immaculata*) continues to be one of the most important pests in the State of OREGON, where irrigation is practiced. It is estimated that annual losses exceeding several million dollars may be attributed to this arthropod in Oregon.

GRAY GARDEN SLUG (*Deroceras reticulatum*) and other slugs were responsible for a considerable amount of damage to a wide range of vegetable crops in Willamette Valley of OREGON. Seedling plants were seriously injured in some areas. Unspecified SLUG species were a problem in home gardens in NORTH DAKOTA, especially in eastern areas subjected to excessive moisture. Slugs were of major concern in gardens in WISCONSIN; reports indicated high populations and serious damage to crops late in the season.

TOBACCO INSECTS

Highlights:

BUDWORMS were heavier than in 1961 in Georgia and a major problem in North Carolina. POTATO TUBERWORM damaged some fields of tobacco in Georgia as much as 25 percent; this is the first infestation in Georgia in several years. HORNWORMS were above normal in Maryland and treatments were general. Also, complaints of hornworms in South Carolina were numerous. GREEN PEACH APHID was extremely heavy in Maryland during late July and August, and considerable controls were applied. This was one of the worst years on record in Maryland. Green peach aphid also required controls in Virginia. Infestations of TOBACCO FLEA BEETLE were more severe on tobacco in the field than for several years in Georgia. WIREWORMS (*Conoderus* spp.) were a problem in areas of Virginia, North Carolina, South Carolina and Georgia.

BUDWORMS (*Heliothis* spp.) were light to heavy in GEORGIA in 1962, and heavier than in 1961. Budworms were a major problem to tobacco growers in NORTH CAROLINA as usual. First damage reports were received from Columbus County the fourth week of May. Heavy egg deposition on tobacco seed heads in eastern North Carolina counties was noted during the last two weeks of June. Budworms were noticeable on early transplanted tobacco in Pittsylvania County, VIRGINIA; counts ranged 2-5 per 100 plants. Eggs were abundant; ranged 2-3 per seed head on older tobacco later in the season. Populations in MARYLAND were below normal for the second straight year, with only a few economic infestations occurring in 1962.

CABBAGE LOOPER (*Trichoplusia ni*) caused some damage to a field of tobacco in southwestern Wayne County, NORTH CAROLINA, during early July; and YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) caused heavy damage to tobacco locally in St. Marys County, MARYLAND. Unspecified CUTWORMS caused local damage to tobacco in some VIRGINIA localities. Also in Virginia, STALK BORER (*Papaipema nebris*) caused local, medium damage to burley tobacco at one location in Lee County.

POTATO TUBERWORM (Gnorimoschema operculella) infestations on GEORGIA tobacco were light to heavy in several counties. Some fields had 25 percent damage. This is the first infestation of this pest in the State in several years.

Both broods of HORNWORMS (Protoparce spp.) in MARYLAND were above normal, and treatments were general. First and second-brood hornworm infestations were light to medium in all tobacco fields checked in Pittsylvania County, VIRGINIA. Hornworms were a pest of tobacco in NORTH CAROLINA, but populations were considerably less than in 1961. First-brood eggs were noted on May 25 in Columbus County; 75 plants in 3 fields revealed 36 eggs and 2 second-stage larvae on that date. The second brood began during the third week of June. Mostly first and second-stage larvae averaged one per plant at Whiteville, and eggs, plus larvae, averaged nearly one per plant at Clayton. In SOUTH CAROLINA, there were more complaints of a population buildup than at any other time in the past 10 years. Hornworm infestations in GEORGIA were light and general throughout the tobacco-growing area.

GREEN PEACH APHID (Myzus persicae) populations were heavy on tobacco plants in two southern OHIO counties. Unharvested plants in October contained 75 to 80 individuals per blossom. Infestations on tobacco in MARYLAND during late July and August were extremely heavy; one of the worst years on record. Over 5,000 acres of tobacco in five counties were sprayed by aircraft. In Pittsylvania County, VIRGINIA, green peach aphid was more abundant in 1962 than in a number of years. Populations persisted in the field much longer than normal, probably due to the moderately cool summer. Damaging populations required control in other sections of Virginia, especially in late July and August. However, in NORTH CAROLINA, green peach aphid appeared on tobacco the second week of July, but did not attain damaging populations. Infestations were light on tobacco in the plant bed as well as on field tobacco in GEORGIA.

Infestations of SOUTHERN GREEN STINK BUG (Nezara viridula) and BROWN STINK BUG (Euschistus servus) were very light in GEORGIA and lighter than in more recent years.

Populations of TOBACCO FLEA BEETLE (Epitrix hirtipennis) were generally below normal in MARYLAND, except for relatively short periods at the beginning and end of the season. In Pittsylvania County, VIRGINIA, populations remained at low levels on flue-cured tobacco early in the season, but adults began increasing in most tobacco fields in early August. Infestations, except in a few isolated cases, were generally lighter than in previous years in the State. Tobacco flea beetle was present on tobacco during the summer in NORTH CAROLINA, but little damage was observed. In GEORGIA, infestations on tobacco in the plant bed were light, lighter than in recent years. Infestations on tobacco in the field were heavy. Infestations in 1962 were more severe than in several years in Georgia. Infestations on tobacco in the field in Georgia are heaviest soon after the tobacco is transplanted and about the time of the first cropping. Unspecified FLEA BEETLES caused moderate damage to tobacco plants in OHIO during early September, with populations having been reported as heavy a few weeks earlier.

WIREWORMS (Conoderus spp.) caused local damage to tobacco in some localities in VIRGINIA. In NORTH CAROLINA, larvae of TOBACCO WIREWORM (C. vespertinus) and SOUTHERN POTATO WIREWORM (C. falli) severely attacked many newly transplanted fields of tobacco throughout the eastern part of the State during May. Up to 90 percent of the plants were damaged in some instances, and many were 30 to 35 percent damaged. There were over 100 complaints in North Carolina, many of which were investigated. Many damaged fields had been previously treated with a broadcast application of a chlorinated hydrocarbon insecticide. Tobacco wireworm was the primary species found in most eastern tobacco-growing areas of North Carolina. However, southern potato wireworm was found more frequently in Columbus and Pender Counties, and a mixture of the two species was found in Onslow County. The only field investigated in Pamlico County proved to be infested with southern potato wireworm, which was also found in southern portions of

Bladen, Duplin and Jones Counties in tobacco fields. Another WIREWORM (C. lividus) was collected erratically throughout the area surveyed, but generally did not appear sufficiently abundant to be of great concern. However, 40 percent of the specimens collected in one heavily damaged field in Jones County was this species. Only seven specimens of wireworms other than those of the genus Conoderus were collected during the survey in North Carolina. In SOUTH CAROLINA, there were many complaints of localized damage by tobacco wireworm where it was not controlled by chlorinated hydrocarbon insecticides. The ratio of tobacco wireworm to southern potato wireworm varied within and among fields and counties in South Carolina. In GEORGIA, moderate to heavy infestations of tobacco wireworm, southern potato wireworm and C. auritus were reported throughout the tobacco area of the State.

VEGETABLE WEEVIL (Listroderus costirostris obliquus) larvae caused conspicuous damage to tobacco in beds on several farms in Calvert and St. Marys Counties, MARYLAND. Light to heavy infestations were present on tobacco in the plant bed in GEORGIA. Also in Georgia, POTATO STALK BORER (Trichobaris trinotata) adults were light and local on tobacco. JAPANESE BEETLE (Popillia japonica) adults caused light damage to tobacco in a few areas of VIRGINIA.

SEED-CORN MAGGOT (Hylemya cilicrura) - Dry conditions at critical time caused this species to be much less troublesome in MASSACHUSETTS on tobacco.

TOBACCO THRIPS (Frankliniella fusca) was generally light on transplanted tobacco in VIRGINIA.

GRASSHOPPERS (Melanoplus spp.) caused light to moderate damage to several tobacco fields in Charles and St. Marys Counties, MARYLAND, and some injury to tobacco was encountered in WISCONSIN.

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ECONOMIC INSECT REPORT

Issued by

ANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE



COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Heavy ARMY CUTWORM populations active in localized areas of northwest Oklahoma; control programs successful. The pest caused scattered, light damage to wheat in northern Texas Panhandle, and additional reports of damage to wheat received from west central, central and south central Kansas. HESSIAN FLY puparia collected March 6 in central, south central and southwest Kansas; some plant stand reduction evident, particularly in early planted fields. (p. 251).

PEA APHID continues to injure alfalfa (p. 252) and TENT CATERPILLARS becoming a nuisance on some shade trees in areas of Arizona (p. 255).

A CHIGGER MITE (Euschongastia sp.) became serious on local group of thoroughbred horses at Sonora, California. This is first instance chiggers have come to attention as causing damage commercially in California. (p. 257).

FORECASTS

GREENBUG and PEA APHID may build up rapidly in Oklahoma if weather conditions are favorable. (pp. 251-252). WHEAT CURL MITE dispersal expected to be delayed in Kansas due to very severe winter which reduced mites to very low levels. (p. 251). GRAPE ROOT BORER apparently is of increasing importance in Arkansas. (p. 252). SOUTHERN PINE BEETLE, BLACK TURPENTINE BEETLE and ELM SPANWORM epidemics expected to continue in the Southern States. (pp. 253-255). TIP MOTHS and PINE SAWFLIES may cause increased damage in 1963 in Arkansas. (p. 254). Outbreak of Brood XXIII of 13-year PERIODICAL CICADAS expected during spring of 1963 in Tennessee; western area will be main area of infestation. (pp. 258-259).

SOME FIRST APPEARANCE RECORDS

CLOVER LEAF WEEVIL larvae in Glenn County, California, and in Canyon County, Idaho; CORN EARWORM larvae in Choctaw County, Oklahoma; EASTERN TENT CATERPILLAR eggs hatched March 13 in Brazos County, Texas, and webs beginning to form in Wake County, North Carolina; COTTONY-CUSHION SCALE appearing in Cameron County, Texas, and in Maricopa and Yuma Counties, Arizona; HARLEQUIN BUG damaging in Zavala County, Texas; HOUSE FLY active in northwest Arkansas; and HOLLY LEAF MINER larvae and pupae in Portland area of Oregon.

DETECTION

A PINE SAWFLY (Neodiprion taedae linearis) recorded for first time in Mississippi. (p. 254).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 256).

Interceptions of Special Interest at U. S. Ports of Entry. (p. 260).

(Continued on following page)

Summary of Insect Conditions in the United States - 1962.

Cotton Insects - (p. 262).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods in Ohio in 1961. Soybeans - p. 271, Corn for Grain - 272, Wheat - 273, Hay - 274.

Insects Not Known to Occur in the United States - A Spotted Flesh Fly (Wohlfahrtia magnifica (Schiner)). (p. 275).

Reports in this issue are for week ending March 15, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-MARCH TO MID-APRIL 1963

The Weather Bureau's 30-day outlook for the period mid-March to mid-April calls for temperatures to average well above seasonal normals over the eastern half of the Nation, except for near to slightly below normal from the Great Lakes eastward to New England. Below-normal temperatures are predicted for the entire area lying west of the Continental Divide. In the remainder of the Nation, near normal averages with large fluctuations are in prospect. Precipitation is expected to exceed normal over most of the Nation, except for near normal amounts in the northern border States west of the Great Lakes and in the extreme Southeast. Over central and southern areas thundershowers are expected to occur more frequently than normal.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price \$4.80 a year, \$2.40 a half year.

WEATHER OF THE WEEK ENDING MARCH 18

For the second consecutive week, much of the eastern half of the Nation received heavy to excessive rains. Little, if any, precipitation fell over the southern Great Plains, but near or above-normal precipitation fell throughout much of the Far West and the central and northern Great Plains from a trio of storms. Very little difference in the weekly temperature pattern could be seen from the previous week. Cool weather held sway over the Far West and warm Gulf air kept the eastern half, except for the more northern states, above seasonal temperature levels. Nonfreezing minima on the final 2 days aided in reducing the snow cover in the Great Lakes States by as much as 50 percent in some areas. Excessive rainfall on the 11th and 12th over the Tennessee Valley and the central and southern Appalachians led to local flooding. The severe storms also spawned at least five tornadoes in Tennessee, two in Alabama and one in Mississippi. At least four deaths, several injuries and extensive property damage was attributed to the twisters. During a 24-hour period ending at 5 p.m. on the 12th, Jeremiah, Kentucky, was deluged by 7.28 inches of rain.

A storm which spread snow and rain over most of the northern half of the Far West on the 11th and 12th produced blizzard conditions across Colorado into western areas of Kansas and Nebraska on the 12th. Snowfall amounts ranged up to 14 inches in east-central Colorado and 10 inches in northwest Kansas.

(Continued on page 261)

CEREAL AND FORAGE INSECTS

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - Additional reports of damage to wheat received from Ness County (west central); Barton and Rice Counties (central); and Harper County (south central). (Gates). OKLAHOMA - Heavy populations were active in localized areas of northwest part of State; however, late reports indicate control programs successful and that buildup of previous week is under control. (Okla. Coop. Sur.). TEXAS - Scattered, light damage to wheat occurring in northern panhandle area. One report of controls being needed has been received. (Newton).

GREENBUG (Schizaphis graminum*) - OKLAHOMA - Moderate counts of 25-50 per linear foot observed in Yuba area, Bryan County. Wheat has been fertilized, is in good condition and no ill effects are showing; however, under ideal weather conditions greenbug could become problem and situation warrants close surveillance. Counts of 20-25 per linear foot noted in Marshall and Carter Counties; populations remain noneconomic in other areas. (Okla. Coop. Sur.). GEORGIA - Infestations continue light in small grain in several northwestern counties. (Johnson, March 8).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - CALIFORNIA - Nymphs and adults medium to heavy on barley plantings in Yolo County, in Yuba City area of Butte County and Willows in Glenn County. (Cal. Coop. Rpt.). OKLAHOMA - Light populations observed in south central and southwestern areas. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Counts on experimental oat plots in Brazos County ranged 125-200 per linear foot. (Randolph).

ENGLISH GRAIN APHID (Macrosiphum avenae*) - OKLAHOMA - Moderate counts of 25-50 per linear foot observed in Yuba area, Bryan County; lighter counts, 15-25 per linear foot, noted in Davis area, Murray County. Occasional to very light counts (up to 8 per linear foot) noted in Garvin-McClain-Cleveland County area. Except in Yuba area, this species more common than S. graminum; caution should be observed to assure proper identification. Light, scattered counts of M. avenae reported in remainder of southern part of State. (Okla. Coop. Sur.).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Puparia found in wheat samples collected March 6 in Ellis, Russell and Rush Counties (central); Pawnee County (south central); and Hodgeman County (southwest). Counts ranged from trace infestations to 90 percent of plants infested plus plant stand reduction. Most infested plants had not winterkilled; however, in Rush, Ellis and Russell Counties, some plant stand reduction evident, particularly in early planted fields. (Somsen, Peters).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Severe winter weather killed back almost all green wheat vegetation in southwestern area of State. This also reduced mite populations to very low levels and may have eliminated them in many instances. This will delay early spring dispersal of the mites and virus. Samples collected March 4-6. (Somsen, Peters).

A WEEVIL (Brachyrhinus rugosostriatus) - CALIFORNIA - Light in grass sod in MKinleyville, Humboldt County. (Cal. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - Overwintering egg populations in 3 alfalfa fields in New Castle County were 11, 15 and 193, respectively, per 100 old, attached stalks on March 11. (Burbutis). GEORGIA - Eggs noted in alfalfa stems in several northwestern Counties. No larvae observed to March 7. (Johnson).

CLOVER LEAF WEEVIL (Hypera punctata) - IDAHO - Larvae active on stems and crowns of legumes at Melba, Canyon County; distribution spotty. (Bechtolt). CALIFORNIA - Larvae light on clover (Trifolium sp.) in Willows, Glenn County. (Cal. Coop. Rpt.).

* See CEIR 13(5):84.

AN EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Present in some fields in Pinal County; also very numerous in Maricopa County. (Ariz. Coop. Sur.).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - OKLAHOMA - Light larval counts noted in alfalfa checked in Bryan, Murray, Garvin, Cleveland, Beckham, Washita and Grady Counties. (Okla. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum*) - ARIZONA - Continues to injure alfalfa in Pinal, Maricopa and Yuma Counties. (Ariz. Coop. Sur.). OKLAHOMA - Light populations observed in alfalfa in southeastern, south central and east central areas. Present populations reproducing; could build up quite rapidly under favorable conditions. (Okla. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Only occasional specimens found in alfalfa checked in southeastern and south central areas. (Okla. Coop. Sur.).

CORN EARWORM (Heliothis zea) - OKLAHOMA - First activity of season reported from Choctaw County; first-stage larvae averaged 0.1 per square foot of crown area in alfalfa. This is approximately a month earlier than in 1962. (Okla. Coop. Sur.).

FRUIT INSECTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - First hatch of eggs noted on peach March 13 in Brazos County. (Thomas).

COTTONY-CUSHION SCALE (Icerya purchasi) - TEXAS - Spotted infestations appearing on a few citrus trees in Cameron County. (Texas Coop. Rpt., Day). ARIZONA - Appearing in some citrus groves in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

GRAPE ROOT BORER (Vitacea polistiformis) - ARKANSAS - Continues to be of apparently increasing importance. Research investigations underway. Some vineyards are badly damaged; extent of damage difficult to determine as other factors are associated with problem. Vines must be pulled and roots examined to make counts, thus plants are destroyed. (Ark. Ins. Sur.).

TRUCK CROP INSECTS

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Continues to increase in Maricopa County, especially on plantings near desert. Few appearing in potatoes in Queen Creek area. (Ariz. Coop. Sur.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - TEXAS - Moderate adult populations attacking emerging potatoes in Zavala County. (Harding).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - TEXAS - Adults causing light foliage damage to emerging potatoes in Zavala County. (Harding).

A SPIDER MITE (Tetranychus sp.) - ARIZONA - Appearing on melons in Yuma County. (Ariz. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Infestations continue light on cabbage in Thomas and Colquitt Counties. (Johnson).

HARLEQUIN BUG (Murgantia histrionica) - TEXAS - Medium populations beginning to damage mustard in Zavala County with advent of favorable weather. (Harding).

* See CEIR 13(5):84.

BLACK CUTWORM (Agrotis ipsilon) - CALIFORNIA - Larvae medium to heavy on leaves of sugar beets and in soil at Irvine, Orange County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Flight now in progress. Some injury to sugar beet seed occurring in Maricopa County. (Ariz. Coop. Sur.).

A THRIPS (Frankliniella occidentalis) - TEXAS - Counts averaged 160 per 10 onion plants in Zavala County. (Harding).

CUTWORMS - NEVADA - Undetermined species medium on garlic in Mason Valley, Lyon County; controls required. (Batchelder).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Heavy on strawberry plants in Sunnyslope, Riverside County. (Cal. Coop. Rpt.).

STRAWBERRY APHID (Pentatrichopus fragaefolii) - OREGON - Light populations reported in strawberry fields in northern Willamette Valley during early March. (Capizzi).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Feeding damage light on tobacco in plant bed in several southern counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Feeding damage light on tobacco in plant bed in several southern counties. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ALABAMA - Populations increased during late summer and fall of 1962. Examination of infested trees on Shoal Creek and Talladega Districts, Talladega National Forest, in December 1962 and February 1963 indicates some beetle mortality due to cold weather. Impact of this mortality on present epidemic will not be known until later in 1963. GEORGIA - Outbreaks on Chattooga and Tallulah Districts, Chattahoochee National Forest, continuing. Severe cold during past winter had no significant effect on brood survival. Mortality found to be spotty and scattered; ranged 0-80 per cent in individual trees. Estimated 2,740 infested trees found on Uncle Remus District, Oconee National Forest, during January survey. In addition, an estimated 1,254 infested trees present on private land within District. Since March 1962, 500,000 infested trees cut and treated by Georgia Forestry Commission; trees contained 4 million board feet of sawtimber and 7,500 cords of pulpwood. Most severe infestation centered in Hall, Rabun and Habersham Counties (northeast) and Harris, Heard, Troup, Upson and Talbot Counties (southwest). NORTH CAROLINA - Killed an estimated 200,000 trees in Piedmont area during 1962. In addition, several thousand trees killed in western portion of State. SOUTH CAROLINA - Activity continuing on General Pickens Ranger District, South Carolina National Forest. Estimated 400,000 trees killed in Piedmont area during latter half of 1962. TEXAS - Approximately 2,100 active brood trees present over area bounded by U. S. Highway 190, U. S. Highway 90, the Neches River and the Trinity River. No indication of any infestations between this area and boundary of 1962 epidemic area on previous flight. Examination of infestation during winter of 1962-1963 indicates beetle broods are vigorous and that potential exists for continued activity during 1963. (South. For. Pest Rpt., March 12).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - Infestations causing significant losses of residual timber following logging on Redlands District of Oconee National Forest, GEORGIA. Increased beetle activity in drought-weakened trees in naval stores areas of south GEORGIA and north FLORIDA has forced some operators to curtail naval stores activity. Populations continue at epidemic level following logging in ALABAMA, LOUISIANA, MISSISSIPPI and TEXAS. Localized

increases in activity were reported from Alabama and Texas. (South. For. Pest Rpt., March 12). ARKANSAS - Some activity reported. Normal increase in activity expected during warmer months. Some salvage being done in infested spots; control can usually be handled through proper salvage to reduce beetle populations. (Ark. For. Pest Rpt., March).

ENGRAVER BEETLES (Ips spp.) - Activity increased in FLORIDA as result of drought-damaged timber in association with naval stores activity; considerable salvage has been done by private landowners. Populations have declined in LOUISIANA and TEXAS with increased rainfall and cooler weather, after becoming very aggressive in late summer 1962. (South. For. Pest Rpt., March 12). ARKANSAS - Activity remains static; normal increase in activity may be expected during warmer months. Some salvage underway in infested spots; control can usually be handled through proper salvage to reduce populations. (Ark. For. Pest Rpt., March).

REPRODUCTION WEEVILS - ARKANSAS - Activity by Hylobius pales, Pachylobius picivorus and Pissodes nemorensis relatively low or nonexistent through past winter. Up to early February 1963, only occasional specimen of any of the 3 species obtained. Beginning in early February, numbers of P. nemorensis increased in the field. Following brief warm period in early March, P. nemorensis and H. pales became quite active. (Ark. For. Pest Rpt., March).

TIP MOTHS - ARKANSAS - No adult emergence observed as yet; however, emergence will begin as soon as weather conditions are favorable. Heavy infestations were reported in localized areas during late summer and fall of 1962. These areas should be watched for heavy activity in spring and summer of this year. Numbers of parasites and predators were not as high in 1962 as in some years; if this trend continues in 1963, damage could be more of a problem. (Ark. For. Pest Rpt., March).

BALSAM WOOLLY APHID (Chermes piceae) - NORTH CAROLINA - Estimated to have killed approximately 10 percent of Fraser fir in Mount Mitchell State Park and adjacent areas. Plans have been made to survey spruce-fir type in southern Appalachians during 1963 to determine area infested. (South. For. Pest Rpt., March 12).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NORTH CAROLINA - Infesting loblolly pine at a location in Moore County. (Jones).

PINE SAWFLIES (Neodiprion spp.) - FLORIDA - Recent infestation of N. excitans reported on 4,000 acres of mature loblolly pine in Marion County. N. lecontei reported defoliating 120-acre longleaf pine plantation near Milton, Santa Rosa County. Observations indicate both these species continue to feed throughout winter in State. MISSISSIPPI - Species reported defoliating loblolly pine in Winston County during March 1962 identified as N. taedae linearis. This is first known report of species from State. (South. For. Pest Rpt., March 12). ARKANSAS - Weather conditions in October and November 1962 were favorable to activity and oviposition, primarily by N. taedae linearis. Although hatching not yet reported, it can be expected to begin early in March. As infestations were heavier in 1962 than in recent years, special attention should be given hazard areas. (Ark. For. Pest Rpt., March).

A SPIDER MITE (Tetranychus sp.) - COLORADO - Caused considerable damage to pine in shelter belt at Dove Creek, Dolores County. (Hantsbarger).

ELM SPANWORM (Ennomos subsignarius) - Based on winter surveys in GEORGIA, it appears control will be necessary during 1963 on approximately 2,100 acres on National Forest and State Parks. Infestation has spread steadily north and east; presently centered in Rabun and Habersham Counties. Indications are that infestation in northern Georgia is beginning to break up; egg masses are generally smaller and intensity of infestation has lessened. Egg mass surveys in NORTH CAROLINA and SOUTH CAROLINA indicate continuation of north and east extensions of present infestation and continued reduction of populations in older infested areas. Moderate to heavy defoliation may occur in western Swain County and along Macon

County line, North Carolina, with considerable heavy defoliation expected in mountains of Macon County. Light to heavy defoliation expected to occur in Oconee County, South Carolina. (South. For. Pest Rpt., March 12).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - Infesting native Prunus spp. at Weirsdale (March 7) and at Ocala (March 8), Marion County. (Fla. Coop. Sur.). NORTH CAROLINA - Webs beginning to form in Wake County. (J. F. Greene).

TENT CATERPILLARS (Malacosoma spp.) - ARIZONA - Becoming a nuisance in Pinal, Pima and portions of Maricopa Counties on some shade trees. (Ariz. Coop. Sur.).

TEXAS LEAF-CUTTING ANT (Atta texana) - TEXAS - Activity over State has increased notably, with many requests for information and controls being received. (Newton).

A GALL WASP (Callirhytis punctata) - NORTH CAROLINA - Pupae and emerging adults noted on oak twigs at a location in Caldwell County. (Jones).

VARIEGATED CUTWORM (Peridroma saucia) - ARIZONA - Cutworms, mainly this species, damaging annuals in Maricopa County home gardens. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Ranged light to heavy on Chrysanthemum sp. at Alva, Lee County (March 4), and at Pine Hills, Orange County (March 5). (Fla. Coop. Sur.). PENNSYLVANIA - Quite general on gardenia, cineraria and violet plants in a greenhouse at Pittsburgh, Allegheny County. Becoming difficult to control. (Udine, March 5).

COCCIDS - ARIZONA - Icerya purchasi appearing on some shrubs in Gila County. (Ariz. Coop. Sur.). IDAHO - Aspidiotus hederæ infested leaf of dwarf lemon tree received for injury identification from Caldwell, Canyon County, March 8. (Bechtolt). FLORIDA - Pseudaonidia clavigera infested Ligustrum sp. and Camellia sp. at St. Petersburg, Pinellas County (Feb. 25), and Toumeyella liriiodendri severely infested Magnolia sp. at Zephyrhills, Pasco County (Feb. 10). (Fla. Coop. Sur.). PENNSYLVANIA - Rhizoecus sp. very numerous on roots of Saintpaulia spp. in large greenhouse at Bethayres, Montgomery County, February 6. (Menusan).

A BARK BEETLE (Xyleborus morstatti) - FLORIDA - Infested orchid tree (Bauhinia sp.) at Clewiston, Hendry County (March 5). (Fla. Coop. Sur.).

A POWDER-POST BEETLE (Lyctus sp., probably africanus) - IDAHO - Collected from ornamental bamboo at Kimberly, Twin Falls County, March 14. (Evans).

HOLLY LEAF MINER (Phytomyza ilicis) - OREGON - Heavily infested scattered holly plantings in Portland area, Multnomah County. Samples taken March 15 indicate two-thirds of larvae had pupated, with no adults observed on this date. (Larson).

EASTERN LUBBER GRASSHOPPER (Romalea microptera) - FLORIDA - Severe on croton (Codiaeum sp.) at Homestead, Dade County (March 8). (Fla. Coop. Sur.).

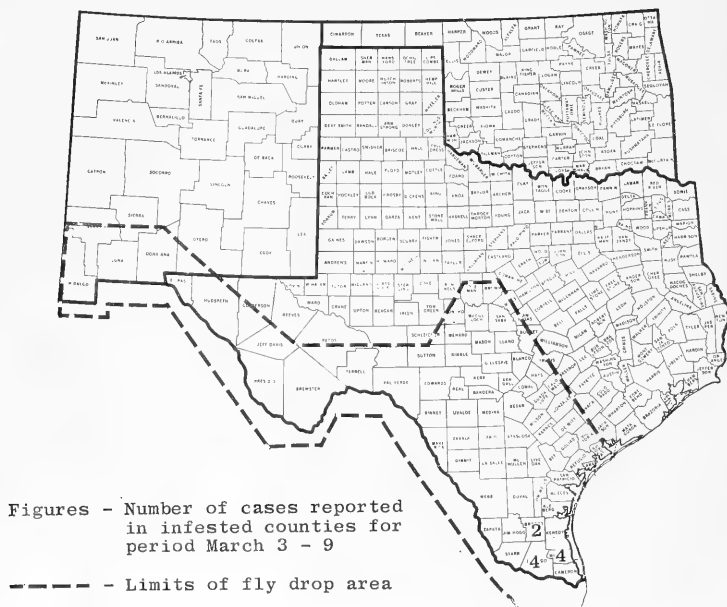
SPRUCE SPIDER MITE (Oligonychus ununguis) - MARYLAND - Moderate numbers of eggs found on several large spruce trees in College Park, Prince Georges County. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

A MOSQUITO (Aedes vexans) - FLORIDA - Collected on human at Gainesville, Alachua County (March 11); minor nuisance near dusk. (Fla. Coop. Sur.).

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period March 3-9, a total of 10 screw-worm specimens were submitted for identification from 3 counties in southern TEXAS. These identifications are in one area at junction of 3 counties. Every effort, including extra aerial releases and intense inspection and treatment of animals, is being used to eliminate small remaining population. A reduction of 5,000 square miles has been made in northern portion of fly release area, as determinations have been made that screw-worms no longer exist in area. Additional reductions will be made as evidence indicates eradication in portions of fly release area. A total of 101,227,450 sterile screw-worm flies was released during the period March 3-9. (Anim. Dis. Erad. Div.).



NORTHERN CATTLE GRUB (*Hypoderma bovis*) - NORTH CAROLINA - Of 30 larvae collected March 8 from backs of native animals in Wake County, all determined this species. These animals previously examined and reported in CEIR 13(8):117. Grubs averaged 4.9 per animal compared with 5.1 per animal for same animals examined February 13. Age of 30 larvae ranged from second instar to several about ready to leave backs. (Mount).

COMMON CATTLE GRUB (*Hypoderma lineatum*) - NEW MEXICO - Has been very heavy in backs of untreated and improperly treated cattle in Colfax and Union Counties. (N. M. Coop. Rpt.). COLORADO - Counts averaged 12.6 per head on untreated cattle in southeastern area. (Hantsbarger). OKLAHOMA - Adult activity noted in Wagoner County. (Okla. Coop. Sur.).

CATTLE BITING LOUSE (Bovicola bovis) - PENNSYLVANIA - Heavy on 500 head of Angus cattle at Saucon, Northampton County. Animals shipped in from out of State during fall of 1962. (Menusan).

CATTLE LICE - OKLAHOMA - Activity of several species continues in most areas across State. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Infestations continue in Cotton, Bryan and Garvin Counties, south central. (Okla. Coop. Sur.).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - OKLAHOMA - Reported biting people in several homes in Tulsa area. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - ARKANSAS - First activity of season observed in Fayetteville area, northwest. (Ark. Ins. Sur.).

A CHIGGER MITE (Euschongastia sp.) - CALIFORNIA - Became serious on local group of throughbred horses at Sonora, Tuolumne County. Horses received from out of State exhibited severe hair loss and lesions over entire body 9 days after arrival. Investigation of local and native fauna showed birds, rabbits, dogs and small animals also infested and exhibiting lesions, particularly on stomach area. This indicated chiggers were of local occurrence and had not been introduced with horses. Horses, being from outside area and not exposed to chiggers, were highly susceptible to bites. Local horses and other domestic stock in immediate area did not exhibit symptoms or effects of chiggers. This is first instance these pests have come to attention as causing damage commercially. Several chigger mite species have been recorded in the State on small animals and deer, but have not been economic. Infested horses responded to chemical control treatment which eliminated chiggers. Additional checks of local animals to be made to determine extent and possible damage to domestic animals. (L. S. Bergstrom, D.V.M.).

AN ANOETID MITE (Myianoetus muscarum) - CALIFORNIA - Populations heavy on floors of poultry houses in Moorpark, Ventura County. (Cal. Coop. Rpt.).

EAR TICK (Otobius megnini) - ARKANSAS - Collected during February in Newton County, northwest. Source of infestation probably cattle shipped into area from the Southwest. (Ark. Ins. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - IDAHO - Common around homes in Caldwell area, Canyon County, during late February. (Bechtolt). UTAH - Very troublesome in number of homes and schoolrooms in Cache, Weber and Salt Lake Counties. (Knowlton). NORTH CAROLINA - Present about base of home in Cleveland County. (Clapp). DELAWARE - Numerous in a New Castle County home. (MacCreary).

A COREID BUG (Stictopleurus punctiventris) - IDAHO - Spottedly abundant in homes at Stites, Idaho County, and causing concern to homeowners. First observed February 22. (Studer).

CLOVER MITE (Bryobia praetiosa) - IDAHO - Appearing in large numbers in and around homes generally throughout Caldwell area, Canyon County, southwest. (Bechtolt). UTAH - Beginning to enter homes at localities in Cache and Salt Lake Counties. (Knowlton). COLORADO - A problem in and around homes on warm days in the Plains area of the State. (Hantsbarger). NEW MEXICO - Large numbers causing concern by entering homes and businesses at Raton, Colfax County. (N. M. Coop. Rpt.). OKLAHOMA - Causing concern in several homes in Tulsa area. (Okla. Coop. Sur.). ARKANSAS - Infested home in Independence County, northwest, during week ending March 9. (Ark. Ins. Sur.). NORTH CAROLINA - Present in residences in Iredell and Davidson Counties. (Jones).

AN ORIBATID MITE (Galumna sp.) - CALIFORNIA - Heavy population occurring in residence in Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

DRAIN FLIES - DELAWARE - Undetermined species common in school during period March 2-8, and adults rather abundant and annoying in home during period March 9-15, both in New Castle County. (MacCreary).

INDIAN-MEAL MOTH (Plodia interpunctella) - MARYLAND - Adults numerous in home at Frederick, Frederick County, March 8. (U. Md., Ent. Dept.).

CONFUSED FLOUR BEETLE (Tribolium confusum) - PENNSYLVANIA - Heavy in cornmeal and dried brewer's yeast in State College, Centre County. (Adams).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MARYLAND - Reticulitermes sp. reproductive forms swarmed in and around homes in Anne Arundel, Howard and Baltimore Counties. (U. Md., Ent. Dept.). NORTH CAROLINA - Winged forms of R. flavipes noted in commercial building in Wake County. (Mount).

OLD-HOUSE BORER (Hylotrupes bajulus) - NORTH CAROLINA - Probably responsible for damage to piece of plywood in church in Goldsboro, Wayne County. Only one panel, which was in contact with large supporting timber, was badly damaged. Damage originally reported during early January. Det. by Moore. (Mount).

A POWDER-POST BEETLE (Lyctus sp.) - MARYLAND - Adults heavy in bamboo curtain in home at Lutherville, Baltimore County. (U. Md., Ent. Dept.).

CARPENTER ANTS (Camponotus spp.) - TEXAS - Activity increasing over State; some swarming of winged forms noted. (Newton).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - OKLAHOMA - Properties inspected in Beckham, Dewey and Roger Mills Counties with negative results. (Okla. Coop. Sur.).

DERMESTIDS (Trogoderma spp.) - VIRGINIA - Inspections revealed infestations of T. inclusum in grain elevators and feed mills at 3 separate locations in Norfolk, Chesapeake County, January 9 and 11. Infestation of T. parabile found at a wholesale and retail seed store at one location in Norfolk, January 7. Det. by J. M. Kingsolver. (Tarpley).

DRUGSTORE BEETLE (Stegobium paniceum) - CALIFORNIA - Heavy infestations occurring in dry dogfood in Hayward, San Mateo County, and on pantry shelves in Sacramento, Sacramento County. Beetles apparently cyclic with about 4 peaks of emergence, although broods are continuous throughout year. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - ARIZONA - Larvae and adults of Rodolia cardinalis very scarce in citrus groves at present time. (Ariz. Coop. Sur.). OKLAHOMA - Several species becoming quite common in alfalfa and small grains in southern parts of State. (Okla. Coop. Sur.).

MISCELLANEOUS INSECTS

THIRTEEN-YEAR PERIODICAL CICADAS - TENNESSEE - An outbreak of Brood XXIII of 13-year cicadas is expected during the spring of 1963. Brood XXIII is a major brood and heavy infestations are due for infested areas. Brood XXIII last appeared in the State in 1950. Previous infestation records are an indication of counties in State which will be infested this year. The western half of Tennessee will be main area of infestation. Records from 1908 show that the following

counties were infested: Benton, Carroll, Chester, Crockett, Davidson, Decatur, Dickson, Dyer, Fayette, Gibson, Hardeman, Hardin, Haywood, Henderson, Henry, Humphreys, Lake, Lauderdale, Lewis, McNairy, Madison, Maury, Montgomery, Obion, Perry, Robertson, Rutherford, Shelby, Stewart, Tipton, Wayne, Weakley and Williamson. Emergence should begin early in May. (Mullett).

CITRUS WHITEFLY (*Dialeurodes citri*) - CALIFORNIA - Delimiting survey continues to extend infested zone in Sacramento. Gardenias chief host, with citrus second. Over 1,200 blocks surveyed, with treatment applied to approximately 350 city blocks by March 15. (Cal. Coop. Rpt.).

MOURNING-CLOAK BUTTERFLY (*Nymphalis antiopa*) - UTAH - Has been emerging during past few days at Logan, Cache County. (Knowlton, Cazier).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - CALIFORNIA - Medium population occurring in soil locally in Napa, Napa County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 13(8):131 - GREENBUG (*Schizaphis* (Toxoptera) *graminum*) should read (*Schizaphis* (=Toxoptera) *graminum*).

CEIR 13(9):155 - PEA APHID (*Acyrtosiphon* (*Macrosiphum*) *pisum*) should read (*Acyrtosiphon* (=Macrosiphum) *pisum*). See CEIR 13(5):84.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Perid. saucia	Prod. ornith.	Laphyg. frug.	Pectin. gossyp.	Helio. zea
FLORIDA								
Gainesville 3/13		1		2				
Northeast Gainesville 3/12-14								51
GEORGIA								
Tifton 3/7-13	No collections.							
MISSISSIPPI								
*Stoneville		7	8		31	10		
SOUTH CAROLINA								
Clemson 3/1-15		1	2			2		
TEXAS								
*Brownsville 3/1-14	424	369	578	376	70	258	10	321

* Two traps - Stoneville; 6 traps - Brownsville.

INTERCEPTIONS OF SPECIAL INTEREST AT U. S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on December 31, 1962, follow. These reports are based on the identifications received from Federal taxonomists at the U. S. National Museum during the month, but do include any of special interest from recent months that were not previously reported.

LEEK MOTH (Acrolepia assectella (Zell.)) in stores at Cleveland, Ohio.

CITRUS BLACKFLY (Aleurocanthus woglumi Ashby) in baggage at El Paso, Texas.

A FRUIT FLY (Anastrepha sp., possibly fraterculus (Wied.)) in coffee berries in transit baggage at New York, New York.

MEXICAN FRUIT FLY (Anastrepha ludens (Lw.)) in quarters, stores and baggage: 7 times at San Ysidro and 2 times at Calexico, California; 3 times at Nogales, Arizona; in Texas, 11 times each at El Paso and Laredo, 1 time each at San Antonio, Eagle Pass, Roma and Galveston, 12 times at Hidalgo, 2 times at Brownsville and 4 times at Houston; 2 times at New York, New York.

A WEEVIL (Baris sp., probably lepidii Germ.) in horseradish in baggage at Chicago, Illinois.

BRUCHIDS (Bruchus spp.) (European or Mediterranean species of economic importance) 10 times. B. dentipes Bandi in broadbeans in baggage at Boston, Massachusetts; B. ervi (Froelich) in lentils in baggage at Philadelphia, Pennsylvania; B. guttalis Rey in vetch seed in baggage at Boston, Massachusetts; B. lentis Froelich in lentils in baggage at New York, New York. Also, probably B. lentis, in stores at Wilmington, North Carolina; in lentil cargo at Buffalo, New York; and in stores at Charleston, South Carolina. B. signaticornis Gyll. in lentils in baggage at New York, New York; B. tristis Boh. twice in Lathyrus spp. at New York, New York.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) (or probably that species) in stores and baggage as follows: 10 times at Boston, Massachusetts; 26 times at New York, New York; 2 times at Honolulu, Hawaii. Also, one time each at Philadelphia, Pennsylvania; Norfolk, Virginia; Miami, Florida; and Galveston, Texas.

MELON FLY (Dacus cucurbitae (Coq.)) in stores at San Pedro, California.

ORIENTAL FRUIT FLY (Dacus dorsalis Hend.) (or probably that species) 7 times - in stores (1), mail (1) and baggage (5); 6 times at Honolulu, Hawaii, and 1 time at San Pedro, California.

PINK BOLLWORM (Pectinophora gossypiella (Saund.)) in baggage at Miami, Florida.

EUROPEAN CHERRY FRUIT FLY (Rhagoletis cerasi (L.)) 11 times - in stores (6) and baggage (5), as follows: One time each at McGuire AFB, New Jersey, and at New York, New York; 3 times at Philadelphia, Pennsylvania; 6 times at Boston, Massachusetts.

A STENOMID MOTH (Stenoma catenifer Wlsm.) (a pest of avocado) 4 times - in stores (2) and baggage (2); 3 times at Miami, Florida, and one time at New Orleans, Louisiana.

WHITE GARDEN SNAIL (Theba pisana (Müller)) 5 times in general cargo and in cargoes of dried plants, flower seed, and cut flowers. One time each at New York, New York; San Pedro, California; and Philadelphia, Pennsylvania. Also 2 times at Wilmington, North Carolina.

CRANE FLIES (Tipula spp., paludosa group) (European species of economic importance) in soil with plants at McGuire AFB, New Jersey.

KHAPRA BEETLE (Trogoderma granarium Everts) 12 times - in stores (1), ship's hold (2), and contaminated cargoes (9) of gum zedou, celery seed and wall board. One time each at Seattle, Washington, and at Baltimore, Maryland; 2 times at Cleveland, Ohio; and 8 times at New York, New York.

GOLDEN NEMATODE (Heterodera rostochiensis Wr.) 2 times in mail; one time each at Hoboken, New Jersey, and Seattle, Washington.

Weather of the Week Ending March 18 (continued from page 250)

This system weakened as it moved off the New England coast by the 14th. Burlington, Vermont, received 3 inches of new snow. By the 15th, a new Pacific storm had moved inland over the Great Basin spreading rain and snow over much of the Far West as it moved eastward. High winds, to 75 m.p.h. in New Mexico, kicked up dust over the Southwest States. Austin, Nevada, was covered by 6 inches of snow; Salt Lake City, Utah, received 4 inches. As the storm moved from the central Rockies to the western Great Lakes on the 16th, it dropped up to 1 foot of snow in the Black Hills of South Dakota, set off severe storms from Iowa and Missouri eastward, and left excessive rainfall amounts over most of the Ohio Valley and the central Mississippi Valley. Two twisters struck in Iowa and hailstorms were reported from Iowa and Missouri. Localized flooding occurred in Indiana. Northerly winds whipped dust into the air, reducing visibilities to less than a mile for several hours over the central Plains. Moderate precipitation amounts fell over most of the East Coast States on the 16th and 17th, as the storm moved seaward over New England.

A new storm had moved inland on the 16th and into the southern Rockies on the 17th. California was the recipient of the largest totals as thunderstorms dropped many 1-inch totals over the State. San Diego, California, had 1.04 inches on the 17th, 0.75 inch falling in 6 hours, for one of the heaviest showers in years. Nearly all of the higher elevations of the southwest quarter of the Nation had increases in the snowpack to give a slightly improved irrigation outlook. Pine, Arizona, received 18 inches of new snow. (Summary supplied by U. S. Weather Bureau).

SUMMARY OF INSECT CONDITIONS - 1962
(continued from page 248)

COTTON INSECTS

Highlights:

BOLL WEEVIL infestations in North Carolina were troublesome and those in South Carolina needed controls throughout the season. The carryover and emergence in South Carolina were the heaviest since 1956. Infestations in Georgia were about the same as in 1961, but lighter than in some previous years; and infestations in Alabama were generally not as heavy as they were in 1961. Boll weevil was of less concern in Mississippi and was of secondary importance in Louisiana. Infestations were somewhat higher in Arkansas but extremely low in Missouri. Boll weevil was not considered serious in Oklahoma; and 1962 was one of the lightest boll weevil years in the last several in many areas of Texas, especially early in the season. Of major importance is the spread of the weevil toward the cotton-growing areas of New Mexico and Arizona.

BOLLWORM is becoming an increasing problem in cotton-growing areas of Nevada and damaging populations were present in Arizona. In New Mexico, the heaviest infestation since 1957 existed in 1962. The bollworm was the most damaging insect of cotton during 1962 in Texas and was important in Oklahoma. Bollworms were of greater importance in Arkansas, Mississippi and Louisiana than in 1961, and were extensive throughout the season in Alabama. Infestations in Georgia were about the same as those in 1961, but they were not as heavy in the Carolinas as in previous years.

PINK BOLLWORM infestations in central Arizona have been reduced to the point where fewer than 300 acres will be treated in 1963. The regulated areas in Louisiana and Arkansas have been reduced. CABBAGE LOOPER was heavier than in 1961 in Georgia and was of considerable concern in South Carolina. It also caused severe "ragging" of plants in Alabama.

LYGUS BUGS were a continuing problem in California cotton fields and serious damage resulted where treatment timing was poor. MITES were also a major problem in California. Cooler-than-normal weather was probably partly responsible. Mites were treated in Arizona and Nevada during 1962; and hot, dry weather in the Southeastern States prompted higher-than-normal populations of mites and, in some cases, damage was reported.

BOLL WEEVIL (*Anthonomus grandis*) began emerging from hibernation in the Coastal Plain of NORTH CAROLINA the week of May 14. Early counts were much higher in Scotland County than those of 1961, and emergence continued into the second week of June. Some feeding and egg punctures were noted at that time in the county. Populations were quite high by the last of July 1962 in Johnston, Wilson and Wayne Counties, North Carolina, and migrating weevils made control difficult in these areas. In SOUTH CAROLINA, the heaviest carryover and emergence in cotton fields since 1956 were observed. Growers who did not control the weevil did well to make half a bale per acre. Large acreages produced 1.5 to 2 bales per acre with 12-20 applications. Infestations in GEORGIA were light to moderate early in the season. July was very dry, and boll weevil infestations were lower than average for this time of year. Infestations in Georgia were moderate to heavy after migrations began. Generally, infestations in Georgia were about the same as in 1961, but lighter than in some previous years. Infestations in ALABAMA were generally not as heavy as they were in 1961.

Feeding was observed on young buds in the southern and central parts of the State in May; however, damage was very light. There was a rapid increase in these areas of Alabama in late July. In the northern part of the State, infestations remained low until late July and increased steadily throughout the remainder of the season.

Boll weevil damage became light to heavy in southern TENNESSEE late in the season. Counties to the north of this area of Tennessee also became infested, but damage was not great. Boll weevil caused less concern in MISSISSIPPI than in former years; and the pest was so well controlled in LOUISIANA by the hot, dry weather, which was prevalent for most of the growing season, that it was of secondary importance. Infestations in ARKANSAS were somewhat higher in 1962 than in 1961. Control was excellent and losses low. All survey was with the point sample method. With this method, total squares, as well as percent punctured squares, are recorded. The percentage of fields infested from mid-June through August ranged from 18 to 96.5, for a season average of 77.4. The five-year season average is 68.6. Insecticidal treatments for all cotton pests ranged from 4.8 to 90.2 percent of the fields during the mid-June through August period. Infestations in MISSOURI were extremely low in 1962. The highest percentage of damaged squares found in any field was nine. No insecticides were applied for boll weevil in Missouri in 1962.

The first boll weevil activity in OKLAHOMA was reported in late June, with a general buildup following until peak populations were reached during late July and August. Activity continued on late cotton in Oklahoma until harvesting had started. Except for isolated spots, the infestations were not considered as serious as in 1961. In TEXAS, 1962 was one of the lightest boll weevil years in the last several in many areas, especially during the early part of the season. However, as the season progressed, populations became damaging in most areas of Texas where adequate control measures were not underway.

In 1953, a boll weevil infestation was found for the first time in the lower end of the Presidio Valley of Texas. Since then, it has become an economic pest in the Presidio-Ojinaga area. Intensive surveys in 1961 and 1962 revealed that the infestation had advanced up the Rio Grande Valley about 125 miles north of Presidio, and that there were isolated infestations further north in the El Paso Valley. A second area of infestation exists near Magdalena, Sonora, Mexico, within 45 miles of a cotton-growing area north of Nogales, Arizona. An effort is being made to find a way to stem further spread of boll weevil to the West. In 1961, some 2,500 acres were cooperatively treated along the Rio Grande Valley in Mexico and Texas. This treatment was very effective in reducing populations. In the fall of 1962, this same area was again treated. Treatments were also applied to the isolated infestations in the El Paso Valley in both years. In addition, approximately 3,000 acres were treated in the Magdalena area of Mexico south of Nogales, Arizona. A full appraisal of the 1962 treatments will be made in the spring and summer of 1963. (See map on following page).

Damage to seedling cotton and larger plants by unspecified FLEA BEETLES was below normal in 1962 in Clark County, NEVADA. Heavy, local infestations of PALE-STRIPED FLEA BEETLE (*Systema blanda*) and ELONGATE FLEA BEETLE (*S. elongata*) were reported on cotton in Spalding County, GEORGIA. Pale-striped flea beetle was not a problem in MISSOURI, but several species of WHITE GRUBS reduced stands of cotton in fields in flooded areas of Missouri as much as 25 percent.

BOLL WEEVIL PROGRAM, WESTERN AREA



Populations of BOLLWORM (*Heliothis zea*) did not show during the early part of the growing season in CALIFORNIA, although some larvae were present. Predators were abundant which helped reduce larval numbers. One to 20 larvae per 100 terminals were general, late in the growing season. Populations continued extremely late, and light to medium larval numbers were evident in gin trash. Infestations and damage in NEVADA were at about the same levels as in 1961, with the heaviest infestations occurring during August. Bollworm is becoming an increasing problem in cotton-growing areas of Nevada. Infestations were generally higher than in 1961 in ARIZONA. Damaging populations were present during August in some areas of that State. In NEW MEXICO, the heaviest bollworm infestations on cotton, since the insect survey program started in 1957, existed in 1962. Beginning about the middle of June and continuing until the middle of October, it was necessary to follow a strict control schedule to prevent severe damage in Dona Ana and Eddy Counties.

Bollworm was the most damaging insect of cotton during 1962 in TEXAS. Heavy infestations occurred in all areas of the State, with serious damage usually occurring before the populations were brought under control. TOBACCO BUDWORM (*H. virescens*) was locally heavy during the late season in central, west central, south central and southern areas of Texas. This insect was not a serious problem generally. In OKLAHOMA, damaging populations of bollworm existed throughout the State from late July through late September. The highest populations existed from the latter part of July through August. Damage from this species showed considerable increase over 1961.

Bollworm and tobacco budworm have become of greater importance in ARKANSAS as pests of cotton during the past few years, both as to severity of infestations and difficulty of control. Special surveys showed that bollworm is the principal species. August collections were 945 *H. zea* and 3 *H. virescens*. The ratio changed somewhat later in the season as expected; however, this occurred after

the main threat to cotton had passed. Collections in late September were 31 *H. zea* to 7 *H. virescens*. In mid-October, collections were 75 *H. zea* to 9 *H. virescens*. Light trap collections in 4 locations totaled 2,845 *H. zea* and only 40 *H. virescens* adults during the season. The percentage of fields infested with bollworms (*Heliothis* spp.) ranged from 21.3 to 70.8, for a season average of 51. The 1961 range was from 9.6 to 69, for a season average of 41.8. The five-year season average is 48. To facilitate control, 6,692 *H. zea* were collected from corn for testing with various materials and dosages. The magnitude of infestations is illustrated by the number of fields with high egg and larval counts. From late July through August, 8 to 25 percent of the fields scouted had egg counts of more than 10 eggs per 100 terminals. During the same period, from 16 to 24 percent of the fields had larval counts of more than 4 per 100 terminals. Damaged squares were reported by all scouts for the first time in 1962. For the second consecutive year, special whole plant counts were made in selected fields to provide a comparison of terminal to whole plant counts of eggs and larvae. The ratio is approximately one to four, being narrower early in the season and wider in the late season. For eggs, the ratio ranged 1-2 to 1-5.4. For the larvae, the range was 1-2.6 to 1-5.6. Bollworm pressure was greatest late in July. Insecticide treatments are generally applied for more than one pest in Arkansas; however, the most important pest at the time of application is recorded. In late July, bollworm was rated the number one pest in 27 percent of the fields treated. A special study of larval size showed that from one to forty-one percent of the larvae found on cotton reached one-half inch or more in length, the size that is difficult to control.

The heaviest populations of bollworms, principally bollworm but including tobacco budworm, experienced in several years in LOUISIANA caused more damage than any other cotton pest. Resistance to both DDT and endrin developed in some populations and increased the damage caused by bollworms. Bollworms were also reported to be more abundant than usual in MISSISSIPPI, and late season populations were damaging to cotton in western TENNESSEE. Beginning early in July, bollworms began a slow buildup in MISSOURI that continued until cotton was no longer attractive to the moths. Cotton that was late because of the dry weather in May required several applications of insecticides.

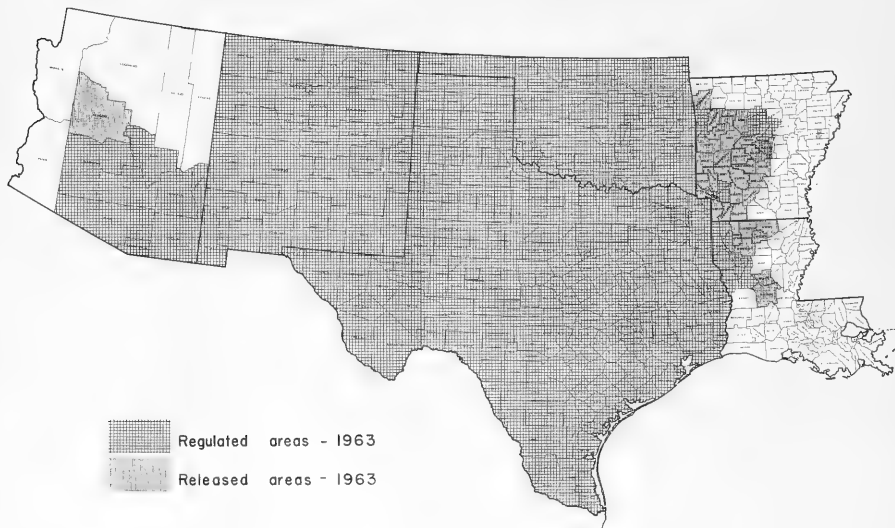
Bollworms were extensive throughout the season in ALABAMA. Infestations in southern and central sections averaged 8 to 10 larvae per 100 terminals as early as mid-May. By early June, infestations in these areas averaged 10 to 15 larvae per 100 terminals. During the latter part of June, infestations in all sections of Alabama were somewhat higher than in previous years. Populations decreased to some extent in early July, but by late July infestations were again increasing, especially in the northern part of the State. In late August, infestations were almost out of control in some sections of northern Alabama where effective control programs were not being initiated in time. Infestations in this area of the State ran as high as 85 percent, and up to 50 percent of the total crop was destroyed. Infestations remained about average in the Tennessee Valley and other sections of north Alabama throughout the late season. Infestations in GEORGIA were light to heavy, with most infestations being light to moderate. They were generally about the same as in 1961, but lighter than in several years previous to this date. First eggs were noted on May 12. The high egg count in Georgia was 115 per 100 terminals during late August. The high larval count was 54 per 100 terminals during late July. Bollworms caused some damage in SOUTH CAROLINA, but much less than during several years in the late 1950's. Light numbers of bollworms appeared on cotton in Wilson and Scotland Counties, NORTH CAROLINA, during the first week of June. Infestations were generally not heavy in most cotton areas of the State, but some untreated fields in Scotland County sustained 20 percent boll damage, which was higher than normal.

SALT-MARSH CATERPILLAR (*Estigmene acrea*) infestations in ARIZONA appeared earlier than usual and developed into damaging infestations in some cases. In most cases, however, beneficial insects and disease of the larvae prevented serious buildups until late September. In CALIFORNIA, local, heavy infestations were present in

Kings County, and light populations occurred over the State in many crops, including cotton. Populations were more obvious and probably less damaging in California in 1962 than in 1961. Salt-marsh caterpillar was a minor pest of cotton in TEXAS. It occurred in localized areas, but did not cause general damage over the State.

The outlying infestation of PINK BOLLWORM (Pectinophora gossypiella) in central ARIZONA has been progressively reduced each year since the eradication program was started in 1958. The acreages treated since the beginning of the program were as follows: 75,000 in 1959; 30,013 in 1960; 11,058 in 1961; and 1,200 in 1962. Only one pink bollworm specimen was recovered in the 1962 season in Arizona. In the 1963 season, spraying is planned on fewer than 300 acres, and the survey and regulatory program will be drastically reduced. In ARKANSAS and LOUISIANA, no pink bollworms were found until late in the season, when a few specimens were found in gin trash from two locations in each State. Several counties in Arkansas and parishes in Louisiana were removed from the regulated area. In TEXAS, appearance began in the coastal bend area about the middle of June, and some fields had as high as 90 percent infested bolls by the last of July. Pink bollworm was generally light throughout southern NEW MEXICO counties, except for a late buildup which was found in southern Eddy County. Several fields in this area showed considerable damage. Temperatures of -2° to -8° F. killed larvae in bolls of standing stalks in January 1962. Populations in OKLAHOMA were somewhat increased over the last two years, based on gin trash and lint cleaner inspections. Surveys in CALIFORNIA, NEVADA and MISSOURI were negative in 1962.

PINK BOLLWORM REGULATED AREAS



COTTON SQUARE BORER (Strymon melinus) was a minor pest in localized areas of TEXAS and MISSOURI. Occurrence was very light in CALIFORNIA and no economic damage was reported. COTTON LEAF PERFORATOR (Bucculatrix thurberiella) populations were light in some areas of Yuma and Pinal Counties, ARIZONA, during August and September. It did not build up as in previous years. Populations

in CALIFORNIA were general, but late in getting started. They appeared first in the north end of the Imperial Valley. Cotton continued to grow until the end of the year, and populations of cotton leaf perforator were present, which is unusually late.

CABBAGE LOOPER (*Trichoplusia ni*) appeared in ALABAMA cotton in large numbers in the southeastern part of the State in late July. By early August, this insect had spread throughout southern and central Alabama and, by mid-August, heavy infestations were reported from all areas of the State. Control was difficult, and severe "ragging" of cotton plants occurred before infestations subsided in late August and early September. The appearance of this insect in such numbers probably caused farmers more concern than any other pest throughout the season. Cabbage looper was light to heavy in GEORGIA, with most infestations being moderate to heavy. Infestations were greater than in 1961. In SOUTH CAROLINA, cabbage looper damage was the greatest ever noted. It was more noticeable in fields treated with insecticides throughout the season. The pest was not as damaging as growers thought, however. Damage came late in the season and disease of larvae finally helped. Cabbage looper was common in fields of cotton by late July in NORTH CAROLINA, but not of major importance. An early population in southwestern Wayne County was pupating during the second week of July.

Cabbage looper was present in all cotton-growing areas of CALIFORNIA. Populations continued throughout the harvest season. Variable numbers occurred. Infestations were present in ARIZONA cotton throughout the summer. In a few cases, foliar damage was heavy and control measures were required, but, in most cases, populations were held down by a disease of larvae. Localized infestations caused concern in several areas of TEXAS, but infestations were not generally distributed. Cabbage looper was active on cotton in OKLAHOMA and MISSOURI, but not a problem.

Heavy populations of cabbage looper and BEE T ARMYWORM (*Spodoptera exigua*) occurred on cotton in LOUISIANA; the heaviest ever observed. Foliage "ragging" was common throughout the State, but the two pests were considered to be of economic importance in only a few late-planted cotton fields. Beet armyworm was found for the first time on cotton in ALABAMA in 1962. Heavy infestations occurred in Autauga County during mid-August. Moderate to severe defoliation occurred before the infestation was discovered. A survey to determine the distribution of this insect was not made. Low populations of beet armyworm occurred in several areas of CALIFORNIA and in Clark and Nye Counties, NEVADA. Infestations of beet armyworm and GARDEN WEBWORM (*Loxostege similalis*) caused considerable concern in west central and west TEXAS. Locally, severe damage caused by beet armyworm and/or garden webworm was present in several cotton plantings over this area of Texas. Garden webworm was not a problem in MISSOURI.

COTTON LEAFWORM (*Alabama argillacea*) was collected in Acadia Parish, LOUISIANA, in late May, but failed to develop heavy infestations until later in September and early October after insecticide application for control of other pests had been discontinued. Cotton leafworm caused considerable defoliation of cotton locally in the west cross timbers and northwest areas of TEXAS. The insect appeared in OKLAHOMA and MISSOURI, but was not a problem. Light, scattered infestations of STALK BORER (*Papaipema nebris*) were a minor problem in MISSOURI; and larvae of a NOCTUID (*Proxenus mindara*) were light to medium in CALIFORNIA cotton until the end of the year. Several species of CUTWORMS required controls in areas of southern TEXAS early in the year, and they slightly reduced stands of cotton in marginal rows of several MISSOURI fields. GRANULATE CUTWORM (*Feltia subterranea*) populations were light to medium in gin trash in CALIFORNIA until the end of the year; and local, heavy infestations of granulate cutworm were present on seedling cotton in southeast GEORGIA. In addition, several northeast Georgia counties had heavy infestations of granulate cutworm late in the season.

Heavy, larval populations of CELERY LEAF TIER (Udea rubigalis) developed on cotton in the desert growing areas of CALIFORNIA. Some difficulty in control was experienced due to the larvae being on the undersides and lower leaves in webs. This species occurs south of the Tehachapi Mountains in California, whereas, another PYRAUSTID MOTH (U. profundalis) occurs in the area north of the Tehachapi Mountains. This latter species caused considerable defoliation in some fields in the San Joaquin Valley. Control is difficult with this pest. Larvae of another PYRAUSTID MOTH (Noctuella rufascialis) were locally a pest in TEXAS, but not generally. It lightly damaged cotton squares in the south central area.

A LEAF ROLLER (Platynota stultana) occurred in light to medium-heavy populations on cotton in the Imperial Valley of CALIFORNIA. Only occasionally does this insect become a problem in the San Joaquin Valley, and then it is usually associated with crops adjacent to cotton.

Light numbers of COTTON APHID (Aphis gossypii) were general in the eastern part of NORTH CAROLINA during the second week of July. Moderate populations built up in many areas of the State, but decreased by the first of August in Johnston, Wilson and Wayne Counties. In SOUTH CAROLINA, severe localized buildups occurred before effective controls were applied in July. Infestations of cotton aphid were light in GEORGIA, lighter than in recent years. Cotton aphid was present in damaging numbers in seedling cotton in several fields in central ALABAMA during late April and early May. Infestations increased generally in other areas of Alabama and, by late May, aphids were present in all sections of the State. Infestations subsided during June only to increase again in July in south Alabama and in the Tennessee Valley area of the State. Infestations in ARKANSAS were similar to those of 1961. Light infestations occurred in from 13 to 41 percent of the fields checked (about 13 percent of the State's acreage) compared with 19 to 35 percent in 1961. The season-long average percentage of fields infested was 39.7 compared with 28.9 in 1961 and 22.2 for a five-year average. The highest number of fields treated primarily for aphids was 44 of 6,829 scouted the second week of August. During the early part of the growing season in MISSOURI, spots of heavily infested cotton were found in many fields. A few fields were inadvertently sprayed. Most cotton aphid infestations were brought under control by parasites in Missouri. Cotton aphid infestations in TEXAS were generally light over the State, but scattered fields in most areas required some control measures. Spotted, light to heavy infestations were reported on cotton in Mesilla and Pecos Valleys, NEW MEXICO, during October and November. Populations in NEVADA peaked in early June, but were controlled by lady beetles and remained at low levels the rest of the season. Aphids in general were not the problem that they were in 1961 in CALIFORNIA. Cotton aphid was present, but not as numerous as in the two previous seasons. COWPEA APHID (Aphis craccivora) populations were heavy on cotton seedlings in parts of the San Joaquin Valley.

LYGUS BUGS (Lygus spp.) were a continuing problem in CALIFORNIA cotton fields and serious damage resulted where treatment timing was poor. The continued migration of bugs from alfalfa and safflower fields occurred all season. The condition was general. In ARIZONA, adult migrations of lygus bugs from alfalfa and other hosts began in May, slightly earlier than in previous years. Infestations increased to high populations in July and continued high in many untreated fields until September. Infestations in 1962 were about normal when compared with previous years. Lygus bugs increased to economic numbers in Nye County, NEVADA, during July, but were kept under control by parasites, predators and insecticides. In Clark County, Nevada, lygus bugs were subeconomic. Lygus sp. was a minor pest in localized areas of TEXAS.

TARNISHED PLANT BUG (Lygus lineolaris) and COTTON FLEAHOPPER (Psallus seriatus) were the principal plant bugs on cotton in ARKANSAS. Of minor importance in the State were RAPID PLANT BUG (Adelphocoris rapidus) and Neurocolpus nubilus. Very few fields were treated in Arkansas for these pests. In MISSOURI, a complex

of plant bugs, including cotton fleahopper, tarnished plant bug, rapid plant bug and N. nubilus, was found in more than 50 percent of the scouted fields every week during the growing season. Infestations ranged as high as 150 per 100 terminals. Several fields were treated. In OKLAHOMA, cotton fleahopper was said to be responsible for the shedding of young squares in the west central area. Populations of cotton fleahopper in TEXAS were variable, with economic damage occurring in many areas as rains hampered control operations when plants were most susceptible to injury. Light infestations of cotton fleahopper were present in some ARIZONA cotton during June, July and August.

A BLACK COTTON FLEAHOPPER (Spanogonicus albofasciatus) and cotton fleahopper were controlled in NEW MEXICO cotton while controlling bollworm (Heliothis zea). In ARIZONA, S. albofasciatus infestations were much lighter than in 1961, although some fields were treated. Counts averaging 30 to 60 adults and nymphs per 100 sweeps were common during June. This species began to increase during June in NEVADA cotton, but was controlled by insecticide treatments for lygus bugs.

SWEETPOTATO WHITEFLY (Bemisia tabaci) nymphal populations were heavy locally in the Coachella Valley of Riverside County, CALIFORNIA. Also in California, heavy populations of STINK BUGS occurred in the desert regions, and variable populations in other areas. The problem was not so acute in the San Joaquin Valley as in the previous summer. SAY STINK BUG (Chlorochroa sayi) and Euschistus impictiventris infestations were present throughout the summer in ARIZONA cotton and were heavier than normal in several areas, particularly in central Arizona. LEAF-HOPPERS were abundant in cotton fields in the San Joaquin Valley of CALIFORNIA. A few fields showed no fruiting of the plants as a result of infestations. Where treatments were applied, control was effective. In Clark County, NEVADA, Empoasca sp. populations were far below those of previous years and damage was negligible.

Infestations of unspecified THRIPS were light to heavy on cotton in GEORGIA, with most infestations being moderate to heavy; and populations in ALABAMA were generally low, with only light damage encountered. Several thrips were of little concern in ARKANSAS, and infestations of several species were generally light over TEXAS, although scattered fields in most areas required some control measures. In MISSOURI, thrips, including TOBACCO THRIPS (Frankliniella fusca) and FLOWER THRIPS (F. tritici), were present in most cotton fields during the year. Very few infestations became severe enough to warrant controls, however. Frankliniella spp. were active on cotton in OKLAHOMA during the year, and damage to seedling cotton in Clark County, NEVADA, was heavy during May. Thrips in general were present in most CALIFORNIA cotton fields. Apparently little damage resulted from the infestations. A heavy population of Hercothrrips phaseoli developed in the Bard area of Imperial County. Light infestations of thrips occurred on seedling cotton over ARIZONA. A few fields, particularly in the high elevations, had counts of 2 per plant, and treatments were applied in some cases. In NEW MEXICO, thrips, mostly F. occidentalis, damaged seedling cotton, but not as severely as in 1960. However, heavy, spotted infestations requiring treatment were found in northern Dona Ana County.

CRICKETS (Gryllus spp.) became heavy in many crops, including cotton, in Imperial County, CALIFORNIA. Several insecticides were tested for control in 1962. Foliage, squares and bolls were all damaged by nymphs.

MITES in general were slow in getting started in CALIFORNIA and held rather steady for some time before heavy populations developed which continued through September. Mixed populations of mites were not uncommon. In many fields, mites were uncontrolled and severe damage resulted. Cooler-than-normal weather was probably responsible for growers not checking fields as closely as they should, which allowed mite populations to get out of hand before treatments were applied. There was considerable variance in the results of control and, in most cases, control was poor. Faulty application was blamed for most of the failures.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) occurred throughout the growing season in California and required considerable treatment. STRAWBERRY SPIDER MITE (T. atlanticus) populations that could have been controlled in late May or early June were neglected, and considerable damage resulted which consisted of from heavy reddening of the foliage to defoliation. Many fields had to be re-treated for this species due to poor initial treatment. Some populations remained late in the season. PACIFIC SPIDER MITE (T. pacificus) increases continued throughout the summer and the early fall in California. Numerous fields in the San Joaquin Valley area were first treated for this mite in July.

Populations of SPIDER MITES (Tetranychus spp.) began increasing in early May in Nye County, NEVADA, and reached economic levels in late May and June. Most fields were treated, but many plants were killed in several untreated fields. In central ARIZONA, spider mites, primarily T. cinnabarinus, were a problem in some areas throughout the summer. Controls were required in some fields. Occasional infestations were found during the summer months in all cotton-growing areas of NEW MEXICO; and several species of spider mites were minor pests which occurred in localized areas of TEXAS, but they did not cause general damage in that State. Tetranychus spp. were active in OKLAHOMA, and populations were heavier than usual in LOUISIANA, but about normal, considering the drought conditions which prevailed during most of the season.

Several species of spider mites occurred on cotton in ARKANSAS. Infestations were similar to those of 1961. The percentage of fields infested ranged from 3.2 to 20.8, for a season average of 11.4. The 1961 season average was 11.8, while the five-year average is 13.4. Control was very effective, with spot treatments being generally adequate. In MISSOURI, spider mites, mainly strawberry spider mite, had favorable hot, dry weather for a buildup. Considerable spot, strip and, later, whole field treatments were necessary. Because of favorable conditions, mites persisted until about the middle of August in Missouri when a gradual decline in populations was observed. Spider mites were also abundant on cotton in western TENNESSEE and in MISSISSIPPI during the hot, dry weather of July and August. Damage was high on late cotton in western Tennessee, and economic damage was reported in many Mississippi fields. Infestations in ALABAMA were observed on seedling cotton in the Tennessee Valley and Sand Mountain areas and in a few isolated areas in other sections of the State by mid-May. Infestations subsided to some extent during the rainy period of early June, but increased rapidly during July and August. Spider mites caused defoliation of cotton in several areas of Alabama. There was a noticeable increase in activity in general throughout the State over previous years. Infestations of two-spotted spider mite and DESERT SPIDER MITE (T. desertorum) were light to moderate during the early season in GEORGIA, but moderate to heavy late in the season. In NORTH CAROLINA, Tetranychus spp. were numerous over entire fields in an area of eastern Robeson County on August 1. Many fields in Johnston and Wilson Counties had light to moderate infestations, and several fields in the former county were heavily infested over the entire field.

PILLBUGS were abundant over TEXAS during the spring and actually damaged some cotton stands in Victoria County.

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING _____	Soybeans _____	IN _____	Ohio _____	DURING _____	1961 _____
	(Commodity)		(State or District)		(Year)
		1. Seed-corn maggot		4. Grasshoppers (<i>Melanoplus</i> spp.)	
		2. White grubs (<i>Phyllophaga</i> spp.)		5. Blister beetles	
		3. Wireworms			
A. Pest or pest complex _____					
B. Number of _____ acres ^a produced (From CRS)		No.		1,722,000	
C. Average yield per _____ acre ^a (From CRS)		Units/		28 Bu.	
D. Price ^b per unit (bu.) ^c (From CRS)		\$/		2.25	
E. _____ Acres ^a needing control		No.		17,200 (1%)	
F. _____ Acres ^a treated		No.		1,700 (.01%)	
G. Reduction due to not treating where needed:				15,500 (E - F)	
H. Loss in yield, percent		%		15	
I. Loss in yield, units per _____ acre ^a , C x H		Units/		4.2 Bu.	
J. Loss in yield, \$ per _____ acre ^a , D x I		\$/		9.45	
K. Loss in quality, \$ per _____ -- ^a		\$/		--	
L. Yield loss for all _____ acres ^a , (E-F) x I		Units		65,100 Bu.	
M. Control cost, \$ per _____ acre ^a		\$/		2.50	
N. Control cost for all _____ acres ^a , F x M		\$		4,250	
O. Yield loss for all _____ acres ^a , (E-F) x J		\$		146,480	
P. Quality loss for all _____ -- ^a , (E-F) x K		\$		--	
Q. Combined control cost and losses, N + O + P		\$		150,730	

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by _____ William F. Lyon _____

Date _____ 12/28/62 _____

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING	Corn For Grain (Commodity)	IN	Ohio (State or District)	DURING	1961 (Year)
A.	Pest or pest complex	1. Corn rootworms 2. Corn leaf aphid 3. Cutworms - Wireworms	4. European corn borer 5. Chinch bugs 6. Corn earworm		
B.	Number of acres ^a produced (From CRS)	No.		2,537,000	
C.	Average yield per acre ^a (From CRS)	Units/		74 Bu.	
D.	Price ^b per unit (bu.) ^c (From CRS)	\$/		1.01	
E.	Acres ^a needing control	No.		126,900 (5%)	
F.	Acres ^a treated	No.		25,400 (1%)	
G.	Reduction due to not treating where needed:			101,500 (E - F)	
H.	Loss in yield, percent	%		6	
I.	Loss in yield, units per acre ^a , C x H	Units/		4.44 Bu.	
J.	Loss in yield, \$ per acre ^a , D x I	\$/		4.48	
K.	Loss in quality, \$ per -- ^a	\$/		--	
L.	Yield loss for all acres ^a , (E-F) x I	Units		450,660 Bu.	
M.	Control cost, \$ per acre ^a	\$/		3.00	
N.	Control cost for all acres ^a , F x M	\$		76,200	
O.	Yield loss for all acres ^a , (E-F) x J	\$		454,700	
P.	Quality loss for all -- ^a , (E-F) x K	\$		--	
Q.	Combined control cost and losses, N + O + P	\$		530,900	

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by William F. Lyon

Date 12/28/62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING	Wheat (Commodity)	IN	Ohio (State or District)	DURING	1961 (Year)
		1. Grasshoppers (<u>Melanoplus</u> spp.)		4. Armyworm	
		2. Hessian fly		5. Cutworms	
		3. Chinch bug			
A. Pest or pest complex					
B. Number of acres ^a produced (From CRS)		No.	1,457,000		
C. Average yield per acre ^a (From CRS)		Units/	31 Bu.		
D. Price ^b per unit (bu.) ^c (From CRS)		\$/	1.80		
E. Acres ^a needing control		No.	72,900 (5%)		
F. Acres ^a treated		No.	1,460 (.01%)		
G. Reduction due to not treating where needed:			71,440 (E - F)		
H. Loss in yield, percent		%	8		
I. Loss in yield, units per acre ^a , C x H		Units/	2.48 Bu.		
J. Loss in yield, \$ per acre ^a , D x I		\$/	4.46		
K. Loss in quality, \$ per -- ^a		\$/	--		
L. Yield loss for all acres ^a , (E-F) x I		Units	177,171 Bu.		
M. Control cost, \$ per acre ^a		\$/	2.00		
N. Control cost for all acres ^a , F x M		\$	2,920		
O. Yield loss for all acres ^a , (E-F) x J		\$	318,520		
P. Quality loss for all -- ^a , (E-F) x K		\$	--		
Q. Combined control cost and losses, N + O + P		\$	321,440		

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by William F. Lyon

Date 12/28/62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING _____	Hay _____	IN _____	Ohio _____	DURING _____	1961 _____
	(Commodity)		(State or District)		(Year)
	1. Meadow spittlebug		5. Pea aphid		9. Sweet clover weevil
	2. Potato leafhopper		6. Plant bugs		10. Alfalfa weevil
	3. Lesser clover leaf weevil		7. Grasshoppers		
A. Pest or pest complex	4. Clover root borer		8. Clover leaf weevil		
B. Number of _____ acres ^a produced (From CRS)		No. _____	1,999,000		
C. Average yield per _____ acre ^a (From CRS)		Units/ _____	1.92 Tons		
D. Price ^b per unit (_____ ton) ^c (From CRS)		\$/ _____	22.00		
E. _____ Acres ^a needing control		No. _____	699,700 (35%)		
F. _____ Acres ^a treated		No. _____	399,800 (20%)		
G. Reduction due to not treating where needed:			299,900 (E - F)		
H. Loss in yield, percent		% _____	20%		
I. Loss in yield, units per _____ acre ^a , C x H		Units/ _____	.38 Ton		
J. Loss in yield, \$ per _____ acre ^a , D x I		\$/ _____	8.36		
K. Loss in quality, \$ per _____ -- ^a		\$/ _____	--		
L. Yield loss for all _____ acres ^a , (E-F) x I		Units _____	113,962 Tons		
M. Control cost, \$ per _____ acre ^a		\$/ _____	2.80		
N. Control cost for all _____ acres ^a , F x M		\$ _____	1,119,400		
O. Yield loss for all _____ acres ^a , (E-F) x J		\$ _____	2,507,160		
P. Quality loss for all _____ -- ^a , (E-F) x K		\$ _____	--		
Q. Combined control cost and losses, N + O + P		\$ _____	3,626,560		

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by _____ William F. Lyon _____

Date _____ 12/28/62 _____

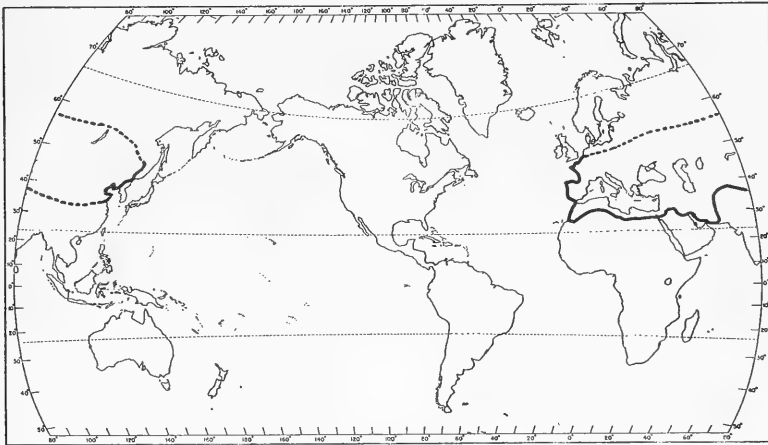
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

A SPOTTED FLESH FLY (Wohlfahrtia magnifica (Schiner))

Economic Importance: This sarcophagid is regarded as a specific myiasis-producing fly of considerable importance in areas of southern Europe, the Middle East and north Africa. It attacks both man and animals. The females of this species are attracted to larviposit in sores, cuts, wounds, sore eyes, a diseased nose, ear, vagina and also in soiled wool, but larvae never penetrate the digestive organs and are not known to cause myiasis of the digestive tract.

Man is frequently attacked in areas where a nomadic life is the custom. People in this type of environment expose themselves to attacks of the parasite. It is dangerous to sleep out-of-doors between 10 a.m. and 4 p.m. in the summer months in areas inhabited by the fly. In man, the nose, eyes and ears are most frequently attacked. Deafness may result from auditory myiasis and destruction of tissue in the nasal regions is often quite severe, with death being the result in some cases. Myiasis of the eyeball may result in the complete destruction of that organ. The larvae may also deeply penetrate into thick muscles and damage them severely.

In animals, myiasis is particularly common during the summer when even the smallest wound will become infested. The pest is particularly dangerous to cattle during epizootics such as foot and mouth disease.



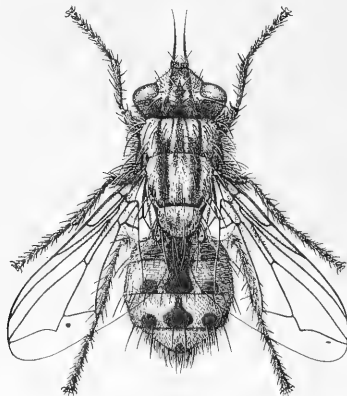
General Distribution of Wohlfahrtia magnifica (Schiner)

Distribution: Widely distributed in southern Europe, north Africa, Near East and the Asiatic portion of the U.S.S.R., and extends to Manchuria, Mongolia and China in the Far East. James (1) also records the species in Natal, Republic of South Africa. The species is apparently not known to occur in England, Netherlands, Scandinavia, Finland and the northern part of the U.S.S.R.

Hosts: Attacks man and many wild and domestic animals, i.e., horses, cattle, sheep, swine, dogs and fowl, particularly geese.

Life History and Habits: The adults of this species rarely enter buildings, but frequent fields, orchards and other open places. Females are flower feeders until they become sexually mature. They like warmth and light, therefore they do not fly during early morning and late evening hours, or in dark, gloomy weather. Each female, after mating, will deposit from 124 to 169 larvae which burrow into the tissue and molt in 2 or 3 days. The third-stage larvae become full grown in another 3 to 4 days, then crawl out of the wound to pupate. Larvae are relatively large and extremely hardy. The reproductive potential of the species is great; numerous generations are produced annually.

Description: ADULT - Antennae black, at most the apex of the second segment being yellowish or reddish; third segment half again to twice as long as the second; arista short-pubescent. Palpi black. Eyes broadly separated in both sexes, more so in the female than in the male. Radial vein 1 of wing is bare. Lateral abdominal spots rounded and well defined; median spots on first 3 segments each reach base of respective segment, forming a connected band; fourth segment has 3 small spots at apex. Length 10 mm. or 3/8 of an inch. LARVA - Anterior end tapers strongly from middle toward front; general form much more robust than in Sarcophaga larvae. Posterior end truncate, spiracles being located in a pronounced depression or posterior cavity; above and below cavity are 12 tubercles. Anal area on posterior face of last apparent segment or enlarged area. Prominent spinous areas present. Spines coarser than in Wohlfahrtia vigil (Walker), a North American species. Also, anterior spiracle has 5 or 6 papillae, whereas anterior spiracle has 9 or 10 papillae in W. vigil (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 13(12):3-22-63.



Adult Female of Wohlfahrtia magnifica (Schiner)

Major references: 1. James, M. T. 1947, U. S. Dept. Agr. Misc. Pub. 631:36-39. 2. Neveu-Lemaire, M. 1938. Traité d'Entomologie Médicale et Vétérinaire. pp. 840-841, Paris. 3. Patton, W. S. and Evans, A. M. 1929. Insects, Ticks, Mites and Venomous Animals of Medical and Veterinary Importance. Part I. Medical. pp. 452-493, Croydon, England. 4. Portchinsky, I. A. 1916. Bur. Ent. Sci. Com. Min. Agr. Mem. (Petrograd) 11(9):1-108. In Rus.

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REPORT

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON, D. C.
1937

FRONTIERS, COLUMBIAN SERVICE

PLANT PEST CONTROL DIVISION

NEWS AND DETECTION OPERATIONS

The Cooperative Extension insect Reports Series is designed to be of use to all plant growers. The contents are compiled from information supplied by cooperating State, Federal, and Industrial entomologists and other agricultural workers. In releasing this material the Division assumes no liability for errors and does not assume responsibility for the accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREENBUG light to heavy on oats in northern Louisiana; and scattered, spotted greenbug infestations appear to be building up again in Lea County, New Mexico, grain fields. Pest continues noneconomic in Oklahoma, except in portions of Bryan County where counts up to 40 per linear foot reported. BROWN WHEAT MITE numerous in some areas of Baca and Prowers Counties, Colorado. (p. 279). ALFALFA WEEVIL larvae active in Georgia, Alabama and Tennessee. Eggs being laid in Delaware, and adults active in central Utah. A complex of APHIDS causing heavy damage to alfalfa in Bossier Parish, Louisiana; SPOTTED ALFALFA APHID most numerous and probably causing most damage. (p. 280).

BITING MIDGES widespread in Fort Bend County, Texas, and causing considerable annoyance to residents. (p. 285). Winged forms of SUBTERRANEAN TERMITES reported in Maryland, Tennessee, Utah and Oregon. (p. 287).

SOME FIRST APPEARANCE RECORDS

In Louisiana, adults of BEAN LEAF BEETLE and PLUM CURCULIO active, and eggs of FOREST TENT CATERPILLAR and BUCK MOTH hatching. In Texas, larvae of tent caterpillars emerging from egg masses in several central counties.

DETECTION

A FRUIT FLY (*Rhagoletotrypeta* sp.) collected in New Jersey; first occurrence of this genus in North America. (p. 281). ASIATIC OAK WEEVIL reported for first time in Indiana. (p. 305). IMPORTED FIRE ANT found in Cumberland County, North Carolina; a new county record. (p. 288).

SPECIAL REPORTS

Second Beet Leafhopper Survey in Desert Areas of Southern Utah and Nevada, Southeastern California and Central Arizona. (pp. 282-283).

Status of the Screw-worm in the Southwest. (p. 286).

Hawaiian Insect Notes. (p. 290).

Summary of Insect Conditions in the United States - 1962

Insects Affecting Man and Animals - (p. 291).

Household and Structural Insects - (p. 304).

CORRECTIONS

See page 288.

Reports in this issue are for week ending March 22, unless otherwise indicated.

WEATHER OF THE WEEK ENDING MARCH 25

Most of the Nation experienced the passage of only one major storm system during the period. Early warmth gave way to midweek cooling east of the Rockies as a storm moved east-northeastward from New Mexico on the 18th, and over New England to sea on the 20th. Coastal Washington had precipitation daily from a Pacific storm that gave moderate rains to much of California on the 22d and 23d. This system was weaker than its predecessor, but extended its influence through the central Plains States from the Great Lakes to the southern Rockies by the 24th.

Daily maxima reached 90° in northern Texas and interior South Carolina on the 18th. Laredo, Texas, heated to 96° the same day. Miami Beach, Florida, with 91°, set a new monthly record on the 20th but, by the 22d, the first full day of spring, freezing temperatures briefly frosted the more susceptible northern locales of that State. However, the 23d was a record-setting day in the Midwest, where Sioux Falls, South Dakota, logged the highest ever so early, with an 80° maximum.

East of the Mississippi River, weekly temperature averages were mostly near normal. The largest subnormal departure was 6° reported from Burlington, Vermont, where the cold spell was broken on the 24th. Near normal and slightly deficient averages were recorded from New Mexico through California. Elsewhere, departures were significantly above normal. Four stations in the northern Great Plains reported departures of 16° above normal.

Little or no precipitation fell over the lower Colorado River Basin, the northern and southern Great Plains, and southern Florida. Only light amounts fell elsewhere over the Far West, except the West Coast States where totals exceeded 2 inches along the Pacific Northwest coast. Inland amounts ranged to near 1 inch in the Cascades and Coastal Ranges.

From the Great Plains eastward, very little precipitation fell after midweek, but thunderstorms and showers early in the period gave moderate to heavy totals from the central Plains over the Ohio Valley and much of the Appalachians. Hailstones to 1½ inches in diameter fell at Milwaukee, Wisconsin, on the 19th during the passage of a squall line. On the same day, tornadoes in Indiana resulted in two deaths and various other damage. Reports from Minnesota and Wisconsin gave snowfalls to 11 inches as the system passed on the 19th. The area of heaviest rainfall was West Virginia where heavy snowfall in the mountains succeeded the rains, and Canaan Valley reported a 13-inch snow depth on the 22d. Precipitation totals ranged to 1 inch in most areas of the Northeast, except Maine. However, snow depths still measure up to 4 feet in northern and central areas of the latter State. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ARMY CUTWORM (Chorizagrotis auxiliaris) - TEXAS - Spotted infestations remain fairly general in wheat over panhandle area. Counts ranged up to 12 per foot of drill row in Ochiltree County. (Texas Coop. Rpt.). Most recently reported in Swisher County where controls being applied in some instances. (Holloway). OKLAHOMA - Activity declined in northwest and panhandle areas; counts less than 2 per linear foot. Most larvae full grown; no further trouble expected. (Okla. Coop. Sur.).

CUTWORMS - COLORADO - Have not been present in economic numbers in southeast area. Ranged 0-2 per 5 linear feet of drill row. (Jenkins). ARIZONA - Unspecified cutworms and webworms appearing in lawns in Salt River Valley. (Ariz. Coop. Sur.). TEXAS - Larvae of several species, primarily Peridroma saucia; averaged one per square foot in some home lawns in Brazos County. (Newton).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - LOUISIANA - Diapausing larvae present in 220 of 667 girdled stalks examined at random in corn fields in Catahoula, Franklin, Richland, West Carroll, Morehouse, Union, Claiborne and Bienville Parishes; none had pupated. (Newsom).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Overwintering mortality 96 percent. (Newsom).

EUROPEAN CORN BORER (Ostrinia nubilalis) - LOUISIANA - Small number of diapausing larvae collected from one field in Morehouse Parish. (Newsom).

GREENBUG (Schizaphis graminum*) - LOUISIANA - Light to heavy on oats in northern parishes; approximately 25 percent plant destruction noted in one Webster Parish field. Wheat in same areas lightly infested. (Newsom). ARKANSAS - Surveys negative in northwest area. (Ark. Ins. Sur.). OKLAHOMA - Continues at noneconomic levels throughout State except in portions of Bryan County (south central) where counts up to 40 per linear foot reported. Other counts per linear foot by area were: Southwest, 3-12; west central, 0-5; east central, 0-10; southeast, 4. (Okla. Coop. Sur.). NEW MEXICO - Scattered, spotted infestations appear to be building up again in Lea County grain fields. Counts ranged 6-20 per linear foot. (N. M. Coop. Rpt.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - CALIFORNIA - Populations on barley plantings medium in Mendota and heavy in Five Points, Fresno County; ranged light to medium in Riverside County. (Cal. Coop. Rpt.). OKLAHOMA - Only occasional specimens noted in east central area; counts of 1-6 per linear foot observed in southwest. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light counts noted on barley and oats; 2-6 per linear foot in southeast and 6 per linear foot in southwest. (Okla. Coop. Sur.). NEW MEXICO - Generally light in Lea County barley fields. Ranged 10-15 per linear foot in fields checked. (N. M. Coop. Rpt.). ARIZONA - Small numbers appearing on small grains; however, no damage apparent. (Ariz. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae*) - OKLAHOMA - Most common aphid species observed in wheat fields checked throughout east central area. Only light counts per linear foot observed as follows: East central, 5-25; southwest, 3-10; southeast, 1. Only occasional specimens observed in west central area. (Okla. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - COLORADO - Numerous in some areas of Baca and Prowers Counties; ranged 0-15 per linear foot of drill row. Economic importance of populations will be dependent on moisture available for plant growth. (Jenkins).

* See CEIR 13(5):84.

WINTER GRAIN MITE (Penthaleus major) - LOUISIANA - Populations light on oats in Bossier Parish. (Newsom). OKLAHOMA - Light population of 20 per linear foot noted in Tillman County (southwest). (Okla. Coop. Sur.).

RED HARVESTER ANT (Pogonomyrmex barbatus) - OKLAHOMA - Becoming active in Stillwater area, Payne County. (Okla. Coop. Sur.).

SNAILS - OREGON - Oxychilus alliarius, or perhaps O. dreparnaldi, have been reported as abundant in a Polk County pasture area during mid-March. (Capizzi).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - First spring-laid eggs noted in old alfalfa stems in New Castle County March 18. (Burbutis). TENNESSEE - Eggs beginning to hatch in many locations in infested area of State with advent of warm weather. Weather conditions will determine how soon general emergence will occur. Continued warm weather will bring about rapid emergence. (Mullett). Some larvae present in Robertson County. (Bennett). GEORGIA - First and second-stage larvae present in alfalfa in Gordon County, with 25 percent of plants showing feeding injury. (Johnson). Full-grown larvae present in Griffin area, Spalding County. (Tippins). ALABAMA - First occurrence of season noted March 13 in Madison County and March 15 in Morgan County. Two specimens taken at each location from an approximate 5-square-foot area of alfalfa examined. (Howell, Smith). COLORADO - Has not been observed in alfalfa in southeast area. Plant growth just beginning. (Schweissing, Jenkins). UTAH - Adults active in several central area localities; treatments have been applied. (Knowlton).

CLOVER LEAF WEEVIL (Hypera punctata) - LOUISIANA - Larvae present in clover in low numbers throughout State. (Newsom). UTAH - Active in alfalfa at Sandy, Salt Lake County. (Knowlton).

CLOVER HEAD WEEVIL (Hypera meles) - LOUISIANA - Averaged 2 per 100 sweeps on crimson clover in northern parishes. (Newsom).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ALABAMA - Approximately 10 acres of white clover in Tallapoosa County showed 80 percent damage by this species. (Buttram).

CLOVER ROOT CURCULIO (Sitona hispidula) - LOUISIANA - Averaged 3 per 100 sweeps on crimson clover. (Newsom).

BEAN LEAF BEETLE (Ceratomyza trifurcata) - LOUISIANA - Appeared on soybeans in East Baton Rouge Parish and on crimson clover in several northern parishes. (Newsom).

PEA APHID (Acyrtosiphon pisum*) - ARIZONA - Continues a problem on alfalfa in all lower elevation counties; now appearing in Pima County. (Ariz. Coop. Sur.). NEW MEXICO - Populations remain light in alfalfa near Artesia, Eddy County, and Belen, Valencia County. (N. M. Coop. Rpt.). OKLAHOMA - Light to moderate in alfalfa in east central area; counts range from fewer than 10 per 10 sweeps in Muskogee area to 150-250 per 10 sweeps in Ft. Smith area. Counts of 100 per sweep reported from a field in Kiowa County with additional counts of 15-30 per foot of drill row in same county and 40 per square foot of crown area in Tillman County. Populations of 8-20 per 10 sweeps observed in Choctaw County. (Okla. Coop. Sur.). ARKANSAS - Surveys in northwest area showed less than one aphid per square foot. (Ark. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - LOUISIANA - A complex composed of this species, PEA APHID (Acyrtosiphon pisum*) and COWPEA APHID (Aphis craccivora) heavily damaging alfalfa in Bossier Parish. T. maculata is present in heaviest numbers and probably causing most of damage. (Newsom). ARKANSAS - Surveys negative in northwest part of State. (Ark. Ins. Sur.). OKLAHOMA - Populations of 25 per square foot of crown area noted in Tillman County. Only occasional

* See CEIR 13(5):84.

specimens found in southeast, east central and south central areas. (Okla. Coop. Sur.). COLORADO - Has not been found on alfalfa in southeast area. (Schweissing, Jenkins).

LYGUS BUGS (*Lygus* spp.) - NEW MEXICO - Adults ranged 3-12 per 100 sweeps in alfalfa and wheat fields in Curry County. (N. M. Coop. Rpt.). UTAH - Several species, largely *L. elisus*, active in alfalfa at Sandy, Salt Lake County. (Knowlton).

THRIPS - ALABAMA - Unspecified species abundant on approximately 10 acres of white clover in Tallapoosa County. (Buttram).

FRUIT INSECTS

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) - TEXAS - Larvae beginning to emerge from overwintering egg masses on fruit trees in most all areas of State. Heavy infestations appear probable in many instances. (Texas Coop. Rpt.). LOUISIANA - Webs common on untreated fruit trees throughout State. Larvae in fourth stage in Baton Rouge area. (Newsom).

AMERICAN PLUM BORER (*Euzophera semifuneralis*) - CALIFORNIA - Populations heavy in plum trees in Loomis area, Placer County. (Cal. Coop. Rpt.).

PLUM CURCULIO (*Conotrachelus nenuphar*) - LOUISIANA - Light activity on plum began week of March 11 in East Baton Rouge Parish. (Newsom).

A WEEVIL (*Pandeleteius cinereus*) - TEXAS - Moderate, local populations in Mason County damaging apricot trees by excavating buds. (Garrett).

SAN JOSE SCALE (*Aspidiotus perniciosus*) - FLORIDA - Infesting pear (*Pyrus communis*) at Largo, Pinellas County (March 19). (Fla. Coop. Sur.).

A SNOWY TREE CRICKET (*Oecanthus* sp.) - OREGON - Unusual incidence of oviposition-injury on apples and cane fruits in Willamette Valley; amount of injury exceeds that observed in past 15 years. (Every).

A FRUIT FLY (*Rhagoletotrypeta* sp.) - NEW JERSEY - Specimens of an undescribed species obtained from sticky board traps August 2, 1962, in Camden area, Camden County. Flies obtained during program to detect entrance of new fruit fly species into State. Following find of this fruit fly in Camden area, fruits were gathered from many possible host plants in area of trapping site. Pupae produced from larvae which emerged from collected fruit being held. Adults from these pupae will be identified in an effort to determine possible hosts of *Rhagoletotrypeta* in the State. This is the first occurrence of this genus in North America. Det. by R. H. Foote. (Swift).

A PIT SCALE (*Asterolecanium pustulans*) - FLORIDA - Ranged moderate to severe on fig (*Ficus carica*) at Holly Hill, Volusia County (March 12). (Fla. Coop. Sur.).

CITRUS BLACKFLY (*Aleurocanthus woglumi*) - MEXICO - Biological Control Zone - Inspection of 29,893 trees on 31 properties indicates 585 trees on 6 properties infested in Municipios of Hidalgo, Guemez and Villagran in State of Tamaulipas. No infestation found in Municipio Villagran which borders on chemical control zone in State of Nuevo Leon. Spot checks in Llera, Tamaulipas, of several groves heavily infested about one year ago indicate parasites reduced infestation to point of difficulty in detecting leaf with live specimens. Apparently present level of infestation in Tamaulipas zone is lowest of several years due to efficient biological control. Additional 120 infested trees found in City of Merida, Yucatan; 5,000 specimens of a parasitic eulophid (*Prospaltella opulenta*) released. Additional surveys being made in that State. Fluctuations in parasitism occurred in State of Colima during recent months; parasitism percentage increased recently.

Parasites available in other areas of State liberated in distressed locations. Infestations in Territory of Baja California very light and apparently well controlled by a parasitic platygasterid (Amitus hesperidum) and P. opulenta. Chemical Control Zone - First infestation in approximately 1 year found at Linares, Nuevo Leon, February 1; infestation light. Second, light infestation found in neighboring grove 2 days later. Treatment begun immediately. Inspection of 192,275 citrus trees on 3,203 properties reveals 20 trees lightly infested, with a total of 142 leaves infested on 2 properties at Linares, Nuevo Leon. Total includes 79,783 nursery trees. First treatment applied to 3,950 trees on 17 properties and second to 53,391 trees on 77 properties at Allende and Linares, Nuevo Leon; included in total were 45,100 nursery trees. (PPC, Mex. Reg., Feb. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Ten specimens recovered from traps in Hidalgo County and 1 each from Starr and Cameron Counties; trapping involved 1,300 traps. (PPC, South. Reg., Feb. Rpt.).

CITRUS RUST MITE (Panonychus citri) - FLORIDA - Severe on kumquat (Fortunella margarita) at Fairvilla, Orange County (March 15). (Fla. Coop. Sur.).

A CERAMBYCID BEETLE - NORTH CAROLINA - Larvae of an undetermined species apparently damaged stems of blueberry at a location in Mitchell County. (Jones).

TRUCK CROP INSECTS

LEAFHOPPERS - TEXAS - Activity of several species increasing in Zavala County; some damage occurring to beans, potatoes, cantaloups and tomatoes. (Harding).

A FALSE WIREWORM - TEXAS - Heavy, local populations of an undetermined species damaging garden vegetables in Gillespie County. (Newton).

CUCUMBER BEETLES (Diabrotica spp.) - TEXAS - D. undecimpunctata howardi populations building up on potatoes in Zavala County; light damage becoming noticeable. (Harding). LOUISIANA - Adults of D. balteata ranged up to 4 per 100 sweeps on white and sweet clovers in southern portion of State. (Newsom).

A TORTOISE BEETLE (Gratiana pallidula) - TEXAS - Adults numerous on eggplant in Zavala County; damage becoming evident. No egg deposition noted. (Harding).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Beginning to appear on potatoes. (Ariz. Coop. Sur.).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Present on edges of most potato fields. Controls being applied in most instances. (Ariz. Coop. Sur.).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - CALIFORNIA - This species and Brevicoryne brassicae medium on yellow mustard in Loomis, Placer County. (Cal. Coop. Rpt.).

Second Beet Leafhopper Survey in Desert Areas of Southern Utah and Nevada, Southeastern California and Central Arizona - March 4 - 13, 1963

Information obtained during second survey in March indicates further buildup of BEEF LEAFHOPPER (Circulifer tenellus) populations in southern breeding grounds in areas lying to the south of the 34 degree parallel.

Leafhopper movement from these desert areas to cultivated districts of central and southern Arizona, southeastern California, southern Nevada, and southern Utah expected to be light to moderate; movement to central and northern Utah light; movement to eastern Utah and western Colorado moderate, with possibly a few heavy concentrations due to effects of local topography of migratory leafhopper populations. (Continued on page 283).

This forecast covers beet leafhopper movement from only the area surveyed and does not have reference to populations that may have overwintered in local breeding areas. This will be final report covering beet leafhopper conditions in the desert areas mentioned. (PPC, West. Reg.).

A THRIPS (Frankliniella occidentalis) - TEXAS - Local infestations in Zavala County average 160 per 10 onion plants. (Harding).

THRIPS - ARIZONA - Spotted wilt on lettuce appearing in Maricopa and Yuma Counties. Transmitted by a species of this group. (Ariz. Coop. Sur.).

APHIDS - ARIZONA - Continue a problem on lettuce in Salt River Valley. Very poor controls being secured by several of recommended insecticides. Weather conditions ideal for reproduction of aphids and not too conducive for production of parasites. (Ariz. Coop. Sur.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - Three new infested properties found in Tangipahoa Parish, LOUISIANA, and 1 in St. Helena Parish; 22 properties released from regulation in State during month, including last known infestations in East Feliciana and West Feliciana Parishes. All storage and bed inspections in ALABAMA negative. Inspections in 15 counties in GEORGIA revealed 6 newly infested properties; 26 properties released from regulation. Nonplanting zone at James Island and Edisto Beach, Charleston County, SOUTH CAROLINA, released from regulation. (PPC, South. Reg., Feb. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Heavy populations developing on strawberry plantings in El Segundo area, Los Angeles County. All stages present. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

ENGRAVER BEETLES (Ips spp.) - TEXAS - Active infestations of I. avulsus, I. grandicollis and I. calligraphus reported from Hardin, Harris and Liberty Counties. (Texas For. Pest Comm., Feb. Rpt.).

A SUBTERRANEAN TERMITE (Reticulitermes virginicus) - FLORIDA - Extensive infestation present in basal portion of trunk section of a living longleaf pine (Pinus palustris) at Gainesville, Alachua County (March 14). Det. by L. A. Hetrick. (Fla. Coop. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Larvae of this species and Malacosoma sp. (probably texanum) emerging from egg masses on oak trees in several central counties. Preliminary observations indicate that populations may be higher than those present during severe outbreak in 1962. (Newton). LOUISIANA - Eggs hatching in Baton Rouge area of East Baton Rouge Parish. (Newsom).

GYPSY MOTH (Porthetria dispar) - Laboratory test in NEW HAMPSHIRE indicates that eggs collected at Red Hill, near Squam Lake, about 40 percent parasitized by an ENCYRTID (Ooencyrtus kuwanai). Reports in Franklin, Chittenden and Grand Isle Counties, VERMONT, indicate decrease in intensity of infestation. Egg clusters found in several industrial locations in western MASSACHUSETTS. Nursery scouting in CONNECTICUT completed. A few new infestations and some extensions of previously known infestations found in NEW YORK in Rockland County. Survey in Nassau County, Long Island, revealed infestations at 20 locations, 9 in Oyster Bay Township, 8 in North Hempstead Township and 3 in Hempstead Township; infestations range 1-8 egg clusters. Egg mass survey continued in NEW JERSEY. Total of 18 egg masses encountered, 8 found in February in Bergen, Passaic, Morris and

Sussex Counties. (PPC East. Reg., Feb. Rpt.).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - New infestation consisting of estimated 300 winter webs over approximately 10 acres found in southeastern portion of Francetown Township, Hillsboro County, NEW HAMPSHIRE. Infestations still active in Weare, Northwood, Epom and Hooksett Townships. Two additional small infestations found at Deer Island and Provincetown, MASSACHUSETTS; webs previously found at Plum Island and Truro, Massachusetts. Surveys in RHODE ISLAND and CONNECTICUT negative to date. (PPC, East. Reg., Feb. Rpt.).

BUCK MOTH (Hemileuca maia) - LOUISIANA - Eggs hatching in Baton Rouge area, East Baton Rouge Parish. (Newsom).

A PLANT BUG (Neoborus illitus) - CALIFORNIA - Nymphs and adults medium on elm trees in Colusa, Colusa County. (Cal. Coop. Rpt.).

A GALL WASP (Callirhytis suttoni) - CALIFORNIA - Heavy populations damaging local oak trees in San Rafael, Marin County. Infestations have been building up over past few years and are now weakening trees to point that owners are concerned about losing the trees. (Cal. Coop. Rpt.).

JUNIPER WEBWORM (Dichomeris marginella) - OREGON - Injuring ornamental juniper in Roseburg area, Douglas County. (Parker, March 15).

A JUNIPER TWIG GIRDLER (Periploca nigra) - CALIFORNIA - Larvae heavy in juniper shrubs in Lafayette, Contra Costa County. (Cal. Coop. Rpt.).

DEODAR WEEVIL (Pissodes nemorensis) - LOUISIANA - Destroying nursery planting of black pine in St. Tammany Parish. (Newsom).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Populations increasing on shrubs in all parts of Salt River Valley. (Ariz. Coop. Sur.).

APHIDS - OKLAHOMA - Several species active on ornamental shrubs in Cleveland County area (central). (Okla. Coop. Sur.). CALIFORNIA - Myzus ornatus medium on pansy plants in Los Osos, San Luis Obispo County. (Cal. Coop. Rpt.).

COTTONY-CUSHION SCALE (Icerya purchasi) - LOUISIANA - Severely damaging pittosporum in Baton Rouge area, East Baton Rouge Parish. (Newsom). ARIZONA - Infesting shrubs in Globe, Gila County, and in Safford, Graham County. (Ariz. Coop. Sur.).

Coccids in Florida - Asterolecanium pustulans moderately infested Florida trema and Murraya paniculata at Miami, Dade County (Feb. 22), and severely infested Nerium sp. at Holly Hill, Volusia County (March 13). Ceroplastes cirripediformis was severe on Gardenia sp. at Auburndale, Polk County (March 11). Comstockiella sabalis was moderate on Sabal palmetto at Grant, Brevard County (March 11), and at Holly Hill (March 12). Florinia theae ranged moderate to severe on Camellia japonica at Fairville, Orange County (March 14), and on Ilex sp. at Cocoa, Brevard County (March 15). Aspidiotus lataniae was moderate on 1,000 Rhododendron sp. at Leesburg, Lake County (March 1). Phenacaspis cockerelli was moderate on Michelia fuscata at Inverness, Hendry County (March 13), and ranged moderate to severe on Magnolia grandiflora at Fairville (March 14). Pinnaspis aspidistrae severely infested fern at Bartow, Polk County (March 14). Protopulvinaria pyriformis was moderate on Gardenia sp. at Cocoa (March 15). Pseudaulacaspis pentagona severely infested Diosypros sp. at Glen St. Mary, Baker County. Pseudococcus adonidum was moderate on Dieffenbachia picta at Holly Hill (March 12) and ranged moderate to severe on Monstera deliciosa at Lockhart, Orange County (March 8). Aspidiotus perniciosus was severe on Chaenomeles sp. at Glen St. Mary (March 13). (Fla. Coop. Sur.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Heavy mining noted on American holly at University Park, Prince Georges County. (U. Md., Ent. Dept.).

A GALL MIDGE (Cecidomyia sp.) - MARYLAND - Galls found on dogwood at Baltimore. (U. Md., Ent. Dept.).

SOUTHERN RED MITE (Oligonychus ilicis) - LOUISIANA - Heavy on azalea and camellia throughout southern part of State. (Newsom). FLORIDA - Severely infested fire-thorn (Pyracantha coccinea) at Fairvilla, Orange County (March 14). (Fla. Coop. Sur.).

SPIDER MITES - FLORIDA - Eotetranychus sexmaculatus severely infested azalea (Rhododendron indicum) at Fairvilla, Orange County (March 14). Tetranychus tumidus moderately infested 5,000 schefflera at Sebring, Highlands County (March 4). (Fla. Coop. Sur.).

A PHYTOSEIID MITE (Phytoseiulus macropilis) - FLORIDA - Severely infested 400 azaleas (Rhododendron indicum) at Fairvilla, Orange County (March 14). (Fla. Coop. Sur.).

SNAILS - OREGON - Snail collections made since January 1 in Portland greenhouses have been determined by G. Dallas Hanna, California Academy of Science, as Helix aspersa and Oxychilus alliarius. (Capizzi). TEXAS - Light, widespread populations of snails and sowbugs in Guadalupe County damaging young ornamental plants in many yards. (Texas Coop. Rpt.; Massey).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - MICHIGAN - Infestation moderate in some untreated herds in Ingham County. (Dowdy, March 15). OKLAHOMA - H. lineatum adult activity reported in Cotton, Choctaw and Payne Counties. (Okla. Coop. Sur.). NORTH CAROLINA - H. bovis larvae collected on March 15 and 21 in Ashe County. Total of 6 larvae collected from backs of cattle. Det. by D. A. Mount. (Jones, Dillard).

HORN FLY (Haematobia irritans) - OKLAHOMA - Adults occasionally active on cattle in Payne County area. (Okla. Coop. Sur.).

MOSQUITOES - DELAWARE - Aedes canadensis larvae, mostly second stage, common in some areas of New Castle County. (R. W. Lake). Anopheles punctipennis adults collected March 9 in northern New Castle County. (F. Murphey). TEXAS - Adults observed in Jefferson County during February included Culiseta inornata, Anopheles crucians and Culex salinarius. Low numbers involved and little annoyance resulted. (Jeff. Co. Mosq. Contr. Comm., Feb. Rpt.).

A BITING MIDGE (Culicoides sp.) - TEXAS - Widespread in Fort Bend County and causing considerable annoyance to residents. (Texas Coop. Rpt.; Matheny).

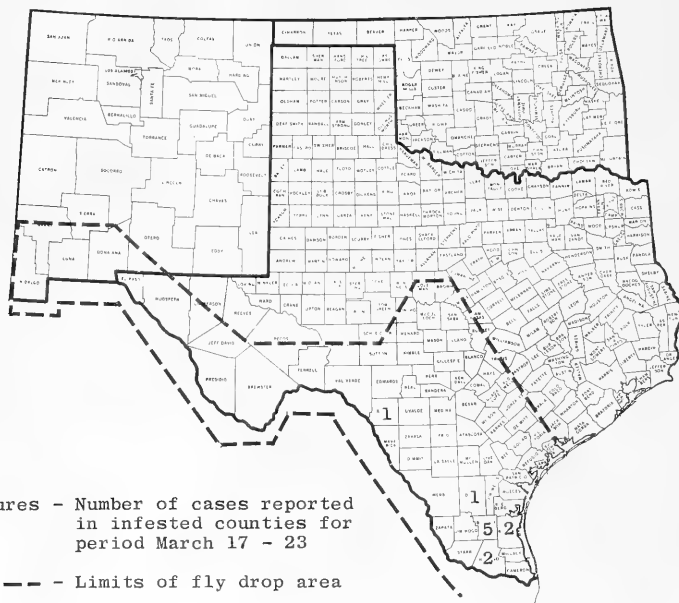
CATTLE LICE - NEW MEXICO - Moderately heavy on yearling calves at ranch near Crossroads, Lea County. (N. M. Coop. Rpt.). UTAH - Severe on some beef cattle in Mona area of Juab County, on some herds in Kane County and in western Box Elder County; 500 cattle dipped and 1,550 sprayed in Juab County. (Knowlton, Emlin). OKLAHOMA - Activity of several species continues light to heavy throughout State. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Heavy on hogs, especially young pigs, in Blaine County; controls initiated. (Okla. Coop. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - NEVADA - Light in home in Reno, Washoe County. (Bechtel, Lauderdale). FLORIDA - Collected in yard at Key West, Monroe County. (Buchanan, Mar. 7).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period March 17-23, a total of 11 cases were identified. An additional screw-worm case was found in Kinney County, TEXAS, about 20 miles from the Rio Grande and about 20 miles from the previously reported Kinney County case. Screw-worm was also found during this period in Brooks, Kenedy, Hidalgo and Duval Counties. The specimen from Duval County is the first from that county since January 17, 1963. A total of 98 million sterile screw-worm flies was released during this period. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period March 17 - 23

----- Limits of fly drop area

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Infesting stored products in Stillwater area, Payne County. (Okla. Coop. Sur.).

HIDE BEETLE (Dermestes maculatus) - NORTH CAROLINA - Infested hams in hamhouse at a location in Alamance County. (Jones).

HOUSEHOLD AND STRUCTURAL INSECTS

FURNITURE CARPET BEETLE (Anthrenus flavipes) - MARYLAND - Adults and larvae appeared in several Prince Georges County homes. (U. Md., Ent. Dept.). TEXAS - Locally heavy in Brazoria County home; caused great damage to furniture and carpets. (Newton).

A POWDER-POST BEETLE (Lyctus brunneus) - MARYLAND - Heavily infested bamboo curtain in Baltimore County home. (U. Md., Ent. Dept.).

BOXELDER BUG (Leptocoris trivittatus) - MARYLAND - Caused a nuisance by congregating on and in homes in Anne Arundel and Montgomery Counties. (U. Md., Ent. Dept.). UTAH - Invading offices and halls in Utah State University at Logan, Cache County. Entering a number of homes in Holladay-East Mill Creek area, Salt Lake County. (Knowlton).

FIREBRAT (Thermobia domestica) - MICHIGAN - Light infestation observed in a Berrien County motel. (Dowdy, March 15).

CLOVER MITE (Bryobia praetiosa) - NEVADA - Large numbers continue to enter homes in Reno-Sparks area, Washoe County. (Lauderdale). UTAH - Entering homes in Provo, Utah County. (Knowlton). NORTH CAROLINA - Heavy in home in Davie County (Wray). MARYLAND - Caused a nuisance entering homes in Anne Arundel and Prince Georges Counties and at Baltimore. (U. Md., Ent. Dept.).

SUBTERRANEAN TERMITES - MARYLAND - Reticulitermes sp. winged forms swarmed in house at Lusby, Calvert County. (U. Md., Ent. Dept.). TENNESSEE - Unspecified species noted swarming in houses; many inquiries expected. (Mullett). FLORIDA - First winged reproductives of Reticulitermes virginicus of season collected at Pensacola, Escambia County, March 9. (Fla. Coop. Sur.). UTAH - Unspecified species severely damaged older home at Logan, Cache County. (Knowlton). OREGON - Winged forms of Reticulitermes hesperus observed in Madras, Jefferson County, week of March 17. (Bierly).

ANTS - SOUTH DAKOTA - Formica sp. emerged from walls of ranch house in Harding County. House unoccupied during winter months but heated one day prior to emergence of winged forms. (Spawn). MICHIGAN - Winged adults of Camponotus sp. reported emerging from houses in Ingham County. (Dowdy, March 15). NORTH CAROLINA - Crematogaster ashmeadi winged forms present in large numbers in Wake County home March 1. (Wray). TENNESSEE - Unspecified species noted swarming in homes; many inquiries expected. (Mullett).

BENEFICIAL INSECTS

LADY BEETLES - UTAH - Active at Logan, Cache County, and Pleasant Grove, Utah County. Mostly Hippodamia spp. (Knowlton). ARIZONA - Hippodamia convergens now appearing; egg laying in progress. (Ariz. Coop. Sur.). OKLAHOMA - Several species becoming more common in alfalfa and small grains. (Okla. Coop. Sur.). ARKANSAS - Several species becoming active, although only few host species present upon which to feed. (Ark. Ins. Sur.). LOUISIANA - Light populations of H. convergens, Coccinella novemnotata, Coleomegilla maculata fuscilabris, Cycloneda sp. and C. sanguinea appearing throughout State. (Newsom).

PREDATORS - LOUISIANA - Populations of predators at lowest level ever observed for time of year; Geocoris punctipes most abundant species. (Newsom).

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Becoming more common in alfalfa and small grain fields. (Okla. Coop. Sur.). LOUISIANA - Light populations appearing throughout State. (Newsom).

GREEN LACEWINGS (Chrysopa spp.) - OKLAHOMA - Becoming more common in alfalfa and small grain fields. (Okla. Coop. Sur.). ARIZONA - C. oculata appearing; aphid populations may decline. (Ariz. Coop. Sur.).

HYMENOPTEROUS PARASITES - ARKANSAS - Activity gaining slowly. (Ark. Ins. Sur.).

MISCELLANEOUS INSECTS

GREATER WAX MOTH (Galleria mellonella) - ARKANSAS - Adults moth found outside a beehive in Mississippi County on March 20. This is evidence of successful overwintering of this species in extreme northeast part of State. (Warren).

APHIDS - CALIFORNIA - Macrosiphum euphorbiae and Anuraphis bakeri medium on cover crops in plum orchards at Reedley, Fresno County. Populations have not been as heavy this year, following cold winter, as at this time in past 3 years. (Cal. Coop. Rpt.).

POPLAR BORER (Saperda calcarata) - SOUTH DAKOTA - Specimen tentatively identified this species obtained from poplar firewood at Brookings, Brookings County. (Spawn).

A CERAMBYCID BEETLE (Neoclytus conjunctus) - CALIFORNIA - Adults heavy in residence in Oroville, Butte County. (Cal. Coop. Rpt.).

A "JEWELLED" BEETLE - NEVADA - One live specimen of undetermined species confiscated in Las Vegas, Clark County. (Nichols).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Few additional infestations being found in Sacramento, Sacramento County; some a considerable distance from original finds. Area of approximately 18 square miles now involved; includes 351 city blocks. Approximately 600 city blocks treated. With continued good weather, treatment expected to be completed prior to adult emergence. (Cal. Coop. Rpt.).

A SPRINGTAIL - MICHIGAN - Undetermined species caused some concern after first few days of above-freezing weather. (Dowdy, March 15).

A TACHINA FLY (Cenosoma signiferum) - FLORIDA - Collected in Steiner trap in calamondin tree in Miami, Dade County (Feb. 20). Det. by C. W. Sabrosky. This species is new to the Florida State Collection of Arthropods. (Fla. Coop. Sur.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Infestation found for first time in Cumberland County, NORTH CAROLINA, during February. Extensions to known infestations found in Carteret and Pamlico Counties. New find in Fayetteville, Cumberland County, now involves 7 city blocks; most mounds treated when found. Extensions found in Orangeburg and Horry Counties, SOUTH CAROLINA. Negative surveys made in Lee, Terrell, Jones, Dodge, Ben Hill, Tift and Wilcox Counties, GEORGIA; no active mounds found in treated block in Monroe County. Surveys in Lee County, MISSISSIPPI, reveal additional infested area; approximately 900 acres now infested. Appraisal survey of 2,000 acres in southern LOUISIANA revealed only 38 acres require retreatment. Negative survey made in 22 TENNESSEE counties during February. (PPC, South. Reg.).

CORRECTIONS

CEIR 13(10):184 - HIDE BEETLE (Dermestes maculatus) - ALABAMA - Should be changed to read as follows: Light infestations observed on imported fishmeal; approximately 178,000 two-hundred-pound bags in warehouse. Only 2 percent of these bags lightly infested. (Seibels).

CEIR 13(11): 232 and 240 - References to "A SMITHURID SPRINGTAIL (Onychirus pseudarmatus)" should read "A PODURID SPRINGTAIL".

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Perid. saucia	Prod. ornith.	Spodop. exigua	Hiliothis zea	vires.
<hr/>								
FLORIDA								
Gainesville 3/19	3	3	9				1	1
Northeast Gainesville 3/19			37					
GEORGIA								
Tifton 3/14-20	No collections.							
MISSISSIPPI								
*Stoneville 3/15-21	56	19	3	77	22	6	3	
SOUTH CAROLINA								
Charleston 3/11-17	5	6	17		5			
Charleston 3/18-24	6	1	4		1			

* Two traps - Stoneville.

HAWAIIAN INSECT NOTES

The following notes were submitted by the Hawaiian Entomological Society and were extracted from the "Notes and Exhibitions" in the minutes of the March 11, 1963, meeting.

An OLETHREUTID MOTH (Cryptophlebia ombrodelta) was recently determined by D. Davis from specimens reared from macadamia nuts from the Islands of Hawaii and Oahu. Other hosts reported for the first time for this pest are: Klu (Acacia farnesiana) July 1959, monkey-pod (Pithecellobium saman) April 1962, both from the Island of Oahu, and Cassia spp. in September 1962 from the Island of Hawaii. (Miss M. Chong).

SOUTHERN GREEN STINK BUG (Nezara viridula) nymphs were observed feeding on popolo fruit (Solanum nodiflorum) at Nonaka's farm, Wailua, Maui, on February 28. Feeding scars and shriveled fruits were noted. This is a new host record for this bug. (Miss M. Chong, C. Davis, J. Holloway, S. Au).

A FRUIT FLY (Tetraeuaresta obscuriventris) was introduced for the control of a noxious weed pest (Elephantopus mollis) on Kauai; a "population explosion" of this fruit fly was reported. (Miss M. Chong, S. Au).

A PUNCTURE-VINE WEEVIL (Microlarinus lareynii) was reported reared from the native nohu (Tribulus cistoides); it appears to be breeding continuously under Hawaiian conditions. (Miss M. Chong, S. Au).

Specimens of a FRUIT FLY (Tephritis sp.) were reared from galls on Dubautia sp. This is a new State record and the first time this genus has been reported as a stem miner. (Dr. E. Hardy).

SWEETPOTATO LEAF MINER (Bedellia orchilella) outbreaks over the years have been reduced due to the introduction of a parasitic braconid (Apanteles bedelliae) in 1945; by 1950, sweetpotato leaf miner was reduced to extremely low level. On February 15, 1963, sweetpotato leaf miner was found attacking sweetpotato at Waimano Home Road, Pearl City. This pest was heavily parasitized by A. bedelliae as evidenced by the large number of cocoons. (Dr. M. Sherman).

A FLESH FLY (Helicobia sp.) was abundant in a heavy infestation of lawn armyworm (Spodoptera mauritia acronyctoides) on the Kaanapali Golf Course at Lahaina, Maui. This appears to be a new parasite in the State. (F. A. Bianchi).

A BILLBUG (Sphenophorus venatus vestitus) completely killed several discrete areas of manienie grass (Cynodon dactylon) on the fairways of the Kaanapali Golf Course during the last few weeks. (F. A. Bianchi).

A BARK BEETLE (Xyleborus compactus) was found on avocado on January 4 on Keeaumoku Street in Honolulu; this constitutes a new host record. (J. Kajiwara).

New records for the Island of Molokai include a GELECHIID MOTH (Dichomeris sp.) on alfalfa, both larval and adult stages; a DELPHACID PLANTHOPPER (Chloriona kolophon) by sweeping grass; and a PLANT BUG (Rhinacloa forticornis) on alfalfa. These last 3 insects apparently have been present in Hawaii for a relatively short time, as all were reported in the State for the first time during the past 2 years. (J. W. Beardsley, Jr.).

SUMMARY OF INSECT CONDITIONS - 1962
(continued from page 270)

INSECTS AFFECTING MAN AND ANIMALS

Highlights:

MOSQUITO outbreaks in southeast Texas were the worst since 1948, and populations of SALT-MARSH MOSQUITO were heavier in the coastal areas of Louisiana than for several years. An epidemic of St. Louis encephalitis was reported in Florida; the third in the past four years. Various species of mosquitoes were rather abundant in the Plains States and in Colorado, Utah, New Mexico, Arizona and Nevada. Mosquito occurrence in California was variable, and populations in Alaska were much more annoying than in 1961. Complaints concerning mosquitoes in Ohio were the lowest in history, and mosquitoes were generally not troublesome in the Northeast although some local problems did exist.

FACE FLY continued to be a pest of cattle in all areas where the species occurs, but spread of the fly in 1962 decreased considerably compared with recent years. Only Rhode Island was reported as a new face fly-infested State in 1962. HOUSE FLY was bothersome during the year as usual, particularly in the Western States. HORN FLY, a major pest of cattle, was again annoying to cattle in many States from Pennsylvania and Maryland to Nevada. STABLE FLY also was a nuisance, and heavy counts were recorded in the Midwest. NORTHERN and COMMON CATTLE GRUBS were among the worst pests of cattle in Wyoming, and important pests of cattle in a number of other States. HORSE FLIES were generally more abundant in Louisiana during the spring and early summer than they have been since 1959, and *Tabanus lasiophthalmus* caused considerable concern in Missouri. BLACK FLIES were much more annoying in Alaska than in 1961 and caused considerable annoyance in other areas of the country, particularly in northern sections. Some other flies that were reported as annoying in local areas were BITING MIDGES, EYE GNATS and SNIPE FLIES.

The SCREW-WORM eradication program in the Southwest, which was started early in the spring of 1961, was in full force before the end of the year. Each week, 50 to 75 million sterile flies were released over areas of southern and central Texas, southern New Mexico and northern Mexico. The eastern half of the United States had fewer screw-worms during 1962 than in any year since the livestock pest invaded the region 30 years ago. Only one infestation was reported east of the Mississippi River, and this was found in an animal shipped to Georgia from the Southwest.

TICKS were again a problem in 1962, with AMERICAN DOG TICK probably causing the greatest concern. SHEEP SCAB MITE has now been eradicated from many counties in several States.

MOSQUITO outbreaks in southeast TEXAS were the worst since 1948. The species troublesome to residents and livestock included the following: SALT-MARSH MOSQUITO (*Aedes sollicitans*), *Aedes taeniorhynchus*, *Aedes vexans*, SOUTHERN HOUSE MOSQUITO (*Culex pipiens quinquefasciatus*), *Culex nigripalpus*, *Culex restuans*, *Culex salinarius*, *Culiseta inornata*, *Anopheles crucians*, *Psorophora confinnis*, *Psorophora ciliata*, *Uranotaenia lowii* and others. In LOUISIANA, populations of salt-marsh mosquito were heavier in the coastal areas in June and July than they had been for several years.

The third epidemic of St. Louis encephalitis during the past four years occurred in FLORIDA in an area adjoining Tampa Bay involving Pinellas, Hillsborough, Manatee and Sarasota Counties. The 1962 outbreak in this area of Florida was centered in St. Petersburg, Pinellas County. There were 158 confirmed cases, 72 presumptive cases and 17 deaths. The epidemic began in late July and terminated in early October. The previous epidemics began later; late September in 1959 and late October in 1961. (Preceding information on Florida abstracted from Vector Control Briefs (Issue Number 8, November 1962), Communicable Disease Center, Public Health Service, U. S. Dept. of Health, Education and Welfare, Atlanta 22, Georgia).

Salt-marsh mosquito, Aedes taeniorhynchus, Aedes atlanticus, Psorophora ferox and Culex salinarius were abundant in coastal counties of NORTH CAROLINA following heavy rains during June, July and August. P. confinnis numbers were much lower than expected. In MARYLAND, an outbreak of Aedes spp. occurred on the Eastern Shore during May and June; however, salt-marsh species were generally not abundant in most sections of the State during July and August due to extremely dry weather. During early June, a floodwater species, Psorophora confinnis, was troublesome to residents at Rock Hall, Kent County. Residents of the Eastern Shore, and in southern Maryland generally, experienced only minor outbreaks of Culex spp. and Aedes spp.

Several genera and species of mosquitoes were involved in MASSACHUSETTS. The season as a whole was not a bad one. The spring brood of Aedes spp. produced at least an average hatch, but the subsequent weather might have been less favorable for migratory flights. The summer season seemed to be less favorable than usual for production of the floodwater mosquitoes in Massachusetts. They require several periods of heavy rainfall separated by dry periods for maximum production. Salt-marsh mosquitoes were sometimes in outbreak proportions northward from Gloucester, Essex County, but were apparently fairly well controlled by antimosquito programs elsewhere in the State. In CONNECTICUT, mosquitoes were moderately abundant although the season was drier than normal. Activity was average in the spring and summer in RHODE ISLAND, but declined earlier than usual in the fall. Unspecified mosquitoes were somewhat more troublesome than usual in NEW HAMPSHIRE, and Aedes spp. and Culex spp. were troublesome outdoors throughout the summer in VERMONT. Apparently larger numbers than usual attempted to hibernate indoors in the latter State.

Populations of Aedes vexans, A. stimulans, A. dorsalis, A. triseriatus, A. cinereus, Culex pipiens, C. restuans, C. territans, C. erraticus, C. salinarius, Anopheles punctipennis, A. quadrimaculatus and Psorophora confinnis were low during 1962 in OHIO, based on records dating back to 1955. The most prevalent species in descending order were Culex pipiens, C. salinarius, Aedes vexans, Culex erraticus and C. restuans. Populations of other species were extremely low in Ohio. Total populations were approximately 50 percent less than in 1961 and 25 percent less than in 1957. Complaints during 1962 were the lowest in history. In MICHIGAN, Culex spp., Aedes spp. and Anopheles spp. continued to cause annoyance to homeowners and resort operators. Mosquito populations in INDIANA have caused an increasing interest in various parts of the State concerning community control operations and, in most cases, there has been little evidence of sound planning for such operations.

Mosquitoes were reported to be abundant in the northern and central portions of WISCONSIN in 1962. Populations began building up rapidly in those areas early in the season, but leveled off and were less noticeable after the beginning of July. NORTHERN HOUSE MOSQUITO (Culex pipiens pipiens) and Aedes vexans began increasing in the southern part of Wisconsin about the middle of August, but cool nights restricted activity and only a few complaints were received. In MINNESOTA, the first mosquito pupae were found in the Twin City area on April 26. Adults were still rare on May 10, but were common by May 25. Extremely heavy rainfall in May, 2-3 times greater than normal, resulted in high populations of Aedes vexans. Peak populations were reached about June 15. Single-brooded Aedes species, such as A. dorsalis, A. fitchii and A. stimulans,

appeared to persist somewhat longer than normal. By the end of June, A. vexans was the predominant mosquito in both light trap and biting collections. Mansonia perturbans was collected in some areas in the latter part of June, primarily as a biter at dusk. By July 13, this species was second to A. vexans in biting collections. Heavy rains resulted in peak populations in late July and early August, with A. vexans continuing to be the dominant species. By mid-August, mosquito numbers began to decline.

Mosquito counts in NORTH DAKOTA were abnormally high over the entire State during 1962. Aedes vexans was the dominant species on man and A. dorsalis on cattle. Other troublesome species included Culiseta inornata, Culex tarsalis, C. territans, C. restuans, Aedes trivittatus and A. flavescens. In SOUTH DAKOTA, mosquito populations became abnormally high over the entire State during the last week of May. Much discomfort was caused to gardeners and to individuals trying to relax during the evening hours. The heavy population of mosquitoes was probably due to the wet spring and summer. Populations were similar in NEBRASKA. Considerable numbers built up early in the spring. An unusually high rainfall this past summer created very annoying populations late in the summer and early fall. Many vicinities participated in control programs. In KANSAS, late spring rains and other occasional showers throughout the summer allowed the temporary pool species, primarily Aedes vexans, Psorophora ciliata and A. triseriatus, to continue to be present until late fall. Mosquitoes were reported to be annoying in IOWA during late May and early June, and heavy rains during mid-July and September subsequently produced annoying populations. In MISSOURI, extremely high populations of various species of mosquitoes occurred throughout the State during the late summer and early fall. Annoying populations of Psorophora spp. were present in OKLAHOMA, especially in suburban areas after summer rains from mid-June through September.

Mosquitoes in COLORADO were so numerous in some irrigated pastures that milk production dropped in dairy herds. Culex spp. and Aedes spp. attacked man. Mosquitoes were abundant after summer rains in many areas of NEW MEXICO, and heavy populations occurred in and around homes in several areas of ARIZONA during the summer months. In UTAH, mosquitoes were more abundant and annoying than normal in the spring. Populations in NEVADA were higher statewide than for the past three years. In CALIFORNIA, occurrence was extremely variable over the State. A few local outbreaks associated with weather were severe for short periods of time. Subnormal populations of overwintering females occurred in the spring, and populations generally were lower than the five-year average. Aedes sierrensis was primarily a problem in the Sacramento County area. This mosquito is becoming an off-season nuisance due to sprinkler watering. In November, the heaviest mosquito situation ever recorded in the Sacramento and San Joaquin Valleys of California occurred as the result of heavy rains and springlike conditions. As a result of the weather, heavy hatches of Culiseta inornata occurred in November and were of considerable nuisance to hunters, as the mosquito prefers dogs and caused considerable distraction. In areas where mosquito abatement work was not done, there was considerable irritation to livestock, with the resulting weight losses. In ALASKA, mosquitoes were much more annoying to both men and livestock than in 1961, especially north of the Alaska Range.

FACE FLY (Musca autumnalis) was recorded in RHODE ISLAND for the first time in Kingston, Washington County, on June 25. In MAINE, it was reported present in moderate numbers on cattle in Cumberland County early in the season, but no further reports were received. Face fly was generally less troublesome in NEW HAMPSHIRE, but considered very severe in most of VERMONT. Face fly continued troublesome in MASSACHUSETTS with no completely satisfactory control. It caused annoyance during the spring to people working in yards and because of hibernation in homes. Face fly also continued to be a serious pest of cattle and horses in PENNSYLVANIA, and outbreaks of pinkeye in that State were attributed to this species. Populations in MARYLAND again caused considerable annoyance

to beef and dairy cattle in the central counties although numbers were down slightly over 1961. Control in Maryland continues to be a difficult problem. In VIRGINIA, face fly is now known to occur in 47 counties. It caused considerable irritation to livestock in those areas in which it occurs and was also reported as being a nuisance as it entered homes to hibernate.

Face fly was reported from Caldwell County, NORTH CAROLINA, on May 21, for a new county record. Limited survey of some western North Carolina areas during August showed most serious infestations in areas observed in Ashe and Haywood Counties. Flies averaged 25 per animal in both counties. A few face flies were found as far east as Salisbury, Rowan County, but economic populations were not established at this location. A slight but not significant spread was recorded in SOUTH CAROLINA. Infestations in GEORGIA ranged from zero to forty per animal, with seasonal average 10 per animal. This insect has spread very slowly in Georgia. Two counties, Habersham and Lumpkin, had infestations for the first time in 1962. Surveys in ARKANSAS were negative.

Heavy face fly populations were observed over OHIO during the summer. Beef animals were severely infested due to ineffective control methods. Problems continued on the Lower Peninsula of MICHIGAN similar to those of 1960 and 1961. Counts of over 35 flies per face were uncommon. Face fly was present over most of INDIANA again in 1962. Populations remained fairly low throughout the west and central areas until late summer when abundant rains and warm weather resulted in environmental conditions suitable for a buildup. The eastern quarter of the State had high populations throughout the summer since rainfall conditions were more conducive to large populations there than over the rest of Indiana. In ILLINOIS, the first adult face flies of the season were observed on cattle April 10. By the end of April, herd averages ranged 0-13.8 (average 1.3) per face. Some individual animals were observed with as many as 33 flies per face. Populations were low until mid-June, but increased rapidly the latter half of June and in early July. By July 15, populations in the west and northwest districts varied 4-75 (average 25) flies per face, with many face flies clustered over the back and neck. High populations continued throughout July and August and caused much annoyance throughout the northern half to two-thirds of Illinois. Populations in the northwest district August 12-17 varied 2-70 (average 30.2) flies per face. Although the population on the faces of animals was no higher in 1962 than in previous years, there apparently was an increase in numbers on the backs and necks of animals, which indicated an increase in population. An extensive survey in southern Illinois did not reveal any new county records. An estimated 992,534 head of cattle were treated in 1962.

Face fly was the most important livestock insect in WISCONSIN in 1962, and it became numerous enough to become a pest of man as well. It began appearing in the southern part of the State the fourth week of May. Its presence was indicated, by reports, to be in such scattered areas of the State that it could be implied that distribution was general. There were further indications that face fly was particularly troublesome in Dunn, Grant, Iowa and Walworth Counties. The greatest number appeared to be present about the first week of August and a decline was noted by mid-September. In IOWA, adults were present on cattle in early May. The pest increased gradually until the week of July 8-14 when a sudden increase was noted. Herds of dairy animals had nearly 200 flies per animal; about 100 on the face and 100 or more on the back and sides. Although records are very incomplete in MINNESOTA, this species probably could be found throughout most of the State. Some severe infestations on cattle were reported in the southern part of the State.

Face fly counts were quite high in SOUTH DAKOTA, with densities as high as 25-30 per animal face. The first report in the spring of 1962 was on June 18 from Yankton County. This report does not constitute the first occurrence in the spring, since the populations had already reached the count of 10-15 on the face of each animal. Face fly generally covered the whole of South Dakota in

1962, even to the point of becoming a serious household pest in several localities. Adult populations per animal in NEBRASKA increased over previous years. Animals showed much more evidence of sore eyes over the State. Problems were much more severe. Face fly was collected in only a few additional KANSAS counties. Very few complaints were received about this species on cattle and/or being a nuisance around buildings in the fall. Activity in MISSOURI began 30 days earlier than in 1961, with first flies observed on cattle in the central area April 23 and first larvae collected on May 2. Light populations of 2-18 flies per animal were present in central and northern areas in mid-August, and some moderate populations of 5-24 flies per animal were reported during late August and September. The last flies found in the field during 1962 were collected October 31. There were no reports of overwintering flies causing a problem. In COLORADO, face fly was very numerous around cattle in feedlots and on pastures; there has been a high incidence of pinkeye. Face fly was found for the first time in the following WYOMING counties: Johnson, July 26; Fremont, August 14; Niobrara, August 21; Sheridan, September 5; and Carbon, September 6. New infestations were found in counties that had reported infestations for the first time in 1961, suggesting a rapid movement and spread of this insect in Wyoming. So far, infestations have been reported only in the eastern half of the State, except for one very light infestation in Fremont County.

HOUSE FLY (*Musca domestica*) became heavy as the season progressed in NEVADA and was more numerous later in the fall than usual. It was common and/or abundant during 1962 in UTAH, and large populations were an extreme annoyance to livestock herds throughout WYOMING. Homeowners in the latter State were extremely bothered in the fall by movement of flies into homes in search of adequate winter habitat. House fly was very numerous around cattle in feedlots and on pasture in COLORADO, and it was very abundant in the Espanola Valley areas of NEW MEXICO during July where it was very annoying to man and animals. Medium to heavy populations of house fly occurred statewide in ARIZONA and were especially troublesome during the late summer and fall. In CALIFORNIA, house fly populations were generally light in most areas all year. An unusual occurrence of house fly adults lasting about three weeks in the fall caused many homeowner complaints.

Light house fly activity occurred by late February in OKLAHOMA, but populations remained low until mid-May when counts increased and flies became more pronounced. Counts remained steady until mid-July when populations started to decline. For the remainder of the season, activity fluctuated but did not reach the June-July peaks. By mid-December, only occasional flies were observed in sheltered areas of Oklahoma. Normal numbers were present in KANSAS and average to lower-than-usual numbers were observed in LOUISIANA. Low to moderate populations of house fly were present in NEBRASKA until mid-September when extremely high populations caused much annoyance. Populations were relatively low during 1962 in NORTH DAKOTA. Numbers increased slowly in WISCONSIN until house fly had reached a peak population during midsummer, but it was less of a nuisance than in 1961. In INDIANA, house fly built up to high populations early in the summer due to very warm conditions in May. This species was extremely abundant around barns where press of spring planting prevented carrying out proper sanitation practices. Populations dwindled during the summer to normal levels and remained normal for the remainder of the season. Problems caused by this fly in MICHIGAN continued a downward trend. Populations in OHIO were moderate compared with previous years. Apparently, chemical spray programs are contributing to effective controls. House fly was troublesome throughout the summer in VERMONT, and infestations were heavy as usual in GEORGIA.

HORN FLY (*Haematobia irritans*) was unusually heavy in some areas of PENNSYLVANIA, and the pest was again a serious problem on unprotected beef and dairy cattle in all sections of MARYLAND. During July, in Dorchester County, Maryland, counts ranged from 25 to 400 per head. Light to medium infestations occurred in several VIRGINIA counties; and infestations in GEORGIA ranged 0-2,000 per animal, with an early season average of 30 per animal and a late season average

of 90 per animal. Average to lower-than-usual populations were present in LOUISIANA, and infestations in ARKANSAS were as heavy or heavier than in 1961. Some counts in the latter State ran as high as 1,000 per cow late in the year.

Horn fly continued to be a pest of untreated beef herds in MICHIGAN. The pest was present in large numbers on untreated cattle during the summer throughout the northern half of INDIANA after a dry period in the spring had prevented an early buildup. Areas with normal rainfall in Indiana had many flies even early in the season. Populations in 1962 showed a slow buildup and only one peak, which occurred late in the summer, compared with a normal early peak, a reduction during midsummer and another peak in the fall. Horn fly increased rapidly in May and June in ILLINOIS. In late June and early July, it was causing much annoyance to cattle. Populations during June 24-29 were 15-1,000 (average 160) per animal in the central district; 0-1,000 (average 148) in the west-southwest district; and 0-600 (average 83) in the east-southeast district. Populations declined the latter half of July and August in Illinois when averages of 20 to 40 per animal were present in eastern and southern areas. In IOWA, populations of horn fly ranged zero to 10 per animal in the eastern area in late May. They became a major annoyance to cattle in mid-June when counts ranged 50 to 500 (average 200) per animal on beef cattle in Monona and Harrison Counties. Numbers continued to increase on pasture cattle throughout the month. Populations in MISSOURI were about the same as in 1961. It was again one of the most important problems on cattle in the State. Populations ranged 30-400 per head on untreated cattle throughout Missouri. The heavier populations were present during early to mid-July. Populations began declining in late July and early August, and the fly was no longer an economic problem by mid-August.

Horn fly adult counts ranged 10-5,000 per animal in NEBRASKA. Low counts existed prior to mid-June, then increased sharply and reduced to lower levels in mid-September. Horn fly was abundant on NORTH DAKOTA cattle in some instances. The fly started to increase in early spring in KANSAS and continued to be a pest until fall. Light populations were active in early April in OKLAHOMA, with a general buildup in late April. After a buildup of 400-600 per head on cows in many areas of the State during mid-May and June, counts started to decline in late June and remained generally light throughout July and August. Counts started to increase again in September, with a general decline in late October. Populations continued at a low level until mid-December. Horn fly was a commonly reported pest of livestock in TEXAS, and populations were generally heavy statewide in NEVADA. Approximately normal numbers were observed in UTAH.

STABLE FLY (Stomoxys calcitrans) populations were again high and extremely annoying to man and animals in several tidewater areas of MARYLAND. Only a few herds were observed to be bothered by large numbers in MICHIGAN, but the pest was moderate to heavy on cattle in OHIO despite control programs. Many cattle were still under attack in late autumn in the latter State. Stable fly was present in normal numbers throughout the year in INDIANA, becoming a pest locally where bedding was removed infrequently. The fly was first observed on April 11 in ILLINOIS. Populations were low through May and early June in that State and then increased rapidly. By June 15, there were 0-50 (average 8) flies per animal. Populations were high through July and August and caused much annoyance to cattle. During August 5-10, there were 4-38 flies per animal in the east district; and during August 12-17, there were 4-44 (average 15.8) flies per animal in the northwest district. There were 0-45 flies per animal in the west-southwest district, but only 0-16 (average 2.1) per animal in the southwest and southeast districts during August 22-27. An estimated 1,888,518 head of cattle were treated for this and other species of biting flies in Illinois in 1962. Stable fly was annoying to livestock in IOWA by late June.

Stable fly ranged 9-15 per animal during July in northern and central MISSOURI. These populations decreased to 2-5 per animal by mid and late August. Stable fly presented its usual problem to livestock production in ALABAMA, and average to lower-than-usual populations were present in LOUISIANA. Light populations became active during the latter part of April in OKLAHOMA, with activity continuing through early December. Population peaks in Oklahoma were reached during June and again in September. Stable fly started in early spring in KANSAS and continued to be a pest until fall. Overwintering adults and first-generation larvae were found in late May in Lancaster County, NEBRASKA. Populations throughout the season were moderate to severe in this State, causing much annoyance to cattle. The pest was very numerous around cattle in feedlots and in pastures in COLORADO. Numbers were moderately abundant in eastern NORTH DAKOTA during 1962, and the pest was reported heavy in the southwest district of MINNESOTA. Approximately normal numbers were present during 1962 in UTAH.

NORTHERN CATTLE GRUB (Hypoderma bovis) infested only a few domestic cattle in ALASKA in 1962. Both this species and COMMON CATTLE GRUB (H. lineatum) were present at about their usual population level in WASHINGTON; about 8-10 grubs per head in untreated herds. Both species were still among the worst pests of cattle in WYOMING, as was the case in 1961, and about normal numbers were present in UTAH in 1962. Infestations of cattle grubs were spotty in NEVADA with increases noted in Elko and Washoe Counties and decreases noted in Humboldt and Lincoln Counties. Grubs appeared in animal backs later than usual in NEBRASKA. "Gadding" of cattle was first seen the week of June 22 in the sand-hills area of Nebraska. Grub counts in esophagi of cattle in December showed light populations present. Cattle grubs were noted on cattle in McKenzie and Dunn Counties, NORTH DAKOTA, during late March and early April. In INDIANA, both common cattle grub and northern cattle grub continued to be serious pests of shipped-in feeder animals, and they were moderate pests of locally grown animals.

Common cattle grub occurrence on cattle in CALIFORNIA was about normal for the year. In ARIZONA, medium to heavy activity of this species occurred in all rangeland areas of the State. Populations averaging 30 grubs per animal were common in some untreated herds. Common cattle grub was commonly reported as a pest of livestock in TEXAS, and infestations were normal in KANSAS. High populations of this grub were present in most areas of OKLAHOMA from January to early February when counts began to decline somewhat. Grub activity continued until mid-March. First adult activity was observed in mid-March and continued until mid-May. First fall grub activity of the year was observed in late November and early December. Common cattle grub infestations in ARKANSAS were similar to those of 1961. Infestations ran 5-10 per head in untreated herds. Control is making good progress with 1.5 million animal treatments in 54 counties. Systemic materials were used. Common cattle grub presented its usual problem to livestock production in ALABAMA. Infestations ranged 0-40 and averaged 3-4 per animal in GEORGIA. Approximately 70 percent of the animals examined were infested. Emergence began about February 1 and was completed by March 15. Adults were active in south Georgia on February 25. Common cattle grub was present in many locations in SOUTH CAROLINA, and the pest was about normal on cattle in MARYLAND although development in the spring was at least two weeks behind that of previous years.

Larva of a BOT FLY (Cuterebra sp.) was taken from the upper eyelid of a child at Morganton, Burke County, NORTH CAROLINA, during the latter part of September. In ALASKA, most of the State's reindeer and caribou were heavily infested with a REINDEER WARBLE (Oedemagena tarandi); up to 1,000 were found in some animals. SNIPE FLIES were much more annoying to both man and livestock, especially north of the Alaska Range.

HORSE FLIES (Tabanus spp.) were very annoying in some local situations in MASSACHUSETTS, and a DEER FLY (Chrysops vittatus) became a nuisance in rural areas of RHODE ISLAND in August. Unspecified horse flies were somewhat less

troublesome in NEW HAMPSHIRE than in 1961. In MARYLAND, Chrysops spp. and Tabanus spp. caused considerable annoyance to man and animals in the tidewater sections.

Several TABANIDS were very numerous in Onslow and Carteret Counties, NORTH CAROLINA, during the second week of June and plentiful in coastal counties during July and August. Species collected during early June in North Carolina included STRIPED HORSE FLY (Tabanus lineola), T. nigrovittatus, Chrysops vittatus, C. vittatus floridanus and C. atlanticus. Most complaints in SOUTH CAROLINA came from owners of saddle horses. Very heavy populations of Tabanus spp. and Chrysops spp. were reported on several thousand acres of pasture grazed by Brahma cattle of that State. The cattle were reported to have sustained heavy weight losses. Tabanus spp. presented its usual problem to livestock production in ALABAMA.

Horse flies in LOUISIANA were generally more abundant in the spring and early summer than they have been since 1959. Striped horse fly and Tabanus vittiger subsp. schwardti were the two most abundant species in lowland areas, while T. fulvulus var. pallidescens, T. molestus and T. zythicolor were the most prevalent in upland areas. T. nigrovittatus was the most abundant species in the coastal areas of Louisiana. Populations of horse flies were generally lighter than in previous years during midseason and late season in Louisiana. Tabanus spp. infestations in ARKANSAS were lighter than in 1961 except for a flareup in May, and unspecified deer flies and horse flies were common livestock pests in TEXAS during 1962. The first Tabanus spp. activity for the season in OKLAHOMA was reported in late April, with the highest populations observed in the southeastern portion of the State. Counts elsewhere in Oklahoma were generally light to moderate, but heavy counts of up to six per head were present in the southeast until early October. Tabanus spp. were again at low population levels in KANSAS in 1962.

T. lasiophthalmus caused considerable concern throughout MISSOURI from late May to mid-June. It fed on undersides of udders of beef cattle in southwest, central and east central sections. Counts on undersides of some cattle and horses in east central area Missouri ranged from 5 to as high as 45 per animal. Other species on these animals at the same time included T. equalis, T. trimaculatus and T. similis. During early August, low numbers of T. sulcifrons and T. calens occurred in the northeast area. Also, high populations of Chrysops spp. were present from mid-May to mid-June in central, east central and north central Missouri.

Deer flies were reported active during August in northern forest regions of MINNESOTA; and in WISCONSIN, tabanids were troublesome in Bayfield, Chippewa, Door, Dunn, Iron, Marinette, Oconto, Pepin, Price, Shawano, Taylor, Washburn, Waukesha, Waupaca and Wood Counties. BLACK HORSE FLY (Tabanus atratus) and T. sulcifrons were at the lowest levels of the past three years in INDIANA. Black horse fly was common and widespread in UTAH and it caused at least normal annoyance to livestock. Horse flies in general were more abundant and/or more common in 1962, but deer flies were approximately normal in numbers and/or damage. In NEVADA, a DEER FLY (Silvius pollinosus) was heavy in southeastern Clark County during May.

SCREW-WORM (Cochliomyia hominivorax) eradication efforts are based on the sterile fly technique developed by research entomologists. Females that mate with sterilized males lay eggs that do not hatch. If enough sterilized males are systematically released to overwhelm the native flies, the native population quickly declines. If the release of sterilized flies is continued long enough, eradication of the species must result. The Southwest program, a cooperative effort, was started early in the spring of 1961. Each week 50 to 75 million screw-worm flies are being reared and made sexually sterile in special facilities at a United States Department of Agriculture laboratory

constructed on the Mpoore Air Force Base near Mission, Texas. These are released over areas of southern and central Texas, southern New Mexico and northern portions of the Republic of Mexico. A barrier zone of sterile flies has been established and is maintained along the Mexican, Texas, New Mexico border to prevent reinfestation of the eradication area. Livestock producers, county agents, predator-control workers, sportsmen and other volunteer observers are cooperating by promptly reporting screw-worm cases found in domestic and wild animals. Cooperative surveys by USDA and Mexican Department of Agriculture personnel in northern Mexico evaluate the threat of screw-worms migrating through or into the sterile fly barrier zone. Inspection and quarantine activities along the Mexican border have been intensified, and animals found to be infested with the pest are rejected entrance into Texas.

The eastern half of the United States had fewer screw-worms during 1962 than in any year since the livestock pest invaded the region 30 years ago. Only one infestation was reported east of the Mississippi River, and this was found in an animal in Early County, GEORGIA, in late October, that came in with cattle that had just been shipped from the Southwest. In contrast, during 1961 more than 80 counties in 9 States east of the Mississippi reported nearly 700 confirmed screw-worm cases. The screw-worm population in the Southwest was the source of all these outbreaks. ARKANSAS was screw-worm free during 1962. Only two infestations were reported in LOUISIANA, along the State's western border. These States usually are invaded each summer by screw-worms. In 1961, for example, one-third of the counties in each of the two States reported screw-worm infestations. Nationally, during 1962, livestock producers in 340 counties in eight States reported screw-worm infestations to the U. S. Department of Agriculture. These infestations were positively identified as screw-worms from larvae and egg samples forwarded by producers.

Moderate to heavy numbers of unspecified WOOL MAGGOTS infested sheep in the San Luis Valley of COLORADO, and BLACK BLOW FLY (Phormia regina) was generally more abundant in UTAH than normal. In NEBRASKA, a BLOW FLY (Calliphora sp.) was active early in the spring in the southern fourth of the State.

SHEEP KED (Melophagus ovinus) was common throughout WASHINGTON as usual, and approximately normal in numbers and/or damage in UTAH. Heavy populations of sheep ked were present on sheep in COLORADO farm blocks; and the pest was abundant on sheep at time of shearing in Torrance, Lincoln and Guadalupe Counties, NEW MEXICO. Occasional reports of sheep ked were received in VIRGINIA, and heavy infestations were present on sheep in Cumberland County, MAINE.

BLACK FLIES were much more annoying in ALASKA than in 1961 to both man and livestock, especially north of the Alaska Range. They were abundant and causing considerable annoyance to livestock and humans in an area of Jerome County, IDAHO, the latter part of August. Black flies were about normal in numbers in UTAH. They were annoying in most of RHODE ISLAND in May and June and somewhat more troublesome throughout NEW HAMPSHIRE. Simulium spp. reports were general throughout the season in most affected areas of MAINE, and they caused considerable annoyance during the spring and summer months in many residences in four MARYLAND counties. Prosimulium sp. was occasionally reported in VIRGINIA. Simulium spp. caused problems in many resort areas in northern MICHIGAN, and they fed in ears of horses in west-central MISSOURI for three weeks in early May. S. venustum populations were heavy and common in NORTH DAKOTA, and they caused discomfort to man and livestock in the eastern portion of the State. Unspecified black flies were in outbreak numbers in IOWA in late May and early June.

A BITING MIDGE (Culicoides sp.) caused considerable annoyance to humans in the vicinity of Whitehaven, Wicomico County, MARYLAND. An outbreak of bluetongue, a virus disease of sheep, occurred in Custer and Powder River Counties, MONTANA, during August and early September of 1962. Biting midges of the genus Culicoides have been incriminated as the vector of this disease.

Very heavy populations of an EYE GNAT (Hippelates collusor) were a problem in some areas of Yuma and Graham Counties, ARIZONA, from April to November. In CALIFORNIA, Hippelates spp. were very light generally over the State.

An EPHYDRID FLY (Mosillus tibialis) bred in sewage sludge at Winston-Salem, NORTH CAROLINA, during mid-August, and adults were sufficiently numerous to bother homeowners in the near vicinity.

CATTLE LICE were variable in several northern CALIFORNIA counties. Light to medium populations, with an occasional heavy infestation, resulted from populations that were general since summer. Lice were more common in 1962 than in the last few years in California. An increase in the reports of lice on cattle occurred late in the season. In most cases, the species was not identified. Infestations in general were not heavy. Populations in NEVADA varied from area to area, but they were generally at the same level as during 1961. Approximately normal numbers and/or damage were present in UTAH. Light populations of several species of cattle lice were generally present on cattle throughout OKLAHOMA from January to mid-February, when populations increased considerably. Moderate to heavy activity continued through March and April in that State. First activity of the fall season was noted in early November and small numbers existed through December. Cattle lice were commonly reported pests of livestock in TEXAS, and various species were heavier during 1962 in ARKANSAS than in 1961. Light to moderate populations of unidentified species existed the first part of the year in NEBRASKA. An estimated 845,778 cattle were treated for lice and mange in ILLINOIS.

CATTLE BITING LOUSE (Bovicola bovis) and SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) were annoying to cattle and calves in barns during the winter in ALASKA. These two species and LONG-NOSED CATTLE LOUSE (Linognathus vituli) were major pests of cattle in WASHINGTON and about normal in abundance. In GEORGIA, long-nosed cattle louse and cattle biting louse infestations were light to heavy, with most being light to moderate. Economic numbers of short-nosed cattle louse occurred on cattle in McKenzie County, NORTH DAKOTA; and this species and Solenopotes capillatus continued quite heavy in many WYOMING herds where they remain a problem of livestock throughout the State.

An estimated 238,896 sheep in ILLINOIS were treated for LICE and MANGE MITES.

HOG LOUSE (Haematopinus suis) infestations were reported heavy on hogs in Lea, Hidalgo and Bernalillo Counties, NEW MEXICO, and approximately normal numbers and/or damage were noted in UTAH. Infestations in OKLAHOMA were statewide from January through mid-March. First fall activity in that State was reported in mid-November. Heavy infestations occurred on hogs near Grandin, Cass County, NORTH DAKOTA, and moderate to heavy populations were common on swine during 1962 in OHIO, with the heaviest being on confined animals in the latter State. In ILLINOIS, an estimated 2,858,672 hogs were treated for LICE and MANGE MITES

HEAD LOUSE (Pediculus humanus capitis) was found on children in PENNSYLVANIA, and CRAB LOUSE (Phthirus pubis) was below average in abundance or importance in UTAH.

CHICKEN BODY LOUSE (Menacanthus stramineus) infestations were heavy in some areas of ARKANSAS. In NEW YORK, a very heavy infestation of this species was observed in the early spring, indicating that lice can be a winter problem. No reports of infestations by various lice have been made since last fall in New York. SHAFT LOUSE (Menopon gallinae) was the most common louse on chickens in ALASKA. Unspecified CHICKEN LICE were approximately normal in numbers and/or damage in UTAH.

FLEAS (Ctenocephalides spp.) were heavy on pets in Hall and Lancaster Counties, NEBRASKA, and CAT FLEA (C. felis) was a considerable pest in INDIANA homes during the latter part of the summer, based on the number of requests received. Complaints of Ctenocephalides spp. infestations in RHODE ISLAND were received

from all areas in increasing numbers June through October, and many complaints of infestations on pets in homes were received in MASSACHUSETTS. In MARYLAND, more than the usual numbers of Ctenocephalides spp. were troubling cats, dogs and humans in several central and southern counties. FLEAS were occasionally reported in VIRGINIA. All species of fleas in CALIFORNIA were much lower than normal in general. Only a few instances of infestations occurred and these were usually cat fleas. STICKTIGHT FLEA (*Echidnophaga gallinacea*) was reported in DELAWARE for the first time when a heavy infestation was found on a commercial broiler flock at a farm in Sussex County. It also infested dogs at the same locality.

BLOODSUCKING CONENOSE (*Triatoma sanguisuga*) became of concern to residents in hill country of TEXAS. Medium to heavy populations of a BLOODSUCKING CONENOSE (*Triatoma* sp.) moved into areas of homes in some southeastern parts of ARIZONA during June and July. These insects are a problem when they gain entrance to homes as they bite inhabitants. In CALIFORNIA, two ASSASSIN BUGS (*Triatoma protracta* and *Rasahus thoracicus*) were quite prevalent and were reported during the summer biting children and adults. Late in the fall, an unusually heavy population of *T. protracta* occurred in many subdivision areas of California.

The principal WASP offender in CALIFORNIA was *Vespula pensylvanica*, which was a severe nuisance in many public areas and required treatment to allow picnic grounds, recreational areas and backyards to be used. VESPID WASPS were approximately normal in UTAH homes. WASPS and HORNETS were a problem about homes in NORTH DAKOTA, and were abundant late in the season in CONNECTICUT. During the late summer and fall in MARYLAND, wasps (*Polistes* spp.), YELLOW JACKETS and hornets were again extremely annoying to people around homes and recreational areas. In RHODE ISLAND, there were numerous, widespread complaints of *Polistes* spp. and *Vespula* spp. in late summer and early fall when nests and populations reached noticeable size. CICADA KILLER (*Sphecius speciosus*) was again annoying to people around homes and at recreational areas in MARYLAND during the late summer and fall.

PUSS CATERPILLAR (*Megalopyge opercularis*) was abundant in eastern VIRGINIA. It was first reported in NORTH CAROLINA the week of August 20 and several were received for determination during September. In SOUTH CAROLINA, puss caterpillar was probably less numerous during the past two years, but nevertheless there continued to be reports from physicians and others concerning the serious effects of this species to man. Puss caterpillar and SADDLEBACK CATERPILLAR (*Sibine stimulea*) were numerous during the fall in GEORGIA; many specimens were received for determination. Larvae of AMERICAN DAGGER MOTH (*Acronicta americana*) caused rash on several people who handled them in NEVADA.

AMERICAN DOG TICK (*Dermacentor variabilis*) was abundant and annoying in MASSACHUSETTS in 1962. It is becoming more common in areas of the State other than on Cape Cod and in the southeast. Reports of activity were received regularly in RHODE ISLAND from May through August, with isolated cases in September. It is now well established in Cumberland area of Providence County and can be considered distributed statewide. American dog tick was annoying in NEW JERSEY. In MARYLAND, the first specimen of the tick was seen on April 23, and numbers were prevalent in fields and wooded areas in most sections. It was occasionally reported in VIRGINIA. American dog tick populations were very high again during 1962 in MISSOURI, and annoying populations caused concern to personnel in the north-central and east-central areas of OKLAHOMA from late April through late July. The tick was reported to have been of particular concern in WISCONSIN early in the season in Ashland, Chippewa, Dunn, Eau Claire, Jackson, Monroe, Oconto, Sauk, Sawyer, Taylor and Washburn Counties; and it was abundant in northern wooded areas of MINNESOTA. American dog tick was abundant in grassy and wooded areas of NORTH DAKOTA; and heavy, spotted infestations in NEBRASKA caused annoyance to pet owners throughout the State. This tick was of more general occurrence in CALIFORNIA than in other years. It was found on humans in several instances. Also in California, many of the north coast counties experienced tick populations all summer and fall, probably the PACIFIC COAST TICK (*D. occidentalis*) and *Ixodes pacificus*.

WINTER TICK (Dermacentor albipictus) was a commonly reported pest of livestock in TEXAS, and heavy infestations were present through January in OKLAHOMA. The first fall activity in the latter State was observed in early October. Heavy populations existed on wildlife and other animals throughout the fall months in Oklahoma. Dermacentor sp. was a nuisance in COLORADO; and populations of ROCKY MOUNTAIN WOOD TICK (D. andersoni) were larger during 1962 in WYOMING than during 1961, particularly in the southern and northeastern portions. In PENNSYLVANIA, Ixodes cookei was very abundant on a dog. BLACK-LEGGED TICK (Ixodes scapularis) populations were heavy on wildlife and other animals in the eastern third of OKLAHOMA throughout the fall months. In RHODE ISLAND, black-legged tick was collected in Kingston, Washington County, May 1, and was not seen again until it began building up in the same area in mid-October.

LONE STAR TICK (Amblyomma americanum) was a commonly reported pest of livestock in TEXAS, as was GULF COAST TICK (A. maculatum). In OKLAHOMA, light populations of lone star tick were becoming active in the southeast in late February. Moderate to heavy infestations existed throughout the eastern third of the State through late June. TICKS in ARKANSAS, mainly lone star tick, were heavier than usual on untreated herds in the heavily wooded areas of the State. Lone star tick was very high again during 1962 in MISSOURI. An average of five nymphs and one larva were collected per drag beneath starling roosts in the central area of the State in mid-September.

BROWN DOG TICK (Rhipicephalus sanguineus) infestations continued to increase in Clark and Washoe Counties, NEVADA, and heavy populations were a problem around many ARIZONA homes where dogs were kept as pets. The tick was found in all areas of Arizona, but it attacked only dogs. General, light infestations of brown dog tick were reported for most of the year in CALIFORNIA, with a sudden increase in the early fall months. In TEXAS, complaints of infestations in homes and lawns were received from many areas of the State. Brown dog tick caused concern to dogowners and around homes in OKLAHOMA from mid-May into mid-November, and populations were high during 1962 in MISSOURI. At the Offutt Air Force Base, Omaha, Douglas County, NEBRASKA, moderate infestations occurred. Reports of kennel and home infestations increased in MASSACHUSETTS, and brown dog tick led two to one over other tick species submitted for determination in CONNECTICUT. There were periodic infestations over RHODE ISLAND, especially in the winter; and populations in homes over MARYLAND were above normal during the winter months, with five counties reporting infestations. Brown dog tick was heavy in many DELAWARE homes during 1962, but only occasional reports were received in VIRGINIA and in SOUTH CAROLINA.

CATTLE TICK (Boophilus annulatus) and SOUTHERN CATTLE TICK (B. microplus) reinfestations were found during the year on 21 different occasions in areas along the TEXAS-Mexico border under quarantine due to recurrent infestations. Approximately 2,400,000 animals were inspected for ticks in 1962.

EAR TICK (Otobius megnini) was a commonly reported livestock pest in TEXAS, and approximately normal numbers were noted in UTAH.

SHEEP SCAB MITE (Psoroptes ovis) was reported in 513 flocks of 36,744 sheep in 249 counties in 23 States in the calendar year 1962. The eradication program has resulted in eradication from many counties in several States. At the end of the year, 1,744 counties were "sheep scabies free", and 758 were actively engaged in eradicating the pest. Only 622 infested counties had not established an eradication program. In August 1960, when the program began, 1,689 counties had not established an eradication program, only 44 infested counties had, and

there were 1,421 counties considered free of the pest. In 1962, approximately 13,000,000 animals were inspected on farms and ranches and 12,000,000 at public stockyards. CATTLE SCAB MITE (Psoroptes sp.) infested two herds of cattle in TEXAS and one in NEW MEXICO during 1962. No psoroptic cattle scabies has been reported since March 1962. Approximately 8,000,000 cattle are being inspected for this mite each year on farms and ranches and 20,000,000 at public stockyards.

NORTHERN FOWL MITE (Ornithonyssus sylviarum) was the most common mite on poultry in the Matanuska Valley of ALASKA. This mite was not the problem it has been in past years in CALIFORNIA. Very few incidences of infestations on fowl or annoyance to humans were reported. In NEW YORK, at least four poultry operations distributed among Tompkins, Cayuga, Chemung and Tioga Counties have, or recently had, infestations by this species. Severity runs from light-spotty to heavy on individual birds in a flock. This parasite is common in winter flocks in New York. Northern fowl mite infested a poultry yard in Kingston, Washington County, RHODE ISLAND, in 1962, and occasional reports were received in VIRGINIA.

TROPICAL RAT MITE (Ornithonyssus bacoti) was found on children in PENNSYLVANIA, and at least one verified report was received in SOUTH CAROLINA. This pest of rats has become a pest of residences in CALIFORNIA and quite annoying to humans. In a few cases, it is suspected that this mite was the cause of entomophobia in individuals in California.

CHICKEN MITES were approximately normal in numbers and/or damage in UTAH. The CHICKEN MITE (Dermanyssus gallinae) was heavy in some areas of ARKANSAS. It was especially harmful to replacement flocks in the upper Arkansas Valley area.

MUSHROOM MITE (Tyrophagus putrescentiae) became quite severe in one instance in CALIFORNIA where it was infesting a household and biting and irritating the residents. Physicians were consulted and the mite was missed, with the resulting diagnosis of a mental condition.

Also in CALIFORNIA, GRAIN MITE (Acarus siro) occurred in one poultry establishment where it infested several thousand chickens, and a LAELAPTID MITE (Haemolaelaps casalis) came to attention in 1962. Usually this laelaptid mite is associated with small rodents, but it was found in poultry establishments.

Heavy infestations of a DERMANYSSID MITE (Dermanyssus sp.) were reported in a residence in southeast MISSOURI. The residents received numerous bites until control was obtained. STRAW ITCH MITE (Pyemotes ventricosus) was abundant and severe in straw throughout INDIANA in the fall. Many complaints were received of attacks on man and fumigation of straw was necessary.

BLACK WIDOW SPIDER (Latrodectus mactans) was common over much of MONTANA and very abundant in McCone County. While this spider was of general occurrence throughout CALIFORNIA, there were no more than the usual number of inquiries concerning control during the year. There were very few instances of humans being bitten in State. Black widow spider was normal in numbers in UTAH. One female specimen was collected in a home in early April in Prince Georges County, MARYLAND.

A BROWN SPIDER (Loxosceles reclusa) was taken in fair numbers in Massac County, ILLINOIS, the week of May 14. This is a new county record in that State. Infestations of this spider around living quarters in OKLAHOMA caused considerable concern. Higher rate of findings is probably due to increased publicity concerning the species' danger.

A child living near Brady, Pondera County, MONTANA, was stung by a SCORPION during the summer. There were no complications. Heretofore, records of the presence of scorpions in Montana have been confined to Yellowstone and Musselshell Counties.

HOUSEHOLD AND STRUCTURAL INSECTS

Highlights:

Several species of DERMESTIDS were a problem to homeowners in 1962. VARIED CARPET BEETLE appears to be increasing in Pennsylvania, and was more common as a household nuisance in Washington than in 1961. BLACK CARPET BEETLE is frequently encountered in Pennsylvania, and continues important in Massachusetts, Rhode Island and Connecticut. It was also important in Michigan, North Dakota, Colorado and Oregon. Several WEEVILS were invaders of homes and business establishments, as were DARKLING BEETLES, GROUND BEETLES and other coleopterons. COCKROACHES presented their usual problems. Resistance is suspected in many areas of California where control is difficult. BOXELDER BUG, EARWIGS and CLOVER MITE were invaders of homes in several areas and were the subject of numerous requests for control. MILLIPEDS and ANTS were also a problem to homeowners in several areas of the country.

EASTERN SUBTERRANEAN TERMITE continues to increase in importance each year in Massachusetts, and is the most important home structural pest in Connecticut based on requests for information. This termite continues as the most important structural insect pest in North Carolina. Subterranean termites were of considerable concern in Maryland, Ohio, Michigan, Indiana and Missouri; and were a common pest in many parts of Texas. Termites, probably WESTERN SUBTERRANEAN TERMITE, are rapidly becoming a serious problem in Wyoming, and western subterranean termite is a greater problem in Washington than in previous years. In Oregon, annual damage by this species is estimated in the tens of thousands of dollars. A number of other States also reported termite damage.

Many DERMESTID BEETLES were reported in PENNSYLVANIA; both LARDER BEETLE (Dermestes lardarius) and BLACK LARDER BEETLE (D. ater) were reported several times from households. VARIED CARPET BEETLE (Anthrenus verbasci) appears to be increasing in importance in that State. The continual presence of larvae of CARPET BEETLE (A. scrophulariae) caused considerable concern to a Pennsylvania housewife. Infestation of this latter species was traced to breeding in an accumulation of dead insects between walls. Trogoderma inclusum was found under similar circumstances in an attic where it bred on dead insects accumulated in insulating material. BLACK CARPET BEETLE (Attagenus piceus) is one of the most frequently encountered household pests in Pennsylvania. Black carpet beetle, carpet beetle and larder beetle are fairly common in VERMONT. Black carpet beetle continues as the number one fabric pest in MASSACHUSETTS, although it is not often associated with fabrics in the situations encountered by housewives. Black carpet beetle is a perennial pest statewide in RHODE ISLAND, and it is an important household pest in CONNECTICUT. Larder beetle damaged stored food in a home in Allegany County, MARYLAND, and throughout the year Anthrenus spp. and Attagenus spp. larvae and adults caused considerable annoyance and damage to fabrics in many homes in all sections of the State. Varied carpet beetle was reported more often than any other species of carpet beetle in NORTH CAROLINA; however, the number of reports was small.

Black carpet beetle continues to be one of the major fabric pests in MICHIGAN. Anthrenus spp. are also serious pests in that State as indicated by the number of samples submitted for identification. There were numerous instances of black carpet beetle in homes in NORTH DAKOTA. This dermestid beetle was also a nuisance and destructive in COLORADO where it infested dry cereals and foodstuffs in homes. Varied carpet beetle is more common as a household pest in WASHINGTON than it was in 1961; it is found throughout the State. In OREGON, carpet beetles, primarily black carpet beetle, are frequently a problem in homes. Dermestid beetles continue to be the most important household insect problem in MONTANA. FURNITURE CARPET BEETLE (Anthrenus flavipes), Trogoderma sternale and Novelus sp. attracted attention of homeowners in several areas of TEXAS.

WEEVILS, primarily a JAPANESE WEEVIL (Calomycterus setarius), but including STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) and CLOVER ROOT CURCULIO (Sitona hispidula), caused considerable concern in scattered locations in WISCONSIN. These weevils entered homes and became serious household pests. One report from Dane County, Wisconsin, indicated an entire wall of a building covered by C. setarius. Infestations appeared to be more prevalent than in 1961, being most noticeable in the light-soiled areas and around newer housing developments. Another weevil (Sciaphilus asperatus) invaded homes in northwestern Wisconsin. Strawberry root weevil adults invaded homes in NORTH DAKOTA, and on several occasions adults were noted crawling on walls, ceilings and furniture in homes. Both strawberry root weevil and B. cribricollis were pests in CALIFORNIA residences in areas where these weevils occur in gardens, and Hypera brunneipennis has become a household invader in coastal California where it now occurs. BLACK VINE WEEVIL (B. sulcatus) was frequently a problem in OREGON homes. Trachyphloeus bifoveolatus became a household nuisance in western WASHINGTON localities during the spring. Reports of wider distribution of this weevil beyond the Puget Sound area are noted. A weevil (B. rugosostriatus) entered a home in Bristol, Bristol County, RHODE ISLAND, in August. This is the first example of this species in the State. Determination was confirmed by R. E. Warner. Calomycterus setarius invaded homes in Smithfield, Providence County, and Usquepaugh, Washington County, Rhode Island, in early July.

ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) was taken for the first time in INDIANA in Jennings and Jackson Counties. Great numbers of this weevil were found invading houses. It was also taken in Harrison County in sweep samples from alfalfa. There were several reports of Asiatic oak weevil creating a nuisance in VIRGINIA in homes and motels after being attracted to lights during the summer and early fall.

DARKLING BEETLES were a nuisance in many locations in CALIFORNIA where adults of Blapstinus sp. and Metoponium sp. invaded buildings. Eleodes sp. infested homes in Lyon County, NEVADA. CONFUSED FLOUR BEETLE (Tribolium confusum) infested dry cereals and foodstuffs in COLORADO homes. There were numerous instances of Tribolium spp. presence in many NORTH DAKOTA homes. RED FLOUR BEETLE (T. castaneum) was a common inhabitant of prepared food mixes in ALASKA.

A GROUND BEETLE (Harpalus sp.) invaded cellars in RHODE ISLAND; it was noted in Coventry, Kent County, and in North Kingstown, Washington County, in mid-July. Bembidion sp., Pterostichus sp. and other species were very numerous in PENNSYLVANIA, particularly in basements and garages. Undetermined species of ground beetles became household pests in TEXAS where they were attracted to lights in Tarrant County. Calosoma spp. infested homes and motels in Lyon and Mineral Counties, NEVADA, and were unusually abundant during 1962 in CALIFORNIA because of heavy cutworm populations. In some cities in southern California, great numbers of this ground beetle have invaded homes, small business establishments and civic buildings. Another ground beetle, TULE BEETLE (Agonum maculicolle), annually becomes a household pest in California for a period of about a month during the summer. In 1962, many complaints were received. Use of an outside light to draw the adults away from the residences has been helpful.

ELM LEAF BEETLE (Galerucella xanthomelaena) was only occasionally troublesome in VIRGINIA when it entered homes to hibernate. Homeowners in several central and western counties in MARYLAND were annoyed by this species. Both elm leaf beetle and LOCUST LEAF MINER (Xenochalepus dorsalis) invaded homes in PENNSYLVANIA. Adults of COLORADO POTATO BEETLE (Leptinotarsa decemlineata) became a nuisance around buildings in RHODE ISLAND in September. In NEVADA, elm leaf beetle adults migrated into homes in Washoe County in August, in Lancaster County homes in late August and in homes in other counties in September. Adults of elm leaf beetle have been the subject of complaints since mid-June in INDIANA; many adults entered houses even from the first-generation population.

Both DRUGSTORE BEETLE (Stegobium paniceum) and CIGARETTE BEETLE (Lasioderma serricornis) were commonly reported in VIRGINIA infesting stored products in homes. Cigarette beetle was reported several times in PENNSYLVANIA as a household pest. This anobiid beetle was also noted as a pantry pest in RHODE ISLAND throughout the State. Drugstore beetle damaged stored foods in homes in COLORADO and OREGON.

Four cerambycid beetles, ELM BORER (Saperda tridentata), RED-HEADED ASH BORER (Neoclytus acuminatus), RUSTIC BORER (Xylotrechus colonus) and Phymatodes testaceus entered homes in PENNSYLVANIA by way of fireplace wood. BLACK-HORNED PINE BORER (Callidium antennatum var. hesperum), rustic borer and other cerambycid beetles emerged from firewood in homes in central MARYLAND during the spring.

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) was noted as a pantry pest in all parts of RHODE ISLAND. A significant increase in reports of infestations in homes was noted in MASSACHUSETTS. This is an important household pest in CONNECTICUT. Saw-toothed grain beetle infested a variety of stored products in homes in MARYLAND, OHIO and OREGON.

Other coleopterous pests included a BARK BEETLE (Gnathotrichus materiarius), which entered homes by way of fireplace wood, and BEAN WEEVIL (Acanthoscelides obtectus) in PENNSYLVANIA, where they were reported several times as household pests. This latter species also infested dry cereals and foodstuffs in homes in COLORADO. A SPIDER BEETLE (Mezium affine) heavily infested a hotel in Clark County, NEVADA. Numerous reports of larvae of a SOLDIER BEETLE (Chaulignathus pennsylvanicus) were received in VIRGINIA; larvae entered homes throughout the State in October and November.

BROWN-BANDED COCKROACH (Supella supellectilium) is the most numerous species on military bases in ALASKA; now more important than the GERMAN COCKROACH (Blattella germanica). Brown-banded cockroach was reported as a problem in homes in Whitman and Chelan Counties, WASHINGTON. This cockroach is reported from new areas of OREGON each year. Several species of cockroaches were common in CALIFORNIA where household infestations occurred all year. Cockroach infestations are becoming more common each year and require considerable commercial and homeowner control. Resistance to insecticides is suspected in many areas where control is difficult. Populations of several cockroach species were slightly above normal in NEVADA during 1962. Both brown-banded cockroach and ORIENTAL COCKROACH (Blatta orientalis) were more abundant and/or more damaging than normal in UTAH in 1962. Both species were also a nuisance in COLORADO. House infestations of German cockroach were reported from Gallatin and Park Counties, MONTANA. The usual number of questions concerning cockroaches were received in KANSAS. Populations were scattered throughout the State of NEBRASKA. In RHODE ISLAND, local infestations of brown-banded cockroach and oriental cockroach were reported. German cockroach was the most predominant cockroach species submitted in CONNECTICUT during the year. Brown-banded cockroach continued as a serious household pest in DELAWARE, especially in New Castle County, during the past 2-3 years. German cockroach and brown-banded cockroach were especially troublesome in many residences and business establishments over the State of MARYLAND. Both species are commonly reported in VIRGINIA as well.

CRICKETS are periodic household pests in CALIFORNIA where Gryllus spp. do considerable damage. Summer infestations were quite widespread over the State. A late invasion into homes and business establishments occurred at the end of October as the result of flooding rains in northern California. Gryllus sp. was more numerous in KANSAS than normal around homes and other buildings. An unusually heavy population of Nemobius fasciatus invaded residential areas of the eastern half of NEBRASKA in August. HOUSE CRICKET (Acheta domesticus) occurred as a localized but very severe invasion in the town of Waverly, Morgan County, INDIANA, during early June. Extensive treatment of yards and nearby dump finally gave control. In MARYLAND, crickets entered several homes in Anne Arundel, Baltimore and Prince Georges Counties, during August. CAMEL CRICKETS (Ceuthophilus spp.) occasionally were found in home basements in VIRGINIA.

BLOW FLIES became especially annoying in homes in ALASKA when Calliphora spp. emerged from hibernation in April. Annoyance continued until freezeup. Complaints of blow flies associated with muscid flies resulted from late summer concentrations in institutional kitchens in Washington County, RHODE ISLAND. Blow flies were abundant in CONNECTICUT in the fall. CLUSTER FLY (Pollenia rudis) was troublesome in many homes in VERMONT. Occasional reports of a MOTH FLY (TelmatoSCOPIUS albipunctatus) infesting home basements in VIRGINIA were received. FACE FLY (Musca autumnalis) also entered homes in Virginia where it occasionally became a nuisance. Overwintering of face fly in homes in MINNESOTA was reported from at least six counties during the winter of 1961-62. Face fly generally covered the whole State of SOUTH DAKOTA even to the point of becoming a serious household pest in several localities. More evidence of adult face fly overwintering in homes has been noted in NEBRASKA in the fall.

HACKBERRY-NIPPLE-GALL MAKER (PachypSylla celtidismamma) caused some defoliation of hackberry in KANSAS, but it was of primary importance as a source of annoyance to householders in October as it sought overwintering quarters in some homes in many towns of eastern Kansas. This species caused annoyance in eastern NEBRASKA during the same month. Numerous reports indicated adults of this species to be a household pest in the Lansing area, Ingham County, MICHIGAN.

A COREID BUG (Leptocoris rubrolineatus) has been a nuisance in many locations in CALIFORNIA for most of the year. Populations were about the same as in former years, however. ArhySSUS scutatus and other coreid bugs have been particularly abundant this year and have been a nuisance in residences a good part of the year. A. scutatus is very prevalent in yards. Subdivisions in California suffered more from this pest than established residences.

BOXELDER BUG (Leptocoris trivittatus) was frequently a problem in homes in OREGON. This coreid bug invaded several thousand homes in the fall in UTAH, and was more abundant in 1962. It was a nuisance in COLORADO; and light, seasonal concentrations tended to be in the western half of NEBRASKA. Many homes were invaded in OHIO during the summer; boxelder trees in yards were always associated. Many reports in MICHIGAN indicated that the boxelder bug problem was similar to other years. There were many reports from the Lansing area, Ingham County. In RHODE ISLAND, several complaints of household infestations in September and October were made in Cumberland-Lincoln area, Providence County, where boxelder bug is a perennial problem. Boxelder bug invaded homes in PENNSYLVANIA again in 1962. Homeowners in six counties in MARYLAND were troubled in the spring and fall. This species was frequently reported entering homes to hibernate in VIRGINIA.

INDIAN-MEAL MOTH (Plodia interpunctella) was an important household pest in CONNECTICUT, RHODE ISLAND and PENNSYLVANIA. This phycitid moth again caused considerable concern in MARYLAND, where it infested several kinds of stored products over the State. It was commonly reported in VIRGINIA homes. Indian-meal moth often damaged stored foods in homes in OREGON. Other lepidopterous insects reported include WEBBING CLOTHES MOTH (Tineola bisselliella) in NORTH DAKOTA, where reports were common in 1962; and CASEMAKING CLOTHES MOTH (Tinea pellionella) in TEXAS, where it was a problem on woollens in several instances.

EUROPEAN EARWIG (Forficula auricularia) became noticeable in RHODE ISLAND about June 1, and it was found commonly throughout the State all summer. Complaints were fewer than usual; concentrations were highest in Newport County. European earwig was only occasionally troublesome in NEW HAMPSHIRE in eastern and southern counties. Another EARWIG (Labidura riparia) is definitely on the increase in SOUTH CAROLINA where exterminators report more complaints. This earwig was reported in a number of localities from Columbia, Richland County, and McCormick County, to the Atlantic coast in South Carolina. Both L. riparia and Doru lineare were very abundant in homes in several areas of GEORGIA. L. riparia was pestiferous in and around homes in nearly all parts of TEXAS. Many local areas of CALIFORNIA experienced nuisance invasions of European earwig. In many instances, control was poor and the problem became a recurring one.

CLOVER MITE (Bryobia praetiosa) continues to enter homes and other buildings in ALASKA; it causes considerable annoyance in the Anchorage area. Clover mite is frequently a problem in OREGON homes. In CALIFORNIA, this spider mite is another arthropod that annually invades residences in the spring and fall. In some instances, entire surfaces are covered and, when removal is attempted, the resulting staining is undesirable. Clover mite infested homes statewide in NEVADA during the winter and early spring. In UTAH, this pest invaded several thousand homes in the spring and was more abundant than in 1961. It was also a nuisance in COLORADO and NEW MEXICO where it entered homes during spring and winter. Reports of invasions into MONTANA homes have been received from Blaine, Fergus, Gallatin, Hill, Park, Petroleum, Powder River, Richland, Rosebud, Sheridan, Teton, Valley and Yellowstone Counties. Clover mite invaded homes in NORTH DAKOTA during the spring and in late October. Clover mite complaints in RHODE ISLAND were concentrated in April and early May. Scattered reports were received throughout the spring. Populations were very high in Providence, Kent and Washington Counties. Clover mite was an important pest in CONNECTICUT, and an outstanding migrating pest in PENNSYLVANIA. Clover mite in the latter State was general and very abundant on certain properties, most of which were homes only a few years old. This spider mite caused considerable annoyance in MARYLAND in March, April and May to many homeowners in six counties. It was frequently reported in homes in VIRGINIA where it entered to hibernate.

PODURID SPRINGTAILS became a household pest in Taylor County, TEXAS, when they were attracted to lights. Springtails were also a problem in CALIFORNIA as a result of rain and foggy weather. Extremely heavy populations were usually evident.

BOOKLICE (Liposcelis spp.) entered a PENNSYLVANIA home near unheated baseboards, causing considerable concern and costly control measures. Heat applied to the lower portions of the house eliminated these pests.

MILLIPEDS invaded many homes in New Castle County, DELAWARE, during late July. They became a nuisance in some sections of PENNSYLVANIA in the fall. HOUSE CENTIPEDE (Scutigera coleoptrata) and millipeds were noted in VIRGINIA; the latter frequently entered homes to hibernate. Milliped complaints in NORTH CAROLINA were mainly in the Piedmont. Millipeds caused considerable concern in WISCONSIN when they entered basements in the fall. In ILLINOIS, migrations into homes were noted in October. Reports from KANSAS indicate millipeds were not as numerous in 1962 as in 1961.

PILLBUGS and SOWBUGS were reported from MONTANA, RHODE ISLAND and TEXAS. In Montana, they were common in homes; in Rhode Island, they caused complaints from people opening summer homes in Washington County in May. These isopods were pestiferous in and around homes in nearly all parts of Texas.

LARGER YELLOW ANT (Acanthomyops interjectus) caused great concern among homeowners in INDIANA during September and early October. The rather massive swarming flights of this species have been mistaken for the activities of termites, and frequent inquiries have been received. Acanthomyops spp. caused considerable annoyance in MARYLAND and VIRGINIA. Larger yellow ant was of importance in CONNECTICUT. PAVEMENT ANT (Tetramorium caespitum) complaints in MASSACHUSETTS were more numerous during the cold months of winter. Tetramorium spp. were also important in CONNECTICUT and MARYLAND. ARGENTINE ANT (Iridomyrmex humilis) and some unidentified ants were reported as pantry nuisances frequently in CALIFORNIA; more frequently in 1962 than for several years. ANTS of various species were reported as household pests in NORTH DAKOTA, PENNSYLVANIA and NEW HAMPSHIRE.

A CARPENTER ANT (Camponotus herculeanus) is common in some buildings that are built of rough, spruce timbers in ALASKA and on utility poles creosoted only at the bases. There was an increase in the number of complaints of Camponotus spp. in CALIFORNIA homes, and they were of concern to many residents in areas

of TEXAS. Camponotus sp. infestations in homes were common in NORTH DAKOTA. The number of Camponotus spp. submitted for identification in MICHIGAN was large, and many more requests for aids are received each year in MASSACHUSETTS, many in the winter. Activity of Camponotus spp. was average in RHODE ISLAND. BLACK CARPENTER ANT (C. pennsylvanicus) is the second most important home structural pest in CONNECTICUT, on the basis of requests for information, and the ant is one of the more commonly reported winged species of ants reported around homes in VIRGINIA.

CARPENTER BEE (Xylocopa virginica) caused considerable boring damage to homes and other buildings in GEORGIA. Complaints of excavating in two RHODE ISLAND homes were received in May. Carpenter bee was reported infesting soft wood in out-buildings in areas throughout MISSOURI; these reports were received in late May and early June.

A HORNTAIL (Urocerus flavicornis) emerged from beams of some new buildings built of white spruce in ALASKA. Sirex areolatus and other species of Sirex occurred in about the same numbers in CALIFORNIA as they did in previous years in new residences. Adult Sirex sp. emerged through plaster walls of newly built homes at Bel Air, Harford County, MARYLAND.

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) continues to increase in importance each year in MASSACHUSETTS. The increase is associated with buildings on previously wooded areas and with type of construction. The first isolated reports of alates in RHODE ISLAND came from Cranston, Providence County, on February 12. Complaints and specimens of eastern subterranean termites were numerous from the entire State in April and May. On the basis of request for information, eastern subterranean termite is the most important home structural pest in CONNECTICUT. This species was abundant as usual in PENNSYLVANIA. Reticulitermes spp. again caused concern and losses to wood structures in MARYLAND in all sections. Eastern subterranean termite continues as the most important structural insect pest in NORTH CAROLINA. Eastern subterranean termite was found in numerous homes in the northeastern portion of OHIO; most of the infested homes received control measures. Reticulitermes spp. were of considerable importance in INDIANA during the spring swarming season. There were many requests for control information. There is evidence that preventive soil treatment for new construction is becoming better understood and accepted in Indiana. Reticulitermes spp. continued to cause structural problems in lower MICHIGAN, especially in the southern tier of counties and the shoreline counties. A report from La Crosse, WISCONSIN, indicated that a total of 76 new infestations of eastern subterranean termite was discovered during 1962. The first report of swarms of eastern subterranean termite in MISSOURI was received in early March. Reports of termite infestations were received from areas throughout Missouri, the majority of which came from southern areas. Eastern subterranean termite and a bark beetle (Scolytus sp.) are the most common structural pests in Missouri. Reticulitermes sp. was a common pest in wooden structures in many parts of TEXAS, and subterranean termites were destructive in COLORADO.

Populations of, and damage by, probably WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) were reported from all areas of WYOMING where it is rapidly becoming a serious problem to homeowners. Another SUBTERRANEAN TERMITE (R. tibialis) infested houses in Miles City, Custer County, MONTANA. Western subterranean termite is a greater problem in WASHINGTON than in previous years. This species is found throughout the State of OREGON where annual damage to wood structures is estimated in the tens of thousands of dollars. In NEVADA, infestations of both western subterranean termite and R. tibialis were slightly above normal during 1962. A ROTTENWOOD TERMITE (Zootermopsis angusticollis) is a very serious pest in western OREGON.

TERMITES caused about the usual amount of complaints in NEW HAMPSHIRE, and were the most important structural insects in VIRGINIA during 1962. Various species infested stored lumber and wood products in COLORADO. Subterranean termites, DAMPWOOD TERMITES and DRYWOOD TERMITES continue to be the main structural pests

in CALIFORNIA. There were 240,962 termite inspections made in the State during 1962, resulting in finding 64,307 infestations. Termite occurrence followed normal patterns.

SOUTHERN LYCTUS BEETLE (Lyctus planicollis) was reported in mid-February in MISSOURI where it emerged from hardwood floors in a 12-year-old house in the southwest area. This species was noted in PENNSYLVANIA in lumber used in buildings. POWDER-POST BEETLE complaints in NEW HAMPSHIRE were about the usual number. In SOUTH CAROLINA, complaints and requests for information were above average in numbers. Six infestations of Lyctus spp. were reported in La Crosse, La Crosse County, WISCONSIN. Powder-post beetles, principally Lyctus sp., were common pests around wooden structures in many parts of TEXAS. Lyctus spp. have been active in furniture and house trim in many locations over the State of CALIFORNIA. Occurrence of these pests are about the same as in other years.

OLD-HOUSE BORER (Hylotrupes bajulus) was reported from six localities in SOUTH CAROLINA. This cerambycid beetle prompted only a few reports in NORTH CAROLINA. Several larvae of old-house borer were received in VIRGINIA for determination. Infestations in homes in MARYLAND were again common in most sections. Old-house borer was noted in lumber used for buildings in PENNSYLVANIA as were also two CERAMBYCID BEETLES (Elaphidion mucronatum and Smodicum cucujiforme). Cerambycid beetles infested stored lumber and wood products in COLORADO. In MICHIGAN, larvae of cerambycid beetles continued to be reported as structural pests of low magnitude.



Distribution of Old-house Borer

A BARK BEETLE (Micracis hirtellus) caused considerable trouble by boring into plastic and aluminum telephone cable west of Mount Vernon, Skagit County, WASHINGTON; this was associated with nearby willow trees as was a similar attack near Nisqually in 1953. Bark beetles infested stored lumber and wood products in COLORADO. WHARF BORER (Nacerdes melanura) infested a home in

Newport, Newport County, RHODE ISLAND, in July. FALSE POWDER-POST BEETLES were found in Clark County, NEVADA; Polycæon stouti infested furniture and Dendrobiella aspara infested beams in a home. BUPRESTID BEETLE specimens submitted in MICHIGAN indicated a few problems in 1962.

UNITED STATES DEPARTMENT OF AGRICULTURE

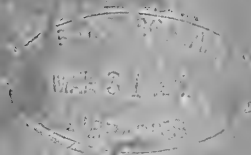
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SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material, the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GREENBUG and other grain aphids continue generally noneconomic in Oklahoma, Texas and New Mexico. (pp. 315, 325). CHINCH BUG infestations in young milo becoming heavy and more widespread in Jim Wells County, Texas. HESSIAN FLY infesting trace to 100 percent of wheat plants in north central and central Kansas; emergence should begin by April 12 in southern portion of State. Also in Kansas, only trace numbers of WHEAT CURL MITE found in southwest, south central and southeast, and none found in north central and central areas. (p. 316).

ALFALFA WEEVIL increasing in number and distribution in Alabama, and populations and damage expected to be heavy in areas of Lincoln County, Nevada. Adults active in Utah with some control applied, and larvae found feeding on alfalfa in New Castle County, Delaware. (p. 316). PEA APHID generally light presently on alfalfa from Arkansas to Nevada. (pp. 316, 317, 325).

POTATO PSYLLID continues to increase in Arizona unless controls applied, and adults heavy on Lycium spp. in areas of Clark County, Nevada. (p. 318).

CEREAL LEAF BEETLE survival seems to be excellent in Michigan in spite of severe winter. No evidence of spring flight observed to March 29. (p. 325).

SOME FIRST APPEARANCE RECORDS

TARNISHED PLANT BUG adults in Delaware and Kansas; ELM LEAF BEETLE adults in debris about elms in Sutter County, California, and on elms in Arizona, and adults moving from hibernation in Oklahoma; CANKERWORMS in Wisconsin; SPRING CANKERWORM in Kansas; adults of HORNWORMS at Brownsville, Texas; female FACE FLY in Maryland; and CLOVER MITE in a number of States including Delaware, New Jersey, Utah and California.

DETECTION

A WEEVIL (Euclptus rutilus) recorded for first time in Utah. (p. 324).

ADDITIONAL NOTES

See page 325.

SPECIAL REPORTS

Report on Survival of Boll Weevil as Determined by Spring Surface (Woods) Trash Examinations in North and South Carolina, Mississippi, Louisiana and Texas. (p. 319). Survival in all areas was lower than in spring of 1962. The most notable decreases were in the Piedmont of North and South Carolina, north central North Carolina, Mississippi and Louisiana.

Summary of Insect Conditions in the United States - 1962

Forest and Shade Tree Insects - (p. 327).

Reports in this issue are for week ending March 29, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

APRIL 1963

The Weather Bureau's 30-day outlook for April calls for temperatures to average well below seasonal normals over the western half of the Nation, except for near normal along the west coast. In contrast, well above normal temperatures are anticipated to prevail over the eastern third of the country. In the remaining area, near normal averages are expected, but with large fluctuations from week to week. This temperature pattern is expected to favor more frequent storminess than usual, leading to precipitation in excess of normal over most of the Nation, except for near normal amounts along the Gulf and west coasts and subnormal amounts over the Far Southwest. From the Mississippi Valley eastward thunderstorm activity is expected to accompany many of the storms.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price \$4.80 a year, \$2.40 a half year.

WEATHER OF THE WEEK ENDING APRIL 1

Average temperatures, without exception, were near or above normal. Slightly below normal averages over much of the West Coast States kept the Nation as a whole from being unseasonably warm. However, daytime maxima in the mid-80's on 3 days contributed a large portion of the warmth necessary to boost averages to 20° above normal in the Dakotas. Many stations in the northern Great Plains had as many as 4 days when the mercury did not drop to freezing. As evidence of the changing seasons was the quite variable weather in most areas. On the 28th, an 83° high at Denver, Colorado, set a new early season record. Two stations in Michigan recorded 11° minima, and the mercury climbed from 33° to 90° at Roswell, New Mexico, on the same day. The only 100° reading reported during the period was from Presidio, Texas, on the 29th, when Grand Rapids, Michigan, had an 80° high. The generally warm weather in New England was responsible for substantially reducing the snow depths. A decrease of 20 inches or more in northern and central Maine brought maximum depths down to 2 feet.

Very little precipitation fell over the Southwest and the Great Plains except for northern Texas and Oklahoma. Almost daily precipitation over much of the Pacific Northwest led to totals up to 5 inches in the higher elevations and coastal locales. At elevations over 5,000 feet in northern California, this was the snowiest week of the season, while in Washington new snowfall increased depths by 20 to 40 inches. High winds accompanied a storm which moved from southern Oregon on the 27th into North Dakota by the 29th. Nearly all of the Far West had measurable precipitation amounts as this system passed; Los Angeles, California, received 1.13 inches on the 28th.

A cold front, moving from the Mississippi River Valley, touched off showers generally and thunderstorms locally on its eastward trek during the first 2 days. Hail dropped in Minnesota and Illinois on the 25th, to the size of golf balls at Perham, Minnesota. On the final 2 days, locally severe storms were touched off along a system situated from Pennsylvania and West Virginia, through Illinois and Iowa, into northern Texas. Paducah, Texas, was hit by hailstones to 2 inches in diameter, while drenched with 1.22 inches of rain in 22 minutes. Hail was reported to have piled to 3 inches deep near Springfield, Missouri.

Of special note was a report from Cincinnati, Ohio, on the 27th, which stated that the Ohio River was again within its banks after 22 consecutive days of being above flood stage, the longest such period of record. (Summary supplied by the U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - Problem area continues to be about same as reported in CEIR 13(11):215, with low, noneconomic numbers found in wheat and alfalfa outside of area. Counts in northern area ranged from trace to 3 per foot of row; wheat in area in good condition and, in most instances, will not be severely damaged. Considerable wheat in southwestern area has been winter-killed and cutworm populations aided in keeping wheat from recovering. Wheat treated 2-3 weeks ago shows some recovery, but wheat being treated now appears to be past recovery; however, considerable spraying still being done. Majority of larvae examined ranged from fifth to seventh instar. Migration out of poor fields evidenced by dead larvae on roads. (Somsen, Peters). OKLAHOMA - Some control work continues in panhandle area; activity continues to decline elsewhere in northwest. Start of pupation observed in Grant and Alfalfa County areas. Some damage on alfalfa noted in Cherokee County area. (Okla. Coop. Sur.). TEXAS - Prevalence in mixed Bermuda grass-clover lawns in Caldwell County causing concern to homeowners. (Texas Coop. Rpt.; Massey).

CUTWORMS - COLORADO - Unspecified species found in trace numbers in alfalfa and wheat examined in Larimer and Weld Counties. Some reports of economic populations in few fields. (Jenkins).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - No pupation noted in Sussex or New Castle Counties as of March 27. Spring borer population in Sussex County appears reduced from fall population by approximately 69 percent; a drop from average of 76 borers per 100 stalks in fall of 1962 to average of 24 per 100 stalks at present time. (Burbutis).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Percent survival low in fields in southwestern area; six fields in 3 counties checked, with 5 live larvae found in 900 infested stalks. (Munson, Thomas, Wood).

NOCTUIDS - FLORIDA - Heliothis zea and Spodoptera exigua lightly infested corn at Iona, Lee County (March 20). (Fla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - TEXAS - Populations were becoming heavy in few fields of oats and light to medium in fertilized wheat in Kaufman County; however, parasites and predators have reduced populations to noneconomic levels at present time. (Turney). OKLAHOMA - Continues at noneconomic levels throughout most of State. Some isolated control reported from Johnston County with counts up to 30 per linear foot in wheat. Spotted, moderate infestations continue in Bryan County but not sufficiently high to warrant controls. Counts of 3-15 per linear foot observed in southwest and 5-12 per linear foot in Muskogee area. (Okla. Coop. Sur.). ARKANSAS - Only an occasional specimen found in small grain in northwest. (Ark. Ins. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Continues present on barley in many parts of central area; controls may be required in some fields. (Ariz. Coop. Sur.). NEVADA - Light on barley in Moapa Valley, Clark County. (Bechtel, Zoller).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Only light counts observed in scattered portions of southwest and south central areas. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Generally light counts noted throughout State; highest counts per linear foot were 25-35 in Greer and 20 in Muskogee Counties. (Okla. Coop. Sur.). ARKANSAS - Only an occasional specimen found in small grain in northwest. (Ark. Ins. Sur.).

APHIDS - GEORGIA - Infestations of an unspecified species heavy on barley in Brooks County. (Carr). OREGON - Specimens collected from Merion bluegrass at Independence, Polk County, in December 1962 determined as Rhopalosiphum padi by W. R. Richards. (Larson).

CHINCH BUG (Blissus leucopterus) - TEXAS - Infestations on young milo becoming heavy and more widespread in Jim Wells County. (Texas Coop. Rpt.; Jones).

LEAFHOPPERS - OKLAHOMA - Unspecified species causing apparent damage to field of barley in Marshall County. High population also present in wheat in Bryan County. (Okla. Coop. Sur.).

FALSE WIREWORMS - KANSAS - Few larvae of undetermined species found in Finney County wheat. (Somsen, Peters).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Counts of infested plants ranged from trace to 100 percent in north central and central areas. Only trace counts found in northern portions of south central and southwestern areas. Area of heaviest infestation continues same as in 1962. Emergence should begin within 2 weeks in southern portion of infested area. (Somsen, Peters).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Light activity reported from Woods County (northwest). (Okla. Coop. Sur.). TEXAS - Only an occasional specimen found on small grains interplanted with vetch in Kaufman County. (Turney).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Reported active in wheat in Ellis County (west central). (Okla. Coop. Sur.). COLORADO - Not found on wheat in Larimer County. (Jenkins).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Only trace numbers found in wheat in Clark (southwest), Sumner (south central) and Cowley (southeast) Counties. None found in north central or central areas of State. (Somsen, Peters).

ALFALFA WEEVIL (Hypera postica) - NEVADA - Early stage larvae heavy in Hiko area and light to heavy in Alamo area, Lincoln County. Populations and damage probably will be generally heavy in these areas again this season. (Bechtel, Munk, Zoller). UTAH - Adults active and marking new growth alfalfa in Cache and Weber Counties. Alfalfa growth at Logan, Cache County, 1-2 inches on west slopes. (Knowlton, March 25). Controls applied to 50 percent of acreage in Utah County by March 27. (Knowlton, Acord). Approximately 50 percent of alfalfa in Cache County treated as of March 26. (Knowlton, Tueller). Field checks in Logan vicinity indicate relatively high adult survival. (Knowlton). COLORADO - Adults have not been observed, although some feeding damage evident in some alfalfa in Larimer County. (Jenkins). ALABAMA - Populations increasing in size and distribution; infestations found in Chambers, Lee, Madison, Limestone and Morgan Counties. (Buttram). DELAWARE - First larvae of season (first instars) feeding on alfalfa in New Castle County, March 26. Counts in one field were 235 eggs per 100 old alfalfa stems. Approximately 33 percent of these eggs appeared to be newly laid. (Burbutis).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Occasional larvae noted in alfalfa in southern part of State. (Somsen, Peters). UTAH - Occasional adult observed in alfalfa in Bluffdale area, Salt Lake County. (Knowlton).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - OKLAHOMA - Light activity noted in alfalfa in Grady and Stephens Counties. Adults ranged up to 0.5 per sweep. (Okla. Coop. Sur.).

A BLACK FLEAHOPPER (Spanogonicus albofasciatus) - NEVADA - Adults present on alfalfa in very low numbers in Moapa Valley, Clark County. (Bechtel, Zoller).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Infestations on alfalfa very light and spotted in Moapa Valley, Clark County. (Bechtel, Zoller). ARIZONA - Continues to appear on alfalfa. (Ariz. Coop. Sur.). TEXAS - Low numbers appearing in Kaufman County vetch; no controls needed at present time. Causing concern because appearance is earlier than normal. Very few beneficial insects present. (Turney). OKLAHOMA - Light to moderate in alfalfa throughout southern part of

State. Counts per 10 sweeps, by county, as follows: Pontotoc - 200-250; Harmon - 500-750; Grady - 100-150. Counts per square foot of crown area were 17-30 in Kiowa County and 25-75 in Stephens County. (Okla. Coop. Sur.). ARKANSAS - Numbers increased slightly in northwest; ranged 2-5 per square foot. (Ark. Ins. Sur.). MISSOURI - Light in southeastern area. Ranged 0-14 per sweep on clover and alfalfa; average 3.5. (Munson, Thomas, Wood). KANSAS - Counts in southern area alfalfa generally less than one per sweep, with one field in Cowley County (southeast) having 7 per sweep. Alfalfa making good growth; no problem expected. (Somsen, Peters).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Light in Stephens County; 30-60 per square foot of crown area. Only report or observation this period. (Okla. Coop. Sur.). KANSAS - None found in any alfalfa examined. (Somsen, Peters).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Present in alfalfa and safflower. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - First adults of season active in New Castle County alfalfa March 25. (R. Huber). KANSAS - Occasional adults noted in alfalfa in southern area. (Somsen, Peters). OKLAHOMA - Occasional specimens noted in alfalfa in Grady and Harmon Counties. (Okla. Coop. Sur.).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - UTAH - This species and Dikraneura carneola common on grassy roadsides and in grassy alfalfa fields in Smithfield-Lewiston area of Cache County. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ALABAMA - Building up in alfalfa in Clay and Lee Counties; ranged 1-8 per sweep. (Barwood). ARIZONA - Increasing on all alfalfa at lower elevations. (Ariz. Coop. Sur.).

A SPIDER MITE (Tetranychus sp.) - NEVADA - Heavy on alfalfa in Pahrump Valley, Nye County; treatments required in several fields. (Zoller).

FRUIT INSECTS

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - Adults appearing on peach trees in peach belt of central part of State, but temperature, especially at night, has been too low to bring them out in numbers. Average of 0.6 curculio per tree taken from outside row of peach trees, next to woodland, in one orchard on March 25. (Snapp).

PEACH TWIG BORER (Anarsia lineatella) - CALIFORNIA - Infestations heavy on peach trees in Beaumont area, Riverside County. (Cal. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - Activity on fruit trees continues in most areas of State as warm weather stimulates hatching and tree budding. (Texas Coop. Rpt.). OKLAHOMA - Activity observed throughout southeastern and central portions of State; webs appearing on fruit trees and wild plum. (Okla. Coop. Sur.).

A LYCAENID - TEXAS - Heavy, local larval populations feeding on wild plum fruits in Cameron County. (Texas Coop. Rpt.; Stephens).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ALABAMA - Damage to young apples increasing in Clay and Coosa Counties. Several trees destroyed. (Buttram).

SAN JOSE SCALE (Aspidiotus perniciosus) - OKLAHOMA - Very light on peach trees in Stillwater area, Payne County. (Okla. Coop. Sur.).

A COCCID (Lecanium sp.) - MARYLAND - Light on peaches in orchard in Baltimore County. (U. Md., Ent. Dept.).

PECAN CARPENTERWORM (Cossula magnifica) - ALABAMA - Eight half-grown larvae taken from pecan trees in Mobile County. Populations appear heavier than usual. (Seibels, Buttram).

OBSCURE SCALE (Chrysomphalus obscurus) - ARKANSAS - Crawlers active on pecan in Carlisle area, Lonoke County (east central). (Ark. Ins. Sur.).

A LEAF ROLLER (Amorbia essigana) - CALIFORNIA - Heavy populations present on avocado trees in Riverside, Riverside County. (Cal. Coop. Rpt.).

DRIED FRUIT BEETLES (Carpophilus spp.) - CALIFORNIA - C. marginellus, C. lugubris and C. freemani collected from fruit of Citrus sinensis in Yuba City, Sutter County. Dried fruit beetles have been collected during winter months from citrus drops in several locations within State at various times. (Cal. Coop. Rpt.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Medium on Meyer lemon tree nursery stock in Borrego, San Diego County. (Cal. Coop. Rpt.).

SIX-SPOTTED MITE (Eotetranychus sexmaculatus) - CALIFORNIA - Medium on lemon trees in Coronada, San Diego County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - TEXAS - Widespread populations in Guadalupe County home gardens causing light to moderate damage to plants. (Texas Coop. Rpt.; Massey).

ARMY CUTWORM (Chorizagrotis auxiliaris) - TEXAS - Light, widespread populations causing some damage to garden plants in Caldwell, Guadalupe and Hays Counties. (Texas Coop. Rpt.; Massey). IDAHO - Larvae range 1-5 per linear foot in field of fall-seeded carrots in Arena Valley near Parma, Canyon County. (Waters).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Numerous in potato storage; potatoes being held for conditioning to processing into potato chips in Weld County. (Simpson, Felton, Livingston). ARIZONA - Continues present on sugar beet seed. (Ariz. Coop. Sur.).

TEXAS LEAF-CUTTING ANT (Atta texana) - TEXAS - Heavy, local populations in Washington County damaging tender vegetables in home gardens. (Texas Coop. Rpt.; McClung).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - This species and Pseudoplusia includens light on potato at Homestead, Dade County (March 21). (Fla. Coop. Sur.).

A CUTWORM - TEXAS - Spotted infestations of undetermined species on tomatoes in Cameron County requiring treatment in some instances. (Texas Coop. Rpt.; Day).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Numbers continue to increase unless control measures are practiced. (Ariz. Coop. Sur.). NEVADA - Adults numerous on Lycium sp. in Overton, and adults and eggs heavy on Lycium spp. north of Moapa, Clark County. (Bechtel, Zoller).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light on cabbage in Brooks and Colquitt Counties. (Johnson).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - OREGON - Adults appeared on wild mustard throughout northern Willamette Valley areas in mid-March. (Capizzi).

APHIDS - ARIZONA - Unspecified species continue a problem on lettuce in central area. (Ariz. Coop. Sur.).

THRIPS - ARIZONA - Unspecified species present on lettuce in many fields in central area. (Ariz. Coop. Sur.). NEW MEXICO - Light in onion fields near Las Cruces, Dona Ana County. (N. M. Coop. Rpt.).

BUCKTHORN APHID (*Aphis nasturtii*) - FLORIDA - Moderate on strawberry at Immokalee, Collier County. (Fla. Coop. Sur.).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - GEORGIA - Light on tobacco in plant bed in several southern counties. (Johnson).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - GEORGIA - Light on tobacco in plant bed in several southern counties. (Johnson).

COTTON INSECTS

Report on Survival of Boll Weevil as Determined by Spring Surface (Woods) Trash Examinations in North and South Carolina, Mississippi, Louisiana and Texas

Spring 1963 collections of surface ground (woods) trash samples (two square yards per sample) have been completed in five Southern States by cooperating agencies to determine the number of live boll weevil (*Anthonomus grandis*) adults that survived the winter. Wherever possible, samples were taken from the same locations that were sampled in the fall of 1962. See CEIR 12(50):1255-1256 and CEIR 13(1):4 for details concerning the fall hibernation survey in these five States.

In NORTH and SOUTH CAROLINA, samples were collected March 11-22 in the same four representative areas in which fall samples were collected. In each area, a total of 30 locations (farm sites) was sampled with three samples being taken at each location. The same locations were sampled in both the fall and spring examinations. The areas are as follows: Area 1 - south central South Carolina (Orangeburg, Dorchester and Bamberg Counties); Area 2 - Coastal Plains of South and North Carolina (Florence, Darlington and Marlboro Counties, S. C., and Scotland County, N. C.); Area 3 - Piedmont of South and North Carolina (Anderson, Greenville and Spartanburg Counties, S. C., and Mecklenburg, Cleveland and Union Counties, N. C.); and Area 4 - north central North Carolina (Nash, Wilson, Franklin and Edgecombe Counties). The average number of live weevils found per acre in Areas 1, 2, 3 and 4 was 914, 1,560, 350 and 161, respectively. The percent survival for these areas was 21.5, 12.8, 4.1 and 3.1, respectively. The survival was lowest in Areas 3 and 4 and highest in Areas 1 and 2. The 1963 average survival figures of 914 and 1,560 weevils per acre in Areas 1 and 2 are approximately 50 percent of the 1962 survival figures of 1,667 and 3,654 weevils per acre. The survival figure of 350 is approximately 12 percent of the 1962 spring average of 2,823 weevils per acre in Area 3. The survival figure of 161 weevils per acre in Area 4 is approximately 17 percent of the 1962 spring average of 968 weevils per acre. In Florence County, South Carolina, fall and spring examinations have been made since 1938. An average of 807 weevils per acre was found for the spring of 1963, with a winter survival of 5.7 percent. The number of weevils surviving in this county is the lowest since the spring of 1961.

Collections were started February 25 in MISSISSIPPI and completed on March 15. Three samples were taken from each location and either seven or eight locations were sampled in each county. Wherever possible the samples were taken from the locations that were sampled during the fall of 1962. Four counties made up each area and the State was divided into four areas as follows: Area 1 - lower delta (Sharkey, Issaquena, Yazoo, Humphreys Counties); Area 2 - central delta (Washington, Bolivar, Sunflower, Leflore Counties); Area 3 - north delta (Coahoma, Tunica, Quitman, Panola Counties); and Area 4 - hill section (Holmes, Madison, Noxubee, Monroe Counties). Ninety samples were taken from a total of

30 locations in each of the four areas, giving a total of 360 samples taken from the State. Boll weevils were found in Area 3 only; where the average number per acre was 51. This gave a State average of 13 compared with 1,132 in 1962, 1,246 in 1961, 821 in 1960, 464 in 1959 and 392 in the spring of 1958. The percent survival for Area 3 was 0.4. The State average percent survival was 0.2 compared with 13.59 in 1962, 8.59 in 1961, 16.23 in 1960, 12.22 in 1959 and 6.65 in 1958. The number of boll weevils found in the respective areas in the fall of 1962 was 2,863, 5,377, 13,761 and 2,850.

In northeast LOUISIANA, collections were made from February 27 to March 14. The area was comprised of East Carroll, Madison and Tensas Parishes. The number of boll weevils found per acre was zero in East Carroll Parish, 363 in Madison Parish and zero in Tensas Parish. The average for the tri-parish area this spring was 121 compared with 2,233 last spring, and the winter survival 3.0 percent. A total of 4,035 weevils per acre were found in the fall of 1962 in this area. In Madison Parish, where similar records have been made for the past 27 years, the survival for the winter of 1962-63 was 10 percent as compared with the average of 38 percent for the past 27 years. During the 27-year period that these records have been made, the winter survival has been lower in only two winters than that for the winter of 1962-63. In the winter of 1936-37, the survival was two percent and, in 1939-40, it was eight percent.

In Falls, Hill, Limestone and McLennan Counties, TEXAS, spring collections were made March 12-21. Collections were made from the same locations from which samples were collected last December 1962. Three samples were taken from each location and either six or seven locations were sampled in each county. Seventy-five samples were taken from a total of 25 locations in the four counties. The average number of weevils found per acre in Falls, Hill, Limestone and McLennan Counties in the spring was 134, 0, 1478 and 230, respectively, with an average of 452. There were 2,285, 1,613, 1,882 and 1,380 weevils per acre in these same four counties, in the fall of 1962, with an average of 1,781 for the area. The survival percentage of 25.4. This compares with survivals of 31.14, 33.7 and 33.1 in March of 1960, 1961 and 1962, respectively. Fewer weevils were found in the fall inspections in 1962 than the previous three years. The indicated spring survival was considerably lower than in previous years in Falls, Hill and McLennan Counties, while in Limestone County, it was much higher. The area average number per acre was lower than in the spring of 1960, 1961 and 1962. Counts in 1962 averaged 1,361 for the area.

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Infesting hibiscus at Plantation Key, Monroe County (March 18). Det. by W. Breidenbach. (Fla. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE BARK APHID (Pineus strobi) - MARYLAND - Several moderate to heavy infestations occurring on white pines in Prince Georges County. (U. Md., Ent. Dept.).

A FIR APHID (Cinara curvipes) - CALIFORNIA - Heavy concentrations present on Deodar cedar in San Mateo County. (Cal. Coop. Rpt.).

SPOTTED PINE SAWYER (Monochamus maculosus) - COLORADO - Found on pine in Boulder County. (Hantsbarger).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Adults moving from hibernation as warm weather persists. (Okla. Coop. Sur.). ARIZONA - Adults appearing on elms in Salt River Valley; controls will be needed very shortly. (Ariz. Coop. Sur.). CALIFORNIA - Adults heavy in debris around trunks and in grass about elms in Pleasant Grove, Sutter County. (Cal. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ARKANSAS - Observations and reports indicate this pest may be more numerous than in past. Nests 3-5 inches in diameter present in Fayetteville area, Washington County. Unusually widespread nests reported in Hot Springs, Garland County (southwest). Present on wild cherry in Forrest City area, St. Francis County (east central). Prunus japonica one of principal hosts in local area. (Ark. Ins. Sur.). ALABAMA - Several tents observed on wild cherry in Lee, Tallapoosa and Clay Counties. First report of season. (Barwood).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - This species and Malacosoma sp., probably texanum, heavy on live oak trees in Travis County; up to 20 colonies present on trees approximately 10-20 feet tall. Species intermingle freely and feed together in same colony. Large collection of larvae being reared to obtain positive determination of latter species. (Newton). Populations in Caldwell and Guadalupe Counties apparently lower but are widespread over area. (Texas Coop. Rpt.; Massey).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - NEVADA - Small tents appearing on Populus spp. in Moapa Valley and on Prunus fasciculata in the Spring Mountains in Clark County. (Bechtel, Zoller).

TENT CATERPILLARS (Malacosoma spp.) - ARIZONA - Increasing on cottonwoods in Salt River Valley. (Ariz. Coop. Sur.).

A SESIID MOTH (Paranthrene sp.) - ARKANSAS - Larvae, possibly P. dollii, present on cottonwood in Hempstead County (southwest). (Ark. Ins. Sur.).

CANKERWORMS - WISCONSIN - First male moths of season taken in blacklight traps. (Wis. Ins. Sur.).

A GALL WASP (Callirhytis punctata) - NORTH CAROLINA - Present on oaks at a location in Sampson County. (Wray).

APHIDS - OKLAHOMA - Heavy populations of Macrosiphum sp. causing honeydew on gladiolas and petunias in greenhouse in Marshall County (south central). (Okla. Coop. Sur.). ARIZONA - Myzus persicae, Aphis nerii and Rhopalosiphum maidis appearing on roses and many annuals in yards in central area. (Ariz. Coop. Sur.). CALIFORNIA - Myzocallis arundinariae medium on Phyllostachys bambusoides (bamboo) in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Heavy on euonymus at Bethesda, Montgomery County. (U. Md., Ent. Dept.). FLORIDA - Severe on Euonymus sp. at De Land, Volusia County (March 20). (Fla. Coop. Sur.). ARKANSAS - Crawlers active on euonymus in Little Rock area, Pulaski County. (Ark. Ins. Sur.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - COLORADO - Eggs white; no sign of development on lilac shrubs in Larimer County. (Jenkins). UTAH - Very numerous on lilacs and willow trees at Brigham City, Ogden and Farmington in northern part of State. (Knowlton).

WAX SCALES (Ceroplastes spp.) - NORTH CAROLINA - Infesting camellia, jasmine and nandina in Wake County. (C. F. Smith).

Coccids in Florida - Pseudoaonidia clavigera collected on Camellia sp. and Ligustrum sp. at St. Petersburg, Pinellas County (March 20); no live scale found. Diaspis boisduvalii moderate on 100 Archontophoenix alexandrae at Largo, Pinellas County (March 21). Fiorinia theae severe on Camellia japonica at Orlando, Orange County (March 19). Lepidosaphes gloverii ranged light to moderate on Citrus sinensis at Holly Hill, Volusia County (March 13). Lepidosaphes madkelli was moderate on Juniperus sp. at Orlando (March 20). Parlatoria pergandii ranged light to moderate on Citrus sinensis at Holly Hill (March 13), and was light on Viburnum sp. at De Land, Volusia County (March 20). Phenacaspis cockerelli was light to moderate on Strelitzia reginae at Ormond Beach, Volusia County

(March 18). Pinnaaspis strachani lightly infested 100 Hibiscus sp. at New Smyrna Beach, Volusia County (March 21). Protospulvinaria pyriformis was light to moderate on Gardenia sp. at Holly Hill (March 13). Pseudaulacaspis major was moderate on Koeleruteria sp. at Laurel, Sarasota County (March 1). Saissetia hemisphaerica was severe on fern at Ormond Beach (March 18). Saissetia oleae ranged light to moderate on Citrus sinensis at Holly Hill (March 13). (Fla. Coop. Sur.).

A FALSE KATYDID - TEXAS - Eggs collected from ornamental plants in widely separated counties of Gray and Hill. Eggs from Hill County heavily parasitized by an undetermined hymenopteron. (Hoerman, Whaley).

INSECTS AFFECTING MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Adults active and annoying animals in Stillwater area of Payne County (north central), Comanche County (south central) and in Pushmataha, Choctaw and McCurtain Counties (southeast). (Okla. Coop. Sur.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Small numbers present on animals in north central and southeastern sections of State. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - MARYLAND - Female found in dairy herd at Beltsville, Prince Georges County, March 28. First fly found in 1962 at this location was on April 25. (J. H. Fales).

BLACK BLOW FLY (Phormia regina) - OKLAHOMA - Activity noted in Osage and Johnston Counties. (Okla. Coop. Sur.). UTAH - This species and smaller flies annoying cattle in feedlot at Cove, Cache County. (Knowlton, Mar. 26).

MOSQUITOES - MARYLAND - Larvae of Aedes sticticus and A. stimulans collected March 25 in Dorchester County. (U. Md., Ent. Dept.). FLORIDA - Culex salinarius, Anopheles crucians and Mansonia perturbans collected at light in Gainesville, Alachua County, March 26. (Fla. Coop. Sur.). UTAH - Larvae present in several counties from Brigham City to south of Provo along the Wasatch Front. Aedes dorsalis larvae present in Weber County; 12 acres treated March 26. Aedes increpitus larvae averaged 7 per dip; noted in river bottoms west of Ogden. Occasional Culex spp. larvae found in Weber County. (Fronk, Knowlton).

LONG-NOSED CATTLE LOUSE (Linognathus vituli) - GEORGIA - Light to heavy on cattle in Spalding County. (Roberts, March 18). OKLAHOMA - Populations declining on cattle in Payne County area. Counts of 5 per hair part still present on steers in Garvin County (south central). (Okla. Coop. Sur.).

CATTLE LICE - UTAH - Approximately 5,000 head treated during past month in eastern Millard County. (Knowlton, Richtenbach, March 25). Some cattle in Cache and Weber Counties treated; others rubbing and should be treated. Some conspicuously infested cattle observed at Pleasant Grove, Utah County. (Knowlton, March 25). NEW MEXICO - Light to medium on cattle in Melrose, Curry County. Rubbing treatment appears to be satisfactory. (N. M. Coop. Rpt.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Moderate to heavy on cattle in southeast. Also noted as heavy on deer in McAlester area, Pittsburg County, and on coyotes in Johnston County area. Extensive dipping and spraying of cattle reported in southeastern area. (Okla. Coop. Sur.).

AN ITCH MITE (Sarcoptes sp.) - CALIFORNIA - Heavy infestations developing locally on horses and mules in Florin, Sacramento County. (Cal. Coop. Rpt.).

A BLOODSUCKING MITE (Haemolaelaps geomys) - CALIFORNIA - Heavy on gophers in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Activity causing some concern to several homeowners in Stillwater area, Payne County (north central). (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Migration into homes begun in several locations in State. Residents annoyed in Angeles Camp, Calaveras County. (Cal. Coop. Rpt.). UTAH - Caused numerous complaints of entering homes in Salt Lake, Davis, Weber and Box Elder Counties. (Knowlton). FLORIDA - Crawling on walls in residence at Pensacola, Escambia County. (Boyd, Mar. 22). NORTH CAROLINA - Troublesome around home in Burke County. (Parton). VIRGINIA - Common in homes in several parts of State during early March. (Tarpley et al.). MARYLAND - Abundant and caused nuisance in Silver Spring home, Montgomery County. (U. Md., Ent. Dept.). DELAWARE - First occurrence of season reported on outside of New Castle County home. (W. Connell). NEW JERSEY - Several infestations reported. (Ins.-Dis. Newsltr., Mar. 26).

BOXELDER BUG (Leptocoris trivittatus) - MICHIGAN - Overwintering forms active in warm locations of infested houses near Lansing, Ingham County. (Dowdy, March 25). Reported active around households as far north as Bay County. (Dowdy). UTAH - Annoyance has been common in many Salt Lake County communities during warm periods of February and March. (Knowlton, Rose). OREGON - Reported active and of concern around residences in the Willamette Valley during March. (Capizzi).

CARPET BEETLES - PENNSYLVANIA - Attagenus piceus moderate in home in Meadville, Crawford County, March 18; Anthrenus scrophulariae fairly abundant in home in Mifflintown, Juniata County, March 13. (Adams, Udine). OKLAHOMA - Anthrenus verbasci occurring in homes in Oklahoma City area. (Okla. Coop. Sur.).

A SPIDER BEETLE (Gibbium psylloides) - DELAWARE - Adults found in New Castle County home. (D. MacCreary).

COCKROACHES - UTAH - Blattella germanica and Blatta orientalis have been problems in a number of Salt Lake City and Salt Lake County homes. (Knowlton, Rose, March 25). Supella supellectilium infesting new home at Logan, Cache County. (Knowlton). MARYLAND - Blatta orientalis infested a Prince Georges County building. (U. Md., Ent. Dept.).

FACE FLY (Musca autumnalis) - MICHIGAN - Adults active about windows in Lansing area, Ingham County, March 24. (Dowdy).

A SPRINGTAIL (Podura aquatica) - MICHIGAN - Numerous in basements of houses in Livingston County. (Dowdy, March 25).

ANTS - MARYLAND - Winged forms of Acanthomyops spp. and Monomorium spp. swarmed out-of-doors on properties in Prince Georges County. (U. Md., Ent. Dept.). NORTH CAROLINA - Acanthomyops interjectus infested home in Wake County. (Wray). MICHIGAN - Inquiries indicate Formica sp. annoying to individual homeowners. (Dowdy, March 25).

SOUTHERN LYCTUS BEETLE (Lyctus planicollis) - UTAH - Damaged oak floors at Brigham City, Box Elder County, May 5, 1962. Det. by E. G. Gerberg. (Knowlton, Fullmer).

TERMITES - NEW JERSEY - Swarming of unspecified species reported from all sections of State. (Ins.-Dis. Newsltr.). PENNSYLVANIA - Reticulitermes flavipes noted in office building in Philadelphia. (Menusan, March 18). MARYLAND - Winged forms of Reticulitermes spp. noted in homes and buildings in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.). VIRGINIA - Winged forms of unspecified species reported from several locations. (Tarpley, et al.). ALABAMA - Populations of Reticulitermes spp. very heavy in wooded areas throughout Clay, Lee and Coosa

Counties. (Barwood). UTAH - Unspecified species infesting home at Harrisville, Weber County. (Knowlton).

CARPENTER ANTS (Camponotus spp.) - OKLAHOMA - Problem in several homes in Stillwater area, Payne County (north central). (Okla. Coop. Sur.). TEXAS - Infesting homes and causing concern to residents in Washington County. (Texas Coop. Rpt.; McClung).

STORED-PRODUCT INSECTS

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - TEXAS - Heavy, local infestation in stored milo in Mason County required treatment. (Garrett).

A DERMESTID BEETLE (Anthrenus sp.) - IDAHO - Scattered infestations noted in farm-stored grain at Arimo, Bannock County. (Brown).

CONFUSED FLOUR BEETLE (Tribolium confusum) - PENNSYLVANIA - Very abundant in mixed feed in barn in Youngsville, Warren County. (Adams, Mar. 19).

AN OSTOMATID BEETLE (Tenebroides sp.) - NEW MEXICO - Infestations medium to heavy in stored wheat and other grain bins in Clovis, Curry County. (N. M. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - Several species becoming more active in alfalfa and small grains throughout State. (Okla. Coop. Sur.). KANSAS - Occasional Hippodamia convergens noted on wheat and alfalfa in southern part of State. (Somsen, Peters). MICHIGAN - Adalia bipunctata adults active near hibernation quarters as temperatures rose to 60° F. and above near Lansing, Ingham County, March 24. (Dowdy). PENNSYLVANIA - Adalia bipunctata noted about window of home at State College, Centre County, March 22. (Adams).

GREEN LACEWINGS (Chrysopa spp.) - OKLAHOMA - Becoming more active in alfalfa and small grains over State. (Okla. Coop. Sur.). KANSAS - Adults occasionally noted in wheat and alfalfa in southern part of State. (Somsen, Peters).

DAMSEL BUGS (Nabis spp.) - OKLAHOMA - Becoming more active throughout State in small grains and alfalfa. (Okla. Coop. Sur.).

PARASITES AND PREDATORS - ARKANSAS - Populations of hymenopterous parasites increasing. Predator activity remains low. (Ark. Ins. Sur.).

LEAFCUTTING BEES (Megachile spp.) - ARIZONA - Annoying many rose growers at present time. (Ariz. Coop. Sur.).

MISCELLANEOUS INSECTS

A WEEVIL (Eucllyptus rutilus) - UTAH - Taken in Box Elder Canyon, Box Elder County, May 22, 1962. Det. by R. E. Warner. This is a new State record. (Knowlton).

A FLOWER FLY (Blera notata) - FLORIDA - Collected on firethorn (Pyracantha sp.) at Gainesville, Alachua County; previous collections made in Duval, Alachua and Gadsden Counties. (Weems, Mar. 24).

A NOCTUID MOTH (Amolita obliqua) - FLORIDA - Collected on house wall at Gainesville, Alachua County. (Esser, Mar. 20).

RED HARVESTER ANT (Pogonomyrmex barbatus) - OKLAHOMA - Activity continues to increase throughout southeastern and north central areas. (Okla. Coop. Sur.).

ADDITIONAL NOTES

MICHIGAN - Adults of CEREAL LEAF BEETLE (Oulema melanopa) found overwintering March 28 in folded leaves and straws at soil level, at bases of leaf sheaths of standing corn, in cracks of corn stubble, in rotting logs, in cracks in fence posts, and under loose bark of tree trunks and limbs. Many sites high and had not been covered with snow during winter. Survival seemed to be excellent in spite of severe winter. Many broken pieces of the beetle found in wetter sites. Nabids, carabids, centipedes and ants were common in these wet sites and may have preyed on hibernating beetles. Beetles became active when held in the hand for only a few minutes. Few moved out of cracks in which they had overwintered, but did not leave hibernation areas, during last week of March when maximum temperatures were above 60° F. No evidence of spring flight observed to March 29. (Ruppel).

NEW MEXICO - GREENBUG (Schizaphis graminum) - Light in barley fields in Roswell, Chaves County; ranged 2-4 per linear foot. Light infestation of BROWN WHEAT MITE (Petrobia latens) building up in wheat in Melrose, Curry County. CLOVER MITE (Bryobia praetiosa) medium to heavy in some alfalfa near Hatch, Dona Ana County. PEA APHID (Acyrtosiphon pisum) light in alfalfa near Las Cruces, Dona Ana County. (N. M. Coop. Rpt.).

LIGHT TRAP COLLECTIONS

Pseud. Agrot. Feltia Perid. Prod. Spodop. Heliothis
unip. ips. subterr. saucia ornith. exigua zea vires.

FLORIDA							
Gainesville 3/25	1		4		1		
Northeast Gainesville 3/25-28			62				
GEORGIA							
Tifton 3/21-27	No collections.						
MISSISSIPPI							
*Stoneville 3/22-28	78	13		53	14	5	3
SOUTH CAROLINA							
Charleston 3/25-31	6	2	6		2		
TEXAS							
*Brownsville 3/15-28	548	233	1968	622	98	1895	9

Additional Light Trap Collections

KANSAS, Manhattan (2/25-3/29) - Paleacrita vernata - Several males.

OREGON, Keizer (3/26-30) - Plutella maculipennis - Appearing.

TEXAS, Brownsville* (3/15-28) - Protoparce quinquemaculata - 24; P. sexta - 29;
Laphygma frugiperda - 267

* Two traps - Stoneville; 6 traps - Brownsville.

SUMMARY OF INSECT CONDITIONS - 1962
(continued from page 311)

FOREST AND SHADE TREE INSECTS

Highlights:

Unprecedented epidemics of BARK BEETLES in the Western and Southern States, coupled with widespread outbreaks of defoliators in many places throughout the country, marked 1962 as a high-water mark in forest insect damage in the United States in the past decade. Cyclonic winds which uprooted and snapped off many thousands of trees in the coniferous forests in coastal Oregon and Washington, and elsewhere in the West and South, portend additional serious epidemics of bark beetles in these areas unless the windthrown trees are quickly salvaged. Many other insects, such as WESTERN HEMLOCK LOOPER, PITCH PINE LOOPER (*Lambdina athasaria pellucidaria*), ELM SPANWORM, TENT CATERPILLARS, PINE SAWFLIES, CANKER-WORMS, ELM LEAF BEETLE, SMALLER EUROPEAN ELM BARK BEETLE, WEEVILS, SCALE INSECTS, LEAF MINERS and others that occurred in outbreak proportions at many places, also caused serious losses to forests and/or shade trees. Infestations of major significance are highlighted in the paragraphs to follow.

California's forests sustained greater damage from insects than at any time since the mid-1930's. The most serious problem was a WESTERN PINE BEETLE epidemic in ponderosa pine along the lower front of the Sierra Nevada. These infestations, extending from Placer County on the North to Kern County on the South, encompassed more than a million acres. Within this gross area, the beetles killed an estimated one billion board feet of timber. Public and private agencies attempted to control the epidemic. Bark beetles were also destructive in pine forests of Oregon and Washington. Western pine beetle developed to critical levels in southern Oregon, and the MOUNTAIN PINE BEETLE caused heavy tree losses along the Cascade Mountains of both States. The heavy windthrow in the coastal forests of Oregon and Washington resulting from the October 12, 1962, typhoon, and strong winds in later storms, will provide ideal breeding grounds for the DOUGLAS-FIR BEETLE; and epidemic losses are probable in 1963 and 1964 unless the downed material -- some ten to twelve billion board feet -- is quickly salvaged. Control of the bark beetles in Oregon and Washington is being attained as quickly as possible. The most important problem in Utah, Wyoming and Idaho was the extremely aggressive MOUNTAIN PINE BEETLE attack in stands of lodgepole pine. More than forty epidemics, ranging in size from a few to over 160,000 acres, occurred in these States, and upwards of 400,000 trees were killed. Damaging infestations of DOUGLAS-FIR BEETLE and ENGELMANN SPRUCE BEETLE were also evident in Utah, Wyoming and Idaho, and major campaigns were undertaken to suppress the latter species. The BLACK HILLS BEETLE killed large numbers of ponderosa pine along the Front Range in Colorado and at other places, including Wyoming and South Dakota. The ENGELMANN SPRUCE BEETLE was particularly serious in high elevation spruce stands in northern New Mexico and at one location in Colorado.

Virulent and large-scale outbreaks of the SOUTHERN PINE BEETLE dominated the forest insect scene in the South and Southeast. Epidemics were most severe in Alabama, Georgia, Mississippi, North and South Carolina and Texas. The epidemics in the latter State grew from a gross infested area of 600,000 acres at the end of 1961 to an estimated 4,500,000 acres by July 1962. In Alabama, new infestations killed approximately 50,000 trees. Similar losses occurred in Mississippi. Explosive populations in the Piedmont area of Georgia and the Carolinas killed more than a million trees. Federal, State and private agencies waged major campaigns against these epidemics.

Among the shade tree insects, ELM LEAF BEETLE was rated the most important. Heavy populations damaged elms in areas of Arizona, and a heavy outbreak occurred in Oklahoma for the fifth consecutive year. It was by far the most serious pest of shade trees in Missouri and Kansas during the year, and continued heavier than

normal and similar to previous years in Arkansas. The beetle caused extensive damage to elms in southeastern Nebraska and was responsible for heavy defoliation of elms in some Massachusetts towns. In addition, IMPORTED WILLOW LEAF BEETLE was again severe on many weeping willows in southern Maryland. Among the vectors of Dutch elm disease, SMALLER EUROPEAN ELM BARK BEETLE took on new significance in North Carolina during the year when the disease was diagnosed for the first time in Guilford County during mid-August. The disease was also recorded in several Kansas counties for the first time. NATIVE ELM BARK BEETLE was recorded for the first time during 1962 in Nebraska.

SPRUCE BUDWORM was prevalent in the forests of Utah, Wyoming and Idaho, and was epidemic on some two and one-half million acres of mixed-fir forests in Montana, and on approximately one million acres in northern New Mexico and southern Colorado. Spruce budworm remained serious in northern Minnesota and it worsened and spread in Maine. Aerial spraying for control of this pest was undertaken in areas of New Mexico, Colorado and Montana where tree killing was occurring or imminent; projects in 1962 totaled 982,000 acres, with excellent results in most areas. Spruce budworm, JACK-PINE BUDWORM and PINE TUSSOCK MOTH were sprayed by aircraft in Minnesota and Wisconsin. New infestations of pine tussock moth were discovered in Wisconsin; and jack-pine budworm was reduced by natural factors in most areas of Michigan and Wisconsin, by damaging infestations persisted in local areas. SPRING and FALL CANKERWORMS defoliated oaks and hickories in a number of Central and Northeastern States. A PITCH PINE LOOPER occurred in outbreak numbers in stands of pitch pine over much of Cape Cod. The GYPSY MOTH was abundant in the New England States, and was present outside the regulated area in Pennsylvania, New Jersey and New York.

Federal appropriations used to control forest insects on lands administered by Federal agencies, and for the Federal financial share of cooperative projects to suppress outbreaks on non-Federal lands in 1962 totaled \$5,756,000. The major projects, their locations by States, and the approximate expenditures are as follows:

Project	Location	Expenditure
Mountain pine beetle	Utah, Idaho and Wyoming	\$ 1,860,000
Southern pine beetle	South and Southeast	1,422,700
Engelmann spruce beetle	Rocky Mountains and New Mexico	710,600
Western pine beetle	California and Oregon	335,700
Black Hills beetle	Rocky Mountains, Wyoming and South Dakota	139,600
Black turpentine beetle	South and Southeast	99,000
Spruce budworm	Minnesota, Montana, Colorado, Washington and New Mexico	978,400
Jack-pine budworm	Michigan and Minnesota	63,400
Western hemlock looper	Oregon	46,500
Pine tussock moth	Wisconsin and Minnesota	41,200
Elm spanworm	North Carolina and Georgia	30,300
Miscellaneous bark beetles, weevils, shoot moths, sawflies, spittlebugs and others	Countrywide	28,600
Total.....		\$ 5,756,000

WESTERN PINE BEETLE (Dendroctonus brevicomis) losses increased in mature ponderosa pine stands in eastern and southern OREGON, particularly on the Ochoco, Fremont, Malheur and Deschutes National Forests. The trend of losses in that State is strongly upward. Typhoon Frieda left millions of feet of ponderosa pine blown down in southern Oregon forests and this may further prolong the current outbreaks. Some chemical controls may be needed in 1963. In WASHINGTON, losses by this beetle were generally lighter and less extensive in ponderosa pine forests. The trend is static to downward in Washington. Tree killing by western pine beetle was light in the northern half of CALIFORNIA. In the central and southern Sierra Nevada, ponderosa pine losses in the lower elevation stands continue, with 1962 losses estimated at about one million board feet. The epidemic has spread eastward to higher elevations and into better timber-growing sites in California. This outbreak was designated "The Mother Lode Infestation" by the California Forest Pest Control Action Council, and a special committee formed to expedite suppression action. Infested trees are being logged and direct control applied on selected areas. In southern California, unprotected Coulter and ponderosa pines showed a sharp increase in damage since 1961.

ALASKA SPRUCE BEETLE (Dendroctonus borealis) populations increased in ALASKA several-fold in 1962 and caused moderate damage to spruce stands on the Kenai Peninsula and in the Copper River area. The rate of tree killing was below epidemic proportions, but the upward trend of populations portends more serious losses in 1963. An infestation of ROUNDHEADED PINE BEETLE (Dendroctonus convexifrons) in ponderosa pine in the vicinity of Bonito Lake, Lincoln National Forest, NEW MEXICO, continued at a high level.

Tree killing by ENGELMANN SPRUCE BEETLE (Dendroctonus engelmanni) was below normal in 1962 in OREGON and WASHINGTON. In Oregon, the principal infestations were centered on the Umatilla, Wallowa-Whitman and Willamette National Forests. The majority of damage in Washington occurred on the Umatilla National Forest. The trend of infestations in both States is upward. Direct control is not necessary in 1963; however, currently infested trees should be logged in accessible areas. Heavily infested areas should be clear-cut. For the first time in many years, there were no serious infestations of Engelmann spruce beetle reported in the northern Rocky Mountains. Engelmann spruce trees blown down by strong winds in the South Fork Flathead River Drainage, MONTANA, were readily attacked, but they were promptly salvaged and a possible outbreak was thus averted. An infestation on the Dixie National Forest, UTAH, was detected during the fall months and logging began. Only cleanup should be needed in 1963. Another infestation in the Upper Green River area, Bridger National Forest, WYOMING, has been active for a number of years, and an all-out suppression effort was directed against the infestation in 1962. For the last three years, there has been a slow but steady increase in Engelmann spruce beetle activity on the Teton National Forest, Wyoming; Fishlake National Forest, Utah; and Payette National Forest, IDAHO.

Engelmann spruce beetle was less of a problem in the central Rocky Mountains than in 1961. However, infestations of significance occurred at two locations, and each will need to be suppressed to prevent intensification of tree killing and spread. The most serious problem was on the San Juan National Forest, south of Rico, COLORADO. There, several thousand overmature spruce trees were blown down by strong winds in October of 1961. These downed trees have since become infested and the emerging population poses a threat to standing green trees. The infestation on the San Juan and Rio Grande National Forests, in the vicinity of Wolf Creek Pass, southern Colorado, remained at a high level. Two major Engelmann spruce beetle outbreaks which have developed during the past several years continued in mature and overmature spruce stands in northern NEW MEXICO. Four new outbreak centers were noted in 1962 on the Carson and Santa Fe National Forests of New Mexico. Also, a new center of beetle activity was noted on the Coconino National Forest near Flagstaff, ARIZONA.

The SOUTHERN PINE BEETLE (Dendroctonus frontalis) epidemic in east TEXAS grew from 600,000 acres at the end of 1961 to an estimated 4,500,000 acres by mid-June 1962. Approximately 20,000 acres of timber had been killed. During the latter part of July, there was a noticeable decline in spread of the beetle in this area of Texas, possibly due to unusually high temperatures or to predation by mites. Aerial and ground observations during November showed a continued decline in beetle populations. Southern pine beetle activity continued in southwestern MISSISSIPPI. Aerial survey of the Homochitto National Forest in July revealed that the number of beetle spots had increased from 14 to 61, and the number of trees per spot from 3.1 to 6.2 since April. In ALABAMA, southern pine beetle infestations were centered on the Talladega National Forest. Aerial surveys in September revealed approximately 50,000 infested trees.

Southern pine beetle continued at epidemic levels during 1962 on National Forests and private lands in portions of north GEORGIA. Since mid-March, the Georgia Forestry Commission removed and treated approximately 400,000 infested trees. Through prompt and aggressive action, the Commission reduced the beetle below epidemic proportions in 20 of 26 counties designated as critical. A stepped-up control program during the winter months (1962-63) is being stressed, with the objective of removing all known infested trees before beetle emergence in the early spring. A control program is also active on the Chattahoochee National Forest of Georgia. Southern pine beetle was the most destructive forest insect reported in SOUTH CAROLINA during 1962. Outbreaks were detected over a 19-county area in the upper Piedmont section, with an estimated 346,000 trees infested. Heaviest infestations occur in Fairfield, Lancaster, Newberry, Spartanburg, Union and York Counties. Large-scale control efforts have been in progress since 1959 and have prevented greater losses. Control programs are also active on the Sumter and Francis Marion National Forests of South Carolina.

Southern pine beetle severely damaged pines in NORTH CAROLINA, with outbreaks centered in two areas; one in vicinity of Charlotte, including Gaston, Mecklenburg and Union Counties, and the other near Lexington, including Davidson, Davie and Rowan Counties. The northern boundary of the latter area was not well defined by the aerial survey early in October. However, one 18-square-mile area was spotted in Yadkin County, and small scattered areas of infestation were observed in Forsyth, Guilford and Stokes Counties. An estimated 200,000 infested trees were found in the first seven mentioned North Carolina counties. In VIRGINIA, scattered infestations of southern pine beetle developed late in the summer in the Piedmont area. On the Eastern Shore of Virginia, populations were negligible where they had been significant for the past few years. Quick salvage of killed and dying trees was undertaken by the State. Follow-up aerial surveys were planned, with emphasis on salvage cuttings to bring the infestation under control. The number of active spots by counties (August 1962 to February 1963) was 119 in Cumberland, 34 in Fluvanna, 36 in Prince Edward, 14 in Buckingham, 34 in Charlotte, 106 in Powhatan, 62 in Goochland, 1 in Northampton and 38 in Accomack. The outbreak in 1962 killed 1,200 acres of pines in six central counties.

JEFFREY PINE BEETLE (Dendroctonus jeffreyi) damage remained low in northern CALIFORNIA, but significant Jeffrey pine tree killing in southern California occurred at four locations in San Bernardino County.

MOUNTAIN PINE BEETLE (Dendroctonus monticolae) continued to cause very high losses to western white pine, lodgepole pine and young ponderosa pine in OREGON and WASHINGTON, but the total infested acreage decreased slightly. The majority of losses in western white pine stands were centered on the Gifford Pinchot National Forest in Washington and on the Mt. Hood National Forest in Oregon. Aggressive logging operations to salvage infested trees were undertaken on heavily affected areas on the Mt. Hood National Forest. Similar operations will be started in 1963 on the Gifford Pinchot National Forest. The largest outbreaks in lodgepole pine stands occurred on the Winema, Fremont and Deschutes National Forests in Oregon and on the Colville National Forest in Washington. Attacks

in stagnated pole-size ponderosa pine stands decreased in Oregon and remained static in Washington. Maintenance control was carried on against this beetle in lodgepole pine stands in Crater Lake National Park, Oregon. Outbreaks of mountain pine beetle in CALIFORNIA were confined to the northeastern area and to the lower elevation stands in the central and southern Sierra Nevada. An outbreak in young-growth sugar and ponderosa pine in Mariposa and Madera Counties increased sharply, and tree killing in 1962 on 10,800 acres was estimated at 53,000 trees and six million board feet.

The mountain pine beetle has caused serious losses in overmature stands of western white pine in northern IDAHO for many years. Chronic infestations persist on portions of the Kaniksu, Clearwater, St. Joe and Coeur d'Alene National Forests where from two to five percent of the trees are killed annually. The most serious infestation in 1962 occurred within about 2,000 acres in the Priest River Drainage, near the Canadian border. Salvage of the infested trees is being encouraged as a method of control. Infestations in ponderosa pine were reported only from one area in the northern Rocky Mountains -- 10 miles southwest of Craigmont, Idaho. At that location, pole-size trees were lightly attacked on some 400 acres. Beetle populations increased slightly within the isolated stands of lodgepole pine in the northern part of Glacier National Park, MONTANA. This infestation was first discovered in 1950, and has fluctuated from year to year. Direct control has not been considered feasible.

In general, the mountain pine beetle was extremely aggressive throughout the lodgepole pine forests in the Intermountain States. Control projects significantly reduced the number of infested trees, in spite of the fact that the beetles had a tendency to more than double their own number. Control work will need to be continued to reduce further wholesale tree killing over extensive areas. There were three major control projects in 1962 -- on the Washatch National Forest, UTAH; Teton National Forest, WYOMING; and Targhee National Forest, IDAHO. State, private and Federal land managers are cooperating to suppress a relatively new outbreak in lodgepole pine near McCall, Idaho. Over 1.5 million board feet of infested trees were logged on and near the Targhee National Forest. In addition, nearly fifteen million board feet of infested timber were sold and will be logged early in 1963. Near Dubois, WYOMING, mountain pine beetle remained a serious problem in stands of lodgepole pine; approximately 19,000 trees were killed. Plans are being made to suppress the outbreak.

Five outbreaks of BLACK HILLS BEETLE (Dendroctonus ponderosae) occurred in stands of ponderosa pine in the central Rocky Mountains. On the Pike National Forest, near Lake George, COLORADO, approximately 96,120 trees were killed on 38,160 acres. In the northern Black Hills, near Deadwood, SOUTH DAKOTA, some 20,680 trees were killed -- an increase over infestations in that area in 1961. Populations remained high in the Bighorn Mountains in WYOMING; in the north Powderhorn area, near Gunnison, Colorado; and in an area southwest of Pueblo, Colorado. Federal and State agencies plan to suppress the outbreaks in all affected areas of central Rocky Mountains. On the Mountainair District, Cibola National Forest, NEW MEXICO, an aggressive infestation of Black Hills beetle has attacked most of the remaining limber pine. No control is planned unless the beetle attacks ponderosa pine at lower elevations in the area.

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) outbreaks declined in both OREGON and WASHINGTON in 1962. In Washington, the largest remaining infestations are on the Okanogan and Colville National Forests and on the Colville Indian Reservation. In Oregon, the heaviest and most extensive losses occurred on the Willowa-Whitman and Umatilla National Forests. The damage trend is downward in Washington and varies with the locality in Oregon. Salvage of the extensive windthrow left in the wake of the October 12 storm is a must to minimize population increases that may result in extensive tree killing in 1964. Little tree killing was reported in CALIFORNIA. One small infestation in Shasta County

was suppressed by logging the infested trees. In the northern Rocky Mountains, the level of losses sustained in Douglas-fir stands in 1962 point to the beginning of a new outbreak. Long-term records indicate that outbreaks seem to occur at intervals of five to seven years. In MONTANA, an increased rate of tree killing occurred on the Deerlodge National Forest, near Wise River; on the Seeley Lake Ranger District, Lolo National Forest; and along the Thompson River and Fisher River Valleys. In IDAHO, small groups of infested trees also were reported from the Clark Fork and Pend Oreille River Valleys, and on the Powell Ranger District, Clearwater National Forest. Infested trees will be logged from all affected areas of the northern Rocky Mountains where sales can be made.

In the Intermountain States, damage caused by the Douglas-fir beetle was heaviest on the National Forests of southern UTAH and southern IDAHO. Douglas-fir stands on the Dixie National Forest, Utah, and Sawtooth National Forest, Idaho, were particularly hard hit. Tree killing in most areas of the Intermountain States is expected to continue at the same high level in 1963. On the Sublette Division, Sawtooth National Forest, a large commercial sale is in operation, with the intent of salvaging infested trees and utilizing the host material. Douglas-fir beetle infestations were at low endemic levels in all but one location in stands of Douglas-fir in the central Rocky Mountains. The single exception was an outbreak in the north Powderhorn area, southwest of Gunnison, COLORADO, where some 5,560 trees were killed. Douglas-fir beetle persisted in damaging numbers throughout stands of Douglas-fir in ARIZONA and NEW MEXICO. Tree killing was most serious on portions of the Santa Fe and Cibola National Forests, New Mexico, and the Kaibab National Forest, Arizona. An infestation of consequence also was reported on the Mt. Graham Recreational area, Coronado National Forest, Arizona. To the extent possible, killed trees were logged as a means of control.

BLACK TURPENTINE BEETLE (*Dendroctonus terebrans*) was found at several locations in the Central States in and adjacent to stands cut or thinned. Light to moderate damage was reported in thinned and fire-damaged stands of shortleaf pines in south central MISSOURI. In the naval stores area of north FLORIDA, south GEORGIA and MISSISSIPPI, black turpentine beetle was on the increase in 1962. The loss was reported the greatest since the drought of the 1950's in the Georgia-Florida area. Unless climatic and environmental factors change drastically during the winter, a continued upward trend in population density is expected. In the remaining portion of the Southern States, this pest was at a relatively low level through July, with some general increase in activity during the latter part of the season. The black turpentine beetle causes extensive losses throughout the pine belt of the Southern States each year.

RED TURPENTINE BEETLE (*Dendroctonus valens*) infestations were abundant in most commercial pine stands in CALIFORNIA, but tree killing was restricted to a few infestations. An aggressive outbreak developed in fire-damaged ponderosa pine at Browns Flat, Los Angeles County. This bark beetle, normally a minor pest in the northern Rocky Mountains, was abundant and destructive in 1962. In stands of ponderosa pine that had been thinned and pruned in eastern MONTANA, as much as 75 percent of the residual trees was attacked. The full circumference of the lower boles, often up to four feet from the ground, were heavily infested. Damage was most pronounced in thinned stands on the Northern Cheyenne Indian Reservation. Another seriously affected area was in the Long River Area, Custer National Forest. Control of the infestations was attempted by spraying the lower boles. In MICHIGAN, red turpentine beetle was reported damaging the residual stand in a thinning area of the St. Ignace District, Hiawatha National Forest.

An OREGON PINE IPS (*Ips oregonis*) increased in OREGON on young ponderosa pine sapling stands, particularly on the Wallowa-Whitman, Malheur and Umatilla National Forests. Outbreaks of this species in WASHINGTON decreased. Damage to ponderosa pine by Ips spp. decreased sharply in CALIFORNIA, particularly in

the central and southern Sierra Nevada and in southern California. In this State, the decline is believed due to heavy late winter and early spring precipitation and to cool weather during the late spring and early summer. There was a noticeable decline in the rate of tree killing by I. oregonis throughout the stands of ponderosa pine in north IDAHO and MONTANA. The beetles were abundant, however, in slash in stands thinned from May through July, particularly on the Northern Cheyenne Indian Reservation, Montana. The slash in this area was treated. Another species of ips, I. ponderosae, often associated with I. oregonis in affected areas of northern Idaho and Montana, also was abundant in pine slash. Tree killing, however, was not severe. Ips spp. were active in local areas of pinyon pine in eastern UTAH and ponderosa pine in southern IDAHO. In the Black Hills of SOUTH DAKOTA and WYOMING, I. oregonis populations declined sharply. The decline is attributed to above average precipitation in 1962, the second wettest year on record. Little or no damage is predicted for 1963 in this area. Ips lecontei heavily damaged ponderosa pines locally on the Prescott National Forest, ARIZONA.

A CALIFORNIA FIVE-SPINED IPS (Ips confusus) infestation on pinyon pine near Walnut Canyon National Monument, ARIZONA, decreased and no longer poses a threat to pinyon stands in the Monument. The infestation originated in cabled pinyon pine in 1960. No newly infested trees were found in the area in 1962. About 20 trees were attacked by this ips around the perimeter of the piled pinyon debris from a road improvement project at Grand Canyon National Monument, Arizona.

A severe infestation of PINE ENGRAVER (Ips pini) was reported in a portion of the Hiawatha National Forest, MICHIGAN, where pulpwood was cut the previous winter and left in piles along the roads over the summer. Similar conditions were observed on a portion of the Lower Michigan National Forest. Scattered trees were killed in a thinned red pine plantation near Brownstown, INDIANA, and many shortleaf pines were killed in and adjacent to a burned area south of Salem, MISSOURI. An unidentified species of ips was reported as damaging to young red pines on the Cadillac District of the Lower Michigan National Forest.

IPS (Ips spp.) activity increased during the summer in the Southern States, and populations were very aggressive in portions of TEXAS, ARKANSAS, LOUISIANA, MISSISSIPPI and ALABAMA. Attacks were found to precede southern pine beetle activity on the Texas National Forest by as much as two weeks. In Louisiana, bark beetles, especially I. avulsus and black turpentine beetle, infested and killed pines in many localized areas over the pine-growing areas of the State. Trees struck by lightning and drought contributed materially to the spread of these infestations in Louisiana. In FLORIDA, there were no reports of unusual ips activity in the State, although scattered, localized populations are still at higher-than-normal levels as a result of the damage from Hurricane Donna and recent wildfires. Ips activity in GEORGIA was scattered and localized. In NORTH and SOUTH CAROLINA, I. calligraphus and I. avulsus were commonly associated in trees attacked by southern pine beetle and black turpentine beetle. Ips build-up was particularly noticeable along the southern boundary of the southern pine beetle outbreak areas in the Piedmont section of the Carolinas.

CEDAR BARK BEETLE (Phloeosinus squamosus) infestations recurred in scrub stands of Alaska cedar on Prince of Wales, Baranof and Kupreanof Islands, ALASKA. In all cases, tree killing was confined to stands growing on poor sites. CEDAR BARK BEETLES (Phloeosinus spp.) generally built up in incense cedar at lower elevations in the Sierra Nevada of CALIFORNIA. The apparent cause of the buildup was a persistent drought condition that weakened the trees. In many cases, drought is believed to be the direct cause of cedar mortality. Another BARK BEETLE (Myeloborus sp.) killed twigs of white pine in Washington County, RHODE ISLAND, during 1962. Galleries contained pupae and/or adults on August 7.

The acreage of FIR ENGRAVER (Scolytus ventralis) infestations in OREGON and WASHINGTON doubled during 1962. The largest increases occurred in Oregon on The Umatilla, Fremont, Wallowa-Whitman and Ochoco National Forests. Buildups

also occurred on the Snoqualmie and Umatilla National Forests in Washington. Much of the mortality was in low value, overmature and decadent true fir stands; however, some occurred in apparently thrifty young stands and, in some places, wiped out Christmas tree values. Outbreaks generally build up during drought periods and subside quickly when moisture conditions return to normal. Fir engraver continued to kill large numbers of red and white fir in all but the north coastal section of CALIFORNIA. Infestations were probably the heaviest in years. Tree mortality again was most severe in the Warner Mountains, Modoc County, in Lassen County, and throughout much of the central and southern Sierra Nevada. Sanitation and salvage logging have been used to aid in reducing infestations and restricting spread. In northern IDAHO, large populations developed in stands of grand and subalpine fir during the long, dry summer of 1961. The results of the population buildup were clearly evident in 1962 when severe fir engraver infestations were noted in several areas. The heaviest infestation, encompassing some 116,000 acres, extended south from Dent on the North Fork, Clearwater River, to the Middle Fork and east from Orofino to Pierce. Severe tree killing also occurred on approximately 51,000 acres of the St. Joe National Forest in Idaho. Moderate infestations were reported on some 9,000 acres south of Winchester on the Salmon River, and light infestations occurred on 4,600 acres of the Coeur d'Alene and Nezperce National Forests, Idaho. The heaviest damage in MONTANA occurred on about 2,000 acres east of Big Fork. A persistent infestation of fir engraver in stands of white fir on Sandia Mountain, Cibola National Forest, NEW MEXICO, began a natural decline in 1960. The downward trend continued in 1961 and 1962. An infestation discovered on the Rim Unit of the Coconino National Forest, ARIZONA, in 1961 remained active.

Fir engraver and WESTERN BALSAM BARK BEETLE (Dryocoetes confusus) have killed many thousands of true fir trees throughout the Intermountain States during the past few years. Infestations vary from a few acres in size to hundreds of acres. The majority of the affected stands are in rather inaccessible areas and have relatively low economic value. Thus, control of infestations is rarely undertaken except in high value recreation areas. Western balsam bark beetle was endemic during 1962 in COLORADO and WYOMING. The rate of tree killing by this bark beetle remained high in stands of corkbark and alpine fir in NEW MEXICO. Tree mortality increased on the Santa Fe National Forest, and was particularly severe on about 40,000 acres near Red River in Carson National Forest.

A few outbreaks of DOUGLAS-FIR ENGRAVER (Scolytus unispinosus) that were of minor importance occurred on the drier sites on the Colville and Kaniksus National Forests in WASHINGTON and on the Mt. Hood National Forest in OREGON. The trend of damage is downward. No control is needed in 1963. In MONTANA, two outbreaks were discovered in 1962. West of Ravalli, the engraver killed groups of pole-size trees, from 20 to 100 trees per group, throughout some 1,800 acres. Within the Mormon Creek Drainage, the beetle killed more than 1,600 pole-size trees on about 600 acres.

COLUMBIAN TIMBER BEETLE (Corthylus columbianus) populations in INDIANA were at the lowest densities in many areas of the State since 1954.

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus), which was reported for the first time in NORTH CAROLINA during 1946 from Davidson and Martin Counties, took on new significance during 1962 as a potential vector of Dutch elm disease, when the disease was found for the first time in the State during mid-August in Greensboro, Guilford County. This vector of Dutch elm disease continued to be important in the northern portion of INDIANA where the disease is important. Adults of smaller European elm bark beetle began emerging about May 15 in southeastern WISCONSIN, but populations had subsided by mid-June. A total of 7,196 cases of Dutch elm disease was confirmed in the State during the season; a total of 24 counties and 201 municipalities presently have confirmed cases of the disease. During the 1962 season, Dutch elm disease was reported for the first time in Brown, Grant, Iowa, Sauk and Waushara Counties. Two cases of Dutch elm disease were diagnosed in MINNESOTA during 1962, both in the Monticello area, Wright County, about 40 miles northwest of the Twin Cities. Smaller

European elm bark beetle was located in Dakota, Faribault, Fillmore, Freeborn, Goodhue, Hennepin, Mower, Olmsted and Washington Counties for the first time during 1962. The area in which this beetle is present now includes virtually the entire southeastern section of Minnesota northward to Washington and Hennepin Counties and westward to Faribault and Blue Earth Counties. This bark beetle was found in very high numbers throughout St. Paul, creating the possibility of rapid spread of Dutch elm disease in that city.

Smaller European elm bark beetle was reported only once in SOUTH DAKOTA during 1962. Adult and larval stages were found in a sample of dead wood from a hackberry tree in Sioux Falls, Minnehaha County. Dutch elm disease is not known in South Dakota. Although this bark beetle has been present throughout the eastern two-thirds of KANSAS for over 10 years, the 1962 season was notable for the rapid spread of Dutch elm disease, which was reported for the first time from Wichita in Sedgwick County, Junction City in Geary County, and in Brown and Jackson Counties in July. Smaller European elm bark beetle infested elm trees in COLORADO and continued to damage and cause death of elms at several locations in CALIFORNIA. In areas of California where control was applied, populations of this beetle were reduced to the extent that only an occasional light infestation could be found.

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) was recorded for the first time in NEBRASKA during 1962, when it was noted feeding on American elm in Seward County. Adults began emerging about mid-May in WISCONSIN, but populations had subsided by mid-June.

CALIFORNIA FLATHEADED BORER (Melanophila californica) - In southern CALIFORNIA, tree mortality was down from the peak epidemic years of 1957-1959, but significant Jeffrey pine tree killing continued in some of the recreation areas of San Diego, Riverside and Kern Counties. Infestations of California flatheaded borer in ponderosa pine in Modoc and Lassen Counties, and in the southern half of the Sierra Nevada showed some increase. Infestations in individual ponderosa pines were often associated with activities of the western pine beetle. FLATHEADED FIR BORER (M. drummondi) caused group killing in scattered Douglas-fir stands of the central Sierra Nevada.

SUGAR-PINE CONE BEETLE (Conophthorus lambertianae) caused light losses of an excellent sugar pine cone crop in CALIFORNIA, and WHITE-PINE CONE BEETLE (C. coniperda) was abundant in central MAINE where aborted cones were numerous on the ground beneath trees. SILVER-FIR BEETLES (Pseudohylesinus spp.) losses were very light in Pacific silver fir stands in OREGON and WASHINGTON.

FLATHEADED APPLE TREE BORER (Chrysothris femorata) caused, or was a contributing factor to, the death of several thousand elm trees along a creek in Haakon County, SOUTH DAKOTA. It is believed that the borers finished what the drought of previous years had failed to do. Severe injury by BRONZE BIRCH BORER (Agrilus anxius) was noted on several trees in a nursery in New Castle County, DELAWARE. Another BUPRESTID (Brachys ovatus) caused extensive browning to oaks in the Rumford region of Oxford County, MAINE.

TWIG GIRDLER (Oncideres cingulata) damaged oak, hickory and pecan shade trees in some localities of VIRGINIA and elms in localities over KANSAS. First twig girdler damage of the 1962 season in OKLAHOMA was reported in late September and continued into early November, being most common in the eastern half of the State. TWIG PRUNER (Elaphidion villosum) damaged oaks in MISSOURI. Twig pruner was very common on roadside oaks in Providence, Kent and Washington Counties, RHODE ISLAND, being first noted June 19. LOCUST BORER (Megacyllene robiniae) was reported damaging in many localities in eastern areas of WASHINGTON during the season. Locust borer was also damaging at several locations on the Wayne-Hoosier National Forest in OHIO and INDIANA, and in an area near Jonesboro, ILLINOIS. A ROUNDHEADED BORER (Tetropium velutinum) attacked weakened, overmature larch at two locations

in MONTANA -- in the South Fork Flathead River area and the Mormon Creek Drainage, Lolo National Forest. COTTONWOOD BORER (Plectrodera scalator) continued to infest willow, cottonwood and poplar over LOUISIANA. Some young cottonwood plantations had about 10 percent breakage by this species. In TEXAS, a CERAMBYCID BEETLE (Neoclytus sp.) caused concern in some central counties by attacking mesquite trees, and several other species of cerambycid beetles damaged various shade trees in most areas.

Infestations of ELM LEAF BEETLE (Galerucella xanthomelaena) on elms in CALIFORNIA were variable from Fresno County north during the 1962 season. The species was a general pest and required considerable control, as elm is a popular street and yard tree in the State. Elm leaf beetle was found for the first time in Lincoln County, NEVADA, where it caused only light damage, and in the St. George area of Washington County, UTAH, for new county records in those States. Heavy populations of this leaf beetle damaged elms in some areas of ARIZONA from May throughout the summer and fall months of 1962. Elm leaf beetle was found defoliating Chinese elms in Quay, Bernalillo and Santa Fe Counties, NEW MEXICO, the collection at Tucumcari, Quay County, being the first collection in the State. The species also infested elms in COLORADO during the season.

Elm leaf beetle caused moderate to severe damage to elm trees in northwest TEXAS during the 1962 season, and a heavy outbreak occurred in OKLAHOMA for the fifth consecutive year, causing heavy defoliation throughout the State. First migration from hibernation quarters began in late February in Oklahoma, but general feeding and egg laying did not begin until about May 1. Destructive activity was reported in Oklahoma into early September. Elm leaf beetle infestations continued heavier than normal and similar to those present the previous year in ARKANSAS; and the species was by far the most serious pest of shade trees in MISSOURI, with defoliation of elms observed in areas throughout the State. Elm leaf beetle was also the most serious problem on shade trees in KANSAS. Various stages of development were reported for the first time in Ellis, Ellsworth, Lane, McPherson, Marshall, Pawnee, Rice, Russell, Saline, Scott, Stafford and Trego Counties during 1962, and typical injury was found on trees in several other counties during the season. Injury was nearly insignificant throughout the first and second generations in Kansas, but in late July through August and into September, injury was severe. Elm leaf beetle caused extensive damage to elm trees in southeastern NEBRASKA. The first elm leaf beetle larvae of the season in ILLINOIS were observed in Champaign County on May 17. The pest was abundant throughout the southern two-thirds of the State and caused severe browning of Chinese elm trees. Elm leaf beetle was extremely abundant on Chinese elms in the greater Lafayette area of Tippecanoe County, INDIANA, during 1962, and many complaints of damage and requests for control recommendations were received during the month of August.

Elm leaf beetle infestations were more general in GEORGIA during 1962 with many elm trees being defoliated, but the pest caused only local damage in VIRGINIA.

Adult elm leaf beetle feeding was evident by May 25 in RHODE ISLAND. Infestations were especially heavy and general in the East Greenwich area of Kent County, but varied from tree to tree elsewhere in the State. Elm leaf beetle caused heavy defoliation in some MASSACHUSETTS towns, and light to very heavy defoliation in many communities in the lower two-thirds of VERMONT. Elm leaf beetle populations were moderately heavy in NEW HAMPSHIRE, particularly during the first-brood period, and began appearing about May 17 in southern MAINE, being abundant and locally active on that date.

Adults of LARGER ELM LEAF BEETLE (Monocesta coryli) were first submitted for determination in NORTH CAROLINA from Cabarrus County in mid-July, and were subsequently received up to the last of August from Cumberland, Chatham, Guilford, Iredell and Orange Counties. This species attracted more attention in North Carolina than elm leaf beetle because of its size and the lack of familiarity by

the public. In SOUTH CAROLINA, 1962 was the second year of heavy infestations of larger elm leaf beetle on American elms in counties adjacent to Union County.

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) was severe again on many weeping willows in the southern area of MARYLAND, and adults appeared in late May in RHODE ISLAND, with infestations present statewide throughout the 1962 season. Imported willow leaf beetle was common in the Brunswick area of Cumberland County, MAINE.

Also in Maine, ELM FLEA BEETLE (Altica ulmi) began appearing about May 17 in the southern portion of the State, being locally abundant and active on that date. There was some confusion as to the damage this pest caused in Maine during 1962. A complex of LEAF BEETLES (Chrysomelina scripta complex) defoliated dooryard willow trees in Houston, Harris County, TEXAS.

Damage caused by WHITE-PINE WEEVIL (Pissodes strobi) was extensive in pine plantations in Upper and Lower MICHIGAN. White pine, red pine, Jack pine and white spruce were affected, with an increase in the weeviling of leaders at several locations. A total of 436 acres of State land was treated. Damage to host trees was less noticeable in WISCONSIN and MINNESOTA. Infestations in the latter States were spotty and populations were at lower levels than in 1961. White-pine weevil continued to be the major insect pest of white pine in the Northeast and is fairly well distributed throughout the range of its host tree. Reports indicate a general increase in weeviling throughout the Northeast. Suppression with ground equipment was carried out on only a few hundred acres, mostly in PENNSYLVANIA and NEW YORK. Heavy populations and damage were observed throughout Androscoggin and Sagadahoc Counties, MAINE, on white pine, and the weevil was somewhat more abundant in NEW HAMPSHIRE than in 1961. In RHODE ISLAND, numerous adults were present on hosts in Kingston, Washington County, May 10. An average amount of damage showed statewide in Rhode Island by midsummer.

A WEEVIL, tentatively identified as DEODAR WEEVIL (Pissodes nemorensis), was reported damaging slash and longleaf pine stands in GEORGIA in Tift, Crisp, Wilcox and Coffee Counties. Young trees were most commonly attacked, but infestations in mature stands were not uncommon. Deodar weevil was also reported infesting young loblolly pine plantations near Aimwell, LOUISIANA. Trees were girdled by larval feeding in the inner bark near the ground level. Similar damage was reported in several areas in northern Louisiana. In INDIANA, P. approximatus was discovered killing two and three-year-old pine transplants in Jefferson County. The larvae fed beneath the bark above the soil line and girdled the plant. Pupation occurred in June within the typical "chip" cocoon. In MONTANA, P. curriei attacked root collars of small western white pines in Glacier National Park.

PALES WEEVIL (Hylobius pales) was reported active in recently cut pine areas throughout ARKANSAS, and damage was reported on 3,000 acres of one to four-year-old pines in late November near Bolton, NORTH CAROLINA. Pales weevil was quite common throughout the Northeast, with damage restricted to planted pine. Considerable damage to natural pine seedlings and in Christmas tree plantings was reported from southern PENNSYLVANIA. Newly planted loblolly pine on the Pocomoke State Forest in MARYLAND was heavily attacked, but natural reproduction was only slightly damaged. Severe mortality also occurred on 70 acres of planted white pine in Floyd County, VIRGINIA. PINE ROOT COLLAR WEEVIL (H. radialis) infestations were rather general on lighter soils in northwestern Lower MICHIGAN in Scotch, red and jack pine plantations. This species is one of the most important conifer pests in the State.

A PINE REPRODUCTION WEEVIL (Cylindrocopturus eatoni) continued to kill ponderosa pines in plantations and in natural reproduction throughout the low elevation central Sierra Nevada pine type in CALIFORNIA. The heaviest damage occurred in Tuolumne County.

An unusual outbreak of a LEAF-MINING WEEVIL (Prionomerus calceatus) occurred in central and southeastern KENTUCKY on yellow-poplar. Damage was attributed to both larval and adult feeding. A drought following this infestation caused considerable damage to weakened trees. Surveys to determine the limits and intensity of this infestation will be carried out in 1963.

A TWIG BEETLE (Pityophthorus pseudotsugae) was responsible for killing a stand of young red fir in Siskiyou County, CALIFORNIA, that had been thinned to promote Christmas tree production. This twig beetle also was found to have damaged white fir young-growth in several localized areas of northern California.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) larvae severely damaged evergreen seedlings in MONTANA State Forest Nursery in Missoula, Missoula County. POPLAR-AND-WILLOW BORER (Sternochetus lapathi) was reported as damaging in eastern localities of WASHINGTON during 1962, and feeding damage by RED ELM BARK BEETLE (Magdalis armicollis) occurred on elms in Richardson County, NEBRASKA. A JAPANESE WEEVIL (Pseudocneorhinus bifasciatus) caused occasional, local damage in VIRGINIA during the season.

PINE CHAFER (Anomala obliqua) built up rapidly in Montmorency County, MICHIGAN, where heavy defoliation occurred on jack and red pines. Infestations continued spotty in northwestern Lower Michigan. Two SCARABS (Dichelonyx crotchii and D. vicina) destroyed 90 percent of the new cones on individual ponderosa pines in the Poison Lake Seed Production Area of Lassen County, CALIFORNIA. This was the first time these insects have been known to cause serious cone damage. JAPANESE BEETLE (Popillia japonica) caused heavy defoliation of roadside trees in most of VIRGINIA and eastern WEST VIRGINIA. Adults of a MAY BEETLE (Phyllophaga koehleriana) caused considerable damage to trees in Cimarron County, OKLAHOMA.

LOCUST LEAF MINER (Xenochalepus dorsalis) was abundant in Mason County and portions of McLean County, ILLINOIS, and was reported for the first time in Fulton and Sangamon Counties during 1962. Locust leaf miner damaged black locust foliage in several areas of INDIANA, mining of leaflets causing foliage to turn brown as if scorched by fire. Infestations were reported heavy throughout most of OHIO. Locust leaf miner was common especially around Augusta and Loudoun Counties, VIRGINIA, and caused noticeable foliage injury to black locust in most sections of MARYLAND during the season. This pest was fairly abundant on honeylocust and honeylocust hybrids in PENNSYLVANIA and, although sometimes abundant in RHODE ISLAND, it was rare during the season, with only one adult being seen.

Needle feeding on seedling and sapling slash pine by adults of PINE COLASPIS (Maecolaspis pini) was more widespread and intense during 1962 in the Southeast than in the past several years. Peak feeding and damage occurred about June 18. The infestation extended from Bartow, FLORIDA, north to Savannah, GEORGIA, and west to Marianna, Florida. In LOUISIANA, pine colaspis defoliated many small pine plantings in the south and central areas of the State. Leaf feeding by adults of a FLEA BEETLE (Systema marginella) occurred over the entire Peninsula of FLORIDA and through the cypress ponds of south GEORGIA. Although the brown, scorched appearance of infested trees caused much comment, control was not deemed necessary.

SPRUCE BUDWORM (Choristoneura fumiferana) infestations in Douglas-fir and true fir stands increased in northeastern OREGON, but decreased in southern Oregon. Aerial spraying on 45,500 acres in southern WASHINGTON in 1962 resulted in 99 percent larval mortality. No epidemic outbreaks were recorded in Washington. The 1962 egg mass evaluation survey indicated a variable infestation trend on the Fremont National Forest, Oregon. The trend is upward, however, on the Wallowa-Whitman National Forest, also in Oregon. Population density and resultant defoliation and top killing were not severe enough in any infestation center to indicate need for artificial control in 1963 in Oregon and Washington. An egg mass survey in the Warner Mountains of Modoc County, CALIFORNIA, indicated that populations were low except in two areas. At one of these locations, white fir sustained heavy defoliation and, at other location, moderate defoliation.

Spruce budworm was epidemic for the fifteenth consecutive year in the fir forests of the northern Rocky Mountains (northern IDAHO and MONTANA). Infestations in 1962 spread to an additional 75,000 acres, thus the total area of defoliation approximates 4,875,000 acres. The severity of defoliation in 1962 was variable, increasing in some areas and decreasing in others. Tree mortality, however, was much greater in 1962 than in 1961 even though the overall degree of defoliation was less. On the basis of egg mass sampling in affected stands, heavy defoliation is expected again in 1963. Approximately 452,000 acres were aerially sprayed in Montana in 1962. Additional spraying has been recommended. A spruce budworm infestation in southern Idaho has increased in scope and severity each year since 1958. The 1962 infestation covered a total of 1.6 million acres of Douglas-fir and true fir timber. Damage levels increased, with 48 percent of the area sustaining heavy defoliation and 23 percent medium defoliation. About one-third of the total infested area has been heavily defoliated for at least two years. Reproduction losses, although spotty, are plainly evident throughout the areas that have suffered heavy defoliation. Mature trees in the areas of reported heavy defoliation are not expected to withstand another year of nearly complete defoliation. The increasing trend of the spruce budworm infestations in this area of Idaho is expected to continue unless populations are reduced by direct means.

A reversal occurred in the trend of spruce budworm infestations in the mixed conifer forests in COLORADO. Instead of the increase in acreage and severity of infestations noted in 1961 and prior years, a decline in scope and intensity of defoliation occurred in 1962. On the basis of budworm egg mass surveys in affected areas, the downward trend of infestations is expected to continue in 1963. Two spruce budworm outbreaks in southern Colorado were successfully controlled in June 1962. The largest, on the Rio Grande National Forest, involved aerial spraying on 84,285 acres. The other, encompassing but 600 acres, was in the vicinity of Ouray, Grand Mesa-Uncompahgre National Forest. Fixed-wing aircraft and helicopters were used in the spray programs. The latter were used to spray infested areas adjacent to streams so as to minimize possible adverse effects to fish and fish food organisms. The spruce budworm was successfully controlled on 445,000 acres of mixed conifer forests east of the Rio Grande in northern NEW MEXICO in 1962, reducing the total infested acreage in the Southwest to 920,000 acres. On this acreage, in the western division of the Santa Fe and Carson National Forests, New Mexico, and on the Navajo Indian Reservation, ARIZONA, budworm populations remained static at a high level. On the basis of egg mass counts, there is no indication of significant natural decline in population levels.

The long-standing outbreak of spruce budworm in the spruce-fir forests of northern MINNESOTA continued in 1962. However, there was no spread of infestations to the east and south, as in the previous several years and, on the basis of egg mass surveys during the summer months, populations are believed to be on the wane. It is estimated that approximately 600,000 gross acres are infested. Much of this area supports a relatively low percentage of susceptible host material, thus infestations do not now pose a major threat to large volumes of the forest resource. Budworm infestations were suppressed on approximately 57,000 acres during 1962, with excellent results. Control during 1963 has been recommended only in high use recreational areas on the Superior National Forest, in high value commercial stands on a portion of the Nett Lake Indian Reservation and on adjacent State and private lands.

Spruce budworm reached epidemic proportions over extensive areas of spruce-fir forests in northeastern Aroostook County, MAINE, with cumulative injury in an extensive area becoming severe. The southernmost half of the infestation (Chapman-Squapan area) was most critical, with extensive top kill and some tree mortality expected in 1963. The northern portion, although under less stress, contained heavy budworm populations with even higher population levels predicted in 1963. Cool, abundant rainy weather apparently had no adverse effect on the budworm in 1962. Light traps revealed scattering of adults in most traps, but no concentrated flights were indicated. This was probably influenced by the unfavorable weather.

LARGE ASPEN TORTRIX (Choristoneura conflictana) was present in epidemic numbers in two infestation centers of aspen leaf tier (Sciaphila duplex) in aspen stands of UTAH and western WYOMING. Infestations of large aspen tortrix were noted on the San Juan, Grand Mesa-Uncompahgre and Gunnison National Forests of COLORADO in 1962. The intensity of defoliation increased in these forests during the year but, in general, damage was light. Large aspen tortrix caused light to moderate defoliation of aspen on much of the Medford District, Chequamegon National Forest, WISCONSIN, and the Bergland District, Ottawa National Forest, MICHIGAN. Spotty defoliation also occurred in portions of Price and Rusk Counties, Wisconsin, and in the east-central portion of the State.

JACK-PINE BUDWORM (Choristoneura pinus) infestations were materially reduced by natural control factors in most jack pine stands in MINNESOTA, WISCONSIN and MICHIGAN. Populations were high across the northern half of the three States as late as May and early June. By late June, however, their numbers had been drastically reduced by parasites and predators. Only one area was reported where populations remained in outbreak numbers -- the Badoura District, southern Hubbard County, Minnesota. Two areas of heavy infestation were sprayed for control during the year. Some 12,500 acres on the Hiawatha National Forest, Michigan, and approximately 25,000 acres on the Chippewa National Forest, Minnesota, were treated, and populations were reduced by 98 to 99 percent. Plans to treat 8,000 acres by the Michigan Department of Conservation in Michigan were cancelled. Parasites and predators drastically reduced numbers in all threatened areas of Wisconsin by late June. In the northwest counties of that State, an estimated 80 to 90 percent of the late-stage larvae and pupae were destroyed.

BLACK-HEADED BUDWORM (Acleris variana) populations increased abruptly over most of the North Tongass National Forest in ALASKA. However, the status of infestations was relatively unchanged over much of the South Tongass National Forest. In the latter area, conspicuous defoliation, indicating heavy populations, was noted on Dall Island; in the vicinity of Craig, Prince of Wales Island; and on the West Arm of Chomley Sound. On the basis of egg sampling during the fall months, heavy populations are predicted for 1963 on Admiralty, Baranof and Chichagof Islands and elsewhere on the North Tongass National Forest. Barring population reductions from natural causes, artificial suppression may be needed in 1964 to prevent excessive tree mortality. Black-headed budworm is increasing on fir in Jackman region of Somerset County, MAINE.

OAK WEBWORM (Archips fervidanus) caused heavy defoliation of oak on 80 acres in Presque Isle County, MICHIGAN. UGLY-NEST CATERPILLAR (A. cerasivoranus) was very heavy in western PENNSYLVANIA where it defoliated nearly all the wild cherries. Ugly-nest caterpillar appeared on wild cherry in the Jonesboro area of Washington County, MAINE, about mid-July. Chokecherries over much of MONTANA were infested by this species.

Populations of a TUBE MOTH (Argyrotaenia sp.) continued at epidemic levels within lodgepole pine stands on the Targhee National Forest, IDAHO. The infestation was most severe in reproduction and young trees on cutover areas. The total areas of infestation increased only slightly from 1961's estimate of 100,000 acres. Fluctuations of population levels were evident but, in general, the infestation is expected to continue at an epidemic level through 1963. No effort was made to reduce populations by direct means. PINE TUBE MOTH (A. pinatubana) larvae were collected from pine seedlings in St. Landry Parish, LOUISIANA. In INDIANA, larvae of the first generation of a LEAF ROLLER MOTH (Tortrix pallorana) continue to be important in two and three-year-old pine plantations. Parasite populations appear to be building up and may help in keeping damage below economic levels in future years.

Infestations of a CLEARWING MOTH (Aegeria tibialis) were heavy on poplar and willow in Ormsby and Washoe Counties, NEVADA.

FALL WEBWORM (Hyphantria cunea) was abundant in western WASHINGTON during 1962, but less so in most areas than in 1961. Defoliation by fall webworm in NEW MEXICO was moderate to severe on cottonwood at Aztec Ruins, Bandelier and Chaco Canyon National Monuments. Controls were applied in these areas. Poplar trees were heavily infested in southern Dona Ana County and along the Rio Grande in Rio Arriba County. Fall webworm caused unsightly webs on elms and mulberry during mid-July in KANSAS, and the pest was abundant on native plum in various wooded areas of NORTH DAKOTA. The first small nests in ILLINOIS were observed in Macoupin County June 12. Populations remained low through July in Illinois, but increased rapidly in August and became abundant in spotted areas throughout the State. Fall webworm was unusually abundant throughout the northern tier of INDIANA counties where many trees were defoliated, and it was widespread in OHIO and MISSOURI. Generally speaking, open-grown hickory and persimmon trees in the Central States were more severely defoliated than other susceptible species. Fall webworm infestations in ARKANSAS were similar to those present in the State during 1961, beginning early and continuing through the season. Fall webworm populations were medium throughout 1962 in LOUISIANA. Late generations defoliated considerable numbers of persimmon and pecans. Parasites and predators held populations at subeconomic numbers in Louisiana. Infestations of fall webworm ranged light to heavy in GEORGIA on pecan, hickory and persimmon used as ornamental shade trees, but were lighter than those of an average year. Defoliation in SOUTH CAROLINA and NORTH CAROLINA was common. Feeding was particularly heavy in Mitchell, Yancey, Avery, Ashe and Watauga Counties, North Carolina. Fall webworm was common during late summer and fall in VIRGINIA, especially on persimmon and sourwood. About 1,045 acres of roadside trees along the Blue Ridge Parkway and in the Shenandoah National Park were treated in 1962. Additional treatments are planned for 1963. In DELAWARE, fall webworm was abundant in the eastern half of Sussex County on several tree species, especially sweetgum. Fall webworm could be found throughout RHODE ISLAND during 1962, but abundance was negligible except for short stretches of road in South Kingstown, Washington County, and Smithfield, Providence County. The pest occurred in noticeable numbers in NEW HAMPSHIRE in only widely scattered areas of the State. Fall webworm was sufficiently abundant in MAINE so that no change was noted from the 1961 abundance in the southern portion of the State. Reports from other areas of Maine indicated that infestations ranged from light to heavy. Most injury in Maine during 1962 was on untended and/or roadside growth.

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) defoliated maples in locally severe outbreaks in northeastern KANSAS and caused extensive damage to maple trees in southeastern NEBRASKA during the 1962 season, as well as feeding on maples in MISSOURI. Larvae of this royal moth caused 25 percent defoliation on the lower half of many maple trees in central ILLINOIS, with all forms from half-inch larvae to newly emerged adults being found by July 18. Green-striped mapleworm caused local damage in VIRGINIA, as did ORANGE-STRIPED OAKWORM (Anisota senatoria). Eggs of orange-striped oakworm were noted in RHODE ISLAND in mid-July at Kingston, Washington County, and hatching was observed in that county by August 21. Larval feeding was widespread in the western half of Washington County and in portions of Kent County through mid-September, when it subsided abruptly and most larvae bore tachina fly eggs.

Infestations of an OAKWORM (Anisota sp.) in LOUISIANA resulted in partial defoliation of large areas of oaks, especially southern red and post oaks, in the north-western portion of the State.

LARCH CASEBEARER (Coleophora laricella) infestations flared up once again during 1962 in northeastern WASHINGTON, causing light to moderate defoliation of western larch. Outbreaks occurred on Mica Peak and Mt. Spokane, near Spokane, Washington. Elsewhere in northeastern Washington, there appeared to be a general population increase. No control is planned. The area of infestation in the northern Rocky Mountains doubled in 1962 and was visible on 1,400 square miles. Vanguard infestations extend to St. Regis and Thompson Falls, MONTANA, north to Bonners Ferry, IDAHO, and northwest to Springdale, WASHINGTON. The infestation of larch casebearer is expected to continue its spread throughout larch stands in Idaho,

Montana and Washington. In WISCONSIN, larch stands in many areas were lightly defoliated by this species. Observations on population densities in Langlade County indicated the insect had increased since 1961. However, the proportional increase does not portend a serious outbreak.

ELM CASEBEARER (Coleophora limosipennella) was heavy on individual trees in the Kingston area of Washington County, RHODE ISLAND, during midsummer.

An infestation of PANDORA MOTH (Coloradia pandora) has persisted in stands of lodgepole pines along the COLORADO-WYOMING border for the past several years. Defoliation by first-year larvae in 1961 was not severe, but it was heavy enough to be visible from low-flying aircraft on some 36,000 acres. Defoliation by the second-year larvae in 1962 was not reported as severe. However, a heavy moth flight was noted in August, with moths attracted to lights in towns far distant from known infestation centers. Overwintering larvae are numerous and heavy defoliation is expected in 1963.

CARPENTERWORM (Prionoxystus robiniae) was again the most damaging insect of hardwoods, especially oaks, in LOUISIANA, with infestations occurring statewide. The pest was reported heavy from many locations in the Central States. Heaviest infestations were in oak stands on ridge tops or on westerly and southerly exposures in southern and southeastern MISSOURI. In CALIFORNIA, carpenterworm was severe on boxelder in the Oakdale area of Stanislaus County and many individual hosts were damaged in many locations over the State. The attacks of borers of several types are of importance in the growing of shelterbelt trees in MONTANA. Primary borers such as carpenterworm and LILAC BORER (Podosesia syringae syringae) are responsible for the death of many trees. Secondary borers, those that invade injured or unthrifty trees, also have taken a considerable toll. There is some indication that systemic insecticides may be valuable in combating these pests, especially the bark beetle and phloem feeding types. It has been necessary to curtail the planting of susceptible varieties in some areas of Montana. More research on biology and control of borers and other insects of shelterbelt trees is needed. In OHIO, ASH BORER (P. syringae fraxini) was more abundant than usual during the 1962 season in the northern portion of the State.

CALIFORNIA OAKWORM (Phryganidia californica) caused heavy damage and defoliation to native oak trees over much of CALIFORNIA in 1962. PINE WEBWORM (Tetralopha robustella) infestations were light to medium on pine seedlings over the entire pine-growing area of LOUISIANA.

SAGEBRUSH DEFOLIATOR (Aroga websteri) defoliated browse and range plants on thousands of acres in CALIFORNIA, mainly in the northern area. This was the most widespread epidemic of this pest ever recorded in the State. It is not known how much permanent damage will result from the defoliation. The principal plant hosts were sagebrush and bitterbrush.

Heavy infestations of PINE NEEDLE MINER (Exoteleia pinifoliella) were noted on pitch pine in NEW HAMPSHIRE, MASSACHUSETTS and RHODE ISLAND.

LODGEPOLE NEEDLE MINER ("Recurvaria" milleri) remained serious in those stands of lodgepole pine in the Toulumne River Basin of Yosemite National Park, CALIFORNIA, that were not treated in 1961. Additional control work is planned for 1963. An epidemic continued in lodgepole pine over a small area in Kings Canyon National Park where a control project is planned in 1963. In MONTANA, the largest known infestation of this needle miner ever known in the State occurred during 1962 in an area south of Butte. The infestation was very heavy on about 3,000 acres. Moth flight in Montana occurs on even years, thus adult emergence will not occur until 1964. The lodgepole needle miner continued a serious forest pest in the Intermountain States; over 200,000 acres of lodgepole pine were affected in IDAHO, WYOMING and UTAH. On the Targhee National Forest, the heaviest defoliation occurred around Island Park Reservoir, north of St. Anthony, Idaho.

In COLORADO, an unidentified NEEDLE MINER ("Recurvaria" sp.) has caused light defoliation in stands of ponderosa pine in various places for several years. In 1961, light defoliation was reported on several thousand acres in the southern part of the State. Damage in 1962 was less severe than in 1961 and was noticed only in one area of Colorado, west of Durango.

An epidemic outbreak of FALL CANKERWORM (Alsophila pomataria) and SPRING CANKERWORM (Paleacrita vernata) occurred on the Washatch National Forest in Mill Creek Canyon just east of Salt Lake City, UTAH. Boxelder, maple and mountain ash have been severely defoliated for two consecutive years. Heavy defoliation occurred in southeast Salt Lake City immediately adjacent to Mill Creek Canyon. Epidemic populations are expected to be present again in 1963. Spring and fall cankerworms were abundant on oaks and hickories in localized areas in southern and west central WISCONSIN, along the Red River, MINNESOTA, and in the northern part of MISSOURI. Defoliation of host trees ranged from light to moderate in these areas, but refooliation of stripped trees, particularly in Wisconsin and Minnesota, began in June and recovery of the hosts was reported good. Fall surveys in the St. Paul-Minneapolis area of Minnesota, where severe defoliation of oaks and other trees occurred during 1962, indicate the likelihood of continued severe infestations during the spring of 1963. Spring cankerworm was abundant in west and west-southwest ILLINOIS in May, with 2-6 larvae per leaf observed. Defoliation of hackberry and elm trees was quite noticeable. An occasional tree in the central and east districts also showed heavy feeding. A serious outbreak of fall cankerworm occurred in southeastern and western MASSACHUSETTS and northeast of Roanoke, VIRGINIA. A total of 2,500 acres was sprayed in Massachusetts, and plans have been made to treat 1,000 acres in Virginia in 1963. Fall cankerworm and other cankerworm species caused notable defoliation in RHODE ISLAND during 1962 in suburban areas of Cranston, Providence County, and Warwick, Kent County, during late May. Distribution was less widespread, however, than the outbreak that occurred in the same area during the 1961 season. Females of fall cankerworm were collected on tanglefoot in Cranston on October 31.

Fall cankerworm has defoliated native trees in local areas of eastern MONTANA over the past few years, and 1962 was no exception. Heavy infestations of this pest occurred in CALIFORNIA on boxelder, willow and maple trees in Sonoma and Yolo Counties during the past summer. Spotted populations of spring cankerworm caused considerable defoliation of trees in some areas of eastern NEBRASKA. Cankerworms severely defoliated trees, especially elms, over NORTH DAKOTA during the 1962 season, with both fall and spring cankerworms being involved. Females of spring cankerworm were abundant on trees and walls of buildings in the Fargo area, Cass County.

ELM SPANWORM (Ennomos subsignarius) continued to spread northward and eastward in 1962 in the epidemic area of the Southern States. Some defoliation of hardwoods was observed for the first time in SOUTH CAROLINA and in sections of the Great Smoky Mountains National Park, NORTH CAROLINA. The heaviest damage occurred in Graham and Macon Counties, North Carolina, and in Rabun County, GEORGIA. Moderate to heavy defoliation of oaks, hickories and other hardwoods in Macon, Clay, Cherokee, Graham and Swain Counties, North Carolina. Infestations declined in portions of Georgia and TENNESSEE. There was approximately five percent reduction in the total area infested in 1962 over 1961. In most instances, complete defoliation during the year was limited to black walnut, hickory and northern red oak. Elm spanworm infestations were suppressed on a total of 12,430 acres of high-value recreation and research areas on the Joyce Kilmer Memorial Forest and the Coweeta Hydrological Laboratory, North Carolina, and on the Chattahoochee National Forest, Georgia.

Defoliation by LINDEN LOOPER (Erannis tiliaria) was moderate to heavy over much of PENNSYLVANIA, northern Berkshire area of MASSACHUSETTS and parts of NEW HAMPSHIRE and VERMONT.

WESTERN HEMLOCK LOOPER (Lambdina fuscicollis lugubrosa) defoliation was severe in mixed stands of immature and mature western hemlock in the vicinity of Naselle, WASHINGTON. Some tree mortality has already occurred in localized areas and more is imminent if the infestation trend continues upward for another year. Unless the disease and parasites that were present in southwestern Washington reduce the overwintering egg population, control will be needed in 1963. In OREGON, some reinfestation occurred on areas sprayed in 1962. An egg evaluation survey was planned to assess the population trend. Older outbreaks of WESTERN OAK LOOPER (L. fuscicollis somnaria) in Oregon white oak near Dallas and Monmouth, OREGON, subsided. New infestations of the pest developed near Wren and Salt Creek, Oregon, and in other widely separated locations in the Willamette Valley. Outbreaks of this defoliator usually subside quickly without causing lasting damage to the stands. The trend is apparently downward; hence, control is unnecessary in 1963.

Aerial and ground surveys of Cape Cod, MASSACHUSETTS, revealed an extensive outbreak of a PITCH PINE LOOPER (L. athasaria pellucidaria) throughout the mid-Cape area, with smaller infestations near Provincetown in the north, south to Eastham and extending west to West Falmouth. Feeding was particularly heavy north of Provincetown, in Pilgrim Springs State Park near Truro, and northeast of Eastham and Hyannis.

A GEOMETRID MOTH, tentatively identified as Nepytia sp., has caused heavy defoliation of white spruce on a portion of the Kenai Peninsula of ALASKA for several years. Larvae were less abundant in 1962 and the infestation was judged to be on the decline. Cumulative defoliation over a 50-square-mile area on the south shore of Kachemak Bay has severely weakened the trees, exposing them to attack by the Alaska spruce beetle (Dendroctonus borealis).

SOLITARY OAK LEAF MINER (Cameraria hamadryadella) was less prevalent in NEW HAMPSHIRE during 1962 than it was in 1961. Light infestations of this leaf miner found in an oak nursery in Wayne County, OHIO, during 1959 increased extensively during the 1962 season, heavy populations building up rapidly on the lower branches of many oak trees. LEAF BLOTCH MINERS (Cameraria spp.) were general throughout MICHIGAN during the year as pests of white oak. Some trees were completely discolored by feeding. Another LEAF BLOTCH MINER (Parectopa robinella) was evident in RHODE ISLAND but usually not common.

Light infestations of a PINE NEEDLE-SHEATH MINER (Zelleria haimbachi) developed in young ponderosa pine stands near Ashland, OREGON. Light to moderate defoliation continued in an older center of damage in lodgepole pine near Olympia, WASHINGTON. Other subeconomic damage was reported from many areas of both States. Larval and pupal parasites were abundant, indicating a possible downward trend of populations in 1963. Direct control is unnecessary. This same species caused light defoliation in most lodgepole and ponderosa pine stands from central MONTANA to IDAHO. Moderate defoliation on some 4,000 acres of lodgepole pine in Truman Gulch, Gallatin National Forest, developed from a light infestation on but 500 acres in that area in 1960.

MAPLE LEAF CUTTER (Paraclemensia acerifoliella) was prominent in Newport and Morgan areas of Orleans County, VERMONT, during 1962.

EASTERN TENT CATERPILLAR (Malacosoma americanum) infestations defoliated wild cherry in GEORGIA, as is the situation in most years. The pest was very conspicuous throughout VIRGINIA in the spring and early summer, especially on wild cherry. Populations of eastern tent caterpillar in DELAWARE during 1962 were much reduced compared with those present during the past three seasons. The first hatch in RHODE ISLAND was observed in Providence County on April 10. Infestations were heavy in areas of the county. In MAINE, the first hatch was reported April 27 in York County and April 23 in the Augusta area of Kennebec County; infestations on

cherry were moderate to light, respectively. The pest was general throughout Androscoggin and Sagadahoc Counties, Maine, in light numbers. Heavy populations were reported from Cumberland County, same State. Counts of 40-plus tents on some wild cherry trees in MICHIGAN exemplified an extremely heavy population in the northwestern part of Lower Michigan. Eastern tent caterpillar was widespread in ILLINOIS, but not so abundant as during the past two or three years. The first nests were observed in Jasper County on May 7. The insect was abundant on native plum in various wooded areas of NORTH DAKOTA, and caused considerable defoliation of native plum trees from mid-April to early May throughout OKLAHOMA.

FOREST TENT CATERPILLAR (*Malacosoma disstria*) was found to be light in most aspen and maple stands throughout the northern portion of Lower MICHIGAN. However, other reports indicate the possibility of an outbreak beginning in 1963. An increased number of reports, some of which indicated greater larval numbers, were received in 1962. Populations were generally at low levels in WISCONSIN and MINNESOTA; however, larval and adult collections in the latter State indicated a slight increase over the population density occurring there in 1961. Populations over UTAH were generally low, and the pest infested cottonwood, poplar and willow in COLORADO during the 1962 season. In ALABAMA, surveys were conducted in May over 235,000 acres of bottomland hardwoods along the Alabama, Tombigbee and Mobile Rivers in the southern area. Of this area, 12,000 acres had been heavily defoliated and an additional 48,000 acres lightly defoliated, compared with 200,000 acres affected by the insect in 1961. Damage by the caterpillar was also found to be less extensive in southeast LOUISIANA than in 1961. Cooperative aerial surveys in April showed that 169,000 acres had been heavily defoliated and an additional 263,000 acres had been lightly defoliated. In 1961, approximately 1.5 million acres were defoliated by the forest tent caterpillar in Louisiana. Primary species defoliated in Alabama and Louisiana were water tupelo and sweet-gum. The heaviest populations in Louisiana were in the Blind River, lower Atchafalaya River basin and Mermentau River areas. There were a few reports of forest tent caterpillar larvae on trees in VERMONT, but no visible defoliation was evident. Forest tent caterpillar was reported in heavy numbers and causing severe damage in the Caribou area of Aroostook County, MAINE, during 1962.

GREAT BASIN TENT CATERPILLAR (*Malacosoma fragile*) caused only light defoliation at scattered locations of COLORADO in 1962. It has occurred in outbreak numbers throughout aspen in southern Colorado in past years. However, aspen stands on about 100,000 acres in northern NEW MEXICO were severely defoliated during the years. Those on the Navajo Indian Reservation, ARIZONA, also were defoliated, but not as severely as in the past few years. An increase in populations of the pest and resultant defoliation were noted at the North Rim, Grand Canyon National Park, and on the adjacent North Kaibab National Forest, Arizona. Great basin tent caterpillar again defoliated cottonwood trees over large areas along the Virgin River in UTAH, and populations and damage were heavy during April on Populus spp. in the Virgin River Valley of Clark County, NEVADA.

TENT CATERPILLARS (*Malacosoma* spp.) were very damaging to native hosts over CALIFORNIA, with large stands defoliated in some areas. *M. constrictum* severely defoliated oaks in the vicinity of Mt. Wilson, Los Angeles County, and reports of oak defoliation were also received from Tulare and San Diego Counties.

PINE TUSSOCK MOTH (*Dasychira plagiata*) infestations on approximately 26,100 acres of jack pine, red pine and white spruce stands in three areas of MINNESOTA and WISCONSIN were aerially sprayed, with excellent results, in early spring of 1962. During the summer, two new infestations were discovered -- one in Marinette County, Wisconsin, and the other in Crow Wing County, Minnesota. Light populations also were found in stands adjacent to those sprayed for control, indicating a possible extension of infestations in those areas. A favorable ratio of parasites and predators to the host insect was reported in sprayed areas, thus natural factors may reduce the pest species and preclude the need for additional artificial control there.

Two small outbreaks of DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) occurred near Spokane, WASHINGTON. One was in a small farm woodlot and the other in a relatively small second-growth Douglas-fir stands. Neither infestation was serious. However, both are being watched closely because of the threat they pose to the surrounding timber. A new infestation was found near Colbert, Washington. Douglas-fir tussock moth activity in CALIFORNIA increased in Tuolumne and Calaveras Counties. In IDAHO, defoliation by this species increased in Clarks Ferry and Bonners Ferry areas and infestations spread to Copeland and Moyie. New infestations also were discovered in Coeur d'Alene and Hayden Lake. Controls were undertaken by some individuals. A small outbreak of Douglas-fir tussock moth has occurred in white fir and Douglas-fir in a box canyon on Sandia Mountain, Cibola National Forest, NEW MEXICO, for several years. During a ground check in the area in 1962, defoliation was observed but no insects found. The infestation subsided from natural causes. WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) occurred quite frequently on elm, maple and linden in the southern half of MINNESOTA, and scattered specimens could be found in RHODE ISLAND beginning in the middle of May, but economic importance in the latter State was negligible.

Egg masses of RUSTY TUSSOCK MOTH (Orgyia antiqua) were found on Douglas-fir trees in quite a large area near Olney, MONTANA. Egg masses were also found in subalpine fir near Kalispell and on Engelmann spruce in the north Flathead River Drainage of the State. The likelihood of an outbreak is not known. Outbreaks of TUSSOCK MOTHS (Orgyia spp.) occurred on four different hosts in four distinct localities in the Intermountain States. Ponderosa pine seedlings and brush species in Boise Basin, Boise National Forest, IDAHO, have been severely defoliated by tussock moth larvae since 1959. Populations in 1962 decreased sharply, primarily because of infection by a native polyhedrosis virus. About 11,000 acres of Douglas-fir on the Boise National Forest, Idaho, were infested with epidemic numbers of tussock moths, and nearly half of the area was heavily defoliated. The infestation is relatively new and expected to increase in area and severity. An infestation in the white fir stands of the Humboldt National Forest in northern NEVADA extended over 60,000 acres. Tussock moth larval populations were heavy early in 1962, but relatively few survived to the adult stage. Consequently, damage is not expected to be severe in 1963. In 1959, a virus was applied to a tussock moth infestation on bitterbrush near Reno, Nevada, and the population was reduced to a low level. Egg masses were plentiful again in 1962, and damage is expected to increase in 1963.

Cooperative suppression programs for GYPSY MOTH (Porthetria dispar) totaled more than 300,000 acres in 1962, distributed as follows: PENNSYLVANIA, 76,000; NEW JERSEY, 35,000; NEW YORK, 100,000; MASSACHUSETTS, 61,000; and MAINE, 41,000. Of special significance were the areas treated in Pennsylvania and New Jersey. Both of these are outside of the regulated zone. However, male moths were trapped within these two areas in 1961. Aerial and ground surveys in 1962 indicate that heavy defoliation by the gypsy moth can be expected in 1963 throughout most of the New England States, CONNECTICUT, and New York. Gypsy moth heavily defoliated hardwoods at Pownal and Sandgate, Bennington County, VERMONT. Defoliation was appearing in the lower Connecticut River Valley; lighter infestations were noted in the Champlain Valley and Green Mountain Forest of Vermont. Infestations in NEW HAMPSHIRE were distinctly localized and less than 4,000 acres of noticeable defoliation occurred in the State. In RHODE ISLAND, the first hatch was observed in Washington County on May 2; no defoliation occurred in the State in 1962. In MAINE, the first hatch was reported in Sanford, York County, on May 12; in Augusta, Kennebec County, on May 16; and in Bar Harbor, Hancock County, on May 19. Extensive infestations became evident in areas of York County and also in Bar Harbor and near Cherryfield in Washington County. An aerial survey in late August revealed severe defoliation on 4,200 acres in southern Maine at Dayton, York County, and Denmark and Brownfield, Oxford County. Excellent control was obtained on all 1962 spray areas in York and Hancock Counties. Light infestations of BROWN-TAIL MOTH (Nygmia phaeorrhoea) were encountered in 10 NEW HAMPSHIRE towns, and a total of 7,089 webs were clipped and destroyed during the winter of 1961-62 in that State.

SATIN MOTH (Stilpnotia salicis) caused severe damage to several cottonwood trees in Orono, Penobscot County, MAINE, in early July; some trees suffered partial defoliation.

An ASPEN LEAF MINER (Phyllocnistis populiella) persisted at epidemic levels throughout southeastern IDAHO and western WYOMING in 1962. Considerable tree deformity and mortality have occurred in the past few years. Although the damage caused by this species mining poplar leaves in MONTANA was not serious this season, its presence has been noted in the eastern portion of the State for the past 2 years. OAK SKELETONIZER (Bucculatrix ainisliella) populations fell below economic levels in INDIANA in 1962, and the pest infested oaks in MISSOURI. Oak skeletonizer was more abundant than usual in many localities of MASSACHUSETTS, with larvae hanging on threads and forming cocoons on houses causing much annoyance.

PUSS CATERPILLAR (Megalopyge opercularis) appeared as usual on shade trees in many urban areas of TEXAS during the 1962 season, causing much concern among residents.

An UNDERWING MOTH (Catocala agrippina) defoliated a considerable acreage of bitter pecan in lower Red River and Ouachita River Basins of LOUISIANA in 1962. In NEVADA, a NOCTUID MOTH (Homonocnemis fortis) caused severe damage in the Spring Mountains of Clark County, with many native ash trees being completely defoliated. Another NOCTUID (Oncocnemis punctilinea) severely damaged ash trees in the Las Vegas area of Clark County, Nevada, during April. Also in Nevada, infestations of AMERICAN DAGGER MOTH (Acronicta americana) ranged light to medium on boxelder in Washoe County, and infestations and damage to Populus spp. by Ufeus spp. varied from light to heavy in most counties during the 1962 season.

WALNUT CATERPILLAR (Datana integerrima) populations were lower than in 1961 in INDIANA; fewer walnut trees were defoliated and few complaints of damage were received. One contributing factor appeared to be the lack of adequate food supply due to an early leaf disease. Walnut caterpillar was abundant in practically all areas of ILLINOIS where black walnut occurs. Repeated defoliations by this pest are believed to be seriously weakening and causing the slow death of many black walnut trees in Illinois. Walnut caterpillar caused occasional, local damage in VIRGINIA. YELLOW-NECKED CATERPILLAR (D. ministra) first appeared in central and eastern districts of ILLINOIS July 9-13, and by August 17, damage was evident throughout the northern half of the State. Damage ranged from defoliation of a few limbs to complete defoliation of 25-30-foot oak trees. Serious defoliation by SADDLED PROMINENT (Heterocampa guttivitta) occurred on 500 acres of beech-maple on the Mohawk Trail State Forest in MASSACHUSETTS. Additional, less intensive infestations of the pest were reported in other areas throughout western Massachusetts. Based on past outbreaks, it is expected that these infestations will decline somewhat in 1963. Saddled prominent caused heavy injury to several oaks in western Kent County, DELAWARE, during early August. VARIABLE OAK LEAF CATERPILLAR (H. manteo) caused considerable defoliation of oaks in forested areas throughout eastern OKLAHOMA as well as oaks in residential areas. Infestations of variable oak leaf caterpillar have increased greatly during the past 3 years in ARKANSAS, but the pest caused only occasional, local damage in VIRGINIA during the 1962 season. POPLAR TENT MAKER (Ichthyura inclusa) lightly damaged cottonwood trees in south central TEXAS during the early spring. Also in Texas, Datana sp. (near or D. robusta) caused moderate to severe defoliation of live oak and water oak trees in Brazos County and surrounding counties during September and October.

In CALIFORNIA, several SEED and CONE MOTHS were damaging in 1962. Dioryctria abietella and Barbara colfaxiana, along with a midge (Contarinia sp.), destroyed 75 percent of the seed of a good Douglas-fir cone crop. A moderate ponderosa pine cone crop in northeastern California sustained light seed loss from Laspeyresia spp., Eucosma bobana and the midge (Rubsaamenia keeni). Hedulia injectiva caused heavy seed loss to a light Jeffrey pine cone crop in the State.

MOURNING-CLOAK BUTTERFLY (*Nymphalis antiopa*) did medium damage to elm, poplar and willow in Humboldt County, NEVADA, during June, and larvae reportedly fed heavily on elm and willow in isolated eastern areas of NORTH DAKOTA during the 1962 season.

MAPLE TRUMPET SKELETONIZER (*Epinotia aceriella*) populations were generally light in NEW HAMPSHIRE, but the pest was more abundant than normal for the second successive year in MASSACHUSETTS, where some branches of sugar maple trees had every leaf damaged. LOCUST TWIG BORER (*Ecdytolopa insiticiiana*) caused occasional, local damage in VIRGINIA during the season.

An OLETHREUTID MOTH (*Eucosma sonoma*) occurred extensively in western Upper MICHIGAN and on the Stonington Peninsula, and in Crawford County in Lower Michigan. In addition, heavy infestations of *Petrova* sp. occurred on several square miles of jack pine stands on the Stonington Peninsula, Michigan. A LEAF TIER, identified as *Sciaphila duplex*, was epidemic in aspen stands in UTAH and western WYOMING. The infestations covered over 300,000 acres and occurred in commercial stands, recreation areas and game ranges. Defoliation exceeded 50 percent on about 75 percent of the areas. Many trees were killed in areas which had been defoliated for two consecutive years. In general, it is expected that leaf tier infestations will increase in size, and defoliation will equal or exceed that experienced in 1962. Tree killing may be widespread.

EUROPEAN PINE SHOOT MOTH (*Rhyacionia buoliana*) was first found in the Northwest near Shelton, WASHINGTON, on native lodgepole pine. About the same time, the moth was found on ornamental pines in Bellingham, Washington. Because of these finds, the European Pine Shoot Moth Committee of the Northwest Forest Pest Action Council recommended a containment zone be established from Olympia, Washington, north to the Canadian Border, west to the Pacific Ocean and east to the Cascade Mountains summit. Within this zone, no eradication would be attempted, but voluntary control would be encouraged. Outside the containment zone, eradication of infestations is being practiced. Eradication surveys in Spokane, Washington, in 1961 were apparently successful since no new infestations were found in 1962. About 176 communities in Washington were surveyed in 1962. Only one infestation was found -- at Aberdeen. This infestation was due to the movement of infested nursery stock in direct violation of quarantines. In addition to the community surveys in the State, spot checks were made in lodgepole pine stands in the Puget Sound area from Blaine to Shelton. Survey findings in the native lodgepole pine stands were negative.

The European pine shoot moth survey in OREGON uncovered a total of 18 infested pines out of 145,030 examined in 100 communities. The infested trees were found in a business-zoned area of southwest Portland not checked in 1961. The trees were destroyed. Over 18,000 native lodgepole pines were also examined along the Oregon coast near Newport. These surveys were negative. No new infestations were found in 1962 in the Salem area. The State is again free of any known infestations.

Quarantines regulating the movement of pines infested with European pine shoot moth have been adopted by the States of Washington, Oregon, Idaho, California, Montana, Utah and Nevada. The Federal Government has adopted similar quarantines regulating importation of pines.

European pine shoot moth was found widespread in pine plantations in MICHIGAN, and damage to host trees was severe at several locations. New infestations also were reported on portions of the Lower Michigan and Hiawatha National Forests. Populations along Lake Michigan in east central WISCONSIN declined and resultant damage was less severe than in prior years. Adults were observed emerging in the Fox River Valley area of Wisconsin the last week of June. Emergence began in INDIANA the first week of June in the northern area, about 10 days earlier than normal. It was found for the first time in Perry County, Indiana. In general, spot infestations of damaging proportions were reported from several localities in the Central States.

European pine shoot moth was found for the first time in southeastern Merrimack County, NEW HAMPSHIRE, on Austrian pine. It is now known to occur in only two counties in that State, Merrimack and Rockingham. Severe infestations have been reported from Westmoreland and Cumberland Counties, PENNSYLVANIA. Pennsylvania is discouraging pine planting in its southern counties because of the shoot moth. In northern WEST VIRGINIA, heavy populations of the insect were reported on red pine. Heavy infestations were present in some areas near Auburn, Androscoggin County, MAINE. Some severe damage was noted by late June.

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) occurred throughout the Central States in 1962. However, population levels were generally below those of 1961 in natural and planted stands of shortleaf pine. Some areas heavily infested in 1961 were relatively free of infestations in 1962. Cause of the natural decline is not known. In INDIANA, the pest continues to damage terminals of pine trees in the southern area, especially in new plantings. Virginia and jack pines are the most susceptible species. Nantucket pine tip moth was reported present throughout the pine-growing area of the Southern States. Infestations in LOUISIANA were generally heavy during the year, and the pest continued to damage pine in many areas of MISSISSIPPI. Moderate injury to Scotch, Austrian and red pine was observed in Berks and Cumberland Counties, PENNSYLVANIA. Injury was reported on pine in all counties along the Eastern Shore of MARYLAND. VIRGINIA and WEST VIRGINIA reported injury continuing at a high level. In Virginia, loblolly pine was also heavily attacked. Infestations are expected to continue at the present rate during 1963 in the Northeast.

Abundant injury by SPRUCE BUD MOTH (Zeiraphera ratzeburgiana) caused "ragged" appearance to the 1962 shoots on white spruce on the coast of MAINE.

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) killed about 20 percent of sapling-size shortleaf pines in a 20-acre plantation on the Cassville District, Mark Twain National Forest, MISSOURI. Elsewhere in Missouri and in OHIO, infestations were very light. Zimmerman pine moth continues to damage pine trees in the northern half of INDIANA. It was reported from Boone County for the first time. Infestations in poorly managed stands average 85 percent. Zimmerman pine moth was found throughout MICHIGAN, but it was a problem only on Scotch pine grown for Christmas trees. Populations were down in Saginaw County and were comparable with previous years in western and southwestern counties of Michigan. This species, or near this species, caused widespread damage to pitch pine in Washington and Providence Counties, RHODE ISLAND. It was evident in late summer. Dioryctria sp. was reported from Dare County, NORTH CAROLINA, causing dieback of tips in stands of pond pines. Dioryctria sp. affected longleaf pine cones and tips in areas near Alexandria, LOUISIANA.

PINE BUTTERFLY (Neophasia menapia) flights were reported to be numerous in stands of western white pine and ponderosa pine in parts of IDAHO, and in a stand of lodgepole pine in MONTANA. Damage to host trees was not observed.

BAGWORM (Thyridopteryx ephemeraeformis) caused heavy injury to sycamores in an area of Sussex County, DELAWARE, and the usual amount of damage to locust, sycamore and other trees in the southern two-thirds of ILLINOIS. Bagworm was important on both evergreen and deciduous trees in INDIANA during the 1962 season. First observed egg hatch of bagworm in MISSOURI this season occurred during mid-May in southern areas, and scattered populations were reported damaging evergreens throughout the State.

BUCK MOTH (Hemileuca maia) was numerous on oaks in the Baton Rouge area of LOUISIANA. Approximately 50 percent of the larvae were killed by disease just prior to pupation. Heavy moth flights occurred in late November and December and will result in considerable numbers of larvae again early in 1963. In TEXAS, a complex of buck moth, forest tent caterpillar and Malacosoma sp. caused moderate to severe defoliation of oaks in central counties during the early spring of 1962.

In NEW MEXICO, egg masses of another species, H. nevadensis, were abundant in poplar trees at White Sands National Monument, except in areas treated in 1961. Effective control was obtained by treating larvae during May and June. Only an occasional egg mass was found late in the fall.

CATALPA SPHINX (Ceratomia catalpae) caused almost complete defoliation of catalpa in many areas in north central INDIANA. The pest was moderately abundant and caused noticeable leaf feeding injury on many catalpa trees in most areas of ILLINOIS. Many larvae were killed by parasites in Illinois during the 1962 season.

ELM SAWFLY (Cimbex americana) severely damaged elm shelterbelt plantings in the Bowman area of Bowman County, NORTH DAKOTA; and the species occurred sporadically in several areas of TEXAS where it caused light to heavy damage to elms.

Many species of GALL WASPS were probably the most commonly reported problem on oak shade trees in TEXAS during 1962. In INDIANA, Dryocosmus palustris was commonly found on pin oak; many complaints were received.

Populations of CONIFER SAWFLIES (Neodiprion spp.) were generally higher during 1962 in both WASHINGTON and OREGON. Some species caused damage, but others did not. Light to severe defoliation of lodgepole pine, ponderosa pine and knobcone pine occurred on the Umpqua National Forest in Oregon. Parasitism and disease may have reduced this population during the late fall. On the Umatilla National Forest, Oregon, a sawfly caused light defoliation over extensive areas of ponderosa pine. Western larch on two areas on the Wallowa-Whitman National Forest in Oregon was moderately defoliated by an unidentified species. No control is planned in 1963 against any of the sawflies in the Northwest. A light sawfly infestation on ponderosa pine near Magdalena, NEW MEXICO, died out. The infestation in the Zuni Mountains, about 80 miles northwest of Magdalena, persisted on about 1,200 acres. Damage to host trees was moderate.

BALSAM-FIR SAWFLY (Neodiprion abietis) was reported feeding on Douglas-fir at Rathdrum Prairie, IDAHO. In CALIFORNIA, white fir Christmas tree stands in Modoc and Tehama Counties were damaged by a N. abietis complex. Two species of sawflies, N. contortae and N. fulviceps complex, have fed heavily on the foliage of their separate hosts, lodgepole pine and ponderosa pine, respectively, in the Little Rockies, Lewis and Clark National Forest, MONTANA, for the past several years. Following in 1961, populations of both species were drastically reduced by a needlehedrosis virus and defoliation in 1962 was practically nil. HEMLOCK SAWFLY (N. tsugae) populations were extremely low throughout southeast ALASKA as predicted. Despite extensive sampling for sawfly eggs, none were found; thus, only light infestations are expected in 1963.

Pine sawflies, although not a serious problem, were more common in 1962 than in 1961 in the Southern States. RED-HEADED PINE SAWFLY (Neodiprion lecontei) was active in ARKANSAS, FLORIDA, GEORGIA, LOUISIANA, NORTH CAROLINA, SOUTH CAROLINA and TENNESSEE. The largest area affected was reported in Lawrence County, Tennessee, where several thousand acres of three to four-year-old loblolly pines were defoliated, with tree mortality ranging up to 75 percent in some plantations. There was also some defoliation of pines in localized areas of Louisiana. Scattered infestations of N. excitans were reported in eastern TEXAS, FLORIDA and GEORGIA; and N. taedae linearis was heavier and more widespread in central and eastern ARKANSAS in 1962 than at any time during the past years. N. taedae linearis defoliated a small area of loblolly pine in Winston County, MISSISSIPPI, in early March; a new State record for this species of sawfly.

Damage caused by sawflies, on the whole, was light in the Lake and Central States in 1962. Red-headed pine sawfly was reported from scattered locations in MICHIGAN and, in Emmet County, 180 acres of jack pine plantations were aerially sprayed for control. The species also caused serious defoliation of roadside pine plantings in central and eastern MINNESOTA. The pest occurred infrequently in WISCONSIN,

and was occasionally destructive to pine in INDIANA. Red-headed pine sawfly was found in Franklin and Perry Counties, Indiana, in June. There was little evidence of EUROPEAN PINE SAWFLY (N. sertifer) in the Lake and Central States, except in ILLINOIS and INDIANA. In the former State, it was reported more frequently and in more places than in 1961. On the Henderson State Forest, Illinois, heavy defoliation of red and Scotch pines occurred on some 350 acres. In Indiana, European pine sawfly continued to be an important pest of pine plantations and it was found for the first time in Perry County. JACK-PINE SAWFLY (N. pratti banksianae) occurred in limited numbers in stands of jack pine infested by the jack-pine budworm on the Chippewa National Forest, MINNESOTA. N. taedae linearis defoliated Scotch and shortleaf pines in a limited area in southern MISSOURI. Near Ironton, OHIO, some 25 acres of a mixed pine plantation were stripped.

Defoliation by a VIRGINIA PINE SAWFLY (Neodiprion pratti pratti) continued in southern MARYLAND, central VIRGINIA and north-central NORTH CAROLINA. In general, defoliation was the lightest in many years, but the limits of the infestation did not change. Feeding by the sawfly is expected to be light in 1963. Heavy defoliation of shortleaf and Virginia pines in several northeastern KENTUCKY counties is believed to have been caused by this species, but positive identification has not been received. N. pratti pratti occurred in outbreak proportions on the Shawnee State Forest, OHIO, where it severely defoliated shortleaf pines. It was also reported in an ILLINOIS location.

Light and scattered defoliation by the red-headed pine sawfly was reported in RHODE ISLAND, PENNSYLVANIA, MARYLAND and VIRGINIA. Some control measures were carried out in 1962. Surveys indicate an increase in extent and intensity of attacks in 1962. Also in RHODE ISLAND, isolated, small infestations of WHITE-PINE SAWFLY (N. pinetum) and N. pratti were found in diverse parts of the State, but they were of no general economic importance. In NEVADA, infestations of Zadiprion rohweri on pinyon pine ranged light to nonexistent, except in one area of Douglas County. INTRODUCED PINE SAWFLY (Diprion similis) was found in large numbers only at two locations in MINNESOTA in the Central States. Elsewhere, infestations were at low levels.

A WEB-SPINNING SAWFLY (Neurotoma fasciata) was found occasionally in Johnston, Providence County, RHODE ISLAND; and first-generation larvae were common in ILLINOIS on wild cherry in June and early July; and second generation was common in August in this State. In MAINE, Pleroneura borealis caused 1962 fir shoots to be killed by June in the eastern area. Injury was quite common in this area of Maine, but less so in Kennebec County.

HORNTAILS (Sirex spp.) continued to degrade lumber from fire-scorched white fir, red fir and incense cedar taken from the 1960 burns in Sierra, Nevada and Placer Counties, CALIFORNIA. Various species of horntails infested elm trees in COLORADO. PIGEON TREMEX (Tremex columba) damaged park trees in Bismarck, Burleigh County, NORTH DAKOTA.

PEAR-SLUG (Caliroa cerasi) infestations of hawthorn in NEVADA resulted in heavy damage in northwestern counties. MAPLE PETIOLE BORER (Caulocampus acericaulis) was commonly causing drop of sugar maple leaves in the Portland area of Cumberland County, MAINE, in late August; and the species caused concern in INDIANA during mid-May by defoliating hard maples in several areas of the State.

BIRCH LEAF MINER (Fenusa pusilla) was recorded throughout most of the New England States. Heavy populations and heavy damage were noted on gray birch, and moderate to heavy damage was recorded on white birch in MAINE. Damage was particularly heavy to birches bordering highways. Birches on mall of Interstate Highway 95 between Augusta, Kennebec County, and Fairfield, Somerset County, suffered extensive damage. The pest caused light to heavy damage in VERMONT and was about as troublesome as usual in NEW HAMPSHIRE. Adults were active May 11 and June 27 in RHODE ISLAND. The first-generation damage in that State was conspicuous, but damage by the second was negligible. In INDIANA, birch leaf miner commonly damaged

white birch foliage in ornamental plantings at Plymouth, Marshall County. Birch leaf miner was found infesting a nursery planting of birch in Eugene, Lane County, OREGON, and the species was recorded from WASHINGTON for the first time in King County where it damaged European white birch. ELM LEAF MINER (*F. ulmi*) was locally common on Scotch elm in various localities of MAINE.

LARCH SAWFLY (*Pristiphora erichsonii*) is generally distributed throughout stands of western larch in most of north IDAHO and MONTANA. In most years, as in 1962, host trees are only lightly defoliated. However, heavier-than-usual defoliation occurred on about 1,200 acres in the Olsen Creek Drainage, St. Joe National Forest, and in the Little North Fork of the Clearwater Drainage, and north of Headquarters, Idaho. Chronic infestations continue in the area between the Blackfoot and Clearwater Rivers in Montana. Larch sawfly was reported as abundant in stands of larch in St. Louis and Hubbard Counties, MINNESOTA; and the pest continues to cause heavy defoliation in the Upper Peninsula and northern Lower Peninsula of MICHIGAN. However, overall problems were somewhat less than in 1961 in the latter State. Elsewhere in the Lake States, infestations were noted, but resultant defoliation of host trees was less than in the previous years. Infestations of larch sawfly were noted in northwestern PENNSYLVANIA, causing up to 90 percent defoliation in some areas. Of interest is the report that one larch plantation had been defoliated nine years in a row without apparent serious consequences. In MAINE, heavy but localized feeding injury was noted near Eustis, Franklin County, and the pest was generally more abundant in Aroostook County than for several years. Also in Maine, MOUNTAIN-ASH SAWFLY (*P. geniculata*) was abundant in Aroostook County where some trees were stripped. It was also common in Kennebec County.

SARATOGA SPITTLEBUG (*Aphrophora saratogensis*) apparently decreased in susceptible pine plantations in WISCONSIN and northwestern MICHIGAN in 1962. In contrast, elsewhere in Michigan, the level of populations and resultant damage to host trees were greater than in 1961. Adverse weather is believed to have caused the population decline in the northern areas. Suppression of spittlebug on Federal and non-Federal land resulted in spraying a total of 2,734 acres. A majority of the acreage sprayed was on National Forest lands in Wisconsin and Michigan. A local infestation of PINE SPITTLEBUG (*A. parallela*) was reported affecting Scotch pine on the Munsing District of the Hiawatha National Forest, Upper MICHIGAN. Damage to host trees was restricted to twig flagging and some mortality. Several localized infestations were reported in ILLINOIS. Spittle masses of this insect were heavier than usual, no serious damage is expected in the Northeast. In LOUISIANA, pine spittlebug heavily infested young pines in Webster Parish, with light infestations noted in several areas in northern part of the State.

Infestations of a PLANT BUG (*Neoborus illitus*) were locally heavy on ash trees in several locations in northern CALIFORNIA and in the upper San Joaquin Valley. A CICADA (*Okanagana* sp.) severely damaged many thousands of pinyon pines in the Pine Nut Range, Ormsby County, NEVADA, by egg deposition in twigs. PERIODICAL CICADAS (17-year race) emerged in outbreak proportions in southern NEW JERSEY, eastern PENNSYLVANIA and central VIRGINIA. Although the killing of branch tips by periodical cicadas was spectacular and widespread in the Northeast, no significant tree damage is expected.

Various species of unspecified APHIDS were a problem on shade trees during 1962. Heavy infestations were reported on a variety of host trees in RHODE ISLAND, KANSAS, TEXAS, NORTH DAKOTA, NEVADA, OREGON and ALASKA.

The acreage of epidemic outbreaks of BALSAM WOOLLY APHID (*Chermes piceae*) decreased in OREGON, but increased slightly in WASHINGTON. The majority of the outbreaks in subalpine fir were centered on the Willamette National Forest in Oregon. Heaviest and most extensive losses in Pacific silver fir stands occurred on the Gifford Pinchot National Forest in Washington and on the Siuslaw National Forest in Oregon.

In Pacific silver fir stands, the trend is variable. In subalpine fir stands, the trend is slightly upward. In the Black Mountains of NORTH CAROLINA, Fraser fir mortality continued at an ever-increasing rate due to infestations of balsam woolly aphid. An extension of the infestation was discovered in 1962 on Roan Mountain along the North Carolina-TENNESSEE State line. Only five trees were found infested on Roan Mountain, but examination of radial growth indicated the aphid had been present for four years. It is unlikely that these are the only infested trees. The aphid was also detected in a new location on planted fir in Burke County, North Carolina. Subzero weather during February throughout MAINE, NEW HAMPSHIRE and VERMONT radically reduced populations of this serious pest of balsam fir. However, a sufficient population of the aphid survived to permit the continuation of the infestation in most of these areas. A spot infestation of the balsam woolly aphid on Fraser fir was observed in the Shenandoah National Park, VIRGINIA, in 1962. Practically all of the firs observed were infested with tip or gout form. Only an occasional attack on the trunk was observed. Some tree mortality due to this aphid was evident. No suppression activity is planned for this Virginia infestation in 1963.

In CALIFORNIA, an APHID (*Cinara curvipes*) was quite heavy on fir in a few locations on forests, and another APHID (*C. piceicola*) was common on spruce in many locations throughout the State on forests and nursery stocks.

PAINTED MAPLE APHID (*Drepanaphis acerifoliae*) caused concern on red maple during 1962 in MARYLAND. The species was extremely heavy on maple trees in Butte and Yuba Counties, CALIFORNIA, and varied populations occurred on maples at other northern locations in the State. Some defoliation occurred and control was required in many instances in California.

WOOLLY ELM APHID (*Eriosoma americanum*) was abundant on elms throughout VIRGINIA and locally abundant on elms in western PENNSYLVANIA. In MONTANA, leaf deformation by this species is very common on elms in park and yard plantings over much of the eastern half of the State.

A GIANT WILLOW APHID (*Lachnus salignus*) infested cottonwood, poplar and willow in COLORADO, and moderate numbers were present in central and eastern NEBRASKA. In CALIFORNIA, this aphid was particularly noticeable on cultivated and native willows in many locations. *L. salignus* was also of concern during 1962 on weeping willows in MARYLAND. Also in that State, TULIPTREE APHID (*Macrosiphum liriodendri*) was of concern on yellow-poplar. In WYOMING, infestations of another APHID (*M. eoessigi*) occurred in most areas, but late in the year, and little damage resulted. Also in Wyoming, galls of POPLAR VAGABOND APHID (*Mordwilkoja vagabunda*) were very abundant on poplar trees, about the same as those in 1961.

ELM LEAF APHID (*Myzocallis ulmifolii*) infested elms throughout the growing season in CALIFORNIA. Heavy honeydew drip and falling leaves made considerable mess on walks and streets. Very few elms escaped infestation, and treatment did not hold down populations for more than three weeks. This aphid was also of concern in MARYLAND during 1962 on American elm. In NEVADA, *M. robiniae* caused partial defoliation of locust in Mineral County. An OAK APHID (*M. californicus*) occurred on oak trees in Oak Glen, San Bernardino County, CALIFORNIA; adults were heavy.

BLACK CHERRY APHID (*Myzus cerasi*) occurrence on trees in WYOMING was common during 1962 and populations were much larger than in 1961. In CALIFORNIA, this species was particularly heavy on hawthorn trees in Eureka, Humboldt County.

POPLAR PETIOLE GALL APHID (*Pemphigus populitransversus*) was locally heavy on poplar trees in CALIFORNIA and caused considerable inquiry from homeowners. NORWAY-MAPLE APHID (*Periphyllus lyropictus*) heavily infested Norway maple in many PENNSYLVANIA towns, and subsequent defoliation was heavy during the late summer. This aphid was abundant enough in MASSACHUSETTS to cause leaf drop and excessive honeydew production in many areas of the State. BOXELDER APHID (*P. negundinis*) damaged foliage of boxelder trees in Santa Fe and Taos Counties, NEW MEXICO, during September.

The cumulative injury caused by PINE LEAF APHID (*Pineus pinifoliae*) remains severe on small white pine saplings and reproduction throughout MAINE, NEW HAMPSHIRE and VERMONT. Larger trees are also showing the effects of this cumulative damage. Extensive browning of white pine appeared in western Maine, and severity in eastern Maine remained about the same as in 1961. Generally, infestations appear to have declined slightly from 1961 in the Northeast.

WOOLLY ALDER APHID (*Prociphilus tessellatus*) was abundant on maple throughout VIRGINIA and common on several maples in Sussex County, DELAWARE, during mid-June. In NORTH CAROLINA, this species prompted a number of reports from mid-May to June 19 as a pest of maples. Specimens received during the first week of June were alates. BEECH BLIGHT APHID (*P. imbricator*) caused concern on beech during 1962 in MARYLAND. A LEAF CURL ASH APHID (*P. fraxinifolii*) was locally abundant on ash in PENNSYLVANIA and severe in a few local areas of CALIFORNIA on ash, but generally the pest was lower than in 1961 in the latter State. Also in California, *Pterocoma smithiae* was particularly heavy on willow in the Owens Valley (Inyo County) and *Thecabius populimonilis* occurred locally on poplar trees in Yuba County.

SYCAMORE LACE BUG (*Corythucha ciliata*) was abundant on sycamores in New Castle County, DELAWARE, and extensive feeding was found on sycamore in Phelps and Richardson Counties, NEBRASKA. HACKBERRY LACE BUG (*C. celtidis*) populations were low in INDIANA. In NORTH DAKOTA, OAK LACE BUG (*C. arcuata*) was numerous on oaks and ELM LACE BUG (*C. ulmi*) was numerous and damaged elms. BASSWOOD LACE BUG (*Gargaphia tiliae*) caused damage to basswood in Richardson County, NEBRASKA, and an ASH LACE BUG (*Leptopypha minor*) was much lighter on ash trees in CALIFORNIA than during 1961.

HACKBERRY-NIPPLE-GALL MAKER (*Pachypsylla celtidismamma*) was common on hackberry in Cass County, NORTH DAKOTA; and this species and *P. celtidisvesicula* caused some defoliation of hackberry in KANSAS in early August. Another PSYLLID (*Euphyllura arbuti*) was heavy and damaged a large percent of the native madrone trees in the coastal area of CALIFORNIA north of San Francisco Bay.

A PIT SCALE (*Asterolecanium minus*), first observed in OHIO in 1960, appears to have spread widely throughout the northern half of that State. In MISSOURI, first crawlers of an ARMORED SCALE (*Aspidiotus liquidambaris*) were reported from the east-central areas during early May. Light to moderate infestations on leaves of sweetgum were reported from the same area during June. During early July, crawlers of what appeared to be the second generation of this species were observed on sweetgum in the same area. In FLORIDA, another ARMORED SCALE (*Chionaspis longiloba*) was collected at Welaka, Putnam County, and at Orange Lake, Marion County, on willow in 1961. This species has not previously been reported from Florida. BLACK PINE LEAF SCALE (*Aspidiotus californicus*) became locally heavy on some forest pines during 1962 in CALIFORNIA.

BEECH SCALE (*Cryptococcus fagi*), in association with the fungus *Nectria coccinea* var. *fagnata*, caused some mortality in the Green Mountain Forest of VERMONT. A SOFT SCALE (*Lecanium caryae*) continued to be a severe pest of shade trees in the Birmingham area of Oakland County, MICHIGAN, and *Lecanium* sp. damaged water oak in northeast TEXAS. OAK KERMES SCALES (*Kermes* spp.) were less troublesome on bur and white oaks in INDIANA than in previous years. EUROPEAN ELM SCALE (*Gossyparia spuria*) was a considerable problem on street trees and dooryard elms in many locations of CALIFORNIA, and occasional infestations were found on American elm in Santa Fe County, NEW MEXICO. European elm scale was more numerous during 1962 in WYOMING than last year, with very heavy damage occurring on many trees. When properly used, controls were generally effective in that State. The species caused the usual amount of dieback of American elm in western KANSAS and infested elms in COLORADO. European elm scale appeared to injure trees severely in MINNESOTA when present. EUROPEAN FRUIT LECANIUM (*Lecanium corni*) was present on many trees in spotted locations in southern MICHIGAN, and is a

problem on shade trees in some larger MINNESOTA municipalities. This species was heavy on Brazil peppertrees in San Diego County, CALIFORNIA, and light on ash trees in other locations in that State. OYSTERSHELL SCALE (Lepidosaphes ulmi) caused very heavy damage to many trees in WYOMING.

A PINYON NEEDLE SCALE (Matsucoccus acalyptus) caused severe defoliation throughout most of the pinyon pine type of southwestern UTAH and NEVADA. The infestation is expected to persist and to further defoliate affected trees. A RED-PINE SCALE (M. resinosa) continued its slow but relentless destruction of red pine throughout the known infested zone in the Northeast. Although at present restricted to within a fifty-mile radius of New York City, it has the potential to spread much further. No effective controls are known, but New Jersey has exerted diligent efforts to suppress known infestations within the State by cutting infested stands.

PINE NEEDLE SCALE (Phenacaspis pinifoliae) caused considerable damage to ponderosa pine in and near The Dalles and in the lower Hood River Valley, OREGON. Subepidemic losses were fairly common in other ponderosa pine stands in both OREGON and WASHINGTON. Pine needle scale is primarily a pest of ornamental trees in north IDAHO and MONTANA, but at times it is damaging to trees in forest stands, particularly along the edges of dusty roads. In 1962, approximately 1,200 acres of lodgepole pine were heavily infested in Glacier National Park, Montana. Many sapling-size trees were killed and foliage on others turned yellow. Pine needle scale was more numerous in WYOMING than in 1961. Damage was very heavy on many trees. In RHODE ISLAND, this scale insect has increased in frequency. The species infested ornamental pines in MISSOURI.

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) populations were much lower in northern INDIANA than for the past several years. Hatching occurred early in June because of the unseasonably warm weather. In MICHIGAN, local outbreaks of this species on hard and soft maples occurred for the second year in several locations near Lansing, Ingham County. Also in Michigan, PINE TORTOISE SCALE (Toumeyella numismaticum) was found killing mature jack pine in Delta County. In CALIFORNIA, eradication treatments have been applied to tuliptrees infested with TULIPTREE SCALE (T. liriodendri) in San Jose, Santa Clara County, the only known infestation in the State. Also in that State, Stomacoccus platani was generally abundant on sycamore trees in many locations, and medium populations of Ericococcus quercus developed on street oaks in Santa Maria, Santa Barbara County. In VERMONT, a MEALYBUG (Phenacoccus acericola) is more prevalent than in some other years.

The MEALYBUG (Puto cupressi) has been epidemic since 1958 on the Payette National Forest, IDAHO. The infestation persisted for two or three years and then nearly disappeared, only to reappear in another location a short distance away. The present infestation covers about 500 acres in Big Dave Creek north of McCall, Idaho. Hosts are alpine fir, white bark pine and Engelmann spruce. No tree mortality has occurred and no practical control measures are known. Populations of a spruce mealybug, Puto sp., continued at epidemic levels within Engelmann spruce stands in southern UTAH. The infestations occur in three separate areas totaling approximately 60,000 acres. Noticeable limb killing occurred in one area in 1962. Mortality of Engelmann spruce reproduction is common within the older infestations.

A GALL MIDGE (Contarinia sp.) caused light to severe defoliation of Douglas-fir on parts of the Wallowa-Whitman National Forest in OREGON. In the affected areas, Christmas tree values have been seriously reduced but no tree mortality has occurred yet. No control measures have been developed. Two species of GALL MIDGES, C. pseudotsugae and C. constricta, often are found infesting the same host tree in north IDAHO. The damage they have caused to Douglas-fir has been increasing steadily since 1957. In 1962, heavy populations occurred in all Douglas-fir stands along the South, Middle and North Forks of the Clearwater River in Idaho. Heavy infestations also were noted in several areas of western

MONTANA. Damage in the latter area has seriously curtailed harvesting the young growth for Christmas trees. In NEW HAMPSHIRE, BALSAM GALL MIDGE (Cecidomyia balsamicola) was not noticeably abundant anywhere in the State in 1962.

Defoliation of oaks in Marinette County, WISCONSIN, by WALKINGSTICK (Diapheromera femorata) was less in degree and extent than was the case in 1961. However, infestations were heavier in Waushara County and in a few scattered areas in the southern part of Wisconsin. Eggs commenced hatching during the second week of June in Marinette County, and by mid-July, nymphs had begun changing color and some mating was taking place by the second week of August. Egg laying was underway by the third week of August. Walkingstick caused heavy defoliation of 1,200 acres in Ogemaw County and 500 acres in Dickinson County, MICHIGAN. The problem was comparable with that observed in 1960 and was less than a peak infestation in 1956. This species was again represented by a high population density in Starke County, INDIANA, where it was feeding on black oak. An estimated 25,000 acres were defoliated by the walkingstick in the Ouachita Mountains in ARKANSAS and OKLAHOMA. Although black oaks were the heaviest hit, white oak and other species were attacked. This insect has been active in the area for several years.

MITES in general occurred earlier than usual in CALIFORNIA, but remained static for long periods. Due to weather and natural enemies, populations were not as numerous as in previous seasons. Many host plants reflected previous season's damage by breaking dormancy out of season and by blooming. Mixed populations of mites occurred rather generally in the State. A miticide was added to treatment materials in many areas as a precaution. Some defoliation of street and yard trees and shrubs occurred, and effects of infestations were evident until fall, with continued leaf drop occurring. SPIDER MITES were one of the most numerous groups of pests causing the most damage to shade trees in NEVADA during the 1962 season. Eotetranychus multidigituli was found attacking honeylocust in PENNSYLVANIA, and the species was common on thornless honeylocust at La Porte, INDIANA, early in July. Oligonychus bicolor was abundant on several species of oaks in MASSACHUSETTS, and O. platani was a pest of sycamore trees in CALIFORNIA and on live oaks in a few locations of that State.

An unspecified GALL MITE has infested and killed many hybrid poplar trees in MONTANA during the past few years. Infestations usually start at the bottom of tree and each succeeding year more and more of the tree is infested. Leaf buds are attacked and, in severe infestations, only galls are present where the leaves normally develop. After a time, the tree starves to death due to lack of leaf surface. A good control for this mite in Montana is not known. Eriophyes spp. and other mites affected a number of birch trees in ALASKA. Unspecified ERIOPHYID MITES infested elms in COLORADO, and they continue to be problem on the terminal growth of various shade trees in MINNESOTA. The eriophyid, Eriophyes emarginatae, caused finger galls on leaves of Prunus emarginata in Castle Crag State Park in CALIFORNIA; and another eriophyid, Phyllocoptes didelphis, was heavy on native trembling aspen along the Tioga Road in Tuolumne County, same State. Also in California, Trisetacus quadrisetus was heavy on tuliptrees in San Jose, Santa Clara County. The main infestation has received eradicative treatment and additional work will be done, as this is the only known infestation in the State. MAPLE BLADDER-GALL MITE (Vasates quadripedes) again was common on silver maple throughout INDIANA, and reports were very frequent in VIRGINIA. The mite was responsible for an unusual number of complaints in RHODE ISLAND, and infested maple in Cass County, NORTH DAKOTA.

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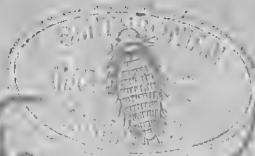
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ECONOMIC INSECT
REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE



AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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United States Department of Agriculture
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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ARMY CUTWORM damaging several hundred acres of fall planted grain in Umatilla County, Oregon. EUROPEAN CORN BORER pupation first noted April 3 in eastern Kent County, Delaware. CORN LEAF APHID very serious on barley in Salt River Valley, Arizona, and GREENBUG appears to be building up in grain fields in 3 New Mexico counties. (p. 359). HESSIAN FLY adults began emerging April 4 in northeast and north central Kansas. (pp. 359-360). BROWN WHEAT MITE could be troublesome in southwestern Kansas if dry weather continues; some spraying has already been done. (p. 360).

ALFALFA WEEVIL heavy on alfalfa in area of Monterey County, California; some spot treatment necessary. (p. 360). Controls for PEA APHID required in some alfalfa fields in Arizona and New Mexico, and the pest is becoming active in legumes in several other States. SPOTTED ALFALFA APHID moderately heavy on alfalfa near Otis, New Mexico; some treatments applied. (p. 361).

SAN JOSE SCALE damaging several hundred fruit trees in area of Weber County, Utah; some trees killed. (p. 362). WESTERN PINE BEETLE infesting 2,500 acres of ponderosa pine on Sierra National Forest, California; control begins when area accessible. (p. 364). Appearance of SPRING CANKERWORM in light traps in Dane County, Wisconsin, shows populations to be many times greater than at same time in 1962. (p. 364). NORTHERN FOWL MITE heavy on turkeys and infesting chickens in Wayne County, Ohio. (p. 367). TOBACCO FLEA BEETLE moderate to heavy on tobacco in the field in several southern Georgia counties. (p. 368).

FORECASTS

Brood XXIII of 13-year PERIODICAL CICADAS will emerge throughout southern Indiana. (p. 362).

SOME FIRST APPEARANCE RECORDS

ALFALFA WEEVIL larvae in Pennsylvania and Colorado and adults in Maryland and Wyoming. LESSER CLOVER LEAF WEEVIL and TARNISHED PLANT BUG adults in Maryland. PEAR PSYLLA adults and eggs in Connecticut. TENT CATERPILLARS on deciduous fruit trees in Arizona and on wild cherry in Delaware, Maryland and Alabama. PLUM CURCULIO in peach orchards in Montgomery County, North Carolina. SPRING CANKERWORM in Missouri, Wisconsin and South Dakota. FACE FLY in South Carolina and Wisconsin. MOSQUITO larvae in Nebraska, Wisconsin and Michigan. AMERICAN DOG TICK in Wisconsin.

DETECTION

A WHITEFLY (*Aleurotrachelus jelinekii*) collected on *Viburnum* sp. in Tulare, California, is first record of species for North America. (p. 365). A SPIDER BEETLE (*Mezium americanum*) reported for first time from North Dakota. (p. 368). ALFALFA WEEVIL reported for first time from Madison County, Alabama, and from Robertson, Wayne and Madison Counties, Tennessee. (p. 360).

(Continued on following page)

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 366).

Summary of Insect Conditions in the United States - 1962

Ornamental Insects - (p. 371).

Stored-product Insects - (p. 381).

Notes on the Pictorial Key for Identification of the Larvae of Dermestid Genera. (p. 385).

Reports in this issue are for week ending April 5, unless otherwise indicated.

WEATHER OF THE WEEK ENDING APRIL 8

The weather was unusually warm east of the Continental Divide for the second consecutive week, and was only slightly cooler than normal in the Far West. Warmest weather east of the Rockies occurred during the first part of the week when maxima reached 90° as far north as South Dakota and 80° or above in most of the Canadian Border States from North Dakota to Maine. The high temperatures set new records either for a particular date or for so early in the spring at many stations. A brief period of cooler weather in the midcontinent area about midweek reduced temperatures considerably, with freezing southward to some sections of Oklahoma and Arkansas, but temperatures were again above normal by Saturday or Sunday. Cooler weather reached the South and East over the weekend when freezing occurred north of the Ohio, in the Appalachians, and in most interior sections of the Northeast. Freezing in northwestern New Mexico caused some damage to apricot trees on April 2.

Numerous fronts and storm systems were responsible for precipitation falling over large areas of the country each day. The main storm system, which brought precipitation to a large portion of the Nation, was over the Far West at the beginning of the period, crossed the upper Great Plains and Great Lakes region, and passed just north of Maine on Thursday. During the passage of this storm, which was accompanied by high winds that caused minor damage over large areas in the North, heavy snows fell in many sections of the northern Rockies and northern Great Plains, and snow was mixed with rain in the Northeast. Wyoming reported up to 8 inches of snow in western sections and up to 14 inches in the northeast. North Dakota had blizzard conditions on the 2d and 3d, with snowfall ranging from 2 to 4 inches in the northwest and up to 11 inches in the southeast. Near blizzard conditions were also reported in northern New York State.

Another storm system brought moderate to heavy rainfall to the South during the latter half of the period. Soaking rains in most of Texas ranged up to 2.00 inches at many stations and a 5-inch fall was reported near Austin. These rains were very beneficial and timely in the Southeast. The forest fire hazard was reduced or ended, but only after burning large tracts in West Virginia, Georgia and North Carolina; burned-over areas were estimated at 100,000 acres in the latter State. Rainfall ranging from 0.25 to 0.75 inch in Florida was the first substantial amount in much of the State in 3 weeks.

Good rains fell in the Pacific Northwest both early and late in the week. Idaho reported up to 1.00 inch, which was the heaviest there in several weeks. Nevada reported that rains there slightly eased the poor irrigation water supply outlook for 1963 crops. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ARMY CUTWORM (Chorizagrotis auxiliaris) - OREGON - Damaging several hundred acres of fall planted grain in Umatilla County. (Every). WYOMING - Larvae averaged less than one per square foot in alfalfa near Powell, Park County. (Fullerton). NEBRASKA - Present in most wheat and alfalfa fields in Lincoln County; averaged 21 per square foot. One report of damage to alfalfa received. (Pruess). KANSAS - Single specimens found in 2 wheat fields in Riley County (northeast); no damage observed. (Painter, Somsen, Burkhardt, Peters).

BLACK CUTWORM (Agrotis ipsilon) - TEXAS - Approximately two-thirds of 40-acre cornfield replanted in Brazos County due to damage; 20-60 percent of plants destroyed. (Randolph).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Pupation of overwintering borers first noted April 3 in eastern Kent County in corn stubble. Estimated reduction of overwintering borers is 58, 38 and 69 percent, respectively, in New Castle, Kent and Sussex Counties. State average of 31 borers per 100 plants considerably lower than spring populations of last 3-4 years. (Burbutis). MARYLAND - No pupation noted on Eastern Shore as of April 4. (U. Md., Ent. Dept.). WISCONSIN - Survey of winter mortality conducted in Dane, Rock, Iowa and Lafayette Counties. Of total of 157 larvae dissected from cornstalks, 111 were alive and 46 dead. This would indicate 29 percent winter mortality in area surveyed. Bird feeding relatively high in fields close to wood lots. (Wis. Ins. Sur.).

CORN EARWORM (Heliothis zea) - FLORIDA - Light on 10 acres of corn at Ft. Myers, Lee County (March 27). (Fla. Coop. Sur.). TEXAS - Averaged 1.5 small larvae per 10 sweeps in Washington County alfalfa. (Newton). ARKANSAS - Extensive surveys in 4 extreme southeastern counties negative. (Ark. Ins. Sur.).

FALL ARMYWORM (Laphygma frugiperda) - ALABAMA - Noted in oats and clover mixture in Lee County. (Guyton).

CUTWORMS - TEXAS - Unspecified species causing moderate, local damage to flax in Wilson County. (Texas Coop. Rpt.; Prucia). COLORADO - No economic populations observed in Adams, Morgan and Weld Counties. (Jenkins).

A SCARAB (Euphoria sepulchralis) - FLORIDA - Infested 60 acres of sweet corn at Pahokee, Palm Beach County (March 27). Beetles fed on ears. (Fla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Very serious on barley in Salt River Valley; some controls necessary. Large flights very evident. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Appears to be building up again in grain fields checked in Curry, Roosevelt and Chaves Counties. (N. M. Coop. Rpt.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Counts of 2-5 per hill common in 40-acre Brazos County cornfield. (Randolph). Causing concern on corn and sorghum in Nueces, Bee, San Patricio and Refugio Counties. (Texas Coop. Rpt.).

MEADOW SPITTLEBUG (Philaenus spumarius) - OHIO - No hatch of overwintering eggs observed in several southwestern and central area wheat fields checked April 3. Hatch expected in 10-15 days in central area. (Lyon). PENNSYLVANIA - None found in alfalfa and clover in Fayette County. (Udine).

HESSIAN FLY (Phytophaga destructor) KANSAS - Limited survey in Riley (northeast) and Clay (north central) Counties showed adults beginning to emerge April 4. Most adults observed males; however, few females seen and very few eggs noted. "Flaxseed" contents ranged from white larvae to empty pupal cases. If weather remains favorable, maximum emergence in area should occur in about 7 days. In area of heaviest infestation (north central), emergence should be few days later.

Winterkill in infested fields ranged from less than 10 to 20 percent. (Painter, Somsen, Burkhardt, Peters). NEBRASKA - Puparia ranged light to moderate in south central area wheat; considerable winter killing of wheat noted. No fly emergence to April 5. (Bergman, Roselle). OHIO - Overwintering puparia collected from volunteer wheat in several southwestern counties. Adult emergence expected latter part of April. (Lyon).

BORN WHEAT MITE (*Petrobia latens*) - NEVADA - Heavy in drier portions of alfalfa fields in Moapa Valley, Clark County. (Bechtel, Zoller). NEW MEXICO - Heavy populations damaging dryland wheat north of Clovis, Curry County. Lighter populations found in irrigated fields. (N. M. Coop. Rpt.). COLORADO - Ranged 10-100 per linear foot of drill row on wheat and barley in Adams, Morgan and Weld Counties. High populations found on barley in southern Morgan County. (Jenkins). KANSAS - Becoming active in some southwestern counties; ranged light to moderate in fields examined in Haskell, Stevens and Finney Counties. Populations could be troublesome if dry weather continues; some spraying has been done. (DePew).

A BERMUDA GRASS MITE (*Aceria neocynodonis*) - ARIZONA - Injurious numbers appearing in lawns in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

ALFALFA WEEVIL (*Hypera postica*) - PENNSYLVANIA - Very small larvae and larval feeding noted on 3-inch-high alfalfa April 3 in Fayette County. (Udine). DELAWARE - Light larval feeding noted in most areas. Eggs in one New Castle County field averaged 220 per 100 old, attached stems; approximately 40 percent were newly laid spring eggs. (Burbutis). MARYLAND - First few adults of season swept from alfalfa in Dorchester and Worcester Counties. (U. Md., Ent. Dept.). TENNESSEE - Very small numbers found in Robertson, Wayne and Madison Counties; these are new county records. (Mullett). ALABAMA - Reported in Lee and Madison Counties; one larva per square foot of crown area in Madison County. Latter is a new county record. (Guyton, Howell). COLORADO - First-stage larvae found on alfalfa in Weld County; adults mating in Larimer County. (Jenkins). WYOMING - Very little activity in Park, Big Horn, Washakie, Hot Springs, Goshen and Platte Counties. Less than one adult per square foot; alfalfa growth one inch or less. (Fullerton). CALIFORNIA - Heavy in alfalfa in Monterey County in area from Salinas to Kings City. Although previously recorded from county, has not occurred in economic populations now present. Some spot treatment necessary for larvae now active. Parasites not evident at present. (N. McCauley, Ext. Serv.).

CLOVER HEAD WEEVIL (*Hypera meles*) - ALABAMA - Adults and larvae damaging crimson clover in Baldwin, Lee and Mobile Counties; ranged 1-10 per 5 square feet. (Guyton, Fairley, McQueen).

CLOVER LEAF WEEVIL (*Hypera punctata*) - MARYLAND - Larvae of several sizes caused light to moderate injury to red and ladino clovers in tidewater sections. (U. Md., Ent. Dept.). MISSOURI - Small to half-grown larvae light in central area alfalfa. (Munson, Thomas, Wood). TEXAS - Light, larval infestations present on alfalfa in Wilbarger County. (Texas Coop. Rpt.; Broman). COLORADO - Larvae on alfalfa in Larimer County. (Jenkins).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - MARYLAND - First few adults of season swept from alfalfa and red clover in Dorchester County. (U. Md., Ent. Dept.). ALABAMA - Adults and larvae numerous in clover in Lee County. (Guyton).

A COLASPIS (*Maecolaspis* sp.) - ARKANSAS - Surveys of 12 fields prior to preparation in Prairie and Arkansas Counties showed 12-206 larvae per field; average 72.3. Each field sampled by taking 30 sub-samples of soil and examining for larvae. Each sub-sample consisted of core of soil 4 inches in diameter and 9 inches deep. (Ark. Ins. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - TEXAS - Ranged 2-3 per 10 sweeps in Washington County alfalfa. (Newton). ARKANSAS - Active in crimson clover in southern area. (Ark. Ins. Sur.). ALABAMA - Few collected in Lee, Autauga and Monroe Counties. (Guyton, McQueen).

ALFALFA CATERPILLAR (Colias eurytheme) - ARKANSAS - Active for some time in southern area; some larvae nearing pupation. (Arks. Ins. Sur.).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Continues a problem on alfalfa; controls necessary in some fields. (Ariz. Coop. Sur.). NEW MEXICO - Moderately heavy in alfalfa near Otis, Eddy County; treatments applied in several instances. (N. M. Coop. Rpt.). COLORADO - Active on alfalfa in Weld County. (Jenkins). TEXAS - Counts per 10 sweeps in alfalfa in Washington, Brazos and Burleson Counties ranged from 75 in fields with low predator populations to 0-10 in fields with abundant predators. (Newton). ARKANSAS - Increased to 10-15 per square foot in legumes in northwest. (Ark. Ins. Sur.). MISSOURI - Light numbers observed in alfalfa and clovers in central area; 0-5 per sweep. (Munson, Thomas, Wood). MARYLAND - Ranged from less than one to 18 per sweep on alfalfa in Dorchester and Worcester Counties. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Moderately heavy in alfalfa near Otis, Eddy County. Several growers have treated. (N. M. Coop. Rpt.). TEXAS - Ranged 10-200 per 10 sweeps in alfalfa in Washington, Brazos and Burleson Counties; where predators abundant, lower counts prevail. (Newton).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Continues present on safflower. Large flights now very evident. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - PENNSYLVANIA - Present in alfalfa in Fayette County. (Udine). MARYLAND - First few adults of season swept from alfalfa in Worcester County. (U. Md., Ent. Dept.). ALABAMA - Very light on crimson clover and oats in Lee and Baldwin Counties; 2-4 per 100 square feet. (Guyton, Fairley).

LEAFHOPPERS - WYOMING - Cuerna sp. and Aceratagallia sp. numerous in alfalfa and other green growth in the Big Horn Basin and in Goshen and Platte Counties. (Fullerton).

SPIDER MITES - ALABAMA - Heavy in crimson clover, white clover and vetch in Baldwin and Mobile Counties; ranged 1-20 per leaf. (Fairley, Seibels, McQueen).

FRUIT INSECTS

LESSER PEACH TREE BORER (Synanthedon pictipes) - OHIO - Moderate to heavy damage observed March 28 on peach trees at university orchard in Franklin County; 9 borer "strikes" observed on trunk and limbs of one tree; 5-10 larvae per tree collected at Doylestown, Wayne County. (Forsythe, Lyon).

CODLING MOTH (Carpocapsa pomonella) - INDIANA - Pupation of overwintering larvae on tree trunks began in Vincennes area, Knox County, April 1. (Hamilton).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - No activity observed to April 2 in Vincennes area, Knox County. (Hamilton).

TENT CATERPILLARS (Malacosoma spp.) - TEXAS - Many reports of M. americanum on fruit trees over State. Infestations apparently unusually heavy this year. Pupation underway in southeastern area. (Texas Coop. Rpt.). ARIZONA - Malacosoma sp. appearing on deciduous fruit trees in Yuma and Coconino Counties. (Ariz. Coop. Sur.).

A LYCAENID (Strymon sp., near or melinus) - TEXAS - Larvae causing moderate to heavy damage to immature plums in Caldwell County. Several complaints received. (Lindsey).

CALIFORNIA PRIONUS (Prionus californicus) - UTAH - Larvae severely damaged roots of large cherry trees in orchard near Willard, Box Elder County. (Knowlton, Allred).

PLUM CURCULIO (Conotrachelus nenuphar) - NORTH CAROLINA - Found in peach orchards in 2 areas of Montgomery County, April 1 and 3. (Black, Garriss).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Eggs numerous on peach near Greeley, Weld County. (Simpson).

APHIDS - INDIANA - Hatching began about March 29 at Vincennes, Knox County; aphids now abundant. (Hamilton, Apr. 2). PENNSYLVANIA - None present on apple in Fayette County April 3. (Udine). MARYLAND - Hatching in considerable numbers on apple at Cordova, Talbot County, April 3. (U. Md., Ent. Dept.). CONNECTICUT - Eggs vary in abundance from orchard to orchard, but are generally more difficult to find this year. (Savos).

THIRTEEN-YEAR PERIODICAL CICADAS - INDIANA - Brood XXIII of 13-year cicadas will emerge throughout southern portion of State. Records from 1950 show that at Vincennes, Knox County, cicada nymphs began emerging May 22, with heavy emergence beginning May 25; eggs were first laid June 1. Recent investigations have shown that nymphs of periodical cicadas are responsible for apple tree decline, in addition to injury caused by oviposition of adults. Controls for adults before oviposition advised for orchards where cicadas emerge. (Hamilton, Apr. 2).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Adults heavy on apple trees in Oroville, Butte County. (Cal. Coop. Rpt.). UTAH - Damaging several hundred fruit trees in orchards between Ogden and North Ogden, Weber County. Some trees have been killed. (Knowlton, Burningham). CONNECTICUT - Increasing in many orchards. (Savos).

SCURFY SCALE (Chionaspis furfura) - OHIO - Heavy on apple twigs at Logan, Hocking County. (Forsythe).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Adults active at Storrs, Tolland County, and egg laying has begun. (Savos).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Eggs abundant in all apple orchards in Vincennes area, Knox County. No hatch observed to April 2. (Hamilton). CONNECTICUT - Eggs vary in abundance from orchard to orchard, but are probably at same level as in 1962. (Savos).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - ALABAMA - Noted as heavy in Mobile County; 0-8 per fruiting branch. (Eden, Buttram).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - ALABAMA - Colony noted in partially dead pecan tree in Baldwin County. (Wilson).

LEAFHOPPERS - FLORIDA - Agallia constricta and Idona minuenda light on avocado at Homestead, Dade County (March 29). (Fla. Coop. Sur.).

AN OTITID FLY (Chrysomya demandata) - CALIFORNIA - Larvae, pupae and adults heavy in dates on ground and in trees at Palm City, Riverside County. (Cal. Coop. Rpt.).

BARNACLE SCALE (Ceroplastes cirripediformis) - CALIFORNIA - Light to heavy on lemons and oranges in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Heavy on Meyer lemon in San Jose, Santa Clara County. Appears to be more prevalent this season in northern part of State than previously. Prior to 4 years ago, species did not occur north of Tahachapi Mountains. (Cal. Coop. Rpt.).

GRAPE ROOT BORER (Vitacea polistiformis) - ARKANSAS - All vines in a Washington County (northwest) vineyard pulled due to infestation by this species. (Ark. Ins. Sur.).

GRAPE LEAFHOPPERS - ARIZONA - Injurious numbers of Erythroneura variabilis and Dikrella cockerelli present on grapes in all portions of Maricopa County. (Ariz. Coop. Sur.).

A FLEA BEETLE (Altica sp.) - ARIZONA - Appeared on grapes in Queen Creek area, Maricopa County. Controls necessary. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Continues a problem on potatoes in Maricopa County. (Ariz. Coop. Sur.). NEVADA - Adults very heavy near Beatty and Sarcobatus Flat, Nye County, and east of Coaldale, Esmeralda County. Adults present on various shrubs in these areas, but eggs found only on Lycium sp. near Beatty and on Sarcobatus vermiculatus on Sarcobatus Flat. (Bechtel).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - ARKANSAS - Light infestation reported from Miller County. (Ark. Ins. Sur.). ALABAMA - Very light in Baldwin County; 0-5 per 100 feet of row. (Wilson, Seibels).

POTATO TUBERWORM (Gnorimoschema operculella) - CALIFORNIA - Few adults occurring on cull potatoes in Edison area, Kern County. (Cal. Coop. Rpt.).

A LEAF MINER - SOUTH CAROLINA - Unspecified species heavy in tomato plants in Charleston area, Charleston County. (Nettles et al.).

IMPORTED CABBAGEWORM (Pieris rapae) - DELAWARE - First adults of season noted over State April 3 and 4. (Burbutis, Kelsey).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Spring treatments in western San Joaquin Valley inaugurated in vicinity of Coalinga; 740 acres of winter annuals treated. Elsewhere throughout breeding grounds, little change noted and leafhopper concentrations warranting treatment have not developed. In Imperial Valley, post-spray counts reveal excellent kill; small, scattered leafhopper infestations still being treated in Blythe area, Riverside County. (Cal. Coop. Rpt.). COLORADO - None found on tanseymustard in Adams, Larimer, Morgan and Weld Counties. (Jenkins).

A FLASE CHINCH BUG (Nysius sp.) - TEXAS - Becoming locally heavy in some fields of carrots in Hidalgo County. (Texas Coop. Rpt.; Bente).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - NEW JERSEY - Could be very troublesome on strawberries this season, as there was good survival over winter. (Ins.-Dis. Newsltr., Apr. 2).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Light populations appearing in 6-leaf cotton near Rio Grande City, Starr County. (Deer).

DARKLING BEETLES - TEXAS - Light infestations appearing on cotton in Rio Grande Valley and coastal bend area. (Deer).

BOLLWORM (Heliothis zea) - TEXAS - Light numbers appearing on Rio Grande Valley and coastal bend area cotton. (Deer).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Infested Hibiscus sp. at Flamingo (March 6) and at Cape Sable (March 22, 23), Monroe County. Det. by W. Breidenbach. (Fla. Coop. Sur.).

CUTWORMS - TEXAS - Light populations of unspiced species appearing on cotton in Rio Grande Valley and coastal bend area. (Deer).

COTTON APHID (Aphis gossypii) - TEXAS - Light infestations appearing on cotton in Rio Grande Valley and coastal bend area. (Deer).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Appearing in light numbers on 6-leaf cotton near Rio Grande City. (Deer).

SPIDER MITES - TEXAS - Unspecified species appearing in light numbers on cotton in Rio Grande Valley and coastal bend area. (Deer).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Infesting some 2,500 acres of ponderosa pine in singles and in groups up to 200 trees in El Portal-Indian Creek area of Sierra National Forest. Direct control will begin as soon as snow melts and area is accessible. (B. Minter, USFS).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Surveys in Portland area began April 3 with house to house search. Pine hosts in all nurseries in State also being checked. Survey to be completed prior to adult flight period. No known infestation in State at present. (Capizzi). WISCONSIN - Survey of overwintering larval mortality conducted during week ending March 29. Although information was inconclusive, populations apparently will be at their lowest for many years. (Wis. Ins. Sur.).

PINE BARK APHID (Pineus strobi) - OHIO - Overwintering females present on white pine near Newark, Licking County. Infestations generally at edges of pine plantings in spite of spray program of last autumn. (Walker, March 22).

A COCCID (Matsucoccus acalyptus) - NEVADA - Ranged light to heavy on shortleaf pine (Pinus monophylla) in Pine Nut Range, southeast of Gardnerville, Douglas County. (Weaver).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - DELAWARE - Small tents first noted April 2 on wild cherry throughout State. (Burbutis). MARYLAND - Tents becoming conspicuous on wild cherry and Malus spp. in several southern and central counties. (U. Md., Ent. Dept.). ALABAMA - Noted on wild cherry in Coosa, Elmore and Talladaga Counties; 1-3 infestations per mile. (McQueen).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - This species and Malacosoma sp., probably texanum, continue to damage live oaks in several central counties. Infestations appear to be considerably worse than those of 1962 and 1961. (Texas Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - MISSOURI - Heavy male flights observed at lights during past 2 weeks. (Munson, Thomas, Wood). SOUTH DAKOTA - Populations becoming apparent in Spearfish area, Lawrence County. Females and eggs collected from apple and boxelder. (Spawn). WISCONSIN - Appearing in light traps at Middleton and Madison, Dane County. Populations many times greater than at same time in 1962. (Wis. Ins. Sur.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - IDAHO - Active in Moscow area, Latah County, March 30. (Gittins).

HACKBERRY NIPPLE GALL (Pachypsylla celtidismamma) - KANSAS - Counts of 25-30 females per twig noted on hackberry trees in Riley County (northeast). Females ovipositing on unfolding leaves. (Thompson).

CIMBICID SAWFLIES (Cimba spp.) - TEXAS - C. americana adults very numerous in shade trees in Houston, Harris County. (Bradley). CALIFORNIA - C. rubida heavy on willows in Sausalito, Marin County. (Cal. Coop. Rpt.).

AN OLETHREUTID MOTH (Epinotia subviridis) - CALIFORNIA - Larvae medium in leaves of juniper nursery stock in Mountain View, Santa Clara County. (Cal. Coop. Rpt.).

A FALSE POWDER-POST BEETLE (Amphicerus cornutus) - TEXAS - Adults boring into bouganvillea twigs in Hidalgo County. Weakened or dead trees apparently preferred. (Texas Coop. Rpt.; Page).

APHIDS - MARYLAND - Macrosiphum rosae building up on roses in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.). ALABAMA - Aphis spiraeicola heavy on ornamental spirea in Lee County; 5-25 per branch. (Hagler). NEW MEXICO - Cinara tujafilina very abundant on arborvitae in many areas; honeydew a problem on walks near homes. (N. M. Coop. Rpt.). ARIZONA - Aphis nerii populations very high on oleander in all parts of State. (Ariz. Coop. Sur.).

COCCIDS - CALIFORNIA - Aulacaspis rosae heavy on roses in Santa Maria, Santa Barbara County. Reports indicate pest is apparently more prevalent than in other years. (Cal. Coop. Rpt.). NORTH CAROLINA - Unaspis euonymi crawlers noted on specimens of Euonymus sp. from Wake County examined March 20; apparently present several days before sample received. (Mount). Undetermined species infesting large number of aucuba plants in a Guilford County nursery. Crawlers noted April 3. (J. E. Greene). MARYLAND - E. euonymi heavy on euonymus at Bethesda, Montgomery County. Leucaspis japonica heavy on trunk and limbs of maple in north Baltimore. (U. Md., Ent. Dept.).

Coccids in Florida - Antonina bambusae, Asterolecanium bambusae and Odonaspis penicillata ranged light to moderate on bamboo at Daytona Beach, Volusia County (March 19). Chrysomphalus dictyospermi, C. aonidium and Parlatoria proteus were moderate on Cymbidium orchids at Longwood, Seminole County (March 27). Asterolecanium puteanum was severe on 1,000 Ilex crenata at Glen St. Mary, Baker County (March 21); this is a destructive pest and sometimes serious on this host in the State. Aspidiotus perniciosus infested 250 Chaenomeles sp. at Picolata, St. Johns County (March 28). Ceroplastes ceriferus was light on 2,000 Podocarpus sp., Comstockiella sabalis was moderate on Sabal palmetto, Pseudaulacaspis pentagona was severe on Koeleruteria sp., and Pseudococcus adonidium was moderate on Zamia furfuracea, all at Leesburg, Lake County (March 26). Florida theae ranged moderate to severe on Ilex cornuta at Daytona Beach (March 19) and was severe on Ilex latifolia at Leesburg (March 26). Pseudoaonidia clavigera infested Camellia sp. at St. Petersburg, Pinellas County (March 25). (Fla. Coop. Sur.).

A WHITEFLY (Aleurotrachelus jelinekii) - CALIFORNIA - Nymphs heavy on Viburnum sp. in Tulare, Tulare County. Collected February 25 by J. Gilley and D. Taylor. Det. by L. M. Russell. This is first record of this species in North America. (Cal. Coop. Rpt.).

HOLLY LEAF MINERS - DELAWARE - Most larvae of an unspecified large blotch miner now full grown; few new pupae noted in native American holly in eastern Kent County. (Burbutis). MARYLAND - Heavy mining by Phytomyza illicicola noticeable on American holly around properties in Prince Georges and Worcester Counties and at Baltimore. (U. Md., Ent. Dept.).

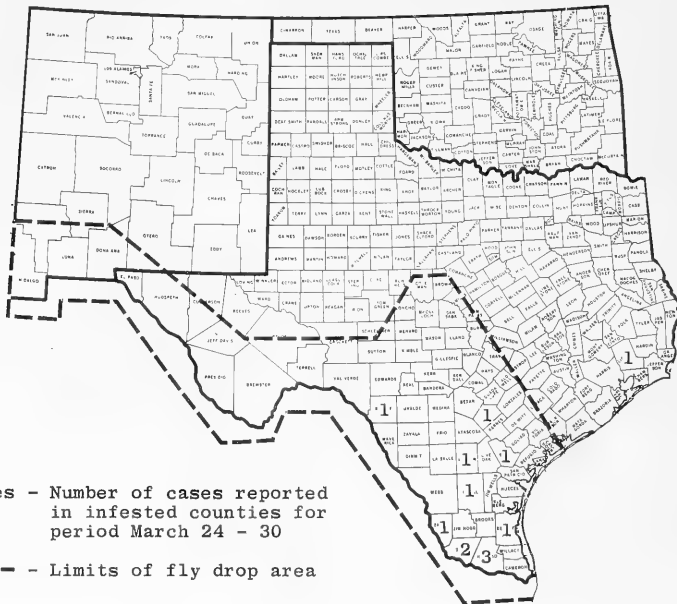
SPRUCE SPIDER MITE (Oligonychus ununguis) - MARYLAND - Large egg hatch occurred on several large spruce trees at College Park, Prince Georges County. (U. Md., Ent. Dept.).

PILLBUGS - TEXAS - Moderate numbers damaging young vegetation around homes in Washington County. (Texas Coop. Rpt.; McClung).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

On March 28, screw-worm larvae were received from Liberty County, TEXAS. These were first-stage larvae removed from back of goat recently moved from adjacent county. Inspectors went into area and conducted thorough investigation; no additional infestations were found. Area receiving emergency treatment of sterile screw-worm flies. An intrastate transport control is being placed into operation across southern portion of Texas. While existing screw-worm population does not appear to be large, it does seem to have a wider scope, as several new counties in southern Texas reported infestations during period March 24-30. It is not known whether these infestations result from small overwintering population or by fly migration. A total of 95,432,050 sterile screw-worm flies was released during the period March 24-30. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period March 24 - 30

----- - Limits of fly drop area

CATTLE GRUBS (*Hypoderma* spp.) - NORTH DAKOTA - Most grubs on cattle in western area in fourth or encysted stage; should drop soon. Ranged zero to heavy on individual animals; numbers on animals with grubs averaged medium (11-20 per animal). (N. D. Ins. Sur.). MARYLAND - Seven found in one young beef animal in Talbot County April 1. (U. Md., Ent. Dept.).

FACE FLY (Musca autumnalis) - SOUTH CAROLINA - First report of season received March 23 from Walhalla, Oconee County; infestation light. (Hair, Adkins). WISCONSIN - This and other flies emerging from hibernation. (Wis. Ins. Sur.).

SHEEP KED (Melophagus ovinus) - UTAH - Moderately numerous in range flock in western Millard County. (Knowlton).

MOSQUITOES - DELAWARE - First light breeding of Aedes sollicitans and Aedes cantator of season noted in eastern Sussex County. (Lake, Catts). NEBRASKA - First instars of Culicine mosquitoes present near McCook, Red Willow County. (Rapp). WISCONSIN - Unspecified species active in Trempealeau County. (Wis. Ins. Sur.). MICHIGAN - Late instar Aedes sp. larvae present in woodland ponds in Shiawassee County. (Dowdy).

CATTLE LICE - ARKANSAS - Check of 2 herds in Washington County, previously treated with systemic insecticides, showed lice too few to count. Untreated calves in same area heavily infested. (Ark. Ins. Sur.). NORTH DAKOTA - Reports spotty; infestations ranged light (occasional louse) to heavy (over 11 per examination). Only occasional individual found on animals examined. Haematopinus euryesternus predominant species. (N. D. Ins. Sur.). UTAH - Serious on several herds in Garfield County; severe on numerous animals. (Knowlton).

FLEAS - CALIFORNIA - Probably Ctenocephalides felis, heavy in household in Sacramento, Sacramento County. Flea infestations reported several times recently in Sacramento. If infestations continue into summer, fleas will possibly become severe nuisance. (Cal. Coop. Rpt.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - OHIO - Heavy on turkeys at Ohio Agricultural Experiment Station, Wayne County. Adults and immatures easily collected after removing scabs near vents of turkeys. Chickens infested at University farms in Franklin County. (Harshbarger, Lyon).

ITCH MITE (Sarcoptes scabiei) - OHIO - One dairy cow, 2 heifers and 12 feeder pigs severely infested at farm in Morrow County. Open sores observed on cow's mammary veins, udder and flanks; several pigs 25-50 percent covered with dry, hard scabs about ears, shoulders and tails. (Lyon).

A BLOODSUCKING MITE (Laelaps multispinosus) - PENNSYLVANIA - Heavily infested muskrat in Centre County. Det. by R. Snetsinger. (Anderson, Mar. 8).

AMERICAN DOG TICK (Dermacentor variabilis) - WISCONSIN - Active in Trempealeau County. (Wis. Ins. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - CONNECTICUT - Began swarming week of February 25; reported from many areas of State. (Johnson). NORTH CAROLINA - Reported in home in Caldwell County. (Robertson). OHIO - Active workers in soil near wooden building at Springfield, Clark County. Swarming in Franklin County area. (Holdsworth, Lyon). MISSOURI - Swarms reported in southern and central areas. (Munson, Thomas, Wood).

TERMITES - MARYLAND - Swarming in and about several homes in Dorchester and Prince Georges Counties. (U. Md., Ent. Dept.). FLORIDA - Reticulitermes virginicus collected in home at Ft. Myers, Lee County, March 15, and in window sill at Tampa, Hillsborough County, on March 19. (Fla. Coop. Sur.).

ANTS - CONNECTICUT - Camponotus pennsylvanicus reported statewide. (Johnson). MARYLAND - Acanthomyops interjectus alates caused nuisance on property at Port Republic, Calvert County. (U. Md., Ent. Dept., Mar. 29). NORTH CAROLINA - Camponotus sp. collected in Onslow County. (Robertson). CALIFORNIA - Camponotus sp., probably essigi, infested wood in memorial building in Grass Valley, Nevada

County. Carpenter ants more prevalent last year than for several years previous; indications thus far are they will continue as pests of dwellings. (Cal. Coop. Rpt.).

BLACK CARPET BEETLE (Attagenus piceus) - NORTH DAKOTA - Reported in homes state-wide. (N. D. Ins. Sur.). UTAH - Damaging bedding in home at Panguitch, Garfield County. (Knowlton).

FURNITURE CARPET BEETLE (Anthrenus flavipes) - OHIO - Adults and larvae in homes in Franklin and Portage Counties; adults congregating on window sills; no degree of damage estimated. (Holdsworth).

BOXELDER BUG (Leptocoris trivittatus) - NEBRASKA - Numerous and causing significant annoyance in eastern and north central areas. (Bergman).

CLOVER MITE (Bryobia praetiosa) - CONNECTICUT - Active in homes. (Johnson). DELAWARE - Reports in homes increased in New Castle County. (MacCreary). MARYLAND - Caused nuisance by entering homes in Dorchester County and at Baltimore. (U. Md., Ent. Dept., Mar 27, Apr. 3). NORTH CAROLINA - Noted in home in Wake County. (Robertson). UTAH - Invading many homes in Ogden-Roy area, Weber County; Farmington-Layton area, Davis County; and Brigham City-Willard area, Box Elder County. (Knowlton). NEVADA - Populations and migrations into homes continue heavy in Reno-Sparks area, Washoe County, and Carson City, Ormsby County. (Nev. Coop. Rpt.). IDAHO - Nuisance in homes in Moscow, Latah County, and Mountain Home, Elmore County. (Edwards, Portman).

A NOCTUID MOTH (Protorthodes rufula) - CALIFORNIA - Periodically becomes household nuisance by entering homes and chewing fabrics, particularly rugs, in attempt to make nest. Heavy numbers occurred in rugs in residence in San Diego, San Diego County. (Cal. Coop. Rpt.).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - PENNSYLVANIA - Quite abundant in feed in Centre County. (Udine). NORTH DAKOTA - Light on dry cereal in home in Fargo, Cass County, and on bags of seed in seed-storage warehouses over the State. (N. D. Ins. Sur.).

LESSER GRAIN BORER (Rhyzopertha dominica) - MARYLAND - Adults infesting stored barley on farm in Caroline County. (U. Md., Ent. Dept.).

RED FLOUR BEETLE (Tribolium castaneum) - MARYLAND - Adults infesting stored barley on farm in Caroline County. (U. Md., Ent. Dept.).

DERMESTID BEETLES - NORTH DAKOTA - Small numbers of Attagenus piceus observed in seed-storage warehouses over eastern part of State. (N. D. Ins. Sur.). Larvae of unidentified species taken from seed warehouses at Valley City, Barnes County. (Brandvick).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - NORTH DAKOTA - Infested sweetpotatoes at Hunter, Cass County, in early January. (Larsen).

A SPIDER BEETLE (Mezium americanum) - NORTH DAKOTA - Adult collected in seed house in Fargo, Cass County; this is a new State record. (Wilson).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Moderate on tobacco in the plant bed and moderate to heavy on tobacco in the field in several southern counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light to moderate feeding damage on tobacco in plant bed in several southern counties. (Johnson).

BENEFICIAL INSECTS

LADY BEETLES - CONNECTICUT - Adalia bipunctata coming out of hibernation quarters. (Johnson). ALABAMA - Few specimens of Coleomegilla maculata fuscilabris and Hippodamia convergens in clover and oat fields in Lee County. (Guyton). OHIO - A. bipunctata and H. convergens adults collected in Clinton County during 50 sweeps of red clover field. (Triplehorn, Lyon). KANSAS - Occasional H. convergens noted in wheat and alfalfa in southern area at end of March. (Gates, Peters). TEXAS - Counts of H. convergens average 6 adults and 8 larvae per 10 sweeps in Burleson County alfalfa. (Newton).

Beneficial Insects in Arkansas - Beneficial insects became very active in southern area. Nabis spp., Orius insidiosus and Geocoris punctipes numerous in legumes. Hippodamia convergens, Coleomegilla maculata, and Cycloneda munda active in southern area. Chrysopa spp. becoming active statewide. (Ark. Ins. Sur.).

AN ASSASSIN BUG - TEXAS - Large populations of undetermined nymphs feeding on tent caterpillars in Bee County. (Texas Coop. Rpt.; Edgar).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - OHIO - Larval winter mortality low in Gallia County; 38 larvae per square foot at average depth of 4 inches recorded in one location. (Polivka).

MUSHROOM MITE (Tyrophagus putrescentiae) - CALIFORNIA - Heavy on bread; source of infestation not indicated. (Cal. Coop. Rpt.).

TROMBIDIID MITES - OHIO - Moderate to heavy throughout southwestern and central counties; ranged 1-25 per square foot in corn, wheat, pasture and hayfields. (Lyon).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - To date, 10,000 properties on nearly 1,600 blocks inspected in Sacramento, Sacramento County. Most recent extension is to west in vicinity of 1958 outbreak. Collected on orange tree north of Sacramento Airport; tree moved in recent months from heavily infested Oak Park area. Tree stripped of leaves as control. More than 700 blocks now treated; activity centered north of Folsom Boulevard between Alhambra and 55th Streets. Host plants in 6 nurseries treated. (Cal. Coop. Rpt.).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - NORTH CAROLINA - R. flavipes infested rotting cotton hulls in earthworm bed in Lincoln County. (Robertson). CALIFORNIA - R. tibialis heavy in wood shavings used in potting plant mixtures in nursery in El Cajon, San Diego County. (Cal. Coop. Rpt.).

A GEOMETRID MOTH (Phigalia titea) - PENNSYLVANIA - Adults in large numbers around lights in Scranton, Lackawanna County. (Jeffery, Mar. 27).

LIGHT TRAP COLLECTIONS

Pseud. Agrot. Feltia Perid. Prod. Spodop. Heliothis
unip. ips. subterr. saucia. ornith. exigua zea vires.

FLORIDA								
Gainesville 4/3				3			1	
GEORGIA								
Tifton 3/28-4/3	No collections.							
KANSAS								
Garden City 4/1	1				1			
Mound Valley 4/2	2				7		3	
MISSISSIPPI								
*Stoneville 3/29-4/4	162	40			181	21	14	4
SOUTH CAROLINA								
Clemson 3/16-4/5	3	1				35		
TEXAS								
*Brownsville 3/29-4/4	79	14	1355		288	36		105
Waco 3/30-4/5	11	20	10		6			6
WISCONSIN								
Madison 3/27-4/1	1				1			

Additional Light Trap Collections

KANSAS, Manhattan (4/2-3) - Paleacrita vernata - 3.

TEXAS, Brownsville* (3/29-4/4) - Protoparce quinque maculata - 7; P. sexta - 29; Laphygma frugiperda - 184.

WISCONSIN - P. vernata - Middleton (3/27-4/2) - 87; Madison (3/27-4/1) - 75.

* Two traps - Stoneville; 6 traps - Brownsville.

SUMMARY OF INSECT CONDITIONS - 1962
(continued from page 356)

ORNAMENTAL INSECTS

Highlights:

OYSTERSHELL SCALE was an important pest of lilac in Maryland and more abundant than usual in Ohio during 1962. EUONYMUS SCALE caused considerable damage to ornamentals in Oklahoma, was serious on euonymus in North Carolina during the season, and was widespread and destructive in Massachusetts. A MINING SCALE (Pseudaonidia clavigera) was collected for the first time in the continental United States in Florida at St. Petersburg. FLETCHER SCALE was severe on yews, arborvitae and juniper in Indiana and more destructive than usual in many areas of the State. This pest was recorded for the first time in California in 1962, and the first locality record of this scale for western Washington was reported on arborvitae in Kitsap County. CITRUS MEALYBUG was severe on oleander in a greenhouse at Hettinger, North Dakota, and the species became a pest of nursery stock in Butte County, California. COTTONY-CUSHION SCALE was heavy on forsythia in the Las Cruces area of New Mexico during February and caused rather general concern on ornamentals in Texas during the year. APHIDS were of some concern on ornamentals during 1962. Light to heavy infestations occurred on flowers, shrubs and some ornamental trees throughout the year in Arizona, and were some of the most numerous pests of ornamentals in Nevada, causing the most damage to these hosts. Several species caused common but not unusual problems on ornamentals in Oklahoma. Late in the 1962 season, an unusually heavy infestation of CITRUS WHITEFLY was reported in Sacramento, California. Delimiting surveys indicated that approximately 400 city blocks would require eradication treatment. Also in California, a PSYLLID (Psylla uncatoides) became one of the major pests of acacia and albizzia trees; in some areas, trees have been removed because of constant attack.

MIMOSA WEBWORM was recorded in Nebraska for the first time during 1962, and the pest continued to spread in Illinois, Indiana and Ohio. Mimosa webworm was also damaging in Maryland and Missouri.

JAPANESE BEETLE was heavier than usual in an area of Maine, apparently became established outside the quarantine area in Vermont, and was more abundant in some localities of Massachusetts. Adults were troublesome from mid-July through the first part of August in New Jersey, and caused considerable concern throughout Virginia during the summer. Results of eradication treatment of the Japanese beetle infestations in Sacramento, California, were very encouraging; however, one infestation was discovered in West Sacramento, Yolo County, across the Sacramento River from the original infestation. Eradication treatment was applied to this area immediately. ARBORVITAE LEAF MINER was severe and caused serious injury in central Maine. ONION BULB FLY was discovered for the first time in Montana during 1962 when it was found in a tulip bed in Conrad, Pondera County, on May 21. EUROPEAN EARWIG was collected in Santa Fe, New Mexico, during the summer, the first time this pest has been found in a populated area of the State. SPIDER MITES, ACARID MITES and ERIOPHYID MITES were of some concern in various portions of the Nation during the 1962 season, causing some local damage.

COCCIDS, as well as being the most numerous pests reported on ornamentals during the 1962 season, also probably caused the most concern over the Nation. OYSTER-SHELL SCALE (Lepidosaphes ulmi) was average statewide in RHODE ISLAND during the season. Adults, eggs and crawlers were abundant on lilac in an area of Sussex County, DELAWARE, during July, and the species was an important pest of

lilac in MARYLAND during the season. Oystershell scale was one of the more frequently reported coccids on ornamentals in VIRGINIA and was relatively abundant on ornamentals in OHIO during the year. This scale insect damaged peonies in MISSOURI, and crawlers of the pest were very active during June in NEBRASKA, with cotoneaster being heavily damaged in Knox County. Heavy infestations of oystershell scale were observed on cotoneaster in NORTH DAKOTA in the Fargo area of Cass County, the Minot area of Ward County and the Bismarck area of Burleigh County. Oystershell scale was more numerous in WYOMING during 1962 than in 1961, with very heavy damage occurring to many ornamentals; however, controls, when properly used, were generally effective.

EUONYMUS SCALE (Unaspis euonymi) caused rather general concern on ornamentals in TEXAS during the season and considerable damage to euonymus plants throughout OKLAHOMA from late January through late April. Euonymus scale was relatively abundant in OHIO and was serious on euonymus in NORTH CAROLINA during the 1962 season. In North Carolina, a dozen bushes in a Beaufort County location were observed in late August to be dead or dying. Euonymus scale was one of the more common coccids reported in VIRGINIA during the year, and was important on euonymus, pachysandra and bittersweet in MARYLAND. The species was present in average abundance on euonymus in RHODE ISLAND, and active crawlers of the late generation could be found on October 3 in the State. In MASSACHUSETTS, euonymus scale continued to be widespread and very destructive during the season.

WHITE PEACH SCALE (Pseudaulacaspis pentagona) and CAMELLIA SCALE (Lepidosaphes camelliae) were two of the more common coccid pest species on ornamentals in VIRGINIA during 1962, with camellia scale causing rather general concern on ornamentals in one or more areas of TEXAS during the season. TEA SCALE (Florinia theae) was locally abundant on camellias and Burford holly in SOUTH CAROLINA, and infested Burford holly in MISSOURI. SAN JOSE SCALE (Aspidiotus perniciosus) caused rather general concern on ornamentals in one or more areas of TEXAS and occurred generally on many ornamentals in CALIFORNIA. In areas of California where control practices were not followed, local, heavy infestations of this species developed. Several other species were of concern in California during the year. OLEANDER SCALE (Aspidiotus hederarum) occurs statewide and infests many hosts, but was particularly noticeable on ivy and some ornamentals this year. Heavy, scattered infestations of Aspidiotus degeneratus occurred on camellia in scattered areas of Stanislaus and Sacramento Counties. OLIVE SCALE (Parlatoria oleae) is present in several California counties on shrubs and roses and use of biological control has been very satisfactory in reducing populations. In some areas where this species has been known to occur for many years on privet, populations were practically nonexistent during 1962. The only known infestation of OBSCURE SCALE (Chrysomphalus obscurus) in California is present on ornamental oaks in Capital Park in Sacramento. Eradicative treatment, begun shortly after discovery in late spring, has given nearly 100 percent mortality. Also, Diaspis boisduvalii was a recurring problem on cymbidiums in coastal Santa Barbara County, and a single infestation of Pinnaspis strachani occurred on Chamaedorea sp. (palm) on a tree service property in San Fernando, Los Angeles County. Eradicative treatment is being applied to this latter infestation, which is the only known occurrence of this pest in California.

Lepidosaphes yanagicola, a relatively new species to RHODE ISLAND, caused concern in nurseries in Newport County. Females were active on egg masses on August 16, but the exact hatch date was not determined. Leucaspis japonica was important on privet, quince and hollies in MARYLAND during the season. A MINING SCALE (Pseudoaonidia clavigera) was collected for the first time in the continental United States in FLORIDA on April 9, 1962, at St. Petersburg, Pinellas County, and has been recorded on 28 host plants in the State, but has not been found outside the St. Petersburg area. Aspidiotus coniferarum, not previously recorded from Florida, was collected on eastern redcedar (Juniperus virginiana) at McIntosh, Marion County, on February 14, 1962.

PINE NEEDLE SCALE (Phenacaspis pinifoliae) was important on various pines in MARYLAND during 1962, as well as being one of the more commonly reported coccids in VIRGINIA. Pine needle scale was readily found on ornamental plantings of various species of spruce and pine in MINNESOTA during the year, and infestations were common on ornamental spruce and pine over much of MONTANA. JUNIPER SCALE (Diaspis carueli) was present on hosts statewide in RHODE ISLAND, hatch being observed in Kingston, Washington County, on June 20. The pest was also relatively abundant in OHIO during the season. BLACK PINE LEAF SCALE (Aspidiotus californicus) became locally heavy on specimen pines in parks and yards in a few instances in CALIFORNIA during the year.

FLETCHER SCALE (Lecanium fletcheri) hatched in Washington and Newport Counties, RHODE ISLAND, on July 13, and occurred in local outbreaks on Taxus spp. in MASSACHUSETTS during 1962. Fletcher scale was a severe pest of yews, arborvitae and juniper, and more destructive than usual in many areas of INDIANA. The species was recorded for the first time in CALIFORNIA in the neighboring counties of Siskiyou and Modoc as infesting arborvitae and yew. The first locality record of Fletcher scale for western WASHINGTON was recorded on arborvitae in Kitsap County this season. BROWN SOFT SCALE (Coccus hesperidum) was locally heavy on ivy plantings in Butte County, CALIFORNIA. Occasional infestations of this pest occur throughout the State, but are generally held in check by parasites and predators. MAGNOLIA SCALE (Neolecanium cornuparvum) was relatively abundant in OHIO during 1962, and BLACK SCALE (Saissetia oleae) occurred occasionally on house plants in RHODE ISLAND, with apparently all stages being found at anytime indoors. Also in Rhode Island, the occurrence of Pulvinaria floccifera was spotty, with hatching observed in Wakefield, Washington County, on July 1. A collection of another species in Washington County at Peace Dale, on July 19, was tentatively identified by H. Morrison as Lecanium excrescens. Ceroplastes sp. was of importance on hemlock and hollies in MARYLAND, and Ceroplastes spp. and Coccus spp. were among the more common pests in VIRGINIA during the year. Ceroplastes spp. were quite troublesome on various ornamentals, particularly holly, throughout the summer in NORTH CAROLINA, with crawlers of one species ready to emerge June 5 in Wake County. Complaints of what was probably Ceroplastes sp. on camellia were more numerous in SOUTH CAROLINA than in the past, and species of this genus of wax scales were also present on other ornamentals in the State, including spirea and Ilex spp. Lecanium spp. damaged rebud in Bexar County, TEXAS, and infested rose shrubs in COLORADO during the season. In OREGON, Lecanium excrescens was collected from wisteria at Newberg, Yamhill County, having previously been collected in the State on walnuts in Wasco County during 1952. Lecanium kunoensis became established in the Paradise area of Butte County, CALIFORNIA, during the year, being particularly heavy on pyracantha.

A severe infestation of CITRUS MEALYBUG (Planococcus citri) occurred on oleander in a greenhouse at Hettinger, Adams County, NORTH DAKOTA, and the species became a pest of nursery stock in Butte County, CALIFORNIA, during the 1962 season. Occasional infestations of COTTONY-CUSHION SCALE (Icerya purchasi) occurred on shrubs and roses in California. These infestations usually provide material for the survival of vedalia (Rodolia cardinalis) in the State. In NEW MEXICO, heavy infestations of cottony-cushion scale were found on forsythia in the Las Cruces area of Dona Ana County in February, and the pest caused rather general concern on ornamentals in one or more areas of TEXAS during the year.

Several other MEALYBUGS were of concern during 1962. Unspecified species were major pests of African-violets in SOUTH CAROLINA, and caused common but not unusual problems in OKLAHOMA. Several species were pests of commercial and home gardens in CALIFORNIA. Pseudococcus microcircularis occurred locally on cattleya orchids in a Marin County orchidhouse, where eradication treatment has been applied. Spilococcus cactearum and Pseudococcus obscurus infested cactus locally in Alameda County, and Phenacoccus eriogoni was medium on roots and leaves of Eriogonum sp. in Butte County.

A PIT SCALE (Asterolecanium arabis) occurred on some native hosts and on Pittosporum tobira in northern locations of CALIFORNIA. Another PIT SCALE (Cerococcus sp.) was first found in the United States during 1962 at Miami, Dade County, FLORIDA, during April. This species is near C. hibisci. It is now known from Miami, Dade County; Eau Gallie, Brevard County; Largo, Pinellas County; and Fort Myers, Lee County; and has been collected on several varieties of Hibiscus sp. and Acalypha sp. Satisfactory control measures have been developed.

APHIDS were of some concern on ornamentals during the 1962 season. Light to heavy infestations of several species were present on flowers, shrubs and some ornamental trees throughout the year in ARIZONA, and aphids were some of the most numerous pests of ornamentals in NEVADA, causing the most damage to these hosts. Unspecified species infested juniper and rose shrubs in COLORADO, and several species caused common but not unusual problems on ornamentals in OKLAHOMA.

ROSE APHID (Macrosiphum rosae) was heavy on roses in many locations over CALIFORNIA early in the 1962 season, the duration of infestations not being as long as usual in most of these locations. This aphid also infested pyracantha in the State this year. Rose aphid was again very common and numerous in communities of Washington County, UTAH, and caused concern on roses in MARYLAND. Also in Maryland, CRAPEMYRTLE APHID (Myzocallis kahawaluokalani) on crapemyrtle and COTTON APHID (Aphis gossypii) on althaea caused concern during the season. CHRYSANTHEMUM APHID (Macrosiphoniella sanborni) was abundant on chrysanthemums in New Castle County, DELAWARE, during late May, and BEAN APHID (Aphis fabae) was very heavy on Euonymus sp. at Wakefield, Washington County, RHODE ISLAND, by May 31. WHITE-PINE APHID (Cinara strobi) was abundant on ornamental pines throughout VIRGINIA, being most common during October and early November. GREEN PEACH APHID (Myzus persicae) was a persistent greenhouse pest in PENNSYLVANIA this year, particularly on chrysanthemums, and was common on greenhouse plants in greenhouses during the spring months in most areas of NEW MEXICO. SPRUCE APHID (Aphis abietina) heavily attacked Norway spruce on San Juan Island, WASHINGTON, during May. APPLE GRAIN APHID (Rhopalosiphum fitchii) was a common pest of greenhouse and house plants in ALASKA, and WOOLLY ALDER APHID (Prociphilus tessellatus) was more numerous than usual on alders used as ornamentals in that State. Masonaphis lambersi was numerous on rhododendron in Pierce County, WASHINGTON, this season, first specimens for the description of the species having been taken in the State in 1958. Vesiculaphis caricis, known to occur in CALIFORNIA only in Amador, Calaveras and Tuolumne Counties, infested azaleas locally in these areas. Also in California, Aphis sambucifoliae populations were heavy on elderberry in the Willow Glen area, and Macrosiphum pelargonii was medium locally on geranium in Vista, both in San Diego County. Myzus polaris infested carnations in a greenhouse in Grant County, NEW MEXICO, and Cinara sp. caused moderate damage to ornamental pines in northeastern TEXAS.

Scattered infestations of COOLEY SPRUCE GALL APHID (Chermes cooleyi) on home spruce plantings were common over MONTANA during the 1962 season, but were most severe in the western half of the State. This pest was also reported infesting evergreens in COLORADO this year. Cooley spruce gall aphid was average in abundance on ornamental spruce statewide in RHODE ISLAND, and was very heavy in the central area of MAINE on blue spruce growing in close proximity to Douglas-fir. EASTERN SPRUCE GALL APHID (Chermes abietis) was also average in abundance on ornamental spruce in RHODE ISLAND. PINE BARK APHID (Pineus strobi) was abundant in VIRGINIA, primarily on ornamental white pine, throughout the State, and infested ornamental pines in MISSOURI.

AZALEA LACE BUG (Stephanitis pyrioides) ranged common to abundant on azaleas in DELAWARE during the 1962 season, causing heavy injury to several plants in New Castle County. Corythucha spp. and Stephanitis spp. were again abundant on azaleas and rhododendrons in MARYLAND, and Corythucha spp. caused occasional local damage in VIRGINIA. Unspecified lace bugs caused common but no unusual problems in OKLAHOMA, and caused rather general concern on ornamentals in one or more areas of TEXAS during the year.

A SPITTLEBUG (*Clastoptera arizonana*) was a pest of acacia trees in Los Angeles and San Diego areas of CALIFORNIA, requiring considerable control work. An unspecified species of SPITTLEBUG infested evergreens in COLORADO during 1962, and several species were of rather general concern on ornamentals in one or more areas of TEXAS. Adults of another spittlebug (*Prosapia bicincta*) were locally damaging to holly in SOUTH CAROLINA.

VIRGINIA-CREEPER LEAFHOPPER (*Erythroneura ziczac*) infestations were recorded in Stillwater, Powder River and Dawson Counties, MONTANA, during 1962; and unspecified LEAFHOPPERS infested rose shrubs in COLORADO and caused considerable foliage damage to many ornamentals over CALIFORNIA.

AZALEA WHITEFLY (*Pealius azaleae*) puparia collected on *Rhododendron mucronatum* in RHODE ISLAND at Cranston, Providence County, on May 22, were confirmed by L. M. Russell. Infestations of unspecified species of WHITEFLIES were heavy on a number of ornamentals in GEORGIA during the 1962 season, and were generally severe pests in CALIFORNIA in home gardens and on ornamentals for the second year due to favorable conditions. Continued control was required in California most of the year. Late in the season, an unusually heavy population of CITRUS WHITEFLY (*Dialeurodes citri*) was reported by a homeowner in the city of Sacramento. Delimiting surveys indicated that approximately 400 city blocks will receive eradivative treatment. Several other species of whiteflies occurred statewide in California this year and caused severe damage.

BOXWOOD PSYLLID (*Psylla buxi*) was present in average abundance in RHODE ISLAND during 1962, with adults common in Washington County by May 29. This pest was common and widely distributed in VIRGINIA during the season. POTATO PSYLLID (*Paratrioza cockerelli*) populations were heavier than usual in southern NEVADA counties, with adults being numerous on various ornamentals. Another PSYLLID (*Psylla uncatoides*) has become one of the major pests of acacia and albizzia trees in CALIFORNIA, and in some locations within the State trees have been removed because of constant attack by this pest.

PRIVET THRIPS (*Dendrothrips ornatus*) was heavy on hedges in Smithfield, Providence County, RHODE ISLAND, during June, and GLADIOLUS THRIPS (*Taeniothrips simplex*) infested gladiolus in the Jamestown and Grand Forks areas of Stutsman and Grand Forks Counties, NORTH DAKOTA, respectively, during the 1962 season. CUBAN-LAUREL THRIPS (*Gynaikothrips ficorum*) has become a serious pest of *Ficus retusa* in most southern coastal counties of CALIFORNIA. Also in this State, populations of another THRIPS (*Frankliniella occidentalis*) varied from light to heavy on ornamentals from the spring through the summer. Thrips were generally prevalent in California during 1962, with many native shrubs and trees being infested as well as yard and street ornamentals. Several species of thrips caused rather general concern on ornamentals in one or more areas of TEXAS during the season.

Various species of Lepidoptera were of some concern on ornamentals in various sections of the Nation during the 1962 season, but some did not appear to be as troublesome as in some past seasons.

MIMOSA WEBWORM (*Homadaula albizziae*) was very abundant on honeylocust and honeylocust hybrids in PENNSYLVANIA during the season, and ranged moderate to severe on unprotected honeylocust and silktree in most sections of MARYLAND. Numerous infestations were reported in VIRGINIA. Heaviest mimosa webworm infestations in SOUTH CAROLINA occurred on silktrees and Moraine honeylocust in the Piedmont area. Mimosa webworm continued to spread in OHIO during 1962, appearing in large numbers on thornless honeylocust in Wooster, Wayne County. The pest also continued to spread northward in INDIANA, where infestations, particularly those of the first generation appeared to be less devastating, although fully as numerous as in 1961. Mimosa webworm was abundant and caused browning of honeylocust and silktrees in southern and central ILLINOIS. Infestations were found

for the first time this season in Alexander, Bond, Clinton, Gallatin, Hardin, Johnson, La Salle, Livingston, Logan, McLean, Marshall, Massac, Montgomery, Peoria, Pope, Pulaski, Randolph, Saline, Shelby, Stark, Tazewell, Washington and Woodford Counties. Infestations in southern counties may have been established for some time, but those in central Illinois are of recent origin.

Mimosa webworm infestations were observed throughout southern and central areas of MISSOURI during the 1962 season, with first-generation larvae observed feeding on mimosa and honeylocust in the southwest area in early May. Moderate to heavy damage to these trees by second-generation larvae was reported in the east central area during July. Third-generation larvae were observed hatching on honeylocust in east central Missouri in early September. The most severe damage in the State was evident in the southeast area where completely defoliated mimosa trees were common. Mimosa webworm was recorded for the first time in NEBRASKA during 1962 when it was found defoliating honeylocust trees at Omaha, Douglas County; it was also recorded in Lancaster County. Mimosa webworm larvae collected in Wyandotte County, KANSAS, in August 1961, were reported during 1962; this is the first and only report of the pest in Kansas. Adult emergence of mimosa webworm in CALIFORNIA began the last week of April and eradication treatment was applied in Chico, Butte County, which is the only known occurrence of the pest in the State. Some additional infestations were found during the season in the same area, however.

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) continued to be of concern in WASHINGTON during the 1962 season, where mugho and Scotch pines are the preferred hosts, although 15 species and varieties of Pinus in ornamental plantings have been attacked in the past. Approximately 100 communities in OREGON were surveyed for European pine shoot moth. A total of 18 infested pines out of 145,030 examined were found and destroyed. NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) damaged pines in eastern areas of TEXAS during 1962, being particularly damaging to a few new stands of seedlings. The pest caused extensive damage to pine seedlings and young trees as ornamentals in OKLAHOMA during the year. ZIMMERMAN PINE MOTH (Doryctria zimmermani) heavily infested mugho pines in Yakima County, WASHINGTON, during the season. A JUNIPER MOTH (Periploca nigra) continued to infest juniper in some locations of CALIFORNIA, seriously damaging leaders and branches and killing entire shrubs and trees.

BAGWORM (Thyridopteryx ephemeraeformis) hatched in some areas of NEW JERSEY by June 5 and was damaging over the State by August 3. Populations of this pest were about normal in MARYLAND during the 1962 season, with heavy injury to ornamental evergreens occurring in several counties, and infestations were numerous in VIRGINIA. Defoliation by bagworm killed many evergreens in INDIANA during August, and the pest caused its usual damage to evergreens in the southern two-thirds of ILLINOIS. Hatching of this pest occurred during June in IOWA. Bagworm infestations in ARKANSAS were similar to those present in the State during 1961, being heavier than normal during both years, and heavy populations again caused severe defoliation and death to evergreens in many areas of OKLAHOMA. The pest became active late in April in Oklahoma and continued active through August. Bagworm infestations were of the usual severity in most areas of TEXAS. Moderately heavy populations of unspecified PSYCHID MOTHS damaged evergreens in the Portales area of Roosevelt County, NEW MEXICO, and an unspecified species infested evergreens in COLORADO during the season there.

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) was unusually abundant and damaging to ornamental conifers in northwestern WASHINGTON, while SALT-MARSH CATERPILLAR (Estigmene acrea) caused rather general concern on ornamentals in one or more areas of TEXAS during the 1962 season. JUNIPER WEBWORM (Dichomeris marginella) caused occasional local damage in VIRGINIA, and another GELECHIID MOTH ("Recurvaria" thujaella) was severe and caused serious injury in central MAINE. Adults of the latter species were abundant in Maine, but expectations for the 1963 season must be determined by analysis of populations present in the State during the winter of 1962-1963.

ARMY CUTWORM (Chorizagrotis auxiliaris) attacked seedling caragana in the State Forest Nursery in Missoula, Missoula County, MONTANA, during the spring months of 1962. Larvae of a NOCTUID MOTH (Feltia ducens) were abundant and damaged chrysanthemums in Lincoln County, NEBRASKA, and another NOCTUID MOTH (Xerociris wilsoni) caused rather general concern on ornamentals in some areas of TEXAS. IRIS BORER (Macronoctua onusta) infested iris in MISSOURI. Larvae of another NOCTUID MOTH (Orthosia hibisci) were very active on rose and rhododendron in Washington County, RHODE ISLAND, during May and June. If abundance persists, this species may become an important pest of ornamentals in Rhode Island. In WYOMING, populations of FRUIT-TREE LEAF ROLLER (Archips argyrospilus) were larger than those present during 1961, causing considerable damage to ornamental trees and shrubs throughout the State during the 1962 season. An undetermined species of LEAF ROLLER MOTH was a persistent pest in a rosehouse in Macomb County, MICHIGAN, during the season.

Many local infestations of RED-HUMPED CATERPILLAR (Schizura concinna) occurred on native hosts and dooryard ornamentals in CALIFORNIA, and the pest caused occasional, local damage in VIRGINIA during 1962. An outbreak of AZALEA CATERPILLAR (Datana major) occurred on azaleas during September in SOUTH CAROLINA, and STALK BORER (Papaipema nebris) excited great concern statewide during July in RHODE ISLAND by damaging asters and other erect floral crops. EASTERN TENT CATERPILLAR (Malacosoma americanum) formed nests in flowering peach and native cherry trees during late April and early May in southern INDIANA with populations being about normal, and the species caused its usual damage to redbud trees in most areas of TEXAS.

Several miscellaneous lepidopterons were of some local concern during the 1962 season. ARBORVITAE LEAF MINER (Argyresthia thuella) caused heavy damage throughout most of the NEW ENGLAND States, and Argyresthia spp. were more damaging than usual to arborvitae in RHODE ISLAND, with adults flying in Kingston, Washington County, in mid-June. AILANTHUS WEBWORM (Atteva aurea) was abundant from mid-July through August, and killed leaves of ailanthus trees throughout central ILLINOIS and in spots in the southern portion of that State. Infestations were observed in north central, northwest and southwest areas of MISSOURI this season, with tree-of-heaven being defoliated in these areas. A PLUME MOTH (Platyptilia pica) was found infesting geraniums in 2 greenhouses, one each in Philadelphia and Montgomery Counties, PENNSYLVANIA. A CHRYSAUDIG MOTH (Galasa nigrinodis) caused local damage, probably to boxwood, in VIRGINIA. SADDLEBACK CATERPILLAR (Sibine stimulea) occurred on magnolia in eastern areas of TEXAS, and LEAF CRUMPLER (Acrobasis indiginella) caused rather general concern on ornamentals in one or more areas of the State. PUSS CATERPILLAR (Megalopyge opercularis) made its usual appearance on various ornamentals in many urban areas of Texas, causing much concern among residents. Larvae of CLEARWING MOTHS (Podosesia spp.) infested lilac shrubs and unspecified species of TUSSOCK MOTHS infested evergreens in COLORADO. Larvae of a SPHINX MOTH (Celerio galli) occurred in numbers in ALASKA for the first time in several years and, since this is the only large caterpillar in the State, the species created considerable interest. Also in Alaska, undetermined species of LEAF TIERS and LOOPERS were troublesome in the Haines area in the southeast portion of the State. In MICHIGAN, an unidentified species of MICROLEPIDOPTERA was found for the first time in Kalamazoo County as a pest of geraniums.

Of the various Coleoptera that were troublesome during the 1962 season, JAPANESE BEETLE (Popillia japonica) apparently caused the most concern. Japanese beetle was reported to be heavier than usual in the Auburn-Lewiston area of Androscoggin County, MAINE. Apparent infestations were established outside the quarantine area in VERMONT in 1962, but infestation in old, established areas was not as heavy as in former years. Japanese beetle was more abundant in some localities of MASSACHUSETTS, following the favorable 1961 season, and on the fringes of the generally infested area within the State. Isolated adults were noted by June 7 in RHODE ISLAND, and general emergence was underway Statewide by July 10. However, populations were generally light during 1962 in Rhode Island, except near new lawns. The decline in adult numbers was precipitous after August 21. Adults of

Japanese beetle were feeding on many ornamentals throughout NEW JERSEY by July 10, and continued troublesome through the first part of August. This beetle was somewhat late in emerging in MARYLAND, but numbers on ornamentals over the season were above normal. Adults of this pest caused considerable concern throughout VIRGINIA during the summer by feeding on a variety of ornamental plants, becoming particularly heavy in the southwestern portion of the State as well as becoming common in some localities for the first time. In WASHINGTON, a total of 102 traps was placed at municipal airports and at Armed Forces airports and bases in Grant, Island, King, Pierce, Snohomish and Spokane Counties; however, no Japanese beetles were trapped. Maintenance units and aircraft crews at Seattle-Tacoma International Airport cooperated in interceptions and collected 3 live and 3 dead specimens on incoming aircraft. No actual infestations were found in Washington during 1962. In CALIFORNIA, this was the second season of treatment since the discovery of Japanese beetle infestation in Sacramento during June 1961. Results of eradicated treatment were very encouraging, as only 5 beetles were taken in the Sacramento area of infestation, where over 500 occurred during the 1961 season. One infestation of Japanese beetle was discovered in West Sacramento, Yolo County. This area is across the Sacramento River from the original infestation. A total of 26 beetles was taken and the area received immediate eradicated treatment. Japanese beetles caged in June, and kept in the Department of Agriculture office, were able to produce offspring which began emerging as adults on December 25.

ROSE CHAFER (Macrodactylus subspinosus) was a nuisance on ornamentals in IOWA, NEW YORK and CONNECTICUT during the latter part of June. Adults appeared June 8 in Warwick, Kent County, RHODE ISLAND. This chafer was present statewide during 1962, with concentrations in sections of Warwick and Johnston, Providence County. Rose chafer was heavy throughout VERMONT during the season. Heavy populations of the chafer were reported skeletonizing leaves of various small plants and trees during June in the Auburn-Lewiston area of Androscoggin County, in Augusta, Kennebec County, and in the Dover-Dexter area in the central portion of MAINE. In MICHIGAN, activity of rose chafer, as indicated by the number of requests for identification and control recommendations, was considerably down from previous years. Adults of ASIATIC GARDEN BEETLE (Maladera castanea) were widespread in RHODE ISLAND beginning the first week of July. A SCARAB (Trigonopeltastes delta) caused rather general concern on ornamentals in one or more areas of TEXAS; and another SCARAB (Hoplia sp.) was extremely prevalent in CALIFORNIA, causing considerable damage to rose blossoms during April, May and June in the northern portion of the State.

There were more reports than usual of BLACK VINE WEEVIL (Brachyrhinus sulcatus) adults girdling twigs of arborvitae and yew in western WASHINGTON during the 1962 season. First adults were found in RHODE ISLAND on June 8 at Cranston, Providence County, but there were no reports of large infestations although the species was undoubtedly widespread. Infestations of yard and nursery plants by another WEEVIL (Brachyrhinus cribricollis) occurred in several diversified locations in CALIFORNIA, and STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) was found on arborvitae in the St. Paul area and in the southeastern portion of MINNESOTA. WHITE-PINE WEEVIL (Pissodes strobi) caused occasional local damage to ornamentals in VIRGINIA, but infestations of ARBORVITAE WEEVIL (Phyllobius intrusus) were negligible in RHODE ISLAND this year.

DOGWOOD TWIG BORER (Oberea tripunctata) caused local damage in VIRGINIA during the 1962 season. Unspecified species of POWDER-POST BEETLES and FALSE POWDER-POST BEETLES attacked fruitless mulberry trees in nurseries and yards in Las Vegas, Clark County, NEVADA, during the year.

Various Diptera were also of concern on ornamentals during 1962. ARBORVITAE LEAF MINER (Argyresthia thuiella) was severe and caused serious injury in central MAINE. Adults were abundant, but expectations for the 1963 season must be determined by analysis of populations present this year. This leaf miner was commonly

encountered in NEW HAMPSHIRE during 1962 where it was present in troublesome numbers in ornamental plantings. What was probably arborvitae leaf miner, was the cause of many instances of severe injury in MASSACHUSETTS, where it appears to be on the increase. Arborvitae leaf miner was occasionally damaging locally in VIRGINIA. Also in Virginia, reports of BOXWOOD LEAF MINER (Monarthropalpus buxi) were numerous during the season.

NATIVE HOLLY LEAF MINER (Phytomyza illicicola) was present in average abundance statewide in RHODE ISLAND during the 1962 season, emerging in Washington County the end of May, and was common and widely distributed in VIRGINIA during the year. Native holly leaf miner was locally serious on holly in SOUTH CAROLINA. It was also a frequent pest in the southernmost counties of INDIANA, being found infesting hollies for the first time in Vigo County during the year. HOLLY LEAF MINER (Phytomyza ilicis) appeared in San Carlos, San Diego County, CALIFORNIA, during March. Statewide survey showed the presence of this pest in a few nurseries in San Diego and Los Angeles Counties.

ONION BULB FLY (Eumerus strigatus) was discovered for the first time in MONTANA during 1962, when it was found in a tulip bed in Conrad, Pondera County, on May 21. Larvae of unspecified LEAF MINER FLIES infested lilac shrubs in COLORADO, and Phytomyza spp. were again prevalent in the central area of MARYLAND on American holly early in the year. A GALL MIDGE (Dasyneura gleditschiae) was found occasionally in nurseries statewide, and local infestations of Cecidomyia pinirigida occurred in Kingston, Washington County, both in RHODE ISLAND. An undescribed species of Oligotrophus, which appeared in a number of juniper plantings in OHIO in 1961, continued to injure many juniper plants in the State during 1962, and Oligotrophus sp. occurred in large numbers on Canaert juniper throughout INDIANA during the season.

EUROPEAN EARWIG (Forficula auricularia) was common in areas of MAINE, particularly Portland and Falmouth in Cumberland County, Biddeford in York County, and Auburn and Lewiston in Androscoggin County. Although the species was mainly a nuisance, some light injury to flowering plants was reported. European earwig was collected in Santa Fe, Santa Fe County, NEW MEXICO, during the summer of 1962. This was the first time this pest had been found in a populated area of the State. European earwig damaged dooryard ornamentals and gardens in many northern counties of CALIFORNIA during the season.

GRASSHOPPERS defoliated shrubs and flowering plants in small areas of the Albuquerque section of Bernalillo County, NEW MEXICO.

Heavy infestations of a SAWFLY (Macremphytus tarsatus) occurred on red-osier dogwood (Cornus stolonifera) in RHODE ISLAND on a property in Peace Dale, Washington County, on September 12. PEAR-SLUG (Caliroa cerasi) was very scatteredly abundant statewide in IDAHO, causing some damage to ornamentals in the southeastern area of the State during late July. ROSE-SLUG (Endelomyia aethiops) fed on roses in MISSOURI. Unspecified LEAFCUTTING BEES were troublesome on rose shrubs in COLORADO during 1962. In CALIFORNIA, one species, Megachile dentitarsus, became so numerous in some areas that many shrubs were partially defoliated by leafcutting. Undetermined species of SPRINGTAILS caused some concern in ALASKA during the season, but apparently caused no damage to greenhouse and house plants in the State.

Various species of MITES were troublesome and caused some damage to ornamentals during the 1962 season. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was a common pest of plants in greenhouses and houses in ALASKA, and was probably the most damaging mite species on ornamentals in CALIFORNIA, where widespread damage resulted from infestations statewide. Also in California, STRAWBERRY SPIDER MITE (T. atlanticus) was a pest of many shrubs and some trees in many areas of the State. Two-spotted spider mite infested evergreens in COLORADO, and was prevalent

on evergreens and ornamentals in WYOMING, inflicting moderate damage in many areas of the latter State. Very little control was done in Wyoming during 1962 except on a small number of ornamental plants. Two-spotted spider mite feeding evidence on spruce was observed in isolated areas over NORTH DAKOTA during the season. Two-spotted spider mite was the predominant species on a wide range of ornamentals in PENNSYLVANIA; however, various species of mites became a problem in the State early in the spring and continued so throughout the summer. A heavy infestation of two-spotted spider mite caused leaf abscission of 10,000 winged euonymus plants in a large nursery in Newport County, RHODE ISLAND, in September, and caused severe leaf desiccation to Clethra alnifolia in Triverton, same county.

SPRUCE SPIDER MITE (Oligonychus ununguis) was common on spruce used as ornamentals in ALASKA. Spruce spider mite was abundant on evergreens during late June in many areas of INDIANA, continued to be one of the most common pests of woody ornamentals in OHIO during 1962, and was very severe on hemlocks in PENNSYLVANIA.

Infestations of several other SPIDER MITES were also troublesome during the 1962 season. Heavy infestations of Eurytetranychus buxi occurred on boxwood in New Castle County, DELAWARE, during mid-May. Spider mites were again troublesome on many ornamentals in all sections of MARYLAND, including Oligonychus spp. on hollies and conifers and Tetranychus spp. on rose, hollyhock, foxglove and other plants. Unspecified spider mites caused noticeable damage to ornamental cedars and arborvitae in several areas of TEXAS, Tetranychus spp. caused common but no unusual problems in OKLAHOMA, and Bryobia spp. infested evergreens in COLORADO. Light to heavy infestations of several species of spider mites were a problem on various ornamentals, flowers and ornamental trees throughout the summer and fall months in ARIZONA, and these mites were among the most numerous pests of ornamentals in NEVADA, where they caused the most damage. Bryobia spica was heavy on Scotch-broom on a nursery property in Fortuna, Humboldt County, CALIFORNIA. Scotch-broom, which has escaped cultivation, now infests hundreds of acres of forest and rangelands in the northern portion of that State. Also in California, Tetranychus ludeni was heavy on lantana in a local area of San Diego County.

BULB MITE (Rhizoglyphus echinopus) was severe on more than 1,000 gladiolus corms in Howard County, MARYLAND, during September, and caused loss of lily bulbs in Humboldt County, CALIFORNIA. Also in California, an ACARID MITE (Tyrophagus longior) occurred in rather unusual incidence, feeding on blossoms and pollen of abutilon in Anaheim, Orange County.

ERIOPHYID MITES were also of some concern on ornamentals in some areas of the Nation during the 1962 season. Aceria paradianthi was recorded for the first time in MASSACHUSETTS, where it is a threat to carnation production in greenhouses. Several species of eriophyid mites were injurious to ornamentals in MARYLAND, including Nalepella tsugifoliae on hemlock and Vasates ligustri on privet hedge. In FLORIDA, Acritonotus denmarki damaged Florida royalpalm (Roystonea elata) in a nursery at Fort Lauderdale, Broward County, and Paracalcarus podocarpi caused some leaf damage on Podocarpus sp. at Crescent City, Putnam County. At Winter Haven, Polk County, Aceria knorrii was collected on flowers of Bidens pilosa. Several species of eriophyid mites were of concern in CALIFORNIA during 1962. Calacarus carinatus, Acaphylla steinwedeni and Aceria camelliae were locally heavy on camellias in San Diego County, and Aceria aloinis, which occurs in several localities in the southern portion of the State, was particularly heavy on aloe in Colton, San Bernardino County. Aceria paradianthi, which has not been of concern in California for a few years, developed heavy populations in commercial carnations in East Palo Alto, San Mateo County. Aceria n. sp. was found for the first time infesting dwarf bamboo (Sasa pygmaea) in 3 southern California counties. This undescribed species causes a mild witches'-broom in bamboo.

PILLBUGS were abundant throughout TEXAS during the spring of 1962 and actually damaged some ornamental plants in some areas of the State. GRAY GARDEN SLUG (Deroceras reticulatum) remains one of the most serious pests in western OREGON, with losses being concentrated in the spring and fall of the year.

STORED-PRODUCT INSECTS

Highlights:

KHAPRA BEETLE was confined to 17 properties in Arizona all of which have been treated. No infestations were found in previously infested States and the possibility of eradicating this pest appears promising. Awareness of this threat has brought about more inspections of warehouses, storage facilities, mills and other places subject to infestations, and consequently the insect problems of such places. SAW-TOOTHED GRAIN BEETLE continued to be the number one stored-product pest in Michigan. It was also more troublesome than usual in Washington, and in Wyoming it was found in 85 percent of the farm granaries inspected. RICE WEEVIL is the most important pest of stored grain in North Carolina. LESSER GRAIN BORER was found for the second time in Nevada. This pest also heavily infested several storage areas in Kansas. INDIAN-MEAL MOTH continued to represent the most important moth problem of stored products in Michigan. It was also an important pest in North Carolina. NAVEL ORANGEWORM continues as a major pest of stored walnuts and almonds in California. A PHYCITID MOTH (*Ephesiodes gilvescentella*) can now be considered a potential threat to commercial raisin storage in California. Extensive measures were required in Pennsylvania for control of POTATO TUBERWORM. Various FLIES also required control under similar circumstances in the same State.

The possibility of eradicating the KHAPRA BEETLE (*Trogoderma granarium*) continues to appear promising. Since July 1962, a total of 11,582 properties have been inspected in ARIZONA, CALIFORNIA, NEW MEXICO, TEXAS and the Republic of Mexico, with only 17 properties found infested. These infestations were in Arizona and most were traced to a single infested source -- a feed mill. No infestations were found in New Mexico and Texas in 1961 and 1962, nor in Mexico since July 1961. Since the beginning of the eradication program, 767 storage facilities involving 182.1 million cubic feet have been fumigated.

During 1962, a total of 431 survey sites throughout WASHINGTON were made in establishments handling stored products; species of *Trogoderma* were found without difficulty, especially east of the Cascade Range, but no khapra beetle. In CALIFORNIA, intensive survey during the entire year proved negative for khapra beetle. Seven other species of *Trogoderma* occur in the State and low numbers have been collected from many locations. The eradication program for this pest has resulted in good "housekeeping" practices by mills and warehouses and incidents of insect infestations have dropped. Surveys conducted in NEVADA during 1962 were negative for khapra beetle.

Various DERMESTID BEETLES are common in grain elevators in MONTANA; both *Trogoderma parabile* and *T. glabrum* have been found. Dermestid beetles infested stored grain and grain products in COLORADO. *T. parabile* was commonly encountered in feed stores, storage warehouses and homes in NEVADA during 1962. *Attagenus* spp. and *Perimegatomia* sp. were associated with mills and warehouses in CALIFORNIA.

Other dermestid beetles reported include HIDE BEETLE (*Dermestes maculatus*) and FURNITURE CARPET BEETLE (*Anthrenus flavipes*) in TEXAS, where they were noted as causing damage to various stored products in one or more areas. This latter species, as well as LARDER BEETLE (*Dermestes lardarius*) and BLACK CARPET BEETLE (*Attagenus piceus*) were noted in VIRGINIA, where occasional specimens and reports were received. Larder beetle and black carpet beetle were also reported in NORTH DAKOTA, where adults and larvae of both species were found in several grain and seed storage establishments. Black carpet beetle was common in NEVADA in feed stores, storage warehouses and homes during 1962.

SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) continued to be the number one stored-product pest in the State of MICHIGAN. Populations in OHIO were light over the past year; most damage observed was in oat kernels. This cucujid beetle infested a variety of stored products in food establishments over MARYLAND. This beetle also caused damage to various stored products in one or more areas of TEXAS. Some wheat in farm storage in northern counties of KANSAS was infested. Both stored grain and grain products in COLORADO were infested. Infestations of saw-toothed grain beetle were found in 85 percent of the farm granaries inspected in WYOMING; most populations were small and were not considered an immediate problem. This beetle was found in grain bins in various parts of MONTANA. It was frequently reported infesting various stored foodstuffs in NORTH DAKOTA. Saw-toothed grain beetle was more troublesome than usual in WASHINGTON. Infestations were common in NEVADA in feed stores, storage warehouses and homes. In CALIFORNIA, saw-toothed grain beetle was associated with mills and warehouses.

FLAT GRAIN BEETLE (*Cryptolestes pusillus*) caused damage to various stored products in one or more areas of TEXAS. This species infested some of the wheat in farm storage in northern counties of KANSAS; corn stored in northern counties generally reflected the highest infestations of GRAIN BEETLES anywhere in Kansas. Wheat throughout the State was generally found to contain few insects. The heavier infestations were reported from central Kansas. Flat grain beetle infested stored grain and grain products in COLORADO. Infestations of this species were frequently reported in various stored foodstuffs in NORTH DAKOTA.

CONFUSED FLOUR BEETLE (*Tribolium confusum*) and RED FLOUR BEETLE (*T. castaneum*) were more troublesome than usual in WASHINGTON. Both species also caused damage in one or more areas in TEXAS to various stored products. *Tribolium* spp. were found in both MONTANA and NORTH DAKOTA. They were found in grain bins in various parts of Montana, and they were frequently found in various stored foodstuffs in North Dakota. Red flour beetle was found in 40 percent of the granaries inspected in WYOMING. Little has been done to reduce infestations of this pest in Wyoming. Confused flour beetle infested stored grain and grain products in COLORADO. It was commonly encountered in NEVADA in feed stores, storage warehouses and homes. Another darkling beetle, *Latheticus oryzae*, was light in mixed feeds in Clark County, Nevada. There are indications that confused flour beetle was a problem in several sections of MICHIGAN in 1962.

YELLOW MEALWORM (*Tenebrio molitor*) was found in grain bins in various parts of MONTANA. Samples taken in MICHIGAN indicate that this pest was a minor problem in that State. DARK MEALWORM (*T. obscurus*) and *Tenebrio* sp. were found feeding on dogfood in stores in PENNSYLVANIA. LESSER MEALWORM (*Alphitobius diaperinus*) was occasionally reported in VIRGINIA.

GRANARY WEEVIL (*Sitophilus granarius*) and RICE WEEVIL (*S. oryzae*) occurred in CALIFORNIA and TEXAS. In California, both species were associated with mills and warehouses; in Texas, they caused damage to various stored products in one or more areas. In SOUTH CAROLINA, granary weevil was found in 2 upper Piedmont localities; one infestation was mixed with rice weevil. Rice weevil continues to be the most important pest of stored grain in NORTH CAROLINA. Heavy infestations of this species were found at one flour mill in OHIO in early December. Granary weevil was found in various parts of MONTANA in grain bins.

COWPEA WEEVIL (*Callosobruchus maculatus*) caused damage to various stored products in TEXAS. In NEW MEXICO, this species damaged stored black-eyed peas in an establishment in Lea County during February.

DRUGSTORE BEETLE (*Stegobium paniceum*) and CIGARETTE BEETLE (*Lasioderma serricornis*) were commonly reported infesting stored products in stores and barns in VIRGINIA. This latter species of anobiid beetle was reported from all sections of MARYLAND where it infested various cereals and spices. Cigarette beetle also damaged various stored products in TEXAS in one or more areas. Several instances of

drugstore beetle infestations in pantry supplies and in paprika were noted in CALIFORNIA. Dogfood was particularly attractive to this pest. Drugstore beetle also occurred in mills and warehouses in California. This species was more troublesome than usual in WASHINGTON.

LESSER GRAIN BORER (*Rhyzopertha dominica*) was found for the first time in Clark County, NEVADA, and for the second time in the State. This pest infested stored grain and grain products in COLORADO. Several isolated storage areas in the southern and western portions of KANSAS were reported heavily infested by lesser grain borer. This species and another FALSE POWDER-POST BEETLE (*Prostephanus truncatus*) caused damage to various stored products in TEXAS in one or more areas. Lesser grain borer was an important pest of stored grain in NORTH CAROLINA in 1962.

CADELLE (*Tenebroides mauritanicus*) adults and larvae were common about the premises of several feed and milling establishments over the State of MARYLAND. Infestations of cadelle were found in 38 percent of the farm granaries inspected in WYOMING; light damage occurred in most instances and only limited controls were used. Both cadelle and a HAIRY FUNGUS BEETLE (*Typhaea stercorea*) caused damage in one or more areas of TEXAS.

SAP BEETLES (*Carpophilus* spp.), which are pests of many fruits and nuts, were not so much a problem in CALIFORNIA as in past years due to sanitation, prevention and treatment practices.

INDIAN-MEAL MOTH (*Plodia interpunctella*) is an important pest of stored grain in NORTH CAROLINA. It was commonly reported infesting stored products in stores and barns in VIRGINIA. Extremely heavy populations of this phycitid moth caused damage to corn at a grain company in Champaign County, OHIO. Large numbers of larvae were found climbing up the sides of a storage bin. Indian-meal moth continued to represent the most serious moth problem of stored products in MICHIGAN. This species was not as prominent generally, in KANSAS during 1962 as in 1961. In TEXAS, this species caused damage to various stored products. Both larvae and adults of Indian-meal moth were often found in NEW MEXICO when checking stored grain for khapra beetle (*Trogoderma granarium*); most infestations were light. This was a pest of cereals and baking supplies in home storage in CALIFORNIA during 1962. Breeding was continuous throughout the year and populations were probably heavier than in past years. Indian-meal moth was common in feed stores, storage warehouses and homes in NEVADA. It was found in grain bins in various parts of MONTANA, and in several grain and seed-storage establishments in NORTH DAKOTA.

MEDITERRANEAN FLOUR MOTH (*Anagasta kühniella*) was commonly encountered in feed stores, storage warehouses and homes in NEVADA. It was a pest of cereals and baking materials in homes in CALIFORNIA where it was probably heavier than in previous years. In NEW MEXICO, larvae and adults were often found when checking for khapra beetle in stored grain; most infestations were light.

NAVEL ORANGEWORM (*Paramyelois transitella*) continued to be a major pest of stored walnuts and almonds, requiring considerable preventive treatment in commercial nuts in CALIFORNIA. Homeowners had good results by heat treating and storing nuts in tight-lidded containers. Another PHYCITID MOTH (*Ephestoides glivescens*) survived a full year in an experimental storage of raisins in California. This species can now be considered a potential pest of raisins in commercial storage.

ALMOND MOTH (*Ephestia cautella*) damaged various stored products in TEXAS in one or more areas.

ANGOUMOIS GRAIN MOTH (*Sitotroga cerealella*) continues to cause economic losses of farm-stored small grains and corn in all sections of MARYLAND. This was an important pest of stored grain in NORTH CAROLINA and it caused damage to various stored

products in TEXAS. Angoumois grain moth was a pest of cereals and baking material in home storage in CALIFORNIA; populations were probably heavier than in past years.

POTATO TUBERWORM (Gnorimoschema operculella) infested a large potato storage area, requiring extensive control measures in PENNSYLVANIA.

MEAL MOTH (Pyralis farinalis) was found in grain bins in various parts of MONTANA. Infestations were found in 6 of the 47 granaries inspected in WYOMING. Some infestations were large enough to cause some damage; control efforts were planned for 4 of the infested granaries. Occurrence of meal moth was much below normal in CALIFORNIA during 1962, with only a few instances of infestations being reported.

PINK SCAVENGER CATERPILLAR (Sathrobota rileyi) caused damage to various stored products in TEXAS in one or more areas.

FILBERTWORM (Melissopus latiferreanus) occurred in walnuts in a few locations in CALIFORNIA.

CHEESE SKIPPER (Piophilha casei) was locally abundant in Pascoag, Providence County, RHODE ISLAND, in May; this infestation was associated with a 1961 problem. A potato storage area of a potato chip plant in PENNSYLVANIA was heavily infested with FUNGUS GNATS, SCIARID FLIES and VINEGAR FLIES which had to be controlled to prevent accidental contamination of the potato chips.

GRAIN MITE (Acarus siro) was reported several times in PENNSYLVANIA where it infested animal feed. Both grain mite and PSOCIDS were found in grain bins in various parts of MONTANA.

NOTES ON THE PICTORIAL KEY FOR IDENTIFICATION OF
THE LARVAE OF DERMESTID GENERA

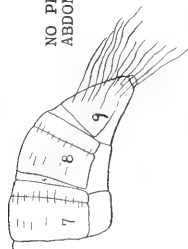
This key is intended to facilitate the determination of the larval forms of the genera of Dermestidae commonly encountered in plant-quarantine port and border inspections, in households, and in stored products in general. Other genera in the family have rarely or never been found in these circumstances and have been omitted from the key for simplicity. One genus, Perimegatoma, has been collected at several points along the Canada-U.S. border in seed storage, but its separation from Trogoderma in the larval stage is difficult without comparative specimens.

For ease in identification, dermestid larvae should be preserved and studied in 70% ethyl alcohol. Critical characters are often hidden in dried specimens which are usually shriveled and brittle. Larvae in this condition can usually be relaxed by heating them gently in alcohol on an electric hotplate.

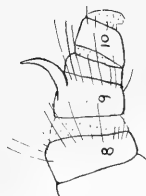
Identifications can be made with a 10x hand lens, except for differentiation of scale shape in Attagenus and Novelsis. For this, about 20x is needed. Species of Novelsis have normally been found only in the Southwestern United States and Mexico and are occasionally intercepted in border inspections. The other five genera are cosmopolitan.

John M. Kingsolver
Entomology Research Division
Agricultural Research Service
U. S. Department of Agriculture

KEY FOR SEPARATING LARVAE OF DERMESTID GENERA COMMONLY FOUND IN STORED PRODUCTS



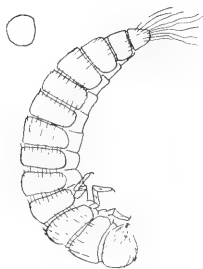
NO PROCESSES ON 9TH
ABDOMINAL SEGMENT



PAIR OF HORN-LIKE PROCESSES
(UROGOMPHI) ON DORSUM OF
9TH ABDOMINAL SEGMENT

DERMESTES

BODY TAPERED, SEGMENTS
CYLINDRICAL, BODY SETAE
APPRESSED

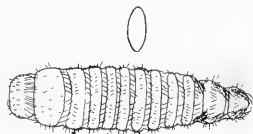


BODY SETAE BROAD
AND FLATTENED

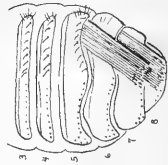


NOVELSIS
(WESTERN U.S.)

BODY FLATTENED, SUB-FUSIFORM,
BOTH ERECT AND APPRESSED
BODY SETAE PRESENT

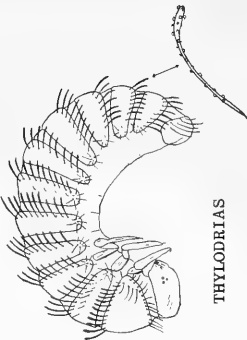


POSTERIOR MARGIN OF 5TH
TERGAL PLATE OF ABDOMEN
SINUATE ON EITHER SIDE



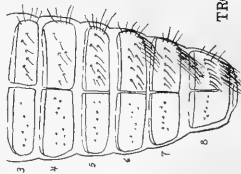
ANTHRENUS

BODY USUALLY ROLLED INTO
A BALL (PILL-BUG LIKE)
BODY SETAE CURVED BUT ERECT



THYLODRAS

POSTERIOR MARGIN OF 5TH
TERGAL PLATE OF ABDOMEN
STRAIGHT OR EVENLY CURVED



TROGODERMA

ATTAGENUS



BODY SETAE SLENDER

ATTAGENUS

UNITED STATES DEPARTMENT OF AGRICULTURE

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ALFALFA WEEVIL damage reported in Delaware, Virginia, North Carolina and Colorado; adults active in Idaho, Utah, Wyoming, Ohio and Maryland. (pp. 389, 408). CLOVER HEAD WEEVIL numbers higher than normal on crimson clover in Arkansas. PEA APHID generally heavy on alfalfa in areas of Oklahoma; controls applied. Numbers increasing rapidly throughout Arkansas and populations light to heavy in southwest Missouri, with some controls being applied in both States. (p. 389). SPOTTED ALFALFA APHID heavy locally in Oklahoma. (p. 390). CORN LEAF APHID very heavy on barley in several Arizona counties, and heavy populations of LEAFHOPPERS continue present on barley in some areas of three Oklahoma counties. (p. 392). BROWN WHEAT MITE building up where extremely dry conditions exist in Oklahoma, and damaging grain and seedling alfalfa in Pahrump Valley of Nevada. (pp. 392-393).

EASTERN TENT CATERPILLAR causing light to heavy damage to peach and plum trees in Hays and Blanco Counties, Texas, and heavy on wild plum and fruit trees throughout Oklahoma. (p. 393).

CHICKEN BODY LOUSE moderate to heavy on most farm flocks in southeastern Ohio. LONE STAR TICK heavy and causing considerable concern in eastern Oklahoma. (p. 404).

FORECASTS

LESSER PEACH TREE BORER and ORIENTAL FRUIT MOTH may be a problem to peach growers in Indiana because of the winter injury to trees and lessened control application. (p. 393). LINDEN LOOPER, FALL CANKERWORM and SPRING CANKERWORM expected to be heavy this year in Connecticut. (pp. 394, 400).

SOME FIRST APPEARANCE RECORDS

PEA APHID in Delaware; LESSER CLOVER LEAF WEEVIL adults in Maryland; MEADOW SPITTLEBUG nymphs in Ohio and Illinois; GREEN CLOVERWORM in Oklahoma; SIX-SPOTTED LEAFHOPPER in Wisconsin; GRASSHOPPER nymphs in Kansas and Oklahoma; MORMON CRICKET emergence in Oregon; APPLE APHID hatching in Maryland, Connecticut, Pennsylvania and Michigan; and ROSY APPLE APHID in New York, Connecticut, Pennsylvania, Delaware and Maryland; EUROPEAN RED MITE eggs hatching in Delaware and Indiana; a FILBERT APHID (*Myzocallis coryli*) observed in Oregon; IMPORTED CABBAGEWORM adults in Lee County, Alabama; PINK BOLLWORM moths in cages in Arizona; NANTUCKET PINE TIP MOTH adults in Maryland; EASTERN TENT CATERPILLAR hatching in Connecticut and Pennsylvania, and small nests observed in Illinois; TABANID FLIES in southeastern Oklahoma; FACE FLY adults in Massachusetts; AMERICAN DOG TICK in Delaware and Maryland; LADY BEETLES in several States; and DAMSEL BUGS in Idaho and Illinois.

DETECTION

SOUTHWESTERN CORN BORER found for first time in Illinois. (p. 391). SMALLER EUROPEAN ELM BARK BEETLE collected in Union County, South Dakota, for first time. (p. 400).

SPECIAL REPORTS

European Corn Borer Survival Surveys (partial reports). (p. 391).

Citrus Insect Situation in Florida - End of March. (p. 395).

(Continued on following page)

Quarterly Insect and Mite Outlook in Florida - April through June. (p. 396).

Potato Psyllid Survey, Spring Breeding Areas of Texas and Southeastern New Mexico. (p. 397).

Beet Leafhopper Survey, Texas and New Mexico (p. 398), Kansas (p. 398).

Winter Survey for Asparagus Beetles in New Jersey. (p. 398).

Boll Weevil Survival Survey in McNairy County, Tennessee. (p. 399).

Status of the Screw-worm in the Southwest. (p. 403).

Interceptions of Special Interest at U. S. Ports of Entry. (p.409).

Summary of Insect Conditions in the United States - 1962

Beneficial Insects - (p. 410).

Miscellaneous Insects - (p. 415).

Survey Methods for Survey Entomologists (Corn Earworm Damage Survey). (p. 420).

CORRECTIONS

See page 406.

ADDITIONAL NOTES

See page 408.

Reports in this issue are for week ending April 12, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK MID-APRIL TO MID-MAY 1963

The Weather Bureau's 30-day outlook for the period mid-April to mid-May calls for temperatures to average above seasonal normals over the eastern two-thirds of the Nation except for near normal in New England and the northern Plains. Most unseasonable warmth is expected in States bordering the lower Mississippi Valley. On the other hand, below normal averages are predicted for areas west of the Continental Divide. Precipitation is expected to exceed normal over all areas west of the Divide and from the northern Plains eastward to the Great Lakes. Subnormal amounts are in prospect for the southeast quarter of the Nation and in coastal areas of the Northeast. In unspecified areas, about normal precipitation is indicated.

WEATHER OF THE WEEK ENDING APRIL 15

Dry, sunny weather prevailed during most of the week from the Rocky Mountains to the Atlantic coast. The week was rather windy in the Northeast, and record-breaking heat was experienced in Texas. In the Far West, there was considerable cloudiness and recurring showers. Temperatures averaged below normal in northern areas east of the Mississippi River by as much as 8° at Columbus, Ohio, and Charleston, West Virginia. In the Northeast, the dry, sunny, windy weather, with unusually low relative humidity caused rapid drying, thus creating a high fire hazard. Forest fires were reported in Pennsylvania, and numerous grass and brush fires in New York State. An extreme fire hazard existed in New England where many acres of woodland were burned, and grass and brush fires were counted in the hundreds. More than 500 grass and woods fires occurred on Friday and Saturday in Massachusetts alone. In Texas, maximum temperatures ranged in the 90's during the first part of the week, and exceeded 100° in the lower Rio Grande Valley, with a high of 107° at Laredo on the 9th. A high of 100° was also recorded at Fredrick, Oklahoma, on the 8th. During the weekend, high temperatures ranged in the (continued on page 408)

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (*Hypera postica*) - OHIO - Adults 2 per 100 sweeps in old alfalfa field near Darwin, Meigs County. (Treece, Lyon). DELAWARE - First and second instars becoming more noticeable in untreated alfalfa; adults averaged one per 10 sweeps in New Castle County field during daytime. Egg counts increased to 309 per 100 old-attached stalks in one New Castle County field, with approximately one-half of eggs observed hatching on April 8. (Burbutis). MARYLAND - Numerous adults, apparently from spring flights, found on beach at Maryland Beach, Worcester County, April 2. (U. Md., Ent. Dept.). VIRGINIA - Larvae present in several alfalfa fields checked throughout Roanoke County; some fields treated during fall of 1962, some not treated. (Allen, Apr. 3). Larvae ranged 12-300 per 100 sweeps (average 117) in several fields checked in Franklin, Pittsylvania and Bedford Counties. Most larvae in second and third stages in Franklin County; first and second stages in other fields. Larvae and adults noted in all fields checked; adults ranged 1-20 per 100 sweeps (average 6). (Tarpley, Apr. 3, 4). NORTH CAROLINA - Larvae averaged 12.3 per square-foot pan count in 7 alfalfa fields and 47.8 per square-foot pan count in 3 fields in small area near Wake Forest, Wake and Franklin Counties. Most, if not all, fields treated too late in fall of 1962; damage quite noticeable. Most larvae in second and third stage. (Campbell, Mount). GEORGIA - Larvae 75-90 per sweep on two untreated fields of alfalfa in northwest. Control in fields treated previous fall excellent. (Johnson). ALABAMA - Numerous in isolated fields in Lee and Autauga Counties. (Buttram). COLORADO - Larvae and damage observed on alfalfa in Fremont County. Damage appearing on alfalfa in Logan County. Controls being completed in Mesa County where adults have been active since March 1. (Hantsbarger, Jenkins, Bulla). WYOMING - Adults averaged less than one per square foot in new growth alfalfa in Albany County. (Fullerton). UTAH - Adults active and winter survival apparently high in Cache, Box Elder and Weber Counties. Large acreage treated in central and northern areas. (Knowlton). IDAHO - Few adults found. Becoming active in alfalfa in Clearwater River area. (Halfhill).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - ALABAMA - Feeding moderate to heavy on crimson clover and burclover in Lee, Elmore and Autauga Counties; 5-10 per sweep. (Buttram). ILLINOIS - Adults range 0-10 and averaged 0.5 per 100 sweeps in east-southeast districts. (Ill. Ins. Rpt.). MARYLAND - Numerous adults found April 2 on beach at Maryland Beach, Worcester County; apparently from spring flights. (U. Md., Ent. Dept.).

CLOVER LEAF WEEVIL (*Hypera punctata*) - NEBRASKA - Larvae moderately feeding on alfalfa and clover in eastern area; considerable damage in some fields. (Bergman). ILLINOIS - Larvae ranged 0-12 per square foot (averaged 5.2) in extreme southern area April 1-4; 0-18 (averaged 7.5) in east southeast district April 8-9. (Ill. Ins. Rpt.). WISCONSIN - Eggs hatching in alfalfa in Walworth County. (Wis. Ins. Sur.).

CLOVER HEAD WEEVIL (*Hypera meles*) - ARKANSAS - Numbers in crimson clover higher than normal for time of year. Up to 150 per 100 sweeps collected in southern area. No larvae found. Copulation quite common. (Ark. Ins. Sur.). ALABAMA - Numerous on crimson clover in Lee and Autauga Counties. (Buttram).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - ILLINOIS - Adults ranged 0-10 and averaged 2 per 100 sweeps in east-southeast district. (Ill. Ins. Rpt.).

A WEEVIL (*Sitona scissifrons*) - NEBRASKA - Adults low in number in Howard County alfalfa. (Calkins, Stevens).

SWEETCLOVER WEEVIL (*Sitona cylindricollis*) - ILLINOIS - Ranged 0-10 and averaged 0.5 per 100 sweeps in east-southeast district. (Ill. Ins. Rpt.).

PEA APHID (*Acyrtosiphon pisum*) - ARIZONA - Appearing on alfalfa in Graham County. (Ariz. Coop. Sur.). OKLAHOMA - Generally heavy populations present in alfalfa in east central, south central, southwest, west central and central areas of State, with only light populations noted in Greer County, southwest. Heavy infestations

causing honeydew on foliage and controls being undertaken in most areas; counts up to 5,000 per 10 sweeps. (Okla. Coop. Sur.). ARKANSAS - Numbers increased rapidly throughout State; counts in some areas so high that only estimates made. Highest numbers observed in Conway County, central area; counts 200 plus per sweep of 15-inch net. Approximately one cup full collected in 20-30 sweeps. Numbers in Miller County (southwest) alfalfa somewhat lower, but high. Few counts in alfalfa in this area showed 100 plus per stem. Some alfalfa acreage in Miller County being treated. Number in crimson clover in western and southern areas varies widely from low to high; winged forms present in most fields. (Ark. Ins. Sur.). MISSOURI - Ranged light to heavy on alfalfa and clover in southwest; counts 2-35 per sweep in alfalfa. Some controls being applied. (Munson, Thomas, Wood). ILLINOIS - Ranged 0-8,000 (averaged 1,541) per 100 sweeps in extreme southern area April 1-4, and ranged 0-140 (averaged 13.5) per 100 sweeps in east-southeast district April 8-9 on clover and alfalfa. (Ill. Ins. Rpt.). WISCONSIN - Eggs hatched in southeast; highest count 7 per 50 sweeps on sloping alfalfafield having pronounced southern exposure. (Wis. Ins. Sur.). OHIO - Averaged 10 per 50 sweeps in field of alfalfa in Athens County; predominantly adult stem mothers. (Lyon). MARYLAND - Averaged 31 per sweep on alfalfa at Wesley, Worcester County. (U. Md., Ent. Dept.). DELAWARE - First of season noted on April 8; counts averaged 7 per 10 sweeps on alfalfa in New Castle County. (Burbutis). VIRGINIA - Small numbers appearing in some Roanoke County alfalfa. (Allen, Apr. 3). Very light to light in all fields checked in Franklin, Pittsylvania and Bedford Counties; ranged 40-8,000 per 100 sweeps (average 2,000). (Tarpley, Apr. 7).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OKLAHOMA - Light in southwest, with only occasional winged forms noted in west central area (fewer than 15 per 10 sweeps). Heavy in field in Carter County; 4,000 per 10 sweeps. (Reported heaviest infestation seen in this area in 3 years). Heavy populations also reported in Garvin County; controls applied to reduce populations. Light in Garfield County field. (Okla. Coop. Sur., Apr. 13). Generally light in southern part of State; counts 6 per 10 sweeps in southeast and 25-50 per square foot of crown in Tillman County, southwest. (Okla. Coop. Sur., Apr. 6). ARKANSAS - Collected only in Miller County, southwest; counts 75-125 per 100 sweeps of 5-inch net. (Ark. Ins. Sur.). NEBRASKA - Counts averaged 2-4 per 10 sweeps of first to fourth instars on alfalfa 5 inches high in Howard County. (Calkins, Stevens).

YELLOW CLOVER APHID (*Therioaphis trifolii*) - ILLINOIS - Ranged 0-20 (averaged 4) per 100 sweeps in extreme southern area April 1-4, and ranged 0-80 (averaged 13.6) per 100 sweeps in east-southeast district April 8-9. (Ill. Ins. Rpt.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - OKLAHOMA - Common in most alfalfa checked; counts ranged 2-6 per 10 sweeps in central, west central, southwest and south central areas. (Okla. Coop. Sur.). ARKANSAS - Numbers rather low in legumes; counts 20-30 per 100 sweeps. Reproduction underway, with second and third instars present. (Ark. Ins. Sur.). ALABAMA - Adults and nymphs found feeding on vetch and clover in Lee County; 2-5 per sweep in vetch, clover and grain-clover mixtures. (McQueen). ILLINOIS - Adults ranged 0-20 (averaged 9) per 100 sweeps in extreme southern area April 1-4, and ranged 0-30 (averaged 4) per 100 sweeps in east-southeast district April 8-9. (Ill. Ins. Rpt.). OHIO - Moderate to heavy populations in red clover forage fields at Marietta, Washington County. (Blair, Lyon). PENNSYLVANIA - Present on alfalfa in southeast. (Menusan). DELAWARE - Adults averaged one per 10 sweeps on alfalfa in New Castle County. (Burbutis).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ALABAMA - Few adults noted feeding on crimson clover, vetch and white clover in Lee County. (McQueen).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - OHIO - Overwintering eggs hatching April 9 in red clover-wheatstubble field near New Philadelphia, Tuscarawas County. Eggs averaged 8-14 per mass, with 1-2 eggs hatched from each mass. First instars moving to red clover plants. (Treece, Lyon). ILLINOIS - Nymphs range 0-1 and averaged 0.05 per 100 stems in east-southeast district. (Ill. Ins. Rpt.).

BROWN STINK BUG (Euschistus servus) - ALABAMA - Few taken from vetch and crimson clover in pecan orchard in Lee County. (Guyton, McQueen).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Few specimens taken from vetch in peach orchard in Lee County. (McQueen).

ALFALFA CATERPILLAR (Colias eurytheme) - ARKANSAS - Eggs and various size larvae present in alfalfa and crimson clover. (Ark. Ins. Sur.). ILLINOIS - Larvae ranged 0-10 (averaged 1) per 100 sweeps in alfalfa in extreme southern area April 1-4, and ranged 0-10 (averaged 0.5) per 100 sweeps in east-southeast district April 8-9. (Ill. Ins. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - First activity noted on alfalfa in Marshall County, south central, week ending April 6. Counts light, fewer than 1 per 10 sweeps, in alfalfa in Love and Murray Counties, south central, and light adult activity noted in scattered areas of southwest and west central areas week of April 13. (Okla. Coop. Sur.). ARKANSAS - Continues active; eggs and various size larvae present in alfalfa and crimson clover. (Ark. Ins. Sur.). ALABAMA - Counts 2-5 per sweep on crimson clover and vetch in Lee County. (McQueen).

A SPIDER MITE (Tetranychus sp.) - NEVADA - Economic populations damaging alfalfa in Pahrump Valley, Nye County. (Zoller).

EUROPEAN CORN BORER (Ostrinia nubilalis) - SOUTH DAKOTA - Winter mortality survey completed in two districts. Average percent mortality 24.2 in east central district and 17.5 in southeast. (Spawn, Hintz). MINNESOTA - Overwintering mortality survey started; mortality averaged 24 percent in southeast district and 28 percent in south central district. The 10-year State average is 23 percent mortality. (Minn. Ins. Rpt.). ILLINOIS - Percent survival averaged 67.3 in west district, 70 in west-southwest district, 76 in east-southeast district and 58 in northern counties. (Ill. Ins. Rpt.). MISSOURI - Spring survival survey in southeast area showed 53.3 percent mortality. (Keaster).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ILLINOIS - Larva found March 29, 1963, near Urbandale, Alexander County, in old corn stalk by J. Bigger and H. B. Petty. Confirmed by D. M. Weisman. This is the first record for the State. Additional larva found April 2 in same field in Alexander County. Other surveys negative although suspicious looking stalk girdling found in some instances. (Ill. Ins. Rpt.). MISSOURI - Total of 7 live larvae found in 4 fields checked in southwest area; survival slightly less than 2 percent. (Munson, Thomas, Wood).

FALL ARMYWORM (Laphygma frugiperda) - FLORIDA - Infesting sweet corn at Belle Glade, Palm Beach County, on April 4. (Smith).

CORN EARWORM (Heliothis zea) - ARKANSAS - Extensive surveys in western and southern areas failed to detect any larvae; egg deposition and larval development expected momentarily. (Ark. Ins. Sur.). FLORIDA - This species and Spodoptera exigua light to moderate on 9-20 acres of corn at Iona and Estero, Lee County, on April 3. (Walsh, Shirah).

ARMY CUTWORM (Chorizagrotis auxiliaris) - NEBRASKA - Damaging populations reported from Lincoln, Dawson and Hayes Counties on alfalfa. (Pruess). COLORADO - Trace numbers of larvae, 0-2 per linear foot of drill row, found in wheat and barley in Logan, Phillips, Yuma, Kit Carson and Washington Counties. (Jenkins). OKLAHOMA - Larval feeding activity ceased throughout most of west central, northwest and panhandle areas. (Okla. Coop. Sur., Apr. 6).

BRONZED CUTWORM (Nephelodes emmedonia) - ILLINOIS - Larvae varied 0-70 (averaged 26.7) per 100 sweeps in bluegrass in east-southeast district. (Ill. Ins. Rpt.).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Generally noneconomic to light throughout State, with some isolated threatening infestations. Some controls applied in Kingfisher County area where counts ranged from fewer than 10 per foot to 50-75 per foot. Some treatments also reported from southern Caddo County and Stephens County. Except for these isolated buildups, noneconomic to light (up to 50 per foot) infestations noted in fields checked in Caddo, Kiowa, Jackson (one field up to 100 per foot), Greer, Washita, Canadian, Blaine and Garfield Counties. Counts of 35 per foot noted in Sequoyah County, south central. Isolated treatments reported in Kiowa County (west central) and Bryan County (south central) areas week ending April 6. (Okla. Coop. Sur.). MISSOURI - Light to moderate in southwest; counts ranged 0-13 per foot of drill row. Observed in wheat, barley and spring seeded oats. (Munson, Thomas, Wood). GEORGIA - Heavy on oats in Wilkes County. (Carter, Apr. 1).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Only light populations observed and reported throughout State; 90 percent of aphids on upper portion of wheat plants in Caddo County this species. (Okla. Coop. Sur.). NEBRASKA - Counts less than one per 10 sweeps in southern, central and eastern areas on wheat. (Bergman). WISCONSIN - Alates present in grain fields in Rock County; occasional nymph present. (Wis. Ins. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Infestations very heavy on barley in Maricopa, Pinal, Pima, Graham and Greenlee Counties. (Ariz. Coop. Sur.). TEXAS - Moderate, localized infestations, probably this species, appearing on grain sorghum in Calhoun County. (Texas Coop. Rpt.; Bales). OKLAHOMA - Light on some small grains in Choctaw County. Some activity starting on Johnson grass in area. (Okla. Coop. Sur., Apr. 6).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Highest counts (light, up to 100 per foot) made in irrigated field in Jackson County. Present only in fields with thick growth at base of plants. Nonexistent or very light in other fields checked throughout State. (Okla. Coop. Sur.).

APHIDS - GEORGIA - Unspecified species heavy on Berrien County barley. (Johnson, Apr. 3). FLORIDA - Rhopalosiphum rufiabdominalis moderately infesting 10 acres of corn at Iona, Lee County, on March 20. (Walsh, Shirah).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Females swept from field of more advanced grain near East Troy, Walworth County. Females first found on April 27 during 1962 season in that area of State. (Wis. Ins. Sur.).

LEAFHOPPERS - OKLAHOMA - Heavy populations of unidentified species continue in barley in some areas of Carter and Bryan Counties, with some treatments applied in Bryan County. Heavy counts also reported from Garfield County in barley. (Okla. Coop. Sur.).

HESSIAN FLY (Phytophaga destructor) - NEBRASKA - Light to moderate infestations, 1 to 20 percent, present in southern and central area wheat fields. No adult emergence noted. (Bergman). KANSAS - Examination of 2 fields of wheat on April 9 in Riley County, northeast, showed adult emergence and egg laying were continuing. Damp weather hindered survey, but apparently peak emergence had not occurred. (Peters).

WIREWORMS - NORTH CAROLINA - Larvae found in Perquimans County field being plowed. Four larvae Conoderus lividus, one Melanotus communis and 2 undetermined. Field in corn in 1962. (Mount). OHIO - Ctenicera cylindriciformis adults 5 per 100 sweeps in field of alfalfa in Meigs County; found at terminal tips of plants. (Triplehorn, Lyon).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Infestations common in western half of State, with heavy counts observed in Grandfield area of Tillman County and in Comanche County, southwest. (Heavy rains in southwest have reduced populations to a low level; not considered a problem at present). Light to

medium infestations observed in west central area, light in northwest and light to moderate in panhandle areas. Extremely dry conditions exist in panhandle and, with continued warm, dry weather, populations could buildup to damaging proportions. (Okla. Coop. Sur., Apr. 6). Generally light infestations exist in all fields checked in central, west central, southwest and northwest areas. An infestation of 1,000-1,500 observed in field in El Reno area, with some damage evident. Moderate infestation reported from Cimarron County, panhandle area. (Okla. Coop. Sur., Apr. 13). COLORADO - Trace numbers, 0-10 per linear foot of drill row, found in wheat and barley in Logan, Phillips, Yuma, Kit Carson and Washington Counties. Populations of economic importance reported present on wheat in Kiowa County. (Jenkins, Whitmore). Economic numbers present on alfalfa in Fremont County. (Hantsbarger). NEVADA - Damaging grain and seedling alfalfa in Pahrump Valley, Nye County. (Zoller).

GRASSHOPPERS - KANSAS - A nymph collected in field of alfalfa in Clark County, southwest, on March 27 determined as Arphia pseudorietana by J. H. L. Bell; somewhat early for this species. (Peters). In favored locations in extreme southwest, especially in Seward, Stevens, Morton, Grant and Haskell Counties, first and second instars of Melanoplus bivittatus, and more often M. sanguinipes found. Counts ranged 1 or 2 per square foot and, in best locations (south exposure and down in ditch in trash), counts at times were up to 5-6 per square foot in the Hill sampler. (Fitchett, DePew). OKLAHOMA - First instars of unidentified species light in Carter County; first report of the season. (Okla. Coop. Sur., Apr. 6).

MORMON CRICKET (Anabrus simplex) - OREGON - Emergence well along in canyon bottoms of northern Sherman and Gilliam Counties. Crickets locally abundant in protected canyons, ranging 12-15 per square yard. First and second instars probably present March 27. Counts will probably decrease due to weather kill. Acreage figures not yet available. (Jackson).

FRUIT INSECTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - Widespread populations in Hays and Blanco Counties causing light to heavy damage to peach and plum trees. (Texas Coop. Rpt.; Massey). OKLAHOMA - Heavy on wild plum and fruit trees throughout State. (Okla. Coop. Sur., Apr. 6). KANSAS - Few scattered nests observed on fruit trees and ornamental plum in Riley County (northeast). (Gates, Thompson). CONNECTICUT - Hatching at New Haven. (Savos).

CODLING MOTH (Carpocapsa pomonella) - INDIANA - Pupation advancing very rapidly in Vincennes area, Knox County; overwintering larvae on tree trunks 50 percent pupated, April 9. (Redfern).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Egg masses present in Vincennes area, Knox County; no hatch evident by April 9. (Redfern). PENNSYLVANIA - No eggs present on apple in south central area; no adults found. (Pepper).

LESSER PEACH TREE BORER (Synanthedon pictipes) - INDIANA - Pupated in Vincennes area, Knox County. Could be very serious this season due to winter injury of trees and lessened control application. (Redfern, Apr. 9).

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Larvae ranged 1-2 per plum tree in Lee County; larvae three-fourths inch long. (McQueen).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Twig injury may be worse on peach in Vincennes area, Knox County, as there is no fruit for young larvae to enter. Orchards should be watched for twig injury and corrective measures taken where warranted. (Redfern, Apr. 9).

SPRING CANKERWORM (Paleacrita vernata) - OKLAHOMA - Heavy population damaging growth on apple trees in Stillwater area, Payne County. (Okla. Coop. Sur., Apr. 6). CONNECTICUT - Adults flying for about 2 weeks; growers can expect heavy larval infestations soon. (Savos, Apr. 13). NEW YORK - Male flights observed March 25 in Huntington-Farmingdale area of Long Island. (Waller, N. Y. Wkly. Rpt., Apr. 9).

PLUM CURCULIO (Conotrachelus nenuphar) - ALABAMA - Numerous feeding and egg-laying scars noted in Lee County orchard. No adults taken; 1-20 plums affected per 6-year-old tree. (McQueen). INDIANA - No bumping records to be taken this year in Vincennes area, Knox County, as there will be no peach crop. During 5-year study of large scale grower blocks, this pest has consistently caused highest percent of damaged fruit at harvest. (Redfern, Apr. 9).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Injurious numbers appearing on peach trees in Graham County. (Ariz. Coop. Sur.). COLORADO - Overwintering eggs range light to medium on Mesa County peach trees; 50-90 percent egg mortality may be due to low temperatures of previous winter. (Bulla). UTAH - Hatched on peach trees at North Salt Lake, Davis County. (Knowlton).

APPLE APHID (Aphis pomi) - CONNECTICUT - Hatching underway in New Haven and Storrs areas. Indications are that populations should be lighter this season. (Savos). PENNSYLVANIA - Abundant on apple in south central area. (Pepper). MARYLAND - Hatching on apple at Hancock, Washington County, April 5. (U. Md., Ent. Dept.). MICHIGAN - Nymphs present on apple varieties in green-tip stage near Lansing, Ingham County, April 7. (Dowdy).

ROSY APPLE APHID (Anuraphis rosae) - CONNECTICUT - Hatching in Storrs area. (Savos). NEW YORK - Present in Niagara County April 14. (N. Y. Wkly. Rpt.). PENNSYLVANIA - Hatching on apple in south central area. (Pepper). DELAWARE - Eggs have hatched in Sussex County. (Kelsey). MARYLAND - Hatching on apple at Hancock, Washington County, April 5. (U. Md., Ent. Dept.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - NEW YORK - Present in Niagara County April 8. (N. Y. Wkly. Rpt.). PENNSYLVANIA - Abundant on apple in south central area. (Pepper). MICHIGAN - Nymphs on early apple varieties in Lansing area, Ingham County; first reported from Berrien County April 1. (Dowdy, Apr. 9).

BLACK CHERRY APHID (Myzus cerasi) - NEW YORK - Present in Niagara County April 12. (N. Y. Wkly. Rpt.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - COLORADO - Numerous on apple in Fremont County. (Hantsbarger).

TARNISHED PLANT BUG (Lygus lineolaris) - INDIANA - Adults easily found on cover crops in orchards and surrounding field vegetation in Vincennes area, Knox County. (Redfern, Apr. 9). OHIO - Adults moderate to heavy on apple tree buds at Marietta, Washington County. Continuously flying throughout orchard. (Blair, Lyon). PENNSYLVANIA - Present on fruit in southeast area. (Menusan).

LYGUS BUGS (Lygus spp.) - UTAH - Lygus spp., mostly L. elisus, active in orchards in Brigham City-Willard area, Box Elder County, and North Ogden area, Weber County; common in Davis County orchards. (Knowlton).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Severe on 100 persimmon trees at Glen Saint Mary, Baker County (March 29). (Fla. Coop. Sur.).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Adults still present at Storrs. Egg laying considerably reduced; no eggs laid earlier in month hatched as yet. Eggs observed in Mt. Carmel area. (Savos).

EUROPEAN RED MITE (Panonychus ulmi) - NEW JERSEY - High numbers of overwintering eggs observed in several orchards; none hatched as of April 9. (Ins.-Dis. Newsltr.). NEW YORK - Eggs not numerous on trees in Columbia County. (N. Y. Wkly. Rpt.). CONNECTICUT - Eggs still dormant; no nymphs observed. (Savos). DELAWARE - Eggs hatched in Sussex County. (Kelsey). PENNSYLVANIA - Has not hatched on apple in south central area. (Pepper). INDIANA - Egg hatch began about April 8 in Vincennes area, Knox County. (Redfern).

A FRUIT-TREE MITE (Bryobia rubrioculus) - COLORADO - Hatching on peach and pear in Mesa County; no heavy populations noted. (Bulla). UTAH - Eggs very numerous in home orchards at Perry, Box Elder County. (Knowlton).

PECAN NUT CASEBEARER (Acrobasis caryae) - ARKANSAS - About one percent of twigs infested in orchard observed in Miller County (southwest). (Ark. Ins. Sur.).

PECAN BUD MOTH (Gretchena bolliana) - GEORGIA - Larvae, probably this species, heavy locally on pecans in Houston County. (Allmond, Apr. 2).

A CURCULIONID (Conotrachelus aratus) - FLORIDA - Moderate on 60 pecan trees at Montcello, Jefferson County (Apr. 5). (Fla. Coop. Sur.).

BLACK PECAN APHID (Melanocallis caryaefoliae) - ALABAMA - Light to medium in Mobile, Baldwin, Lee and Autauga Counties; ranged 1-10 per fruiting branch. (McQueen).

A FILBERT APHID (Myzocallis coryli) - OREGON - First of season observed in Benton County April 10. (Jones).

OBSCURE SCALE (Chrysomphalus obscurus) - OKLAHOMA - Heavy on pecans in Tulsa County area. (Okla. Coop. Sur., Apr. 6).

A XYELID (Megaxyela langstoni) - TEXAS - Moderate, local population causing leaf damage to pecan trees in De Witt County. (Deer).

A SAWFLY - ALABAMA - Larvae of undetermined species attacking pecan foliage in Mobile and Lee Counties. (Seibels, Buttram).

Citrus Insect Situation in Florida - End of March

Special Comment - Dieback observed in approximately 70 percent of December defoliated groves. Further dieback expected in many of these groves. In warmer areas, partial recovery from cold damage evident by end of March. Defoliated groves still have very low infestations of insects and mites, whereas undamaged groves harbor populations not greatly different from those of year ago.

Populations in Freeze-defoliated Groves (Canopy entirely 1963 leaves) - CITRUS RUST MITE (Phyllocoptura oleivora) infested 25 percent of groves; 6 percent economic. Little increase expected. Infestations will be heavier where frozen fruit remained on trees. TEXAS CITRUS MITE (Eutetranychus banksi) infested 5 percent of groves; none economic. Gradual buildup forecast for April. CITRUS RED MITE (Panonychus citri) infested 9 percent of groves; none economic. Slight increase likely. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infested 2 percent of groves; none economic. No important infestations forecast. APHIDS infested 35 percent of groves; none economic. Infestation will be light. WHITEFLY adults laying eggs on new foliage in 10 percent of groves. Young stages of PURPLE SCALE (Lepidosaphes beckii), GLOVER SCALE (L. gloverii) and CHAFF SCALE (Parlatoria pergandii) appearing on new leaves in 5-11 percent of groves. Few infestations expected to become important before June. BLACK SCALE (Saissetia oleae) and FLORIDA RED SCALE (Chrysomphalus aonidum) will be rare.

Populations in Groves with Little or No Freeze Damage - CITRUS RUST MITE infested 50 percent of groves; 26 percent economic. Populations dropped to slightly below normal and will remain near this current moderate level in April. Highest

districts are ridge, Indian River and west coast. TEXAS CITRUS MITE infested 43 percent of groves; 24 percent economic. Population is above average. Although most infestations are light, they will gradually become heavier during April. Highest district is ridge. CITRUS RED MITE infested 29 percent of groves; 12 percent economic. Population near low level of March 1962 and little change is expected. Few groves will develop important infestations. SIX-SPOTTED MITE infested 2 percent of groves; none economic. Population will remain very low and unimportant. WHITEFLIES unusually abundant in most groves. Adults and eggs will be heavy on new leaves in April. APHID populations are declining. PURPLE SCALE infested 80 percent of groves; 2 percent economic. Population below average. Increasing numbers of young forms will appear, but parasite attack expected to keep most infestations from becoming important. CHAFF SCALE infested 82 percent of groves; none economic. GLOVER SCALE infested 84 percent of groves; none economic. Population above average. Although most populations light at present time, few groves will develop heavy populations. FLORIDA RED SCALE infested 18 percent of groves; none economic. Population very low; little increase expected. BLACK SCALE infested 13 percent of groves; 4 percent economic. Population near average low level for March. Spring brood of crawlers will appear about mid-April. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

Quarterly Citrus Insect and Mite Outlook in Florida - April through June

In Freeze-damaged Groves - TEXAS CITRUS MITE, CITRUS RED MITE, CITRUS RUST MITE and WHITEFLIES will gradually increase from very low levels now present. Few heavy infestations expected before June. SCALE INSECTS will remain at low level.

In Undamaged Groves - CITRUS RUST MITE will remain below normal abundance until June, then increase. About 30 percent of groves will develop injurious infestations. TEXAS CITRUS MITE will increase rapidly in May and reach a peak above normal level in June. SIX-SPOTTED MITE will be below average and of little importance. CITRUS RED MITE will show little increase until May; then increase to a June peak below average level. PURPLE SCALE, GLOVER SCALE and CHAFF SCALE will be present as light infestations in a majority of groves. Populations will be similar to a year ago with about 10 percent of groves harboring moderate to heavy infestations by end of June. BLACK SCALE and FLORIDA RED SCALE will be much below average. YELLOW SCALE (Aonidiella citrina) will be more common. A few infestations may become important. WHITEFLY populations will be high; MEALYBUG populations low. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Appearing on navel oranges in Chandler Heights and Mesa areas, Maricopa County; also present in Yuma area. Controls in progress in some orchards. (Ariz. Coop. Sur.).

KATYDIDS - ARIZONA - Unspecified species injuring oranges in Mesa area, Maricopa County. (Ariz. Coop. Sur.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - This species and Aculus pelekassi light on 3,000 Citrus sinensis at Wauchula, Hardee County (Apr. 2). (Fla. Coop. Sur.).

GRAPE FLEA BEETLE (Altica chalybea) - ALABAMA - One to 5 adults and few larvae per grapevine feeding on buds and leaves in Lee County. (McQueen).

LEAFHOPPERS (Erythroneura spp.) - ARIZONA - Increasing on grapes; chemical and biological controls being applied. (Ariz. Coop. Sur.).

A CUTWORM - CALIFORNIA - Larvae, either Euxoa sp. or Chorizagrotis sp., causing considerable damage to new buds on grapevines in vineyards interplanted with barley in Salinas area, Monterey County. (N. McCalley, Ext. Serv.).

TRUCK CROP INSECTS

MELON APHID (Aphis gossypii) - TEXAS - Light to heavy on watermelon, squash, cantaloup and cucumber in Zavala County. Populations highest on watermelon; over 500 per plant. (Harding).

THRIPS - TEXAS - Frankliniella occidentalis averaged 39 per plant on untreated plots in Zavala County. (Harding). Unspecified species caused moderate, local damage to drought-weakened onions in Jim Wells County. (Texas Coop. Rpt.; Jones). ALABAMA - Undetermined species feeding on turnips, pecans, vetch, grass and crimson clover in Lee and Lowndes Counties; averaged 5 per foot of row on turnips. (McQueen).

A LEAF MINER FLY (Liriomyza sp.) - TEXAS - Heavy damage, warranting controls, occurring on beans, cantaloups, watermelons, squash, cucumbers and tomatoes in Zavala County. (Harding).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - Continues a problem in Maricopa County. (Ariz. Coop. Sur.).

Potato Psyllid Survey, Spring Breeding Areas of Texas and Southeastern New Mexico -

The 1963 potato psyllid (Paratrioza cockerelli) survey was completed on March 29. Wild Lycium was in good condition in all areas of the survey and a large percent was fully leafed out in most areas. It was more abundant than usual in the El Paso Valley. Although potato psyllid populations were higher at all locations this year, they did not appear to be present in alarming numbers. Eggs were noticed at all locations but were sparse and scattered. It appears that reproduction has been retarded again this year. (PPC and cooperating agencies).

Potato Psyllid Survey on Overwintering Hosts

Average Number Per 100 Sweeps

<u>State</u>	<u>District</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>
Texas	Big Spring (Howard Co.)	128	16	21
Texas	San Angelo (Tom Green Co.)	160	15	33
Texas	Del Rio (Val Verde & Kinney Counties)	27	2	26
Texas	Marathon-Sanderson (Terrel, Pecos, Brewster Counties)	35	6	29
Texas	El Paso (El Paso & Hudspeth Counties)	6	2	23
New Mexico	Las Cruces (Dona Ana County)	7	.67	23

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GREEN PEACH APHID (Myzus persicae) - ARIZONA - Continues injurious to potatoes in Maricopa County. (Ariz. Coop. Sur.).

A SYMPHYLAN - OHIO - Unspecified species found near tomato roots in a Hamilton County greenhouse. No control program has been in effect. (Holdsworth).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Numerous adults noted in flight and few larvae on turnips and young green crops in Lee County. (McQueen).

STRIPED FLEA BEETLE (Phyllotreta striolata) - ALABAMA - Adults ranged 2-5 per foot of row; feeding on turnips and tender green crops in Lee County. (McQueen).

CABBAGE CURCULIO (Ceutorhynchus rapae) - IDAHO - Few overwintered adults collected in alfalfa in Clearwater River area. (Halfhill).

Beet Leafhopper Survey, Texas and New Mexico - The beet leafhopper (Circulifer tenellus) survey was begun March 4 and completed March 20, 1963. A total of 3,322 miles was traveled in Texas and 700 in New Mexico. Nine counties were surveyed in New Mexico and 48 in Texas, with 31 stops being made in New Mexico and 101 in Texas. Host plants were present at 90 percent of the stops in Texas and 77 percent of stops in New Mexico. The number of beet leafhoppers per 100 square feet was 8.6 in Texas and 6.7 in New Mexico. Populations were heavier along the entire survey route in Texas. The largest concentration of beet leafhoppers in Texas was in the Crystal City-El Paso-Monahans area, where 83 percent of the total number of beet leafhoppers on the Texas survey was found. Curly top virus was approximately 5 percent in experimental spinach plots at Crystal City, which is higher than the one percent for 1962. Populations in New Mexico were higher than in 1962, but there were no shifts in population locations. (PPC and cooperating agencies).

Beet Leafhopper Survey, Kansas - The beet leafhopper (C. tenellus) survey was conducted April 2-4, with 36 stops made in 15 southwestern counties. Beet leafhoppers were found at 3 stops in 3 different counties, as follows: Hugoton, Stevens County - 2 nymphs; Rola, Morton County - 6 nymphs, 1 adult; Ulysses, Grant County - 1 nymph. Preferred host plants were present at all but 2 stops; at one stop there was a good stand of kochia, an early summer host. In area of greatest interest (extreme south and southwest) hosts were usually good. This is the first time beet leafhopper has been found in the Kansas survey. The significance of this occurrence is not quite clear. (PPC and cooperating agencies).

ASPARGUS BEETLES (Crioceris spp.) - NEW JERSEY - Winter survey in Cumberland, Salem, Gloucester, Atlantic, Camden and Burlington Counties shows overwintering populations of C. asparagi and C. duodecimpunctata considerably higher than those present in 1962. Results of survey indicate that high beetle populations will be present in fields early in 1963 season and that treatments will be necessary. Averages for the 6 counties during the past 7 years are given below:

Average No. of Beetles per 100 Stalks per Field

	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>	<u>1962</u>	<u>1963</u>
<u>C. asparagi</u>	53.3	4.1	27.8	3.7	30.9	1.7	29.6
<u>C. duodecim-</u> <u>punctata</u>	3.8	0.4	0.2	0.0	0.7	0.0	1.4

(Ins.-Dis. Newsltr., Apr. 9).

STRAWBERRY WEEVIL (Anthonomus signatus) - NEW JERSEY - Observed in strawberry fields in Atlantic and Cumberland Counties. (Ins.-Dis. Newsltr., Apr. 9).

APHIDS - NEW JERSEY - Unspecified species observed on strawberries in Atlantic and Cumberland Counties. (Ins.-Dis. Newsltr., Apr. 9). MARYLAND - Small numbers of Pentatrachopus thomasi and P. minor found on opening strawberry leaves in planting at Fruitland, Wicomico County; less than 0.5 per leaf. (U. Md., Ent. Dept.).

CUTWORMS - NEW JERSEY - Unspecified species present in strawberry fields in Atlantic and Cumberland Counties. (Ins.-Dis. Newsltr., Apr. 9).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - NEW JERSEY - Observed in Atlantic and Cumberland County strawberry fields. (Ins.-Dis. Newsltr., April 9).

TOBACCO INSECTS

GARDEN SPRINGTAIL (Bourletiella hortensis) - MARYLAND - Numerous on young tobacco plants in plant bed at Huntingtown, Calvert County. (U. Md., Ent. Dept.).

COTTON INSECTS

Boll Weevil Survival Survey in McNairy County, Tennessee - McNairy County was chosen for BOLL WEEVIL (Anthonomus grandis) survey because it usually supports heaviest infestations of any other southern county in western area. A large number of weevils can be expected in Hardin, Hardeman, Fayette and Shelby Counties. Fall (1962) trash examinations indicated an average of 3,633 weevils per acre. Spring (1963) examinations of cotton field environ trash taken March 22 and 25 indicated 1,210 live weevils per acre; winter survival was 33 percent. The number of overwintered weevils in 1962 was 1,613 per acre. With favorable weather conditions for weevil buildup, there are definitely enough weevils present in southern counties to cause extensive damage if proper control is not carried out in time. In 1962, growers started control too late, resulting in severe loss. (Locke).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Injuring stub cotton in Buckeye area, Maricopa County. (Ariz. Coop. Sur.).

BOLLWORM (Heliothis zea) - TEXAS - Few larvae feeding in cotton terminals in extreme southern area. (Deer).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - First moths of season emerged March 22 from caged surface bolls. (Ariz. Coop. Sur.). TEXAS - Inspection of surface debris in 9 Nueces County fields revealed 31 larvae in 16 infested bolls of 225 inspected. (Deer). FLORIDA - Infested Hibiscus sp. at Cape Sable (Mar. 27, Apr. 2) and at Islamorada (Mar. 29), Monroe County. Det. by W. Breidenbach. (Fla. Coop. Sur.).

CUTWORMS - TEXAS - Unspecified species reducing stands of cotton in local areas of extreme southern portion of State. (Deer).

COTTON APHID (Aphis gossypii) - TEXAS - Appearing in Refugio, Hidalgo, Zavala and Calhoun Counties. (Deer; Texas Coop. Rpt.; Bales).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Appearing in more localities in southern area; light near Sharyland, Mission, Los Ebanos, Edinburg and San Benito. (Deer).

A FLEAHOPPER (Spanogonicus albofasciatus) - ARIZONA - Few observed in fields were squares appearing on stub cotton in Pinal County. (Ariz. Coop. Sur.).

THRIPS - TEXAS - Light populations of unspecified species appearing in Zavala, Grimes and Bureson Counties. (Deer, Wipprecht).

SPIDER MITES - TEXAS - Unspecified species increasing in areas near Edinburg, La Feria, Harlingen and Crystal City. (Deer).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - MARYLAND - Moths active April 8 in Virginia pine plantation at Rison, Charles County. (U. Md., Ent. Dept.).
DELAWARE - Pupae heavy in young loblolly pine in area of New Castle County. (Bray).

PALES WEEVIL (Hylobius pales) - ALABAMA - Active in Mobile County. (Seibels).

PINE BARK APHID (Pineus strobi) - PENNSYLVANIA - Egg laying underway on red pine in Wyoming County April 9. (Pepper).

A PINE SCALE (Physokermes coloradensis) - COLORADO - A problem on pinyon pine in Denver and Larimer Counties. (Hantsbarger).

LARCH SAWFLY (Pristiphora erichsonii) - WISCONSIN - Females observed in Dane County have abdomens distended, probably indicating egg development. (Wis. Ins. Sur.).

A CONIFER SAWFLY (Neodiprion taedae linearis) - ARKANSAS - First to third-stage larvae present on loblolly pine in Jersey community, Bradley County (south central). (Ark. Ins. Sur.).

SPRUCE SPIDER MITE (Oligonychus ununguis) - MARYLAND - Heavy on Norway spruce at Beltsville, Prince Georges County. (U. Md., Ent. Dept.).

AN ERIOPHYID MITE (Nalepella tsugifolia) - NEW YORK - Large numbers observed on hemlock at several Long Island locations. (N. Y. Wkly. Rpt., Apr. 9).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - CONNECTICUT - Hatching in Meriden area. (Savos, Gaines, Johnson). PENNSYLVANIA - Hatching underway in south central area April 7. (Sleesman, Jeffery). MARYLAND - Increasing on wild cherry, flowering crab apple and apple in central and southern sections. (U. Md., Ent. Dept.). VIRGINIA - Hatched in Surry County March 20 and at Blacksburg April 5. (Amos). ILLINOIS - Small nests observed as far north as Greenup, Cumberland County, April 4. Nests now vary from occasional to very abundant in east-southeast district, mainly on wild cherry. (Ill. Ins. Rpt.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Light locally on oaks in Harris and Brazos Counties. (Kay, Newton). In combination with Malacosoma sp., probably texanum, this species stripping oaks in Hays, Comal, Blanco, Kendall, Travis, Mason, Hamilton, Bexar, Caldwell, Guadalupe and Bee Counties. (Texas Coop. Rpt.).

FALL CANKERWORM (Alsophila pometaria) - CONNECTICUT - Heavy flights during fall of 1962 indicate high populations this spring. (Savos). WISCONSIN - Eggs much fewer in numbers on elms in Jefferson County than in 1962. Populations should be reduced over last season, particularly in this area. (Wis. Ins. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - First-stage larvae observed on hackberry and elm in Riley County (northeast). (Thompson).

LINDEN LOOPER (Erannis tiliaria) - CONNECTICUT - Heavy flights during fall of 1962 indicate high populations this spring. (Savos).

ELM CALLIGRAPHA (Calligrapha scalaris) - KANSAS - Abundant on elms in McPherson County (central). (Gates).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - SOUTH DAKOTA - Collected on American elms in Union County. Populations quite high and thought to be factor in death of many elms along creek in area. Additional and more accurate surveys to be made. This is a new record for Union County. (Wood, Kantack).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Considerable adult activity underway throughout State. (Okla. Coop. Sur.). OHIO - Overwintering adults present indoors at Dayton, Montgomery County, April 4. (Blair).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - OKLAHOMA - Heavy on elms in Oklahoma City area. (Okla. Coop. Sur.).

A CIMBICID SAWFLY (Cimbex rubida) - CALIFORNIA - Adults heavy on willow leaves in Sausalito, Marin County. (Cal. Coop. Rpt.).

AZALEA LEAF MINER (Gracilaria azaleella) - FLORIDA - Moderate on azalea at Longwood, Seminole County (Apr. 1). (Fla. Coop. Sur.).

A LEAF BLOTCH MINER (Marmara arbutiella) - CALIFORNIA - Larvae heavy in leaves of madrone trees in Mill Valley, Marin County; extensive damage. Madrone trees have been severely damaged by various insects during past several years. Ample rain this season may aid in recovery. (Cal. Coop. Rpt.).

A COSMOPTERIGID MOTH (Sathrobrotia badia) - CALIFORNIA - Larvae, pupae and adults medium in street plantings of Pinus canariensis in Whittier, Los Angeles County. Causing extensive damage by webbing together and feeding on flower buds and terminals. (Cal. Coop. Rpt.).

AN ETHMIID MOTH (Pyramidobela angelarum) - CALIFORNIA - Larvae medium on Buddleia sp. nursery stock in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

A STENOMID MOTH (Stenoma manzanitae) - CALIFORNIA - Larvae medium on leaves of Arctostaphylos sp. in Shingle Springs area, El Dorado County. (Cal. Coop. Rpt.).

A SHIELD BEARER - CALIFORNIA - Possibly Coptodisca sp., causing extensive damage to native manzanita in Lafayette area, Contra Costa County. (Cal. Coop. Rpt.).

A SAP BEETLE (Conotelus mexicanus) - TEXAS - Heavy in roses and other flowering plants in El Paso County. (Thomas; Texas Coop. Rpt.; Meekma, Boyd).

APHIDS - ALABAMA - Macrosiphum rosae ranged 5-25 per bud on untreated roses in Lee County. None reported on recently treated plants in same location. Aphis spiraeicola ranged 5-25 per terminal branch on spirea in Lee County. (McQueen). TEXAS - Light populations of unspecified species attacking roses in local areas of Reeves County. (Texas Coop. Rpt.; Hare). OKLAHOMA - Several species numerous on variety of ornamentals around State. (Okla. Coop. Sur.). OHIO - Myzus persicae nymphs and adults ranged 20-25 per terminal leaf on some chrysanthemum plants in a Wayne County greenhouse. Treatment underway. (Lyon). UTAH - Hatching on rose bushes at Ogden, Weber County. (Knowlton). NEVADA - Prociphilus venafuscus heavy on Modesto ash in Las Vegas, Clark County. (Nichols).

A LYGAEID BUG (Lygaeus kalmii) - CALIFORNIA - Adults medium on Modesto ash trees in Livermore, Alameda County. (Cal. Coop. Rpt.).

COCCIDS - CALIFORNIA - Lecanium cerasorum heavy on Liquidambar styraciflua locally in Sacramento, Sacramento County. Diaspis boisduvalii heavy on palms in Borrego, San Diego County. (Cal. Coop. Rpt.). ARIZONA - Icerya purchasi very heavy on some pittosporum plantings in Safford, Graham County. (Ariz. Coop. Sur.). NORTH CAROLINA - Lecanium sp. present on oak twigs in Robeson and Duplin Counties. Eggs very abundant; none hatched at present. (Mount). PENNSYLVANIA - Fiorinia theae heavy on camellias in a greenhouse in Washington County. Det. by G. B. Slesman. (Udine).

Coccids in Florida - Aonidiella citrina moderate on Citrus sp. at Forest City, Seminole County (Apr. 5). Cerococcus sp. moderate on 150 hibiscus plants at Miami, Dade County (Apr. 8). Ceroplastes floridensis severe on Pyracantha sp. at Largo, Pinellas County (Mar. 27) and on Cedrus deodora at Winter Haven,

Polk County (Apr. 3). Chrysomphalus anonidum moderate to severe on Podocarpus sp. at Melbourne, Brevard County (Apr. 2). Coccus accuminatus moderate on Mangifera indica at Hialeah, Dade County (Mar. 29). Eucalymnatus tessellatus moderate on bay at Longwood, Seminole County (Apr. 2). Florinia theae infested Ilex sp. at Fort Pierce, St. Lucie County (Apr. 1), and moderate on Camellia japonica at Winter Haven (Apr. 3). Phenacaspis cockerelli severe on Magnolia grandiflora at Davie, Broward County (Mar. 27), and moderate on same host at Temple Terrace, Hillsborough County (Apr. 1) and at Winter Haven (Apr. 3); severe on Strelitzia reginae at Holly Hill, Volusia County (Apr. 3). Pinnaspis aspidistrae moderate on Cycas revoluta at Pine Castle, Orange County (Apr. 3), and severe on Aspidistra sp. at Orange City, Volusia County (Apr. 4). Protospulvinaria pyriformis moderate on Gardenia sp. at Melbourne (Apr. 2). Pseudaulacaspis pentagona moderate to severe on Allamanda cathartica at Sansula, Volusia County (Apr. 2). Pulvinaria urbicola severe on Vaccinium sp. at Bereah, Polk County (Apr. 5); this species not too common in State. Saissetia oleae moderate on Dizygotheca elegantissima at Holly Hill (Apr. 3). (Fla. Coop. Sur.).

THRIPS - CALIFORNIA - Frankliniella occidentalis and F. minuta heavy on flowers of Ranunculus spp. in San Luis Obispo, San Luis Obispo County. (Cal. Coop. Rpt.). UTAH - Unspecified species active in early garden blossoms in Salt Lake City, Salt Lake County. (Knowlton).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - MARYLAND - Averaged 3 per head on 25 yearling steers at Waterloo, Howard County. (U. Md., Ent. Dept.). NORTH CAROLINA - Adults active in Madison County April 2. (Boss). OKLAHOMA - Activity of H. lineatum continues in most areas. (Okla. Coop. Sur.). UTAH - Total of 15,000 beef and 6,000 dairy cattle recently treated in Cache County; H. lineatum and H. bovis common in area. This constitutes approximately 46 percent of cattle in county. (Knowlton, Tueller).

HORN FLY (Haematobia irritans) - GEORGIA - Ranged 100-150 per beef animal in Spalding County (Apr. 3); 0-200 (average 25) per animal on 40 animals observed in same county (Apr. 13). (Roberts). ARKANSAS - Increased; up to 50 per head observed on cattle in southern area. Counts lower in northern area. (Ark. Ins. Sur.). OKLAHOMA - Light, but increasing in southeast and south central areas. Highest count, 50 per head in Marietta area, Love County (south central); lower counts recorded as far north as Ottawa County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - First activity of season reported from Pushmataha County; averaged 1 per head. (Okla. Coop. Sur.).

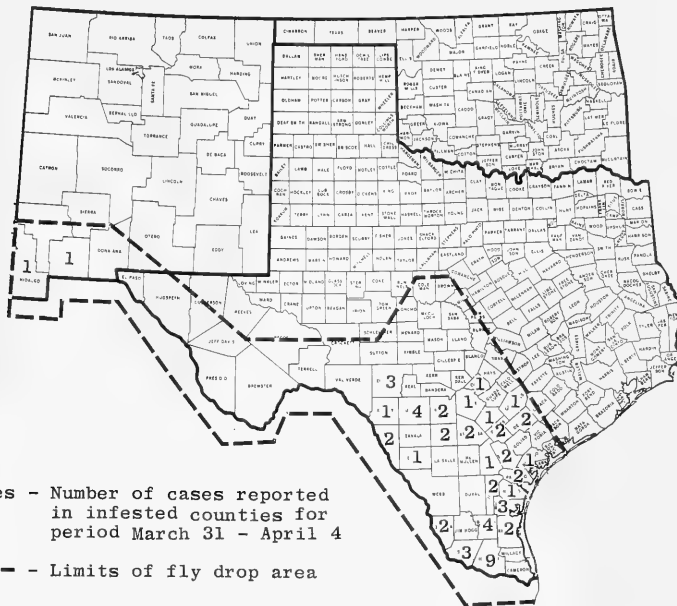
TABANID FLIES - OKLAHOMA - Tabanus spp. and Chrysops spp. active as far north as Cherokee County; 3-4 per head noted on cattle in southeast and 1-5 in Seminole County (east central). First activity reported from southeastern area week ending April 6. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - VIRGINIA - Adults present in and around homes in Page County. (Tarpley, Saunders, Apr. 2). NORTH CAROLINA - Active in Burke County. (Parton).

BLACK BLOW FLY (Phormia regina) - UTAH - Numerous around pig farm near Hooper, Weber County. (Knowlton).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

In spite of all efforts to reduce screw-worm buildup or migration, screw-worm is rapidly spreading throughout southern TEXAS and southern NEW MEXICO; 59 cases reported in this area during period March 31-April 6. These widespread infestations have caused eradication crews to cease treating each infested area with "hot-spot" fly releases. Except for Liberty County area in east Texas and infestations in New Mexico, all other areas receiving standard grid release plus sterile fly release along major rivers and tributaries. Inspection force continues to attempt spraying of all infested herds with precautionary pesticide. Evidence indicates that reporting and submitting of larvae is excellent, as very large percentage of all specimens submitted is not screw-worm. A total of 95,649,050 sterile screw-worm flies was released during period March 31-April 6. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period March 31 - April 4

----- Limits of fly drop area

MOSQUITOES - DELAWARE - Full-grown larvae and pupae of Aedes canadensis and A. mitchellae present in some areas of New Castle County April 9. (Catts, Lake). MARYLAND - Fourth-stage larvae of Aedes spp., including A. canadensis, A. cinereus, A. grossbecki and A. stimulans, collected April 4 at Laurel, Anne Arundel County. (U. Md., Ent. Dept.). TEXAS - Culiseta inornata, Culex salinarius, Aedes sollicitans and Anopheles crucians common in Jefferson County. (Texas Coop. Rpt.). MINNESOTA - Overwintering Culex spp. troublesome in homes during late winter and early spring in Minneapolis-St. Paul area. (Minn. Ins. Rpt.). CALIFORNIA - Incidence of mosquitoes very low during past few weeks, following heavy occurrences in February and early March due to unseasonably warm weather following warm rains. Low, current incidence attributed to cold weather and cold rains. (Cal. Coop. Rpt.).

CHICKEN BODY LOUSE (Menacanthus stramineus) - OHIO - Moderate to heavy on most farm flocks in southeastern area. Activity mostly at vent of all birds; one heavy infestation revealed 15 per square inch of vent, with over 500 eggs per feather. Most flocks lacked control program. (Treece, Lyon).

SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus) - OHIO - Eggs, nymphs and adults heavy on beef cattle at university farm, Franklin County; 10 of 20 beef animals observed from distance of 20-25 feet appeared parasitized. Closer examination revealed one animal with 6-8 nymphs and adults per square inch of hide at dewlap, and thousands of eggs appearing at the withers, back, tail, head and dewlap. No control program in force. (Davidson, Lyon).

CATTLE LICE - OKLAHOMA - Several species ranged light to moderate on cattle throughout State. (Okla. Coop. Sur.). UTAH - Few cattle at Smithfield, Cache County, rubbing conspicuously. (Knowlton).

SCALY-LEG MITE (Knemidokoptes mutans) - OHIO - Infested flock in Jackson County; few birds with joints and legs so inflamed that walking was difficult. No control program ever employed on farm. (Lyon).

AMERICAN DOG TICK (Dermacentor variabilis) - MARYLAND - First ticks of season observed on children at Carmody Hills, Prince Georges County, April 9. (U. Md., Ent. Dept.). DELAWARE - First adults of season noted on human April 3 in New Castle County. (MacCreary, Catts).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Heavy and causing considerable concern to man and animals in eastern part of State; livestock and wild animals heavily infested. (Okla. Coop. Sur.). GEORGIA - Heavy in home yards in Hancock County. (Roberts, Coleman).

A HARD-BACKED TICK (Dermacentor sp.) - NEVADA - Heavy in the Spring Mountains, Clark County. (Zoller).

HOUSEHOLD AND STRUCTURAL INSECTS

ANTS - NEW YORK - Several species swarming in Nassau County. (N. Y. Wkly. Rpt.). UTAH - Small, unspecified species troublesome in home at Marysvale, Piute County. (Knowlton). OREGON - Winged forms of Prenolepis imparis abundant in and around Medford area homes in early April. (Goeden). CALIFORNIA - Camponotus essigi medium in Nevada City residence, Nevada County. Species was nuisance on several occasions during winter. (Cal. Coop. Rpt.).

SUBTERRANEAN TERMITES - MARYLAND - Winged Reticulitermes spp. swarming in and about homes in Prince Georges and Washington Counties and at Baltimore. (U. Md., Ent. Dept.). UTAH - Unspecified species infested 2 additional homes at Ogden, Weber County. (Knowlton).

TERMITES - CONNECTICUT - Swarming noted throughout State. (Savos). NEW YORK - Appearance began in mid-March; bulk of swarming yet to come. (N. Y. Wkly. Rpt.). NEW JERSEY - Swarming continues of primary concern to homeowners. (Ins.-Dis. Newsltr., Apr. 9). VIRGINIA - Reproductive forms present at a locality in Charles City, Charles City County, and in homes at Saluda, Middlesex County, and Loudoun County. (Tarpley, Settle, Edwards, Brown, Apr. 3).

A POWDER-POST BEETLE (Lyctus cavicollis) - CALIFORNIA - Heavy in hardwood floors in residence in Escondido, San Diego County, and in rough hardwood furniture in residence in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

BROWN-BANDED COCKROACH (Supella supellectilium) - NORTH CAROLINA - Present in Alamance County residence. (Jones).

CLOVER MITE (Bryobia praetiosa) - NEW JERSEY - Active in many areas. (Ins.-Dis. Newsltr., Apr. 9). NEW YORK - A nuisance to Nassau County householders. (N. Y. Wkly. Rpt.). PENNSYLVANIA - Complaints very numerous in Centre County where adults appeared on dishes, linen and other household items. (Udine). MARYLAND - Caused considerable nuisance entering homes in Anne Arundel, Prince Georges and St. Marys Counties. (U. Md., Ent. Dept.). VIRGINIA - Invaded several homes in Roanoke area. (Allen, Apr. 3). Extremely abundant in Goochland County home. (Tarpley, Foster, Mar. 30). OHIO - Adults entering home in Franklin County. (Blair). UTAH - Infesting many homes in Ogden-North Ogden area, Weber County, and at Logan, Cache County. (Knowlton).

STORED-PRODUCT INSECTS

LESSER MEALWORM (Alphitobius diaperinus) - SOUTH DAKOTA - Adults and larvae collected in 2 poultry houses near Watertown, Codington County; thousands reported in surface layer of clay floor in one turkey-brooding house with floor area of 8,000 square feet. Surface pulverized by activity of adults and larvae. (Spawn).

RICE WEEVIL (Sitophilus oryzae) - ARIZONA - This and other stored grain pests light to moderate in stored grain in Pinal County. (Ariz. Coop. Sur.).

BENEFICIAL INSECTS

LADY BEETLES - IDAHO - Numerous species leaving hibernation sites in parts of southwestern and northern areas. (Bechtolt, Halfhill). UTAH - Various species becoming more common in northern localities. (Knowlton). OKLAHOMA - Several species range moderate to heavy in most small grains and alfalfa throughout State. (Okla. Coop. Sur.). ARKANSAS - Various species very active in legumes in most areas. Reproduction underway for some time, with larvae nearing pupation in southern area. (Ark. Ins. Sur.). ILLINOIS - Coleomegilla maculata fuscilabris ranged 0-10 (average 0.5) per 100 sweeps in clover and alfalfa in east-southeast district April 8-9. Lady beetle adults ranged 0-5 (average 0.5) per 100 sweeps in clover and alfalfa in extreme southern area April 1-4. (Ill. Ins. Rpt.). PENNSYLVANIA - Adalia bipunctata numerous in homes statewide. (Pepper).

DAMSEL BUGS (Nabis spp.) - IDAHO - Adults appearing in alfalfa in lower Clearwater River area; ranged 8-24 per 200 square yards. (Halfhill). OKLAHOMA - Nabis sp. light to moderate in most alfalfa fields checked. (Okla. Coop. Sur.). ILLINOIS - Adults ranged 0-10 (average 1) per 100 sweeps in clover and alfalfa in extreme southern area. (Ill. Ins. Rpt., Apr. 4).

A BIG-EYED BUG (Geocoris punctipes) - ARKANSAS - Adults present in legumes; no eggs or nymphs found. (Ark. Ins. Sur.).

LACEWINGS (Chrysopa spp.) - ARKANSAS - Adults very active in legumes; egg deposition light. No larvae found. (Ark. Ins. Sur.). OKLAHOMA - Adults light to heavy in small grains and alfalfa checked throughout State. (Okla. Coop. Sur.).

HYMENOPTEROUS PARASITES - ARKANSAS - Very active in legumes; parasitized aphids quite common in some fields. (Ark. Ins. Sur.).

MISCELLANEOUS INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Larvae and pupae heavy in soil and sod in Modesto, Stanislaus County. The past season, which was unusually cool, apparently was favorable for weevil development, as there were more instances of medium to heavy populations in area where species occurs, instead of light or very light numbers as in past years. (Cal. Coop. Rpt.).

AN ANOBIID BEETLE (Ptilinus ruficornis) - OHIO - Males and females observed on dead branches of oak and maple near Dayton, Montgomery County. (Holdsworth).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Spray progress has been excellent; more than 1,000 blocks now treated in Sacramento. With continued favorable weather, treatment will be completed prior to adult emergence. Survey in many locations over State outside Sacramento area have been negative. (Cal. Coop. Rpt.).

TREEHOPPERS - IDAHO - Unidentified species abundant on variety of vegetation throughout many parts of Canyon County. (Bechtolt).

SPRINGTAILS - DELAWARE - Several species rather abundant over State in old corn fields, lawns, and few noted in pepper seed beds in Sussex County. (Burbutis, MacCreary).

A SUBTERRANEAN TERMITE (Reticulitermes sp.) - WYOMING - Infestation found in stored books in Lusk, Niobrara County. (Fullerton).

GRAY GARDEN SLUG (Deroceras reticulatum) - IDAHO - Migrating from rain-saturated lawns in Moscow, Latah County. (Portman).

CORRECTIONS

CEIR 12(50):1250 - MIMOSA WEBWORM (Homadaula albizziae) - KANSAS - Host indicated is incorrect; host was probably honeylocust. Make same correction on First State Reports, CEIR 13(2):20.

CEIR 13(1):6 - A LADY BEETLE (Coleomagilla maculata fuscilabris) should read (Coleomegilla maculata fuscilabris).

CEIR 13(15):359 - ARMY CUTWORM (Chorizagrotis auxiliaris) - NEBRASKA - Should read "Present in most wheat and alfalfa fields in Lincoln County; averaged 2 per square foot."

CEIR 13(15):365 - HACKBERRY NIPPLE GALL (Pachyphylla celtidismamma) should read HACKBERRY-NIPPLE-GALL MAKER.

CEIR 13(13):285 - A PHYTOSEIID MITE (Phytoseiulus macropilis) - FLORIDA - Should read "Very numerous on 400 azaleas....." This is a predaceous species, and was probably feeding on a phytophagus mite.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Perid. saucia	Prod. ornith.	Spodop. exigua	Heliothis zea	vires.
FLORIDA								
Gainesville 4/10			1					
GEORGIA								
Tifton 4/5-10							2	1
ILLINOIS (County)								
Champaign 4/4-11			11					
KANSAS								
Garden City 4/6-7			1	2				
Mound Valley 4/6,9	55		1	61	19			
Wathena 4/1,5-7	2			8				
MISSISSIPPI								
*Stoneville 4/5-11	11	4	2	25		7		1
MISSOURI								
Portageville 3/29-4/4	14	4		5				
NEBRASKA								
North Platte 3/27-4/2			4			1		
North Platte 4/5-10	3		12		1			
Lincoln 3/28-4/10	4		15		1	4		5
SOUTH CAROLINA								
Charleston 4/1-7	10	2	2					
TEXAS								
*Brownsville 4/5-12	33	12	916	36	17		14	158
Waco 4/6-12	33	1	10	9			2	

Additional Light Trap Collections

KANSAS, Wathena (4/1,5-7) - Paleacrita vernata - 4.

NEBRASKA - P. vernata - North Platte - (3/27-4/2) - 31; (4/5-10) - 30.

TEXAS,*Brownsville (4/5-12) - Protoparce quinquemaculata - 10; P. sexta - 19;
Pectinophora gossypiella - 2; Laphygma frugiperda - 146. Waco (4/6-12 - P.
gossypiella - 1.

* Two traps - Stoneville; 6 traps - Brownsville.

ADDITIONAL NOTES

VIRGINIA - ALFALFA WEEVIL (Hypera postica) found in most alfalfa surveyed this spring. Probably overwintered females continuing to lay eggs, especially in fields not treated in fall of 1962. At present, most larvae relatively small and injury not evident without close scrutiny; however, injury will be readily noticed within next few days in growing tips of alfalfa. (Rowell). Larvae ranged light to very light in alfalfa checked in Wythe, Smyth, Washington, Scott and Lee Counties; none found in Russell and Tazewell Counties. Sweep samples not taken in Wythe and Smyth Counties due to rain; however, 2 percent of terminal stems in 3 fields infested, mostly with first and second instars. Counts per 100 sweeps, by county, were as follows: Washington - 3-190 larvae, 0-10 adults; Scott - 24-450 larvae, 0-150 adults; Lee - 12-120 larvae, no adults. Larvae mostly first and second instars in most instances; however, third instars predominant in some fields, especially with large alfalfa. Larval damage evident only with close scrutiny, and no apparent close relationship between larval age and size of alfalfa. (Tarpley). Larvae damaged alfalfa on farm near Blackstone, Nottoway County. (Tarpley, Rowell, Apr. 6). Hatching underway in Montgomery County; no larvae found in several treated fields, but 3 per 200 sweeps present in untreated, abandoned field. (Pienkowski, Pamanes). Larvae ranged zero to light in fields checked in Pulaski, Carroll, Grayson and Floyd Counties. Larvae very active and damage evident in Patrick County, especially in fields not fall-treated; hundreds of larvae taken in 50 sweeps, and 6-8 adults taken in 25 sweeps. (Rowell). PEA APHID (Acyrtosiphon pisum) ranged 0-12 per 100 sweeps in alfalfa at Steeles Tavern, Augusta County. (Woodside). Very light to light in all fields checked in Wythe, Smyth, Washington, Scott, Lee, Russell and Tazewell Counties. Virtually no predators encountered, probably as a result of unfavorable weather. (Tarpley). Light in all fields checked in Pulaski, Carroll, Grayson, Patrick and Floyd Counties. (Rowell). Tents of EASTERN TENT CATERPILLAR (Malacosoma americanum) becoming conspicuous on favored hosts in Montgomery, Pulaski, Wythe, Smyth, Washington, Scott, Lee, Wise, Russell, Tazewell, Bland, Giles and Craig Counties. (Tarpley).

MINNESOTA - EUROPEAN CORN BORER (Ostrinia nubilalis) overwintering mortality averaged 14 percent in central district. (Minn. Ins. Rpt.).

NEW MEXICO - PEA APHID remains light in alfalfa in Sandoval and Bernalillo Counties. Light, scattered infestations of BROWN WHEAT MITE (Petrobia latens) noted in Sandoval County alfalfa. Occasional larva, possibly ALFALFA WEEVIL, found in field of alfalfa near Sandoval, Sandoval County. PINE NEEDLE SCALE (Phenacaspis pinifoliae) heavy on needles of lower branches of Colorado blue spruce at Taos, Taos County. Appears to be causing loss of needles on these branches. (N. M. Coop. Rpt.).

MASSACHUSETTS - FACE FLY (Musca autumnalis) emerged from hibernation. (Crop Pest Cont. Mess.).

Weather of the week ending April 15 (continued from page 388)

80's northward to the Dakotas. Helena and Great Falls, Montana, reported early season highs of 79° on Easter Sunday. The largest area of moderate to heavy precipitation east of the Rockies occurred in the northwestern Great Plains during the first part of the week. Rain and snow fell in Montana and North Dakota the first 2 days of the week and thunderstorms occurred in South Dakota about midweek. Several stations reported weekly totals of well over an inch. Elsewhere east of the Rockies, precipitation was generally very light, and several areas had no measurable amounts at all. Although precipitation was frequent in the Far West, weekly totals were light in extreme southern areas. No measurable amounts were reported in Arizona. In California, weekly totals ranged from 1.00 to 6.00 inches in the northern two-thirds of the State, 0.50 to 3.00 inches in the central portion, 0.10 to 1.00 inch in south central portions, and small amounts in the extreme south. Beneficial amounts fell in Idaho, Montana, Wyoming and northern portions of Utah and Nevada. Snow fell in the Cascade and Olympic Mountains of Washington above 2,500 feet. (Summary supplied by U. S. Weather Bureau).

INTERCEPTIONS OF SPECIAL INTEREST AT U. S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on January 31, 1963, follow. These reports are based on the identifications received from Federal taxonomists at the U. S. National Museum during the month, but do include any of special interest from recent months that were not previously reported.

LEEK MOTH (Acrolepia assectella (Zell.)) 5 times in stores; 3 times at Philadelphia, Pennsylvania, and 2 times at New York, New York.

CITRUS BLACKFLY (Aleurocanthus woglumi Ashby) in stores at San Diego, California.

MEXICAN FRUIT FLY (Anastrepha ludens (Lw.)) 31 times (22 times in baggage and 9 times in stores); 7 times at Laredo, Texas; 5 times each at New York, New York, and Eagle Pass, Texas; 4 times at Brownsville, Texas; 3 times at San Ysidro, California; 2 times each at El Paso and El Rio, Texas; and one time each at Roma, Texas; Calexico, California; and Chicago, Illinois.

ROSE SAWFLY (Blennocampa pusilla (Klug)) (a common pest of roses throughout Europe) on cut roses in baggage at Idlewild International Airport, New York. This is the first Plant Quarantine Division interception of this species.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)), or probably that species, 41 times (31 times in baggage, 2 times in mail, and 7 times in stores); 28 times at New York, New York; 5 times in Hawaii; 4 times in Boston, Massachusetts; and once each at Detroit, Michigan; Chicago, Illinois; San Juan, Puerto Rico; and Baltimore, Maryland.

A FRUIT FLY (Ceratitis rubivora Coq.) (a pest of Rubus spp. in southern Africa) at District of Columbia Inspection House in mail. This is a first Plant Quarantine Division interception of this pest.

AN AVOCADO SEED WEEVIL (Conotrachelus perseae Barber), or probably this species, once each in baggage and mail at Idlewild International Airport, New York, and at El Paso, Texas. Also C. aguacatae Barber in cargo for planting at El Paso, Texas, and in baggage at San Ysidro, California.

ORIENTAL FRUIT FLY (Dacus dorsalis Hend.), including eggs of probably this species, 5 times in baggage at Honolulu, Hawaii.

A SUGAR-BEET CROWN BORER (Gnorimoschema ocellatella (Boyd)) twice in stores at Galveston, Texas.

AN ANDEAN POTATO WEEVIL (Premnotrypes sp.) in stores at Philadelphia, Pennsylvania.

EUROPEAN CHERRY FRUIT FLY (Rhagoletis cerasi (L.)), or probably this species, 22 times (10 times in baggage and 12 times in airplane stores); 21 times at New York, New York, and once at Boston, Massachusetts.

A WEEVIL (Scepticus sp., near griseus (Roelofs)) (a species of some importance to a variety of plants in Japan, Korea and Saghalien) in burdock cargo at Honolulu, Hawaii.

A STENOMID (Stenoma catenifer (Wlsm.)) 3 times in baggage; once each at Brownsville, Eagle Pass and Laredo, Texas.

KHAPRA BEETLE (Trogoderma granarium Everts) 19 times; 11 times at New York, New York; 3 times at Savannah, Georgia; 2 times at Cleveland, Ohio; and once each at Detroit, Michigan; Philadelphia, Pennsylvania; and Baltimore, Maryland.

WHITE GARDEN SNAIL (Theba pisana (Müller)) 3 times on conex boxes and general cargo; 2 times at New Orleans, Louisiana, and once at Dover, Delaware.

SUMMARY OF INSECT CONDITIONS - 1962
(continued from page 384)

BENEFICIAL INSECTS

Highlights:

LADY BEETLES effectively reduced populations of green peach aphid and cabbage aphid in Washington. Pea aphid and greenbug were attacked in Missouri by lady beetles and other predators. Lady beetles were the most abundant predators during the second generation of European corn borer in Kansas, and overwintering adults were numerous in Virginia. TWICE-STABBED LADY BEETLE destroyed 90 percent of a heavy infestation of pine needle scale in Pennsylvania, and TWO-SPOTTED LADY BEETLE was very numerous in a very heavy infestation of Norway-maple aphid in that State. Releases of PUNCTUREVINE WEEVILS were made in all counties of Arizona, and surveys indicate they are becoming established in several areas. Prospects for puncturevine control are very good in California. Puncturevine weevils appear to be established in that State and in areas of Nevada and Washington as well. A GORSE WEEVIL (Apion ulicis) appears to be well established in Oregon and California in areas of earlier release. KLAMATH-WEED BEETLES are established in California in an area where Klamath-weed occurs. Although there were some setbacks to HONEY BEE colonies in a number of States due to diseases, fire, floods and other causes, honey production and pollination were generally satisfactory. Other pollinators, such as ALKALI BEE and LEAFCUTTING BEES (Megachile spp.), were also generally effective in increasing seed production, with only minor setbacks due to cool weather. PARASITIC HYMENOPTERONS were active in many States against various economic insect pests. ANTHOCORID BUGS, particularly Orius insidiosus, were active in many States; however, this species was reduced considerably in Massachusetts. O. insidiosus and other predators were responsible for reducing the first brood of European corn borer in Kansas. DAMSEL BUGS were common and effective in most of the States reporting. An unspecified TACHINA FLY was very effective in Rhode Island against orange-striped oakworm. LACEWINGS were reported from most States; GOLDEN-EYE LACEWING was one of the most common predators of aphids in Michigan.

LADY BEETLES were unusually abundant in Skagit County, WASHINGTON, and these, together with parasites, effectively reduced green peach aphid (Myzus persicae) and cabbage aphid (Brevicoryne brassicae) populations. Various lady beetles, primarily CONVERGENT LADY BEETLE (Hippodamia convergens), were common on various crops in ARIZONA during the year. Populations of lady beetles were about the same as in 1961 in WYOMING. Large populations were found in alfalfa, corn and potato fields in that State, with the largest numbers being found in July and August in alfalfa. Hippodamia spp. were present in COLORADO in 1962. Many species of lady beetles were found in notable numbers in TEXAS attacking economic pests in various parts of the State. Light to heavy populations of larvae and adults of several species were present in a variety of crops throughout OKLAHOMA during the year. Lady beetles were the most abundant predators in KANSAS during the second generation of European corn borer (Ostrinia nubilalis) development. Convergent lady beetle and Coleomegilla maculata lengi comprised the largest portion of lady beetle populations at that time. During the month of April, high populations of various species of aphids were present on ornamentals throughout the southern and central areas of MISSOURI. By mid-May, the populations were very low due to the activity of parasites and predators. During late April and mid-May, high populations of beneficial insects were observed feeding on pea aphid (Acyrtosiphon pisum) in alfalfa and clovers and on greenbug (Schizaphis graminum) and other aphids in small grains. The predators were mainly lady beetles of the genera Hippodamia, Cycloneda, Coleomegilla, Coccinella and

Adalia and damsel bugs (Nabis spp.). During the early part of the growing period in Missouri, light to moderate infestations of cotton aphid (Aphis gossypii) were present in the cotton-growing area. These infestations were reduced by parasites and predators to the point where very little chemical control had to be used. Special counts of beneficial insects were made in ARKANSAS in the major cotton-producing areas. During the period June 25-September 1, a total of 446 samples showed lady beetle adults ranged 0.7-6 and averaged 3.11 per 100 terminals; lady beetle larvae ranged 0.2-2.9 and averaged 1.3 per 100 terminals. Lady beetles were present in NORTH DAKOTA in fairly large numbers in most fields observed during the season.

THIRTEEN-SPOTTED LADY BEETLE (Hippodamia tredecimpunctata tibialis) adults and larvae were abundant in samples from Bridgewater, Aroostook County, MAINE. Lady beetles were common in fields of legumes infested with pea aphid in RHODE ISLAND. Various species of lady beetles were common in alfalfa and clover throughout VIRGINIA and numerous samples of overwintering adults were received. The most common ones appeared to be Coleomegilla maculata fuscilabris, TWO-SPOTTED LADY BEETLE (Adalia bipunctata) and Olla abdominalis sobrina. These were also frequently reported as being active on various shade trees in association with various aphid infestations in Virginia.

Two-spotted lady beetle and other species were very numerous on apples infested with aphids in MICHIGAN early in 1962. Heavy concentrations of lady beetle adults were observed on arborvitae in Fulton County, OHIO, in early October. TWICE-STABBED LADY BEETLE (Chilocorus stigma) was very numerous in a Scotch pine plantation in PENNSYLVANIA where it destroyed 90 percent of a heavy infestation of pine needle scale (Phenacaspis pinifoliae). Two-spotted lady beetle was very numerous in a very heavy infestation of Norway-maple aphid (Periphyllus lyropictus) on maples in several towns in Pennsylvania.

PUNCTUREVINE WEEVILS (Microlarinus spp.) were released in Pima County, ARIZONA, during 1961 for control of puncturevine (Tribulus terrestris). Both M. lareynii and M. lypriformis were found established and to have expanded their ranges. Releases were made in all counties during 1962. Surveys indicate these species are becoming established in several areas. Both species successfully overwintered in release areas of Clark County, NEVADA. They increased rapidly during the 1962 season and spread several miles from original sites. These two species were initially released in 1961 in CALIFORNIA; they have since become established and spread into outlying stands of puncturevine during the 1962 season. Prospects are very good for the control of this weed pest in California as soon as the weevils are widespread and present in sufficient numbers. In WASHINGTON, larvae and pupae of M. lareynii were recovered in the area where adults were released in Benton County during 1961.

A GORSE WEEVIL (Apion ulicis) is apparently well established at the release site in OREGON, in western Lane County near Sea Lion Caves. Populations are increasing and expanding at earlier release sites in Coos County, Oregon. The natural spread of this species in CALIFORNIA, from established populations in the north coastal counties, was exceptional in 1962.

KLAMATH-WEED BEETLES have become established over the area where Klamath-weed occurs in CALIFORNIA. Klamath-weed (Hypericum perforatum) has now been reduced to stands sufficient for minimum survival of Agrilus hyperici, Chrysolina gemellata and C. quadrigemina.

GROUND BEETLES (Calosoma spp.) were present in greater numbers in CALIFORNIA because of heavy populations of cutworms. Several species of ground beetles were found in notable numbers in TEXAS where they attacked economic pests in various parts of the State. During the period June 25-September 1, in ARKANSAS, a survey of major cotton-producing areas showed that a ground beetle (Lebia analis) ranged 0-0.5 and averaged 0.21 per 100 terminals. Several undetermined species of ground beetles were numerous in southern MICHIGAN as indicated by

blacklight catches. A predaceous DERODONTID BEETLE (Laricobius erichsoni) has been successfully established in three northern New England States; interest has been stimulated in this method of biological control of the balsam woolly aphid (Chermes piceae). Further importations and releases of this predator are planned for 1963. MELYRID BEETLES (Collops spp.) were commonly encountered on various crops in ARIZONA during 1962.

HONEY BEE (Apis mellifera) survey conducted during the spring in the lower Yakima Valley of WASHINGTON indicated that 40 percent of the colonies had been eliminated. Many beekeepers purchased packaged honey bees to supplement and strengthen their colonies for orchard pollination. For this reason, there were no critical shortages reported in the orchards, except where distribution problems were involved. A total of 36,110 colonies in 2,706 apiaries was inspected in OREGON. American foulbrood was found in 831 colonies and European foulbrood was found in 151 colonies. These foulbrood inspections involved 346 apiaries. There was an abundance of natural honey bee pasture in CALIFORNIA, which helped reduce crowding of apiaries in irrigated areas. Overwintering losses during the winter of 1961-62 were higher than normal, resulting in a shortage of strong colonies for almond pollination in the spring of 1962. There were an estimated 587,000 colonies in CALIFORNIA during the productive season. Of 166,964 colonies inspected, 4,471 were diseased with American foulbrood. Floodwater from early fall rains destroyed several hundred colonies in the Sacramento Valley, and brush fires in the southern part of California destroyed several apiaries. Honey bee swarming began May 5 in RHODE ISLAND. Some setbacks occurred in midsummer due to dry weather. It was a good year in general in KANSAS for the production of honey. Production was slightly above the 1961 level. Even with a poor fall flow, production was higher than for the past several years. In general, the quality of honey was better than normal. A total of 6,399 colonies was inspected for foulbrood; 81 colonies were infected with American foulbrood, 9 colonies with European foulbrood and 6 colonies with sacbrood.

ALKALI BEE (Nomia melanderi) emerged June 17-23 in Yakima Valley, WASHINGTON; nesting sites increased throughout the northern portions of the Columbia Basin Project, with good alfalfa seed yields, increasing alfalfa seed yields, and increasing alfalfa seed acreage as a result. Adults of alkali bee emerged in Umatilla County, OREGON, June 8. Populations were up during 1962 in NEVADA due primarily to construction of artificial beds.

A LEAF-CUTTING BEE (Megachile rotundata) emerged June 11 in Benton County, WASHINGTON. It was actively nesting in Walla Walla County during July. Re-nesting during the cool season was generally poor. M. rotundata emerged June 4 in alfalfa seed-producing areas of Malheur and Umatilla Counties, OREGON. In NEVADA, M. rotundata, previously introduced into alfalfa seed areas of Humboldt and Pershing Counties, multiplied rapidly during 1962. M. dentitarsus, which was native to Humboldt County, Nevada, has increased rapidly and was a very efficient pollinator of alfalfa. This latter species has become so numerous in some areas that many trees and shrubs were partially defoliated this season by its leafcutting.

Cocoons of a PARASITIC BRACONID (Apanteles sp.) usually accompanied larvae of imported cabbageworm (Pieris rapae) during the late summer in RHODE ISLAND. Apanteles sp. was associated with infestations of apple leaf skeletonizer (Psorosina hammondi) in that State also. Another parasitic braconid (Lysiphlebus testaceipes) has been active in COLORADO on populations of corn leaf aphid (Rhopalosiphum maidis) in the Arkansas Valley. Recovery of progeny of a parasitic braconid (Agathis pumilus) from a site of liberation near St. Maries, Benewah County, IDAHO, points to possible establishment of this species in the State. Its liberation in other areas of the larch casebearer (Coleophora laricella) is planned. In TEXAS, several species of parasitic braconids were found in notable numbers attacking economic pests in various parts of the State.

PARASITIC HYMENOPTERONS were common in legume fields infested with pea aphid (Acyrtosiphon pisum) in RHODE ISLAND. Some unspecified parasitic hymenopterons

were present and common in OKLAHOMA. Various parasites and predators were present in normal numbers in NEVADA, but a heavy population of an unknown hymenopterous parasite assisted in control of pea aphid (Acyrtosiphon pisum). A PARASITIC EULOPHID (Symplesis viridula) was found parasitizing larvae of European corn borer (Ostrinia nubilalis) in Cass and Richland Counties, NORTH DAKOTA. An ICHNEUMON (Bathyplectes curculionis) has had considerable influence in northern COLORADO on the populations of alfalfa weevil (Hypera postica).

A SCOLIID WASP (Scolia dubia) appeared to be unusually numerous in many localities in NORTH CAROLINA infested with green June beetle (Cotinis nitida). This species was reported as being common in numerous counties in VIRGINIA under the same circumstances. CICADA KILLER (Sphecius speciosus) was very active in NEBRASKA in early August. There were a few reports of activity in VIRGINIA.

A CINNABAR MOTH (Tyria jacobaeae) is slowly increasing in populations in release sites in Polk and Linn Counties, OREGON. Larvae and feeding damage were noted July 9. Advancement of this arctiid moth in CALIFORNIA has been slow because of several circumstances that have interfered with its establishment. Also in California, a SCOTCH-BROOM TIP MOTH (Leucoptera spartifoliella) became established during 1962 and is progressing satisfactorily.

Collections of BENEFICIAL SPIDERS in MASSACHUSETTS indicate an increase in numbers on forage crops over those of 1961.

PARASITES and PREDATORS were abundant in CALIFORNIA during 1962, and in many localities they were completely satisfactory in control. In the Coachella Valley, Riverside County, results of biological controls were exceptional. This situation may continue next season if weather conditions are favorable during 1963. Because of the high degree of control exerted by these species during 1962, there is some concern that growers may depend too much on natural control and find themselves in trouble. Releases by the University of California amounted to over 6,708,561 specimens of all species of parasites and predators. The following species were released over various areas of the State during the 1962 season.

Anagrus sp., near epos
Aphelinus gossypii
Aphelinus sp. ex Eritrea
Aphelinus "T"
Aphelinus varipes
Aphidius sp. ex Asmara
Aphytis "africans"
Aphytis coheni
Aphytis lingnanensis
Aphytis melinus
Aspidiotiphagus lounsburyi
Chelinidea tabulata
Chelinidea vittiger vittiger
Rhizobius satellus
Trioxys angelicae
Trioxys pallidus

Chrysopa carnea
Coccophagoides sp.
Comperiella bifasciata
Dasyscapus parvipennis
Dibrachoides druso
Leucoptera spartifoliella
Melitara sp.
Microlarinus lareynii
Microlarinus lypriformis
Opius ferrugineus
Opius rhagoleticolus
Physcus debachi
Prospaltella perniciosi
Typhlodromus aeralis
Typhlodromus rickeri
Tyria jacobaeae

An ANTHOCORID BUG (Orius insidiosus), which represented 41.3 percent of all beneficial insect and allied species in 1961 in MASSACHUSETTS, was reduced considerably in 1962. Orius sp. was common on alfalfa, turf and corn in Kingston, Washington County, RHODE ISLAND, late in the season. Orius insidiosus and other predators were responsible for reducing the first brood of European corn borer (Ostrinia nubilalis) populations 42.7 percent as compared with 49.5 percent for the second generation in KANSAS. This species was in normal numbers in the State. O. insidiosus was common and present in OKLAHOMA. Special counts made in all the major cotton-producing areas of ARKANSAS showed that of the 446 samples taken during the period June 26-September 1, O. insidiosus ranged 0-2.3 and averaged

1.1 per 100 terminals. This anthocorid bug was present in notable numbers in TEXAS where it attacked economic pests in various parts of the State. Orius spp. were commonly encountered in ARIZONA on various crops during the 1962 season. Many Anthocoris musculus (det. by J. L. Herring) and an occasional lady beetle (Adalia frugida) were preying on a heavy infestation of an aphid (Pemphigus sp.) within the numerous galls on a poplar tree in UTAH in an area north of Fayette, Sanpete County, August 30. Orius spp. populations were abundant throughout WYOMING.

DAMSEL BUGS (Nabis spp.) were common in alfalfa and clover throughout VIRGINIA. N. ferus represented 49.2 percent of all beneficial insects and allies in MASSACHUSETTS on forage crops; this represented an increase of 28.1 percent over 1961. This same species was common in RHODE ISLAND in alfalfa in late September. Nabis spp. were commonly encountered in ARIZONA on various crops and they were found in notable numbers in TEXAS where they attacked economic pests in various parts of the State. Nabis spp. were common and present in OKLAHOMA. Counts made of 446 samples taken in all the major cotton-producing areas of ARKANSAS indicate that Nabis spp. ranged 0.1-0.9 and averaged 0.4 per 100 terminals during the period June 25-September 1. Damsel bugs were present in normal numbers in KANSAS and COLORADO. The largest populations of Nabis spp. in WYOMING were found in alfalfa. Generally, populations were not as large as those found during 1961.

BIG-EYED BUGS (Geocoris spp.) were commonly encountered on various crops in ARIZONA. They were slightly below normal in numbers in alfalfa and in home gardens in UTAH this season. Special counts made of 446 samples taken in all the major cotton-producing areas of ARKANSAS during the period June 25-September 1 showed that Geocoris punctipes ranged 0.4-2.2 and averaged 1.27 per 100 terminals.

WHEEL BUG (Arilus cristatus) specimens were received from several counties in VIRGINIA. Wheel bug was found in notable numbers in TEXAS attacking economic pests in various parts of the State.

Larvae of FLOWER FLIES were common on alfalfa and clover throughout the State of VIRGINIA, and probably instrumental in keeping aphid populations in check. Various flower flies were very common predators on crops infested with aphids in MICHIGAN. Large numbers were present in most fields observed in NORTH DAKOTA. Flower flies were common on various crops in ARIZONA during the 1962 season. A TACHINA FLY contributed to the abrupt subsiding of feeding of orange-striped oakworm (Anisota senatoria) in RHODE ISLAND. Most of the larvae of A. senatoria bore eggs of an unspecified species of tachina fly in mid-September. This parasitism was noted in the western half of Washington County and in parts of Kent County. Some caterpillars bore up to 11 eggs.

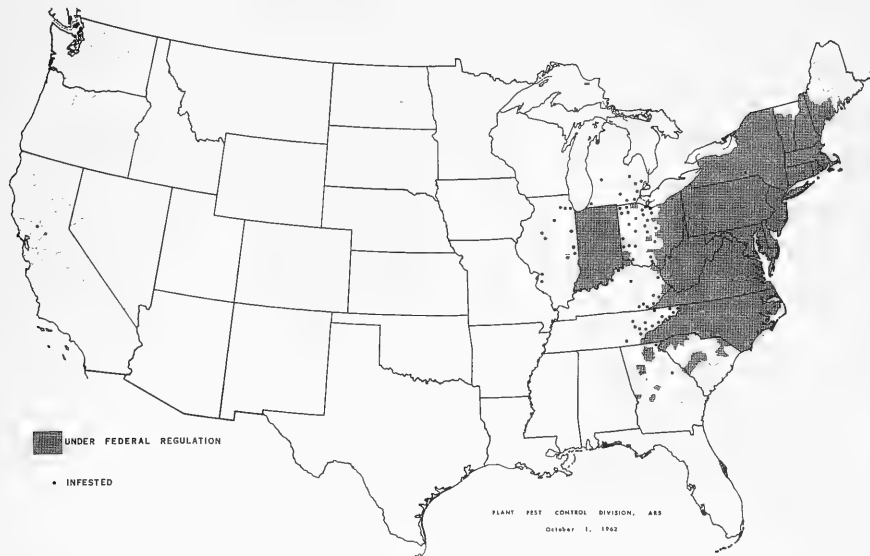
GOLDEN-EYE LACEWING (Chrysopa oculata) was one of the most common predators found attacking aphids in MICHIGAN. This species was found in notable numbers in TEXAS attacking aphids. LACEWINGS were common in legume fields infested with pea aphid (Acyrtosiphon pisum) in RHODE ISLAND. Large numbers of lacewings were noted in most fields in NORTH DAKOTA. Larvae of GREEN LACEWINGS (Chrysopa spp.) ranged 0.5-2.2 and averaged 1.08 per 100 terminals during surveys of the major cotton-producing areas of ARKANSAS during the period June 25-September 1. Green lacewings were common in OKLAHOMA and present in COLORADO. Unspecified lacewings were present in normal numbers in KANSAS. Lacewings were common on various crops in ARIZONA.

MISCELLANEOUS INSECTS

Highlights:

The JAPANESE BEETLE quarantine was extended to include Indiana and parts of Georgia, Kentucky and South Carolina. The outlook for eradication of Japanese beetle in California is optimistic. WHITE-FRINGED BEETLES were found for the first time at Norfolk, Virginia. New county and parish records were established in Alabama, Arkansas, Georgia, Kentucky, Louisiana, Mississippi and Tennessee. Eradicative treatments for IMPORTED FIRE ANT have been applied to approximately 4.5 million acres in the Southern United States. These measures have reduced populations and protected both rural and urban areas. Continuous alert is maintained in southern California against both MEXICAN FRUIT FLY and ORIENTAL FRUIT FLY.

The Federal JAPANESE BEETLE (*Popillia japonica*) quarantine was extended during 1962 to include all of the State of INDIANA and parts of GEORGIA, KENTUCKY and SOUTH CAROLINA. The new regulations became effective in those States on September 21. The Federal quarantine regulations now apply to all or parts of 19 States and the DISTRICT OF COLUMBIA.



Status of the Japanese Beetle

In CALIFORNIA, where an incipient infestation was discovered in the vicinity of Sacramento in 1961, the outlook for complete eradication is optimistic. Soil treatments have been applied to 14,000 acres since the initial discovery, and repeated foliage treatments have been applied in each area where additional

adults have been captured. The State of California has imposed a vigorous regulatory program to prevent local and long-distance spread from infested areas. Surveys in NEVADA were negative in 1962.

Eight, live Japanese beetle adults were collected in NEBRASKA from a cargo container on a commercial airplane at Omaha Municipal Airport in August. Adults were captured in 80 of the 3,149 traps in operation at St. Louis, MISSOURI, during the summer of 1962. Adults were taken in untreated territory in an area north of downtown St. Louis. An area of 3,000 acres, which contained an estimated 1,800 acres of turf, was soil treated in November and December. Negative results were obtained from 1,056 traps set in 26 other Missouri counties. Japanese beetle now occurs in at least 52 localities in INDIANA. The Federal quarantine prohibits shipment of certain plants and plant products to States north and west. Japanese beetle continues to move into southern counties of MICHIGAN. It also continues to spread in SOUTH CAROLINA.

A SCARAB (Ceratophyus sp.) attracted attention in CALIFORNIA by burrowing in a golf course in Vandenburg Air Force Base in Santa Barbara County. Investigation revealed an infestation involving 50,000 acres of reservation land. This scarab is more or less restricted to sandy soil and uncultivated areas under native shrubs. It occasionally infests golf courses and new lawns with burrows extending 6-8 feet deep. This species is apparently inactive during the dry season and is stimulated by moisture. No commercial damage has occurred in the State. A scarab (Glarensis knausi) was collected at ultraviolet light in Kanab Canyon, Kane County, UTAH, the night of September 29. Det. by O. L. Cartwright. Anomala sp. was common in Japanese beetle traps in Houston, Harris County, TEXAS, during August. Pelidnota punctata was collected in a light trap in RHODE ISLAND, in Kingston, Providence County, June 29.

A MAY BEETLE (Phyllophaga koehleriana) caused considerable annoyance around premises in OKLAHOMA when large numbers emerged in late May and early June in Cimarron County. Adults were removed by the wheelbarrowful.

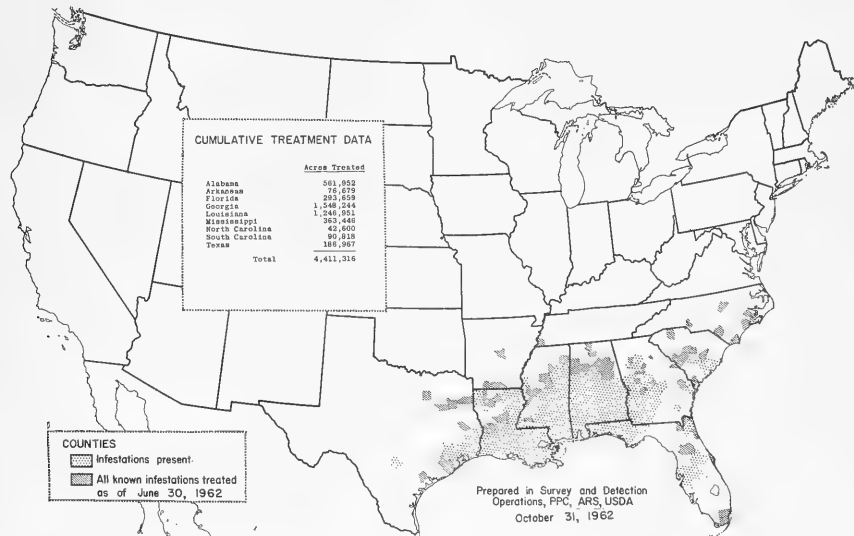
An important new area of WHITE-FRINGED BEETLES (Graphognathus spp.) occurrence was discovered in October at Norfolk, VIRGINIA. Further surveys showed that white-fringed beetles are established at 14 widely separated locations involving 3,000 acres in the city. Both Graphognathus leucoloma imitator and G. l. striatus have been identified from Norfolk. Incipient infestations of white-fringed beetles were also found in ARKANSAS and TENNESSEE, and a single specimen was recovered in KENTUCKY near the Tennessee-Kentucky State line. All the Arkansas infestations and the one in Kentucky have been treated. Since the beginning of the white-fringed beetle program, infestations have been found on approximately 1.3 million acres. As of January 11, 1963, slightly more than 398,000 acres of this total have been given eradivative treatment. This includes 54,612 acres treated in fiscal year 1962 (end of June 1962). Persistent control and eradivative treatments have virtually eliminated economic losses from these pests. New parish records were recorded in LOUISIANA and new county records in the States of MISSISSIPPI, ALABAMA and GEORGIA.

A WEEVIL (Curculio nasicus) infestation found in a child's bed in MASSACHUSETTS was apparently from acorns hidden there. Another weevil (Compsus auricephalus) continues heavy in a small area in Pope County, ARKANSAS. There has been little damage to date. A special effort to find overwintering forms was negative. LESSER MEALWORM (Alphitobius diaperinus) adults and larvae heavily infested litter in a broilerhouse in Wicomico County, MARYLAND, in October, and the species was very abundant in litter in several poultry establishments in PENNSYLVANIA. A DARKLING BEETLE (Blaps lethifer) occurred in very heavy populations in a horse stable at the Athens County fairgrounds in OHIO. During mid-November, over 200 adults and larvae were collected within a square yard. SAP BEETLES (Glicschrochilus spp.) were of considerable nuisance in INDIANA, disrupting picnics and other outdoor activities. They increased during the year,

although complaints during late August and September were not as numerous as expected. Although *Glischrochilus quadrisignatus* was nearly as prevalent as in other years in corn fields in WISCONSIN, it caused less concern to picnickers than during 1961. A STAG BEETLE (*Pseudolucanus capriolus*) was collected at a light in Brandon, Hillsborough County, FLORIDA. This represents the first record of the family Lucanidae from Florida. This same species emerged in large numbers in RHODE ISLAND on a property in Warwick, Kent County, in mid-July.

Other miscellaneous Coleoptera reported include BROAD-NECKED ROOT BORER (*Prionus laticollis*) in RHODE ISLAND where it was more numerous than usual in mid-July. BLACK BLISTER BEETLE (*Epicauta pennsylvanica*) also was more numerous than usual in southwestern MICHIGAN. In Little Rock, ARKANSAS, adults of a POWDER-POST BEETLE (*Trogoxylon prostomoides*) emerged from bamboo baskets imported from Mexico. A LEAF BEETLE (*Calligrapha* sp.) was commonly collected in coastal rice fields of TEXAS during August.

Eradicative treatments for IMPORTED FIRE ANT (*Solenopsis saevissima richteri*), since this program was initiated, have been applied to approximately 4.5 million acres. This program has prevented long-distance artificial spread, reduced populations and protected both rural and urban areas from the damage and annoyance of this pest. Imported fire ant was found for the first time in the delta section of the State of MISSISSIPPI, in Washington, Issaquena and Sharkey Counties. Control program continues in that State and in ARKANSAS. New county records were made in the States of FLORIDA, GEORGIA and TEXAS also.



Status of the Imported Fire Ant.

Other ants reported include LARGER YELLOW ANT (*Acanthomyops interjectus*) in RHODE ISLAND, where a spectacular, widespread emergence of alates was noted in Providence, Kent and Washington Counties. Also in Rhode Island, PAVEMENT ANT (*Tetramorium caespitum*) samples, containing workers and alates, were received routinely from all quarters of the State. Complaints were most numerous during period of termite swarming.

A SCOLIID WASP (*Scolia dubia*) was very abundant around homes in southern parts of PENNSYLVANIA. This same wasp was active about lawns in MARYLAND during late August and September. It caused concern to homeowners in 4 counties. In VIRGINIA, a few reports of GIANT HORNET (*Vespa crabro germana*) and a VELVET ANT (*Dasymutilla occidentalis*) were received. A female specimen of an ICHNEUMON (*Poly-sphincta albipes*) was collected in FLORIDA in Indian River County on May 18, 1957. Det. by L. M. Walkley. This species was known only from the type specimen (male) collected in Brevard County, Florida, prior to 1880.

A LEPTOPODID BUG (*Patapius spinosus*), which was unknown in the Western Hemisphere prior to 1941, was collected in CALIFORNIA. No other collections were reported until 1962 when medium numbers were found under boards in Willows, Glenn County, and in Nord, Butte County.

LEAFHOPPERS (*Draeculacephala* spp.) were numerous and caused much annoyance in ILLINOIS where they were attracted to lights. A leafhopper (*Homalodisca triquetra*) was commonly collected in Japanese beetle traps in Houston, Harris County, TEXAS, during August. *Negosiana dualis* was collected in FLORIDA at Davie, Broward County. The types are from Brownsville, Texas, and the only locations in literature are from Texas.

CITRUS WHITEFLY (*Dialeurodes citri*) was reported by a homeowner in Sacramento, CALIFORNIA, early in December 1962. The pest infests miscellaneous shrubs and citrus. Eradicative treatment will be applied to approximately 250 city blocks. A buffer area will also be treated, bringing the total number of blocks involved to over 250. This species has been eradicated many times during the past 40 years, but it is always subject to reintroduction. A MEALYBUG (*Cucullococcus vaccinii*) was collected from *Vaccinium parvifolium* in Gasquet, Del Norte County, CALIFORNIA. This was the first record of a field infestation in the State. An APHID (*Macrosiphum cockerelli*) was less numerous than normal on *Rudbeckia* sp. in Weber and Cache County mountains in UTAH during the summer. APPLE GRAIN APHID (*Rhopalosiphum fitchii*) was numerous during the fall flight at Logan, Cache County. A CICADA (*Okanagana* sp.) was heavy in most areas of NEVADA and, in addition to damage to piñon pine, this species caused concern to residents.

The spring migration of PAINTED LADY (*Vanessa cardui*) through UTAH during 1962 was not conspicuous, although it was observed in some localities.

A PSYCHID MOTH (*Apterona crenulella*) became extremely abundant in parts of Salt Lake County, UTAH. Sometimes thousands of this snail-like casemaker were attached to the walls of homes and under the eaves. They were also attached to fruit trees, shrubs, etc. This species was about normal in numbers statewide, however. A TINEID MOTH (*Achanodes antipathetica*) was collected for the first time in the United States at a light in Miami, FLORIDA. This species is known in Puerto Rico and Jamaica. WHITE-LINED SPHINX (*Celerio lineata*) populations, which were statewide in NEVADA, caused much concern but very little economic damage. SALT-MARSH CATERPILLAR (*Estigmene acrea*) built up in large numbers in west central and western areas of TEXAS during the summer months. Adults of POLYPHEMUS MOTH (*Antheraea polyphemus*) were active in Kent County, RHODE ISLAND, in mid-June.

MEXICAN FRUIT FLY (*Anastrepha ludens*) does not occur in CALIFORNIA, but it was trapped south of the United States-Mexican border on several occasions during 1962. Continuous alert is maintained in the project area of San Diego County, where 1,600-2,000 traps are maintained and protective bait sprays are applied to host trees and roadside trees at regular intervals. Inaccessible canyon areas are sprayed by airplane. Trapping of ORIENTAL FRUIT FLY (*Dacus dorsalis*) was negative in California also. No adults have been taken since 1960 when 3 flies were trapped in Orange and Santa Barbara Counties. This pest has never become established in California.

A SOLDIER FLY (Hermetia illucens) became a problem in CALIFORNIA in houses and around yards in several localities. A NEMESTRINID FLY (Neorhynchocephalus volaticus) was collected for the first time in FLORIDA on July 30 in an area 7 miles north of Lake City, Columbia County. MARCH FLIES attracted attention in several areas of TEXAS.

NORTHERN MOLE CRICKET (Gryllotalpa hexadactyla) concentrated on a property on Block Island, Newport County, RHODE ISLAND, in late August. A SNOWY TREE CRICKET (Oecanthus argentinus) was extremely numerous on rabbitbrush (Chrysothamnus sp.) flowers in Wellsville Canyon, Cache County, UTAH, during late August. Det. by J.A.G. Rehn.

RING-LEGGED EARWIG (Euborellia annulipes) was reported for the first time in NORTH DAKOTA. Specimens from an established colony in North Dakota State University greenhouse were determined by I. J. Cantrall. The normal range of this labidurid earwig is Southern United States.

A SMINTHURID SPRINGTAIL developed phenomenal numbers in wet turf in Kingston, Washington County, RHODE ISLAND, in mid-May. This subsided under drier conditions. In PENNSYLVANIA, Achorutes nivicola was quite abundant in the north-eastern part of the State.

BOOKLICE (Liposcelis spp.) were extremely abundant on a wide variety of trees throughout VIRGINIA. Various species were most commonly observed on magnolia, crapemyrtle, holly and redcedar.

A HANGINGFLY (Bittacus pilicornis) was collected at Gainesville, Alachua County, FLORIDA, on April 8, 1961. This apparently constitutes the first record for Florida. Det. by G. W. Byers, 1962.

A SCORPION (Vajovis boreus) was found invading a residence in Auburn, Placer County, CALIFORNIA. A single specimen of a new species was collected in Bakersfield, Kern County, but after treatment no additional specimens were found. Scorpions have been noticeably absent in California during the past few years. A few reports of scorpions in a home and about homes were noted in UTAH during the summer from southern localities. PSEUDOSCORPIONS were found in poultry houses and also under carrion in SOUTH CAROLINA. Many specimens of pseudoscorpions were received from areas just east of the mountains in MONTANA. SOLPUGLIDS were received from Dawson, Glacier, Liberty, Park, Roosevelt, Teton, Wibaux and Yellowstone Counties in MONTANA.

AN ACARID MITE (Caloglyphus mycophagus) and two UROPODID MITES (Leiodynychus krameri and Fuscuropoda agitans) are pests of earthworm beds in CALIFORNIA in several localities. When these mites occur, they are generally in heavy populations and interfere with the rearing of earthworms.

A TADPOLE SHRIMP (Apus sp.) was noted in NEBRASKA where two specimens each were received from Dawes and Garden Counties.

A SLUG (Arion ater) was first noted in Crescent City, Del Norte County, CALIFORNIA, in February. Local infestations were found in several areas of Del Norte and Humboldt Counties. This slug has become established and control treatment has been applied.

ADDENDUM TO INTRODUCTION
(CEIR 13(8):2-22-63, pp. 120-121)

The names of the following contributors of summary data are to be included for New York: P. H. Wooley, G. A. Schaefers, J. A. Adams, F. L. McEwen, A. C. Davis and G. G. Gyrisco.

SURVEY METHODS FOR SURVEY ENTOMOLOGISTS

This is a continuation of the work begun by the North Central States Branch, Entomological Society of America, Committee on Insect Surveys and Losses. The members of this committee are Clarence E. White (Chairman), O.H. Hammer and Leroy L. Peters. 1/

CORN EARWORM (Heliothis zea) DAMAGE SURVEY

This survey method is designed for the survey entomologist in collecting information to use in making a reasonable estimate of the loss to field corn caused by corn earworm. Absolute loss figures are impossible to calculate because of the many variables involved. It is believed this method will give reasonably accurate loss figures that will be of value to many people.

This method may not give the researcher the accuracy he desires for individual fields, as it was designed to be used on the Crop Reporting District basis. However, the method of counting the kernels lost and other methods of procedure may be used by the research worker.

Timing of Survey

The survey should be made after at least 75 percent of the ears are dented, because damage will not be complete prior to this time.

Selecting the Fields

Examine at least 20 fields per district and more if time permits. The number of fields surveyed within a district or districts within a State may vary with the corn acreage distribution and is left to the discretion of the survey entomologist. The same fields may also be used for the annual European corn borer fall abundance survey.

Forms for Recording Field Data

A simple form for recording field data is desirable. A standard method of recording facilitates entry of field notes and also transfer of data from the field log. A suggested form is on page 422.

Method of Survey

The sample is obtained by walking 50 steps into the field from the most accessible point. Beginning with the first plant on the observer's right, examine and record the degree of infestation of the first 25 ears. Using the rating key in the upper right hand corner of the Field Record Form, classify each ear according to the number of kernels damaged by corn earworm. At first, the number of damaged kernels will have to be counted, but even with limited experience, the ears can be classed at a glance. The average class of damage for each field can be calculated later in the office. To determine what percent of the ear was damaged, it is necessary to know the total number of kernels on an average size ear. Therefore, take the first and last ear in each field, count the number of kernels in an average row on each ear, and multiply this by the number of rows on the ear. Then, add the number of kernels together for both ears, divide by 2 and record on the field form under remarks.

1/ Acknowledgment is due C. C. Burkhardt, Assistant Professor of Entomology, Kansas State University, Manhattan, Kansas, for his assistance in the design and evaluation of this method.

Loss Calculations

The losses are best calculated on the district basis. Losses from all districts are added together to get the total loss for the State. The method of calculation is as follows:

1. Calculate the average class damage for each field, then for each district:
Thus Field No. 1 on Field Survey Form would be calculated as follows:

$$1 \times 2 + 6 \times 3 + 5 \times 4 + 5 \times 5 + 5 \times 6 + 2 \times 7 + 1 \times 8 \div 25 = 4.7$$

Add field averages together and divide by number of fields surveyed in the district to get district average class damage.

2. Calculate the average size ear for each district.
3. Determine corresponding relationship between number of kernels damaged and average class damage for the district. (See step 3 below).

$$\frac{\text{Crop Reporting Service Yield for district (bu.)}}{100\% - \% \text{ loss}} - \text{Crop Reporting Service yield for district (bu.)} = \text{Bu. loss for district}$$

5. Sum total Unit value district losses X (\$ per bu.) = Total State loss (\$)
(bushels)

See example given below. Circled numbers refer to corresponding numbers above.

Use the 20 fields on page 422 as an example for a district.

<u>Field</u>	<u>Av. class damage</u>	<u>Av. No. kernels/ear</u>
1	4.7	612
2	2.6	880
3	5.5	672
etc.	-	-
Total 20	56.0	13,576
	(1) 2.8*	679** (2)
	20/56.0	20/13,576

(3) <u>Class Damage</u>	<u>Kernels Destroyed</u>
2.0	11
2.1	12
2.2	13
2.3	14
2.4	15
2.5	16
2.6	17
2.7	18
* 2.8	(19)
2.9	20
3.0	21

$$\begin{array}{r}
 .0279 = 2.8\% \text{ loss} \\
 \text{**679} \quad \underline{19.0000} \\
 \quad \quad \underline{1358} \\
 \quad \quad \underline{5420} \\
 \quad \quad \underline{4753} \\
 \quad \quad \underline{6670} \\
 \quad \quad \underline{6111} \\
 \quad \quad \underline{559}
 \end{array}$$

(4) From Crop Reporting Service For District

Av. yield/acre = 50 bu.
 100,000 acres harvested
 yield for district = 100,000 X 50 = 5,000,000 bu.
 Then $\frac{5,000,000 \text{ bu.} - 5,000,000 \text{ bu.}}{97.2\%}$ = 144,033 bu. loss for district

CORN EARWORM FIELD CORN DAMAGE SURVEY

(State)

DATE September 10 1962

OBSERVER Jac Smith

DISTRICT MC

RATING KEY

CLASS	KERNELS DAMAGED
0	0
1	1 - 10
2	11 - 20
3	21 - 30
4	31 - 40
5	41 - 50
6	51 - 60
7	61 - 70
8	71 - 80
9	81 - 90
10	91 or more

FIELD NO.	CLASS DAMAGE											AV. CLASS DAMAGE	REMARKS		
	0	1	2	3	4	5	6	7	8	9	10				
1			/	PKL /	PKL	PKL	PKL	//	/				4.7	612 kernels per ear	
2	////	PKL	////	//	PKL	//	/	/					2.6	880 " " "	
3			/	PKL	PKL	PKL	PKL	//					5.5	672 " " "	
4		///	PKL PKL	PKL //	////	/							2.6	736 " " "	
5	PKL	PKL	PKL	///									1.3	848 " " "	
6	//	//	PKL	PKL	PKL	////							3.0	572 " " "	
7	PKL ////	////	PKL	//									0.8	528 " " "	
8		///	PKL	PKL	PKL	PKL	//	/					2.8	774 " " "	
9	////	PKL	PKL	//	//	//	//						2.2	736 " " "	
10	PKL	PKL	PKL	////									1.4	546 " " "	
11	/	PKL	PKL	PKL	PKL	//	/						2.3	720 " " "	
12	PKL	PKL //	PKL	//									1.1	462 " " "	
13	PKL	PKL	PKL	////									1.3	578 " " "	
14	////	PKL	PKL	//	//								1.3	846 " " "	
15	///	////	///	///	////	PKL	////						3.2	846 " " "	
16		//	PKL	PKL	PKL	////	//	//					4.1	576 " " "	
17			//	PKL	PKL	PKL	PKL	PKL	////				5.2	568 " " "	
18		//	PKL	PKL	PKL	PKL	PKL	////					3.6	688 " " "	
19	//	////	PKL //	PKL	//								2.0	648 " " "	
20			///	PKL	PKL	////	////	////					4.9	720 " " "	
													District Average	2.8	679 " " "

UNITED STATES DEPARTMENT OF AGRICULTURE

PLANT INDUSTRY DIVISION

WASHINGTON, D. C.

Official Business

April 26, 1963

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Cooperative
ECONOMIC INSECT
REPORT

Prepared by
HARVEY PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ALFALFA WEEVIL larval counts relatively high in areas of Alabama, North Carolina and Virginia; damage noticeable in Anne Arundel County, Maryland, and in New Castle County, Delaware. (pp. 425, 442). SWEETCLOVER WEEVIL feeding conspicuous on sweetclover foliage in several areas of Washington County, Utah, and adults severely damaged seedling sweetclover in Darke and Shelby Counties, Ohio. (p.425). PEA APHID increasing and causing damage to alfalfa in several areas. High in southwest Missouri; light to heavy in Oklahoma; light to moderate in Washington County, Utah; moderate to heavy in Eddy County, New Mexico; heavy statewide in Arkansas; and severe in areas of Virginia. Less abundant on alfalfa in eastern Washington than at same time in 1962. (pp. 426, 442). SPOTTED ALFALFA APHID increasing in Marshall County, Oklahoma, and wingless forms found in Mason County, Illinois. (p. 426).

Average percent mortality of EUROPEAN CORN BORER 9.25 in northeast South Dakota, and overwintering mortality 17 percent in Minnesota compared with 16 percent in 1962. Pupation 32 and 20 percent in Kent and Sussex Counties, Delaware, respectively. (pp. 428, 442). Adults of CEREAL LEAF BEETLE being found outside area originally determined as infested in Michigan; egg laying continuing. (p. 428). LEAFHOPPERS previously reported in Oklahoma as damaging to barley in Carter and Bryan Counties determined as SIX-SPOTTED LEAFHOPPER. BROWN WHEAT MITE decreased in southwest Kansas; light to moderate in wheat in central, southwest, west central and panhandle areas of Oklahoma; causing medium damage to wheat and seedling alfalfa in Pahrump Valley, Nye County, Nevada; and moderate on dryland fall wheat in areas of Juab County, Utah. (p. 429).

PECAN NUT CASEBEARER controls being applied in Autauga County, Alabama, and largest BLACK PECAN APHID populations in 15 years reported in Lee County, same State. (p. 431).

COTTON FLEAHOPPER migrations to cotton heavy in lower Rio Grande Valley of Texas. (p. 433).

TENT CATERPILLARS damaging live and post oaks in wide area in central Texas, and BUCK MOTH light to heavy on same species of oaks in Hays, Blanco, Gillespie, Llano, San Saba, Lampasas, Burnet and Williamson Counties in Texas. (p. 435).

JAPANESE BEETLE grubs moderate to heavy at airport and cemetery in Cuyahoga and Stark Counties, Ohio, respectively. (p. 440).

SOME FIRST APPEARANCE RECORDS

Small ARMYWORM larvae in southwest Missouri; SIX-SPOTTED LEAFHOPPER in South Dakota; *Archips rosana* eggs hatching in Willamette Valley of Oregon; COLORADO POTATO BEETLE eggs hatching in Lee County, Alabama; IMPORTED CABBAGEWORM adults in Maryland, Pennsylvania and Ohio; ONION MAGGOT adults in Idaho; ASPARAGUS BEETLE adults in Sussex County, Delaware; TOBACCO FLEA BEETLE adults in Maryland; BOLL WEEVIL emergence in lower Rio Grande Valley of Texas; HORN FLY emergence in Indiana; HOUSE FLY in Ohio; and AMERICAN DOG TICK in Michigan and South Dakota.

CORRECTIONS AND ADDITIONAL NOTES

See pages 441 and 442.

(Continued on following page)

DETECTION

First State records reported were the APHIDS (Myzus sensoriatus and M. ornatus) in Pennsylvania; a GROUND MEALYBUG (Rhizoecus leucosomus) in Florida (p. 436); and a FLOWER FLY (Microdon aurulentus) in Florida (p. 440). New county records were IMPORTED FIRE ANT in Sabine County, Texas, and Jefferson County, Mississippi (p. 441); and a WHITEFLY (Aleurotrachelus jelinekii) in Fresno County, California. (p. 436).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 437). Populations continue to disperse in ever-widening areas of Texas and New Mexico.

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods in Wyoming in 1962. Alfalfa - p. 444, Alfalfa seed - p. 445, Corn (Grain) p. 446, Corn (Silage) - p. 447, Sugar beets - p. 448, Beans - p. 449, Potatoes p. 450.

Reports in this issue are for week ending April 19 unless otherwise indicated.

NOTE

Volume 12 of "Insects Not Known to Occur in the United States" is now available on request. This is a compilation of the separates, numbers 142-149, appearing in the Cooperative Economic Insect Report, Volume 12, 1962. Also included in this compilation is a consolidated index of the species included in this and previous compilations. PPC Division personnel will receive copies of this compilation through their Regional Offices. Also available, in limited numbers, are Volumes 7, 8, 9, 10 and 11.

WEATHER OF THE WEEK ENDING APRIL 22

At the beginning of the week, three types of weather prevailed over the United States. In the East, the nights were clear and cool; the days, mild and sunny. Strong, gusty winds, reaching 60 m.p.h. locally, dusted some of the middle sections as afternoon temperatures in the Great Plains soared into the 90's in the south and the 70's in the north. In the Far West, Pacific air had spread inland to the Rockies accompanied by showers and thunderstorms with some snow at higher elevations. Tornadoes in the Midwest destroyed several buildings at Manchester, Illinois, tore down some power lines at Kankakee, and smashed a house trailer and tore the tops from trees at Burlington, Iowa. Hail at Milan, Michigan, 2 3/4 inches in diameter, shattered windshields and dented car roofs. By the end of the period, hot, humid weather prevailed over the south-central and southeastern portions of the country, with record-breaking temperatures at a few locations. For instance, the temperature soared to 93° at Springfield, Missouri, on Sunday, the highest ever recorded there so early in the season.

Meanwhile, wintry weather continued over the Far West as snow fell in California as far south as the Los Angeles County Airport, but melted as it fell. Blizzard conditions prevailed at Flagstaff, Arizona, at sunset Wednesday, as temperatures dropped into the middle 20's. Snow fell in the central and northern Rocky Mountains and higher elevations of the Pacific coastal mountains, and also covered

(Continued on page 442)

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (*Hypera postica*) - DELAWARE - Increase in injury noticeable in some untreated New Castle County fields. (Burbutis). MARYLAND - Adults ranged 1-2 per 10 sweeps on alfalfa in Anne Arundel, Calvert and Worcester Counties. Larvae generally light, less than one per sweep, but damage to tops of plants detectable in Anne Arundel County. (U. Md., Ent. Dept.). NORTH CAROLINA - Larvae averaged 15.4 per square-foot pan count in 8 fields in Caswell and Rockingham Counties; high field average 44.8, low field average 1.3. Most larvae second and third stages, with some fourth stage present. Recheck made of 10 fields in Wake and Franklin Counties reported in CEIR 13(16):389; all but 3 just treated. Larvae averaged 17.9 per square-foot pan count in these 3 untreated fields, compared with 8.2 previous week. (Mount). TENNESSEE - Has been found in nearly all alfalfa-growing counties. Although not expected to be particularly damaging in counties newly infested this year, few fields may require treatment. (Mullett). ALABAMA - Larvae averaged 20 per square foot in Morgan, Lee and Autauga Counties. (J. Smith). WYOMING - Adults averaged 2 per square foot in untreated alfalfa and less than one in treated alfalfa in Fremont, Park and Washakie Counties. (Fullerton). UTAH - Only few fields required controls in Kane County. (Knowlton, Hatch). Adult feeding conspicuous on alfalfa at Levan, Juab County. (Knowlton).

CLOVER LEAF WEEVIL (*Hypera punctata*) - UTAH - Damage spotty in alfalfa at Kanosh, Millard County, and at Santa Clara, Hurricane and Toquerville, Washington County. (Knowlton). WISCONSIN - Observed on alfalfa in more advanced areas. (Wis. Ins. Sur.). MICHIGAN - Light population of small larvae feeding on alfalfa in Shiawassee County April 13. (Dowdy). ILLINOIS - Larvae ranged 1-64 (average 12.8) per square foot in clover and alfalfa in west, west-southwest and central districts. (Ill. Ins. Rpt.).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - MARYLAND - Averaged one adult per 10 sweeps on red clover in Anne Arundel County; also active in Worcester County clover. (U. Md., Ent. Dept.). ALABAMA - Heavy buildup continues in crimson clover over State. (McQueen). NEBRASKA - Adults averaged 2 per 10 sweeps in legumes in central and eastern areas. (Bergman). ILLINOIS - Adults ranged 0-20 (average 7.6) per 100 sweeps in clover and alfalfa in west, west-southwest and central districts. (Ill. Ins. Rpt.).

CLOVER HEAD WEEVIL (*Hypera meles*) - ALABAMA - Heavy buildup on crimson clover continues over State. (McQueen).

SWEETCLOVER WEEVIL (*Sitona cylindricollis*) - OHIO - Adults severely damaged seedling sweetclover in Darke and Shelby Counties; 10-45 percent defoliation observed in many fields. (Lyon). ILLINOIS - Ranged 0-40 (average 2.5) per 100 sweeps in clover and alfalfa in west, west-southwest and central districts. (Ill. Ins. Rpt.). MICHIGAN - Adults active on clover and alfalfa seedlings in Shiawassee County. (Dowdy). UTAH - Feeding conspicuous on sweetclover foliage in several areas of Washington County. (Knowlton). WASHINGTON - Damaged roadside sweetclover along Snake River, south of Pullman, Whitman County, March 31. (Telford).

CLOVER SEED WEEVIL (*Miccotrogus picirostris*) - WISCONSIN - Observed on alfalfa in more advanced areas of State. (Wis. Ins. Sur.).

CUCUMBER BEETLES (*Diabrotica* spp.) - OKLAHOMA - Light counts of 4 *D. undecimpunctata howardi* per 10 sweeps noted in alfalfa in Cotton County (southwest); fewer than one per 10 sweeps noted in Choctaw County (southeast). (Okla. Coop. Sur.). UTAH - *D. undecimpunctata tenella* moderately numerous in Santa Clara-Washington area, Washington County. (Knowlton).

WIREWORMS (*Limonius* spp.) - WASHINGTON - Adults common (5 per 10 sweeps) on alfalfa at Prosser, Benton County. (Klostermeyer).

PEA APHID (Acyrtosiphon pisum) - WASHINGTON - Less abundant on alfalfa in eastern portion of State than at this time last year. (Landis). UTAH - Light to moderate on alfalfa in "Dixie area", Washington County. (Knowlton). ARIZONA - Continues a problem on alfalfa in many parts of State. Controls necessary in some instances. (Ariz. Coop. Sur.). NEW MEXICO - Moderate to heavy on alfalfa in Eddy County; only an occasional, light infestation found on alfalfa in Dona Ana County. (N. M. Coop. Rpt.). COLORADO - Light on alfalfa in northeast. Parasitized aphids prevalent in alfalfa in Johnstown area, Weld County, and Fort Collins area, Larimer County. (Simpson). OKLAHOMA - Light to heavy on alfalfa and vetch throughout State; counts per 10 sweeps ranged 35-400 in southeast, 600-5,000 in south central and 150-4,500 in southwest. Continues heavy in Stillwater area, Payne County. Spraying continues throughout State. (Okla. Coop. Sur.). MISSOURI - High populations observed in alfalfa throughout southwest with damage evident in fall-seeded alfalfa in area; ranged 15 to over 300 per sweep. (Munson, Thomas, Wood). NEBRASKA - Averaged 6 per 10 sweeps in alfalfa in Douglas and Sarpy Counties. (Bergman). SOUTH DAKOTA - Averaged one per 10 sweeps on alfalfa in Clay County. (Hintz). WISCONSIN - Present in most southwest area alfalfa; averaged generally about one per 50 sweeps in more advanced fields, with one per 10 sweeps noted in field of new seeding alfalfa. (Wis. Ins. Sur.). ILLINOIS - Ranged 0-35 (average 78) per 100 sweeps in clover and alfalfa in west, west-southwest and central districts. (Ill. Ins. Rpt.). MARYLAND - Generally light in Anne Arundel, Calvert and Worcester Counties; ranged less than one to 10 per sweep on alfalfa and red clover. (U. Md., Ent. Dept.). DELAWARE - No noticeable increase on alfalfa in New Castle County. (Burbutis).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Increasing in Marshall County, with 800 per 10 sweeps recorded. Counts per 10 sweeps ranged 200-250 in southwest, 150-500 in west central, 0-30 in southeast. (Okla. Coop. Sur.). TEXAS - Light populations on alfalfa in Hays and Guadalupe Counties being held in check by parasites and predators. (Texas Coop. Rpt.; Massey). ARIZONA - Appearing in some Maricopa County fields. Cool nights and rather cool days retarding buildup of predators and parasites. (Ariz. Coop. Sur.). UTAH - Rare on alfalfa in St. George-Santa Clara area and at Hurricane, Washington County. (Knowlton). ILLINOIS - Two wingless forms found in alfalfafield in Mason County. (Ill. Ins. Rpt.).

YELLOW CLOVER APHID (Therioaphis trifolii) - ILLINOIS - Ranged 0-120 (average 21) per 100 sweeps in clover and alfalfa in west, west-southwest and central districts. (Ill. Ins. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Nymphs and adults ranged light to moderate; counts per 10 sweeps ranged 8-20 in southeast, 20-40 in south central and 2-15 in southwest. (Okla. Coop. Sur.). NEBRASKA - Adults ranged 4-20 per 10 sweeps in central and eastern area legumes. (Bergman). ILLINOIS - Adults ranged 0-320 (average 49.7) per 100 sweeps in alfalfa and clover in west, west-southwest and central districts. (Ill. Ins. Rpt.). WISCONSIN - Observed on alfalfa in more advanced areas of State. (Wis. Ins. Sur.). MARYLAND - Adults averaged about 2 per 10 sweeps on alfalfa and red clover in Anne Arundel and Calvert Counties. (U. Md., Ent. Dept.).

PLANT BUGS (Adelphocoris spp.) - ILLINOIS - Nymphs of A. lineolatus and A. rapidus ranged 0-30 (average 6.6) per 100 sweeps in alfalfa and clover in west, west-southwest and central districts. (Ill. Ins. Rpt.).

LYGUS BUGS (Lygus spp.) - TEXAS - Widespread in Guadalupe and Hays County alfalfa; ranged 2-3 per 20 sweeps. (Texas Coop. Rpt.; Massey). UTAH - Lygus spp. adults, 80 percent L. elisus, common in alfalfa and fall wheat and in orchards examined in Salt Lake, Utah, Juab and Millard Counties. (Knowlton).

MEADOW SPITTLEBUG (Philaenus spumarius) - PENNSYLVANIA - Hatching in south central area legumes (Pepper); none hatched in legumes in Clearfield and Blair Counties (Adams, Udine). MARYLAND - Very small nymphs, first of season, noted on

red clover and weeds in Anne Arundel County, April 16. (U. Md., Ent. Dept.). OHIO - Nymphs in spittle masses observed in all southwest counties; heavy in Hamilton, Butler and Warren Counties, with 3-6 per leaflet. Nymphs light, 0-1 per leaflet, in Mercer and Auglaize Counties. Heavy on curled dock and thistle throughout red clover fields. (Lyon). ILLINOIS - Nymphs ranged 0-1 per 100 stems of clover and alfalfa in west, west-southwest and central districts. (Ill. Ins. Rpt.).

ONE-SPOT STINK BUG (Euschistus variolarius) - OHIO - Three adults per 50 sweeps collected in Preble County red clover field. (Rings, Lyon).

LEAFHOPPERS - UTAH - Dikraneura carniola moderate on margins of fall wheat fields in Nephi-Levan area, Juab County. (Knowlton). WISCONSIN - Empoasca spp. adults appearing in southern area. Single female found in alfalfa in northern Iowa County could not be determined. Aceratagallia sanguinolenta observed on alfalfa in more advanced areas. (Wis. Ins. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - MARYLAND - Adults observed in alfalfa and clover in 3 southern counties. (U. Md., Ent. Dept.). NEBRASKA - Adults and larvae active in central and eastern area alfalfa. (Bergman).

ARMY CUTWORM (Chorizagrotis auxiliaris) - NORTH DAKOTA - Averaged one larva per linear foot in alfalfa in Richardson area, Stark County. Larvae half to nearly full grown. (N. D. Ins. Sur.). WYOMING - Averaged less than one larva per square foot in alfalfa in Fremont and Park Counties. (Fullerton).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - First and second-stage larvae active in Stillwater area, Payne County. Ranged 10-15 per 10 sweeps in Marshall County (south central) and 0-5 per 10 sweeps in Choctaw County (southeast). (Okla. Coop. Sur.). TEXAS - Light, noneconomic in Guadalupe County alfalfa. (Texas Coop. Rpt.; Massey).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Light, noneconomic populations present in Guadalupe County alfalfa. (Texas Coop. Rpt.; Massey). WISCONSIN - Adults observed on alfalfa in more advanced areas. (Wis. Ins. Sur.).

ARMYWORM (Pseudaletia unipuncta) - MISSOURI - First small larvae of season observed in southwest area. (Munson, Thomas, Wood).

CLOVER LOOPER (Caenurgina crassiuscula) - WISCONSIN - Adults common in alfalfa in southwest area. (Wis. Ins. Sur.).

CUTWORMS - ALABAMA - Unspecified species damaging oats and small grain-clover mixtures in Baldwin County; controls necessary. (Wilson). TEXAS - Light to moderate, rather widespread infestations present on corn in Austin County. (Texas Coop. Rpt.; McClung). ILLINOIS - Several species, mainly Lacinipolia renigera and Feltia subguthica, ranged 0-6 (average 1.3) per square foot in clover and alfalfa in west, west-southwest and central districts. Nephelodes emmedonia ranged 0-20 (average 5.6) per 100 sweeps in west-southwest district. (Ill. Ins. Rpt.).

SPIDER MITES (Tetranychus spp.) - NEVADA - Continue medium in several alfalfa fields in Pahump Valley, Nye County. (Zoller).

GRASSHOPPERS - WISCONSIN - Eggs observed in southwestern area alfalfa fields previously having heavy populations appeared to have overwintered well, with minimum of predation evident. (Wis. Ins. Sur.). NORTH DAKOTA - Egg development survey conducted in portions of Stark, Hettinger, Grant, Dunn, Mountrail and McLean Counties. Development ranged clear to segmented. Species included Melanoplus sanguinipes, M. bivittatus and M. femurrubrum. Predators observed in large numbers in area east of Newtown, Mountrail County; average of 5 ground beetles and 2 bee fly larvae per square foot present. (Wilson, Brandvik). Egg development in Grant and Morton Counties 50 percent coagulated, 36 percent eye

spot, 14 percent segmented. Only M. sanguinipes encountered. Predators very scarce. (N. D. Ins. Sur.). COLORADO - Melanoplus bivittatus eggs in eye-spot stage in Crowley County. (Hantsbarger). UTAH - Few nymphs and overwintered adults of unspecified species observed in Santa Clara area, Washington County. (Knowlton).

NORTHERN MASKED CHAFER (Cyclocephala borealis) - MARYLAND - Moderate larval numbers noted in sodland being plowed for corn in Carroll County. (U. Md., Ent. Dept.).

A FLEA BEETLE (Phyllotreta sp., near albionica) - UTAH - Damaged planted pubescent wheatgrass at New Harmony, Washington County, during early April. Det. by L. G. Gentner. (Knowlton, Esplin).

A BLISTER BEETLE (Meloe sp.) - WASHINGTON - Damaging Siberian wheatgrass at Mesa, Franklin County, shows preference for this variety over other grasses. (Telford).

MEADOW PLANT BUG (Leptopterna dolabratus) - ILLINOIS - Nymphs ranged 0-880 (average 257) per 100 sweeps of grass in west-southwest district. (Ill. Ins. Rpt.).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Pupation of overwintering borers 32 and 20 percent in Kent and Sussex Counties, respectively. (Burbutis). MARYLAND - No pupae observed April 16 in 3 corn fields checked in Anne Arundel and Calvert Counties. (U. Md., Ent. Dept.). OHIO - No pupation noted in Van Wert County; spring borer population appears reduced 95 percent from fall population in area. (Cannon, Wells). SOUTH DAKOTA - Winter mortality ranged 2-18 percent in 8 northeast counties; single pupal cases of Horogenes sp. found in Clark, Codington, Day and Grant Counties, and single specimen of Sympiesis sp. found in Deuel County. Average mortality for district 9.25 percent. In north central district, mortality 2 percent in Brown County, 6 percent in Spink County. In central district, mortality 4 percent in Beadle County. (Hintz).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - Adults being found in Berrien and Cass Counties outside area originally determined as infested. Survey being intensified to determine limits of spread. Egg laying continuing; being found on wheat and quackgrass. Some eggs observed in "dark" stage which precedes hatching. (Cath, Turner).

CORN FLEA BEETLE (Chaetocnema pulicaria) - OKLAHOMA - Heavy on small acreage of corn in Carter County (south central). (Okla. Coop. Sur.). ILLINOIS - Ranged 0-60 (average 6.4) per 100 sweeps in wheat in west-southwest and central districts. Counts in grass in west-southwest district ranged 0-50 (average 11.1) per 100 sweeps. (Ill. Ins. Rpt.).

GREENBUG (Schizaphis graminum) - MISSOURI - Increased in southwest area wheat and barley; ranged 0-30 per foot of drill row in wheat. Somewhat lower in barley; 0-18 per linear foot. (Munson, Thomas, Wood). OKLAHOMA - Continues generally noneconomic to light throughout State; no treatments reported. Predators reported reducing populations in Bryan County. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Light on wheat checked in central and southwest areas; no buildup occurring at present in heads of plants. (Okla. Coop. Sur.). ILLINOIS - Ranged 0-20 (average 11.6) per 100 sweeps in wheat in west-southwest and central districts. (Ill. Ins. Rpt.). WISCONSIN - Few nymphs found in rye in Trempealeau County; more common in cover crop fields previously planted with lima beans. (Wis. Ins. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Damaging many fields of grain just in heading stage; tying up and holding back release of awns. (Ariz. Coop. Sur.). NEW MEXICO - Light on barley checked near Hatch, Dona Ana County. (N. M. Coop. Rpt.). TEXAS - Spotted, light infestations, probably this species, appearing on 8-10 inch grain sorghum in Jackson and Victoria Counties. (Texas

Coop. Rpt.; Bales). OKLAHOMA - Continues light in Johnson grass in southeast. (Okla. Coop. Sur.).

YELLOW SUGARCANE APHID (Sipha flava) - OKLAHOMA - Noted in wheat in Hennessey area, Kingfisher County. (Okla. Coop. Sur.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Males and females prevalent compared with other years, in rye fields in low lands along Mississippi River; 3-8 per 100 sweeps. (Wis. Ins. Sur.). SOUTH DAKOTA - First of season taken on alfalfa in Clay County; averaged 3 per 10 sweeps. (Hintz). OKLAHOMA - Unidentified species reported in CEIR 13(14):316 and 13(16):392 as damaging barley in some areas of Carter and Bryan Counties determined as this species by J. P. Kramer. (Okla. Coop. Sur.).

CHINCH BUG (Blissus leucopterus) - NEBRASKA - Adults ranged 6-8 per 10 sweeps in wheat in Dodge and Saunders Counties. (Bergman). ILLINOIS - Ranged 0-10 (average 0.7) per 100 sweeps in wheat in west-southwest and central districts, and 0-10 (average 2.2) per 100 sweeps in grass in west-southwest district. (Ill. Ins. Rpt.).

THRIPS - ALABAMA - Unidentified species continues to build up on grasses, oats, clovers and vetch along field borders throughout southern and central areas. (McQueen). UTAH - Active in fields of fall wheat in Nephi-Levan area, Juab County. (Knowlton).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Adults emerging in Lane County (west central); egg laying in progress. "Flax-seed" examination showed some empty pupal cases; white larvae also noted. (DePew, Apr. 12). OHIO - Light to moderate in volunteer wheat in most southwest counties. Examination of "flax-seeds" revealed advanced pupation; no adult emergence observed. (Lyon).

BROWN WHEAT MITE (Petrobia latens) - KANSAS - Populations decreased in Stevens County (southwest) as result of local showers; noneconomic at present. White, overwintering eggs being deposited, indicating present population should decline in near future. (DePew, Apr. 12). OKLAHOMA - Light to moderate in wheat in central, southwest, west central and panhandle areas; populations declining in El Reno area, Canadian County. Populations reported increasing in Cimarron County area (panhandle). (Okla. Coop. Sur.). UTAH - Moderate on dryland fall wheat in areas west of Midvale, Salt Lake County, and Levan Ridge, Juab County. Very light on barley and wheat examined in "Dixie area" of Washington County. (Knowlton). NEVADA - Heavy populations continue to cause medium damage to wheat and seedling alfalfa in Pahrump Valley, Nye County. (Zoller).

WINTER GRAIN MITE (Penthaleus major) - MISSOURI - Ranged 0-11 per linear foot of drill row in barley and 0 to over 30 per square foot in orchardgrass in southwest area. (Munson, Thomas, Wood).

FRUIT INSECTS

TENT CATERPILLARS (Malacosoma spp.) - WASHINGTON - M. pluviale larvae appearing; moderately heavy on apple and pear south of Friday Harbor, Island County. (Baker, Mar. 27). CALIFORNIA - Malacosoma sp. larvae heavy on nursery stock cherry trees in Auburn, Placer County. (Cal. Coop. Rpt.). TEXAS - Moderate to heavy, widespread infestations of M. americanum present on wild plum in Coryell and McLennan Counties. (Texas Coop. Rpt.; Jackson). MISSOURI - M. americanum noted on peach trees in southwest area. (Munson, Thomas, Wood). CONNECTICUT - M. americanum observed feeding on buds. Tent caterpillars now statewide. (Savos).

CODLING MOTH (Carpocapsa pomonella) - INDIANA - Pupation increased at Vincennes, Knox County; about 90 percent of overwintering larvae pupated. (Hamilton, Apr. 16).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MARYLAND - First egg masses of season found April 16 on apple at Hancock, Washington County. (U. Md., Ent. Dept.). PENNSYLVANIA - First egg mass of season noted on apple in Adams County. (Pepper). INDIANA - Oviposition increased at Vincennes, Knox County; adults still active. No eggs hatched to April 16. (Hamilton). KANSAS - Ovipositing in Doniphan County; at least 12 egg masses per tree easily seen. Counts of 4-5 made at a glance. No hatching observed, but few light brown color. (Eshbaugh).

PEACH TREE BORER (Sanninoidea exitiosa) - GEORGIA - Continues abundant in central area peach belt. Average of 3.8 borers per tree removed from 7-year-old peach orchard. This is number one peach insect problem in State at present time. (Snapp). KANSAS - Ranged 3-5 borers in each of 25 young, untreated peach trees in Sedgwick County. (Eshbaugh, Apr. 11).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Moderate in peach orchards examined in Santa Clara, St. George, Hurricane and La Verkin, Washington County. (Knowlton, Apr. 16).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - No adults captured in 5 traps in one orchard at Vincennes, Knox County, as of April 16. (Hamilton).

AN OLETHREUTID MOTH (Grapholitha sp.) - OREGON - Larvae, possibly this genus, required control in Polk County cherry orchard April 18. Caused extensive damage to blossoms. (Stephenson).

CANKERWORMS - CONNECTICUT - Hatching in New Haven area. Observed at Glastonbury, Hartford County, and Storrs, Tolland County. (Savos).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - KANSAS - Large numbers in orchard in Doniphan County; controls probably necessary. (Eshbaugh).

LEAF CRUMPLER (Acrobasis indigenella) - TEXAS - Attacking backyard plum trees in Wharton County. (Texas Coop. Rpt.; Massey).

LEAF ROLLER MOTHS - OREGON - Eggs of Archips rosana hatching; larval activity general in Willamette Valley filbert orchards April 14. (Capizzi). CALIFORNIA - Larvae and pupae of Amorbia sp. range light to heavy on avocado leaves in Corona, Riverside County. (Cal. Coop. Rpt.).

APPLE TWIG BORER (Amphicerus bicaudatus) - KANSAS - Feeding on young apple trees in Sedgwick County; about 2 percent of trees show damage with 1-3 holes per tree. (Eshbaugh, Apr. 11).

APPLE APHID (Aphis pomi) - CONNECTICUT - Present in various locations over State, but still low in abundance. (Savos). PENNSYLVANIA - Abundant on apple in Clearfield County. (Adams). WISCONSIN - Eggs, probably this species, abundant on apple twigs in Gays Mills area, Crawford County, and some areas of Rock County; hatched in latter location. (Wis. Ins. Sur.).

ROSY APPLE APHID (Anuraphis rosea) - CONNECTICUT - Evident in various locations over State; still appears low in abundance. (Savos). PENNSYLVANIA - Appearing on apple in Clearfield County. (Adams). COLORADO - Increasing in apple orchards of western slope. (Jenkins). UTAH - Curling apple leaves in several orchards at Hurricane-Toquerville area, Washington County. (Knowlton, Apr. 16).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ARIZONA - Continues to increase on apple trees in Graham County. (Ariz. Coop. Sur.). NORTH CAROLINA - Probably this species, injured apple roots in Beaufort County. (Robertson).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Eggs found in most areas of State; none hatched at present. (Savos).

PLANT BUGS - CONNECTICUT - Observed on apples, peaches and pears in New Haven area. (Savos). PENNSYLVANIA - Numerous in south central area peach orchards. (Pepper).

EUROPEAN RED MITE - WISCONSIN - Eggs relatively abundant on many apple trees in Gays Mills area, Crawford County. (Wis. Ins. Sur.). INDIANA - Hatching advanced rapidly at Vincennes, Knox County; about 75 percent of overwintered eggs hatched. (Hamilton, Apr. 16). OHIO - Approximately 1 percent hatched on April 3 in apple orchard in Wayne County; 20-30 percent hatched in Franklin County. (Forsythe, Lyon, Apr. 18). PENNSYLVANIA - Hatching on apple in Adams County (Pepper); about to hatch on sweet cherry and other fruits in Clearfield County (Adams). CONNECTICUT - Eggs present in most areas of State; none hatched yet. (Savos).

A FRUIT-TREE MITE (Bryobia rubrioculus) - MICHIGAN - Hatching noted on fruit trees in Ingham and Berrien Counties. (Carpenter). UTAH - Below normal numbers on apple, pear, peach and apricot trees in Washington County, even on untreated trees. (Knowlton, Apr. 16).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - Active in Autauga County; controls being applied. (Buttram). TEXAS - Overwintered larvae found in about 4-5 percent of young shoots in one Guadalupe County grove. (Newton).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - FLORIDA - Infesting pecan at Monticello, Jefferson County (Apr. 10). (Fla. Coop. Sur.).

BLACK PECAN APHID (Melanocallis caryaefoliae) - ALABAMA - Appearing in large populations for time of year in Lee County; largest population in 15 years. (Buttram).

A XYELID (Megaxyela langstoni) - TEXAS - Light population, probably this species, attacking backyard pecan trees in Travis County. (Cook).

A WEEVIL (Compsus auricephalus) - TEXAS - Occasional adults found on pecan trees in Guadalupe County. (Newton).

GRAPE FLEA BEETLE (Altica chalybea) - FLORIDA - Moderate on grape at De Land, Volusia County (Apr. 9). (Fla. Coop. Sur.).

PAPAYA FRUIT FLY (Toxotrypana curvicauda) - FLORIDA - Moderate on papaya (Carica papaya) at Miami Springs, Dade County (Apr. 11). (Fla. Coop. Sur.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control Zone - Infestation found in Municipio Tzucacab, Yucatan, on 159 trees; heavy on 55 trees and light on 104 trees. In this municipio, 4,000 specimens of a parasitic eulophid (Prospaltella opulenta) were liberated. In areas where a parasitic platygasterid (Amitus hesperidum) and/or Prospaltella clypealis have been controlling citrus blackfly; liberations of P. opulenta planned, with expectation of fewer fluctuations in parasitism due to climatic factors. In State of Tamaulipas, 44,720 trees on 205 properties showed 1,517 trees on 72 properties infested; some trees with considerable number of infested leaves. At Ciudad Mante, Tamaulipas, 218,700 P. opulenta captured; 171,200 released in citrus groves in Apatzingan, Michoacan. In number of locations, undetermined quantity of parasites captured and liberated in groves near locations where captured. Heavy populations of citrus blackfly continue to exist in Apatzingan, Michoacan; situation not expected to improve materially until late summer. Chemical Control Zone - Inspection of 116,257 citrus trees on 3,321 properties in the States of Nuevo Leon, Tamaulipas, Sonora and Baja California negative. First treatment to 612 trees on one property and second treatment to 1,705 trees on 3 properties at Linares, Nuevo Leon, completed. (PPC, Mex. Reg., Mar. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Eleventh application made in Broward County and ninth in Palm Beach County; trapping negative during March. (PPC, South. Reg., Mar. Rpt.).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Severe on Citrus sinensis at Fort Lonesome, Hillsborough County, (Apr. 12). (Fla. Coop. Sur.).

TRUCK CROP INSECTS

GREEN PEACH APHID (Myzus persicae) - OHIO - Nymphs and adults light to moderate on tomato and cabbage seedlings in greenhouse in Darke County. (Lyon, Apr. 18).

LOOPERS AND CUTWORMS - ARIZONA - Loopers continue a problem in late lettuce in Maricopa County; cutworms causing injury to many transplanted tomatoes, peppers and other plants in Graham County. (Ariz. Coop. Sur.).

PACIFIC COAST WIREWORM (Limonius canus) - WASHINGTON - Larvae and newly formed adults (not emerged) recovered from soil samples from potato fields; 20 larvae and 1 adult from 20 post-hole samples in 50-acre field. Lighter infestations nearby, Quincy, Grant County. (Landis, Apr. 12). Newly emerged adults on potato land at Moses Lake, Grant County. (Landis, Apr. 19).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - ALABAMA - Small numbers of eggs hatching on potato plants in Lee County. (McQueen). TEXAS - Moderate to heavy on nightshades in Hays and Guadalupe Counties. (Texas Coop. Rpt.; Massey).

IMPORTED CABBAGEWORM (Pieris rapae) - MARYLAND - Adults noted in Anne Arundel, Calvert and Prince Georges Counties. (U. Md., Ent. Dept.). PENNSYLVANIA - Adults abundant in south central area. (Pepper). ALABAMA - Adults numerous in Lee County. (McQueen). OHIO - Adults in flight throughout southwestern counties; groups of 2-5 common. (Lyon, Apr. 17).

CABBAGE APHID (Brevicoryne brassicae) - OKLAHOMA - Ranged 0-20 per young cabbage plant in 4-6 leaf stage in Bixby area, Tulsa County. Large percentage of aphids winged. (Okla. Coop. Sur.).

FLEA BEETLES (Phyllotreta spp.) - MARYLAND - Adults noted on wild crucifers near gardens at Barstow, Calvert County. (U. Md., Ent. Dept.).

CABBAGE MAGGOT (Hylemya brassicae) - NEW JERSEY - Adults active in cabbage on warm days in southern area. (Ins.-Dis. Newsltr., Apr. 16).

PEA APHID (Acyrtosiphon pisum) - MARYLAND - Winged forms noted on newly emerged garden peas at Prince Frederick, Calvert County. (U. Md., Ent. Dept.).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Widespread, light adult numbers attacking snap beans in Cameron County. (Texas Coop. Rpt.; Stephens).

BEEFLEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Controls underway in Kings and Fresno Counties, and locally in Kern County. Recent rains may stimulate growth of weed hosts to extent that second generation could develop. Mortality counts on treated ground in Blythe District, Riverside County, indicate 95-98% kill. Acreages which supported light populations and not treated, now drying; populations remain low. No melon plants found infested with curly top in Palo Verde Valley, Riverside County. Beet fields checked in Imperial Valley showed counts of one per 10 sweeps, but no damage expected as crop is nearing maturity. Only occasional tomato plant found infested with curly top during survey of tomato plantings in Imperial Valley, Imperial County. (Cal. Coop. Rpt.). WASHINGTON - Overwintering population averaged one per 5 square feet on tumble mustard and flixweed in southeast area. (Klostermeyer). UTAH - Averaged 2 per 50 sweeps in fields of sugar beets for seed at Washington, Washington County; occasional adult taken on tansy mustard. (Knowlton, Apr. 16). WYOMING - Overwintering adults on winter annuals in Washakie County; averaged 0.5 per square foot of host area. This number is opposed to counts of March 19, when 5 were taken from a total of 200 square-foot samples. (Fullerton).

ONION MAGGOT (Hylemya antiqua) - IDAHO - First adults of season noted in southwestern area April 12. (Scott).

ASPARAGUS BEETLE (Crioceris asparagi) - DELAWARE - First adults of season feeding on asparagus April 15 in area of Sussex County. Feeding injury and adults present but scarce on asparagus in New Castle and Kent Counties. (Burbutis).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - KANSAS - Emergence began in Sedgwick County. (Eshbaugh, Apr. 11).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - NEW JERSEY - Dry weather has been favorable; built up slightly on strawberries, even during cool weather. Populations could explode with advent of warm weather. (Ins.-Dis. Newsltr., Apr. 16).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - First adults of season emerged from winter quarters April 16 around tobacco beds in Calvert County. (U. Md., Ent. Dept.). GEORGIA - Moderate to heavy on tobacco in several southern counties. (Johnson).

GREEN JUNE BEETLE (Cotinis nitida) - MARYLAND - Evidence of larval activity noted in tobacco bed at Barstow, Calvert County. (U. Md., Ent. Dept.).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light on tobacco in several southern counties. (Johnson).

GARDEN SPRINGTAIL (Bourletiella hortensis) - MARYLAND - Common in and around tobacco beds in Calvert County; injury light to newly emerged plants. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Some indications of emergence noted in lower Rio Grande Valley; occasional adult found and some terminal feeding evident. (Deer).

BOLLWORM (Heliothis zea) - TEXAS - Building up in cotton terminals in lower Rio Grande Valley area. (Deer).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Light on Hibiscus sp. at Marathon, Monroe County, April 10. Det. by W. Breidenbach. (Fla. Coop. Sur.). ARIZONA - Another moth emerged from surface bolls in cages in Graham County. (Ariz. Coop. Sur.).

A PYRALID MOTH (Noctuella rufofascialis) - TEXAS - Larvae damaging cotton terminals in southeast Starr County. (Deer).

COTTON APHID (Aphis gossypii) - TEXAS - Light on cotton in lower Rio Grande Valley, upper coastal, coastal bend and south central areas. (Texas Coop. Rpt.).

FLEAHOPPERS - ARIZONA - Few present on stub cotton in Pinal and Maricopa Counties. (Ariz. Coop. Sur.). TEXAS - Heavy migrations of Psallus seriatus into cotton occurring in lower Rio Grande Valley; moderate numbers appearing in coastal bend area. Few nymphs appearing in these areas. Numbers still low in east central area. (Texas Coop. Rpt.).

LEAFHOPPERS - ARIZONA - Few being noted on stub cotton in Pinal and Maricopa Counties. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - TEXAS - Since mid-February, total of 1,296 brood trees located by aerial detection flights; these mostly single tree infestations scattered over major portion of 1962 epidemic area. Of this total, 627 brood trees controlled; 305 contained Ips spp. and/or Dendroctonus terebrans, but no D. frontalis; 170 trees damaged by other agents, such as fire scorch and needle blight; and 194 trees remained to be ground checked. Active brood trees reported from Hardin, Liberty, Polk, Tyler and San Jacinto Counties. Landowners continued efforts during March to locate and control brood trees. Scattered mortality in loblolly and shortleaf pine stands by D. terebrans continued during March. Reports indicated logging, lightning and pipeline construction primary causes of increased infestation. Controls being undertaken on National Forests in Montgomery, Trinity and southern Houston Counties. (Texas For. Pest Comm., March Rpt.).

CALIFORNIA - Ips spp. severely damaging young ponderosa pines in Tehama-Mendocino National Forest. Some 360 trees killed in 5-acre stand, with rapid spread continuing in young trees. Infested trees being sprayed. (T. E. Blackwell, USFS). Ponderosa pine in Canyon Creek area shows heavy loss in 300-acre stand at low elevation due to Dendroctonus brevicomis; infestation on private property and no control anticipated. D. brevicomis damaging on small acreages in Berry Creek area and Paradise area; sanitation logging planned in both areas. Damage in these areas attributed to few windthrown trees in 1962 blowdown, Butte County. (C. L. Wagener, CDF). D. monticolae causing tree loss in sugar pines in Dark Canyon-Scilla District of Tahoe-Sierra National Forest; more than 100 trees killed in 60-acre stand. Young and old trees being attacked. (J. Granger, Jr., USFS).

A PINE WEEVIL (Pissodes approximatus) - PENNSYLVANIA - Hatching on Scotch pine in Clearfield County. (Adams).

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) - CALIFORNIA - Heavy larval population appearing in 40-acre stand of white and Douglas-fir trees in Palmer Canyon area, Humboldt County. (D. M. Peterson, CDF).

A WEBWORM (Tetralopha sp.) - OHIO - Dead, broken needle aggregates found on twigs of pine along roadside in Athens County; 2-3 needle masses per tree noted. (Walker, Lyon, Apr. 10).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - CALIFORNIA - Adults heavy locally on Pseudotsuga menziesii in Hammond, Humboldt County. (Cal. Coop. Rpt.).

PINE BARK APHID (Pineus strobi) - TENNESSEE - Hatching on white pine. (Mullett, Apr. 16).

A DOUGLAS-FIR CONE MIDGE (Contarinia oregonensis) - CALIFORNIA - Survey conducted during 1962 to determine insect damage to Douglas-fir cones and seeds in 5 National Forests in northern portion of State. Seeds were collected from 21 different locations and analysis showed 83 percent of 1962 crop destroyed. C. oregonensis accounted for 56 percent of damage, and in association with other insects for an additional 33 percent, for a total of 89 percent of the damage. Control investigations are planned during 1963. (R. Hall, USFS).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - NEW JERSEY - Hatching under way on wild cherry. (Ins.-Dis. Newsltr., Apr. 16).

PENNSYLVANIA - Tents visible in south central area; population low. (Pepper).

MARYLAND - Tents numerous and conspicuous on wild cherry and neglected apple and Prunus spp. in Anne Arundel, Calvert and Prince Georges Counties. (U. Md., Ent. Dept.).

FLORIDA - First seasonal adult collected at ultraviolet light trap at Gainesville, Alachua County, April 11. Collected and det. by L. A. Hetrick. (Fla. Coop. Sur.).

MISSOURI - Present on cherry, plum, locust and hickory in southwest area. (Munson, Thomas, Wood).

WISCONSIN - Eggs hatched on chokecherry tree observed each year in Iowa County; hatch date was April 16, compared with April 26, 1962. (Wis. Ins. Sur.).

TENT CATERPILLARS (Malacosoma spp.) - TEXAS - M. disstria and Malacosoma sp., probably texanum, damaging live and post oaks in wide area in central part of State involving approximately 25 counties; M. disstria most widely and generally distributed. Approximately three-fourths of live oaks in Hays and Blanco Counties 80-100 percent defoliated. Most larvae full grown and cocoons have been spun. (Newton).

GYPSY MOTH (Porthetria dispar) - NEW YORK - New egg clusters found at Orleans, Jefferson County, about 0.25 mile west of previously known infestation. In Essex County, 7 trailer courts found lightly infested. NEW JERSEY - Nineteen additional egg masses found in vicinity of positive trap sites. (PPC, East. Reg., Mar. Rpt.).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - MAINE - New infestation found at Wells, York County, approximately 2 miles south of 1962 discovery at Moody Beach. MASSACHUSETTS - Two new infestations found on Cape Cod. Light infestation at Provincetown involves approximately 800 acres along 5-6 mile area about 1,500-2,000 feet wide. Very heavy infestation at Dennis consists of approximately 150 acres. Additional scouting from Hyannis Port to Harwich Port on Nantucket Sound and Yarmouth Port to East Dennis on Cape Cod negative. (PPC, East. Reg., Mar. Rpt.).

BUCK MOTH (Hemileuca maia) - TEXAS - Light to heavy on live and post oaks in Hays, Blanco, Gillespie, Llano, San Saba, Lampasas, Burnet and Williamson Counties. (Newton).

A CANKERWORM - TEXAS - Heavy, local populations of an undetermined species appearing on shade trees, especially hackberry, in Jefferson County. (Crocker).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEVADA - Larvae medium on elms in Las Vegas, Clark County. (Nichols).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Egg deposition underway in Stillwater area, Payne County. (Okla. Coop. Sur.). INDIANA - Collected for first time at Ogden Dunes, Porter County, on April 10. (Matthew).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - OKLAHOMA - Moderate on elm in Stillwater area, Payne County. (Okla. Coop. Sur.).

HACKBERRY-NIPPLE-GALL MAKER (Pachypsylla celtidismamma) - NEBRASKA - Adults ranged 10-30 per twig, with females ovipositing on young hackberry tree leaves in Douglas and Lancaster Counties. (Bergman).

A JUNIPER TWIG GIRDLER (Periploca nigra) - CALIFORNIA - Larvae medium in trunks of Juniperus chinensis nursery stock in San Diego, San Diego County. (Cal. Coop. Rpt.).

A LEAF ROLLER MOTH (Amorbia sp.) - CALIFORNIA - Larvae heavy on leaves of strawberry madrone (Arbutus unedo) in Kensington, Contra Costa County. (Cal. Coop. Rpt.).

SPRUCE APHID (Aphis abietina) - OREGON - Damaging up to 30 percent of spruce foliage in large Portland area nursery April 17. (Larson).

APHIDS - ARIZONA - Aphis nerii a problem in nurseries in Pinal County. (Ariz. Coop. Sur.). NEW MEXICO - Unspecified species moderate to heavy in rose gardens in Las Cruces, Dona Ana County; most homeowners applying controls. Cinara tujafilina heavy and a problem on arborvitae in many areas of State. (N. M. Coop. Rpt.). UTAH - Unspecified species numerous on roses, hibiscus, pittosporum and on tulip and iris flowers; Cinara sp. fewer on arborvitae; and Macrosiphum sp. on pansies. (Knowlton, Apr. 16). OKLAHOMA - Several species common on variety of ornamentals throughout State. Predators and parasites building up on ornamentals

in Stillwater area, Payne County. (Okla. Coop. Sur.). MISSOURI - Several species feeding on ornamentals in southwest area. (Munson, Thomas, Wood). ALABAMA - Build-up of Macrosiphum rosae continues on untreated roses; ranged 10-30 per bud branch. (McQueen). WISCONSIN - Approximately 80 percent of Anuraphis viburniphila eggs hatched April 12-16; many immatures have molted once. (Wis. Ins. Sur.). PENNSYLVANIA - Myzus sensoriatatus collected on Hypericum sp. in Centre County during April, and Myzus ornatus very abundant on leaves of Coleus sp. in a home at State College during March. Det. by A. N. Tissot. These are new State records for both species. (Pepper).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Medium on leaves of Viburnum sp. in Orosi, Tulare County. (Cal. Coop. Rpt.).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Medium on bark and twigs of toyon (Photinia arbutifolia) in Fairfield, Solano County. (Cal. Coop. Rpt.).

JUNIPER SCALE (Diaspis carueli) - OHIO - Infested Pfitzer juniper twigs at Fostoria, Seneca County; examination revealed extreme winter mortality. (Neiswander, Apr. 17).

A GROUND MEALYBUG (Rhizoecus leucosomus) - FLORIDA - Moderate on Mesembryanthemum sp. at Sanford, Seminole County, February 15, 1963. Det. by R. F. Wilkey. This is a new State record. (Fla. Coop. Sur.).

Coccids in Florida - Aonidiella taxus moderate on Podocarpus macrophyllus maki at Winter Haven, Polk County (Apr. 9). Asterolecanium pustulans moderate on Grevillea robusta at Stock Island, Monroe County (Apr. 5). Chrysomphalus aonidium light to moderate on Nerium spp. at Holly Hill, Volusia County (Apr. 9), and moderate to severe on Carissa sp. at Merritt Island, Brevard County (Apr. 11). Fiorinia these moderate to severe on Ilex sp. and Camellia sp. at Eau Gallie, Brevard County (Apr. 9). Phenacaspis cockerelli severe on Sabal mexicana at Winter Haven (Apr. 3); severe on Strelitzia reginae at Bradenton, Manatee County (Apr. 11). Pinnaspis strachani moderate on Melia azedarach at Allandale, Volusia County (Apr. 12). Protoperulvinaria pyriformis moderate on 200 Trachelospermum jasminoides at Vine-land, Orange County (Apr. 8). Pseudococcus citri light to moderate on Hoya carnosa at Holly Hill (Apr. 9). Saissetia hemisphaerica light to moderate on Nerium sp. at Holly Hill (Apr. 9). (Fla. Coop. Sur.).

ROSE LEAFHOPPER (Edwardsiana rosae) - UTAH - This species and Virginia-creeper leafhopper (Erythroneura ziczac) now on respective hosts at St. George, Washington County, but not yet numerous. (Knowlton).

WHITEFLIES - CALIFORNIA - Additional light to heavy infestations of Aleurotrachelus jelinekii found in several locations in Tulare County. Infestations found in Fresno for first record of A. jelinekii in Fresno County. Infestations have been generally heavy. Aleyrodes sp. and Aleuroplatus gelatinosus medium on Quercus sp. in Fair Oaks, Sacramento County. Whiteflies have been more abundant during past 3 seasons than for many years; species normally present in low numbers now becoming evident. (Cal. Coop. Rpt.). ALABAMA - First hatch of season of Trialetrodes vaporariorum reported in Lee County; evidently very light, as only small number of adults noted. (McQueen).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - PENNSYLVANIA - Damaging roots of chrysanthemum plants out-of-doors in Bellefonte, Centre County. (Udine).

HOLLY LEAF MINERS (Phytomyza spp.) - DELAWARE - Most larvae now pupated. (Burbutis).

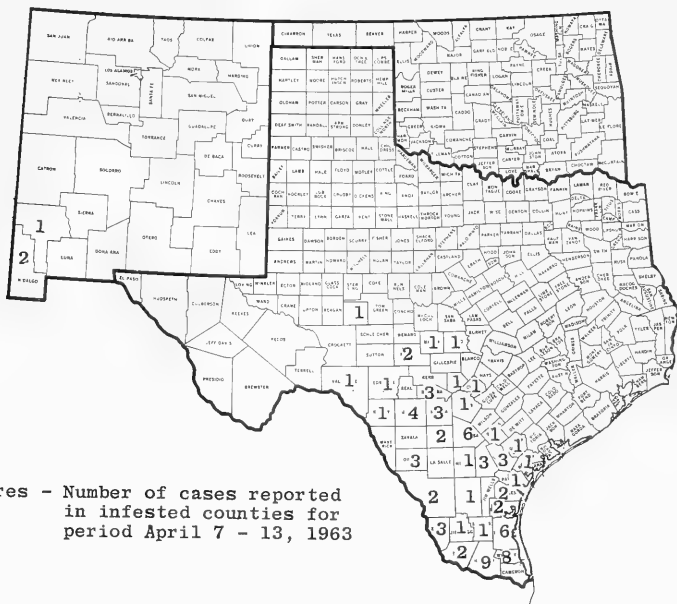
AN ERIOPHYID MITE (Aceria knorrii Keifer) - FLORIDA - Collected from inflorescences of Bidens pilosa at Lake Alfred, Polk County, May 11, 1962, by L. C. Knorr. Det. by H. H. Keifer. This is a new species. (Fla. Coop. Sur.).

A RUST MITE (*Acritonotus denmarki* Keifer) - FLORIDA - Collected on *Roystonea elata* at Fort Lauderdale, Broward County, March 16, 1962, by H. A. Denmark. Det. by H. H. Keifer. This is a new species. (Fla. Coop. Sur.).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

Screw-worm continues to disperse in ever-widening areas of TEXAS and NEW MEXICO. Reports continue to indicate extremely small native populations; however, single infestations being reported in many counties. A total of 80 screw-worm cases identified from Texas and 3 cases from New Mexico during period April 7-13. Fly release area has been extended 50 miles further north and east. The portion of barrier zone between Big Bend area and El Paso discontinued to obtain sufficient flies for added area north and east of previous fly release zone. That portion of fly barrier zone that has been discontinued represents area least likely to create threat to total eradication area. Flies will continue to be released along Rio Grande in this area at rate of 1,000 sterile flies per linear mile. Each infestation will continue to be treated as emergency operation, infested herds will be sprayed, and additional flies will be released. A total of 113,329,700 sterile screw-worm flies was released during period April 7-13. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period April 7 - 13, 1963

HORN FLY (Haematobia irritans) - TEXAS - Ranged 50-100 per animal on Cameron County cattle. (Texas Coop. Rpt.; Day). OKLAHOMA - Becoming common in most areas, but numbers light. Counts per head, by county, as follows: Texas 25; Dewey 40-50; McCurtain 200; Payne 150. (Okla. Coop. Sur.). MISSOURI - Ranged 0-50 per animal in central area; average 25. (Cates). INDIANA - Emergence observed April 10 in southern area; noted on 2 of 75 cows. (Dobson).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Occasional specimens noted in Stillwater area, Payne County. (Okla. Coop. Sur.).

FACE FLY (Musca autumnalis) - ILLINOIS - Varied 0-10 and averaged about 3 per head in west district on 2 herds of cattle, April 15-18. (Ill. Ins. Rpt.). INDIANA - Found in Lafayette area, Tippecanoe County. (Dobson).

HOUSE FLY (Musca domestica) - OHIO - Adults found in Cuyahoga County by the thousands; control difficult due to canaries and parakeets in vicinity of infestations. (Holdsworth). OKLAHOMA - Averaged 1 per Scudder grid in barns in Stillwater area, Payne County. (Okla. Coop. Sur.).

BLOW FLIES - UTAH - Various species common in "Dixie area" of Washington County. (Knowlton).

MOSQUITOES - UTAH - Annoying in fields at Washington, Washington County. (Knowlton). OKLAHOMA - Heavy and causing considerable annoyance in Stillwater, Payne County; adults, larvae and pupae present. (Okla. Coop. Sur.). OHIO - Larvae abundant in forest swamp in Wayne County; averaged 4 per dip. (Rings, Lyon). MICHIGAN - Aedes sp. still present in larval stage April 13, following week of cool nights in Shiawassee County. (Dowdy).

CATTLE LICE - UTAH - Rubbing noted in Levan-Scipio area of southern Juab and eastern Millard Counties. (Knowlton). One thousand cattle recently treated in Beaver area, Beaver County. (Knowlton, Esplin). Moderate to severe on some herds in Kane, Juab, Garfield, Sanpete and Sevier Counties; more control practiced in State during recent years. (Knowlton).

SHAFT LOUSE (Menopon gallinae) - OHIO - Moderate on flock of white leghorn layers; appeared over bodies, clinging to feathers rather than skin area. (Lyon).

AMERICAN DOG TICK (Dermacentor variabilis) - DELAWARE - Activity increased noticeably in New Castle County. (Burbutis). MARYLAND - Adult collected on human in St. Marys County. (U. Md., Ent. Dept.). MICHIGAN - Specimen taken from ear of child in Eaton County. (Janes). SOUTH DAKOTA - Collected in Union County on clothing of man. (Hintz).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Moderate to heavy in eastern part of State. (Okla. Coop. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - OKLAHOMA - Caused concern in localized areas around Stillwater, Payne County. (Okla. Coop. Sur.).

EAR TICK (Otobius megnini) - UTAH - Common throughout Beaver County and in Iron County; examination of few animals from any herd shows infestation. (Knowlton, Esplin).

HOUSEHOLD AND STRUCTURAL INSECTS

DERMESTID BEETLES - PENNSYLVANIA - Numerous complaints concerning Anthrenus scrophulariae in homes received from Huntingdon County. (Udine, Paules). COLORADO - Attagenus spp. larvae nuisance in and around food cupboards in Larimer and Kiowa County homes. (Hantsbarger).

SPIDER BEETLES - UTAH - Serious in large building in Garfield County near Bryce Canyon National Park. (Knowlton, Lindsay). PENNSYLVANIA - Mezium affine very abundant in attic of home at Scranton, Lackawanna County. (Mulderig, Apr. 11).

ELM LEAF BEETLE (Galerucella xanthomelaena) - DELAWARE - Hibernating adults considerably annoying in New Castle County home. (Bray).

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) - WASHINGTON - Adults commonly occurring in homes in Island County; probably brought in with firewood. (Baker, Mar. 27).

COCKROACHES - ARIZONA - Problem in Pinal County during past week. (Ariz. Coop. Sur.). MINNESOTA - Blatta orientalis occurred in several homes in St. Paul-Minneapolis area. (Minn. Ins. Rpt.). PENNSYLVANIA - Numerous requests concerning controls noted in March and April in Allegheny County. (Paules). MARYLAND - B. orientalis infested homes in Baltimore and Montgomery Counties. (U. Md., Ent. Dept.).

ANTS - NEW MEXICO - Winged forms entering homes in large numbers at Las Cruces, Dona Ana County. (N. M. Coop. Rpt.). NORTH CAROLINA - Acanthomyops interjectus winged forms moderate in basement of Wake County home. (Axtell).

CLOVER MITE (Bryobia praetiosa) - CONNECTICUT - A problem in Norwich. (Savos). NEW JERSEY - Active in many areas. (Ins.-Dis. Newsltr., Apr. 16). PENNSYLVANIA - Numerous in homes in Allegheny County (Apr. 5), Centre County (Apr. 16) and Blair County (Apr. 18). (Udine). DELAWARE - Reports of annoyance to homeowners continue numerous in New Castle County. (Burbutis). MARYLAND - Annoying in College Park home, Prince Georges County. (U. Md., Ent. Dept.). OHIO - Heavy in home in Dalton, Wayne County. (Rings). COLORADO - Continues prevalent household problem in many areas of State. (Hantsbarger). UTAH - Invaded number of homes in Manti-Ephraim area, Sanpete County, and Richfield and nearby areas of Sevier County. (Knowlton).

TERMITES - CONNECTICUT - Swarming of unspecified species troublesome to many homeowners. (Savos). NEW JERSEY - Swarming of unspecified species continues of primary concern to homeowners. (Ins.-Dis. Newsltr., Apr. 16). MARYLAND - Reticulitermes spp. noted swarming in homes at Hyattsville, Prince Georges County, and at Baltimore. (U. Md., Ent. Dept.). OKLAHOMA - Reticulitermes sp. noted swarming in Lawton, Comanche County, and Stillwater, Payne County. (Okla. Coop. Sur.). TEXAS - Alates of undetermined subterranean species swarming in several areas of State; many specimens submitted. (Newton).

CARPENTER ANTS (Camponotus spp.) - DELAWARE - Several heavy flights reported. (Burbutis). MARYLAND - Winged forms of C. pennsylvanicus noted out-of-doors in Rockville, Montgomery County. (U. Md., Ent. Dept.). WASHINGTON - Winged adults in homes in Island County. (Baker, Mar. 25).

CARPENTER BEE (Xylocopa virginica) - MARYLAND - Adults noted in and around buildings in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

A POWDER-POST BEETLE - TEXAS - Unspecified species virtually destroyed baseboards in Wise County home. (Turney).

STORED-PRODUCTS INSECTS

GRANARY WEEVIL (Sitophilus granarius) - OHIO - Most common pest of grain brought to a Preble County grain elevator from local farmers; farm-stored grains a major source of infestations. (Lyon).

BENEFICIAL INSECTS

FLOWER FLIES - FLORIDA - Microdon aurulentus collected in Steiner trap in calamandin tree at Fort Ogden, De Soto County, April 4, by R. H. Rhodes. This is first record for State. (Fla. Coop. Sur.). OKLAHOMA - Larvae of unspecified species attacking aphids on ornamentals in Stillwater area, Payne County. (Okla. Coop. Sur.). OHIO - Averaged one larva per 2 apple tree buds at orchard in Wayne County; some larvae noted attacking aphids. Species not specified. (Forsythe, Apr. 11). MICHIGAN - Eggs of undetermined species common around aphid nymphs on apple and cherry trees near Lansing, Ingham County. (Dowdy). CONNECTICUT - Unspecified species present on unfolding leaves; with aphid populations at low level, predation can add significantly to control. (Savos).

LADY BEETLES - ARIZONA - Rodolia cardinalis found feeding on cottony-cushion scale (Icerya purchasi) in citrus groves in East Mesa area, Maricopa County. Attempts to move larvae to other infested areas of State to be made later. (Ariz. Coop. Sur.). NEW MEXICO - Unspecified species abundant in barley fields infested with corn leaf aphid (Rhopalosiphum maidis) near Hatch, Dona Ana County. (N. M. Coop. Rpt.). WYOMING - Adults of several species appearing in alfalfa and small grain in Fremont, Park and Washakie Counties. (Fullerton). OKLAHOMA - Larvae and adults of several species light to heavy in most field crops and on ornamentals throughout State. Ranged 4-15 per 10 sweeps in southeast; averaged 20 per 10 sweeps in south central; and ranged 6-23 per 10 sweeps in southwest. (Okla. Coop. Sur.). ILLINOIS - Adults of unspecified species ranged 0-30 (average 7.3) and larvae ranged 0-10 (average 0.5) per 100 sweeps in clover and alfalfa in west, west-southwest and central districts. (Ill. Ins. Rpt.). WISCONSIN - Hippodamia tredecimpunctata adults relatively common in rye fields in Trempealeau County. (Wis. Ins. Sur.). CONNECTICUT - Unspecified species migrating from hibernation quarters in large numbers. (Savos).

GREEN LACEWINGS (Chrysopa spp.) - OKLAHOMA - Light to heavy (1-20 per 10 sweeps) in alfalfa in southeast, south central and southwestern areas; also present in wheat fields. (Okla. Coop. Sur.). ILLINOIS - C. oculata adults averaged 0.4 per 100 sweeps in clover and alfalfa in west, west-southwest and central districts. (Ill. Ins. Rpt.). WISCONSIN - Adults, probably C. oculata, present in field of rye in Spring Green area, Iowa County. (Wis. Ins. Sur.).

DAMSEL BUGS (Nabis spp.) - ILLINOIS - Adults ranged 0-40 (average 5.3) per 100 sweeps in clover and alfalfa in the west, west-southwest and central districts. (Ill. Ins. Rpt.).

AN ANDRENID BEE (Andrena sp.) - MICHIGAN - Active on early flowers around Lansing, Ingham County. (Fischer).

MISCELLANEOUS INSECTS

WHITE-FRINGED BEETLES (Graphoganthus spp.) - Larval surveys in LOUISIANA indicate small acreages of new infestations in Jefferson, St. John the Baptist and Plaquemines Parishes. All treatment in Loretto, Lawrence County, TENNESSEE, completed. Larval surveys in Autauga, Elmore, Macon and Montgomery Counties, ALABAMA, negative. Small acreages treated in several GEORGIA counties. Treatment completed on all known infested acreage in Darlington County, SOUTH CAROLINA. Several small areas treated in NORTH CAROLINA counties. (PPC, South. Reg., Mar. Rpt.).

JAPANESE BEETLE (Popillia japonica) - ILLINOIS - Ground treatment completed on 400 acres in East St. Louis area on March 15. (PPC, Cent. Reg.). OHIO - Grubs moderate to heavy at airport and cemetery in Cuyahoga and Stark Counties, respectively; 25-30 grubs per square foot with one-third in third instar. (Moore, Custer, Holmes, Apr. 9).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Larvae and pupae locally heavy in soil around grindelia plants in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

SUGARCANE BEETLE (Euetheola rugiceps) - ALABAMA - Two specimens taken at night light in Lee County. (McQueen).

A WATER SCAVENGER BEETLE (Hydrous triangularis) - NEBRASKA - Adult activity heavy at night in Lincoln, Lancaster County, and Omaha, Douglas County. (Bergman).

A LEAFHOPPER (Empoasca filamenta) - WASHINGTON - Overwintering adults active on weeds at Waitsburg, Walla Walla County, March 19. (Landis).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Seven new, extremely light infestations found in Sacramento, Sacramento County. Weather interfered with treatment schedule; however, also slowed pupal development. Emergence seems imminent. (Cal. Coop. Rpt.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Collected for the first time in Sabine County, TEXAS. Surveys in Pulaski, Crittenden, Clay and Greene Counties, ARKANSAS, negative. Extensions of known infestations found in both north and south LOUISIANA; appraisal surveys in some treated blocks good in most areas. Found for the first time in Jefferson County, MISSISSIPPI. Aerial treatments made in Hinds and Washington Counties, and negative surveys made on treated blocks in Jefferson Davis and Wilkinson Counties. All surveys in TENNESSEE negative. In NORTH and SOUTH CAROLINA, extensions to infestations found in nearly all areas surveyed. Treatment of right-of-way of Interstate Highway 10 in Baker County, FLORIDA, completed; area involved 150 acres. (PPC, South. Reg., Mar. Rpt.).

A UROPODID MITE (Fuscuropoda agitans) - CALIFORNIA - Medium in earthworm beds in Kingsburg, Fresno County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 13(13):287 - ANTS - SOUTH DAKOTA - Formica sp., should read LARGER YELLOW ANT (Acanthomyops interjectus); det. by M. R. Smith.

CEIR 13(15):368 - A SPIDER BEETLE (Mezium americanum) - NORTH DAKOTA - Additional specimen found in student's collection made May 17, 1939, indicates an earlier but previously unreported new State record. Make necessary correction under DETECTION, page 357.

ADDITIONAL NOTES

ARKANSAS - PEA APHID (Acyrtosiphon pisum) increased in northwest; now heavy statewide. Winged forms quite common. In many instances, infestations continue so heavy only estimates of numbers can be made; more than 100 collected in one sweep of 15-inch net. Low numbers of CORN EARWORM (Heliothis zea) adults being taken in light traps at Hope and Fayetteville. First moth of season taken at Kelso March 27. EASTERN TENT CATERPILLAR (Malacosoma americanum) infestations present statewide. Nests increasing in size. Reported heavy in Franklin, Crawford and Sebastian Counties (west central); wild cherry principal host. Heavy winter mortality of LOCUST BORER (Megacyllene robiniae) reported in Little Rock area. SCALE INSECTS on pecan increasing in Stuttgart area. (Ark. Ins. Sur.).

GEORGIA - LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) heavy on crimson clover in Oconee County. (Coleman).

MINNESOTA - Recently completed surveys indicate EUROPEAN CORN BORER (Ostrinia nubilalis) overwintering mortality averaged 17 percent, compared with 16 percent for 1962. Apparently extremely cold weather and light snow cover had little effect on overwintering population. Observations of GRASSHOPPER egg pods in southwestern counties showed no development, except on protected sites where some early coagulation of Melanoplus sanguinipes eggs found. CLUSTER FLY (Pollenia rudis) infested home in Minneapolis. BLACK CARPET BEETLE (Attagenus piceus) identified from home in St. Paul. (Minn. Ins. Rpt.).

VIRGINIA - Fall treatment for ALFALFA WEEVIL (Hypera postica) not completely effective in many areas this year. Control not achieved in some experimental plots at Virginia Agricultural Experiment Station. Larvae averaged 46 per square foot in fall-treated field in Culpeper County. (Hutcheson, Apr. 11). Larvae moderate in 2 fields treated in October 1962 in Pittsylvania County. (Dominick). Larvae ranged 10-26 per sweep in Campbell and Appomattox Counties; very few adults taken. Few eggs found in stems. All fields treated. (Woodside). One adult and no larvae taken in 300 sweeps in untreated field with poor stand of alfalfa near Staunton, Augusta County. None found in 300 sweeps in untreated and treated fields in vicinity of Steeles Tavern, Augusta and Rockbridge Counties; few eggs found in stems in untreated fields. (Woodside). None found in Floyd County; infestations severe in Franklin and Patrick Counties. (Rowell). Larvae and adults present in all fields checked; very light to medium in Montgomery, Amherst, Appomattox, Buckingham and Amelia Counties; medium to severe, mostly severe (several hundred to several thousand larvae per 100 sweeps), in Goochland, Powhatan, Prince Edward, Nottoway, Campbell, Charlotte, Lunenburg, Mecklenburg and Halifax Counties. (Tarpley). PEA APHID (Acyrtosiphon pisum) moderately severe, with damage evident in fall-seeded alfalfa stand in Pittsylvania County (Dominick); ranged 5-40 per sweep in alfalfa in Campbell County and 10-30 per sweep in Appomattox County. (Woodside). Severe in fields checked in Franklin, Henry and Patrick Counties; light in Floyd County. (Rowell). Light to medium in Montgomery, Amherst, Goochland, Powhatan, Appomattox, Cumberland and Lunenburg Counties; medium to severe, mostly severe, in Nottoway, Amelia, Campbell, Charlotte, Mecklenburg and Halifax Counties. Winged forms present in all fields. Only occasional aphid killed by fungus. These severe infestations adversely affecting alfalfa growth. Predators common in all fields checked; included adults and larvae of LADY BEETLES and larvae of NABIDS and FLOWER FLIES. (Tarpley). TENTS of EASTERN TENT CATERPILLAR (Malacosoma americanum) conspicuous in all counties surveyed. (Tarpley). JUNIPER WEBWORM (Dichomeris marginella) damage heavy on several plants in small Pittsylvania County nursery. (Dominick, Apr. 11).

Weather of the week ending April 22 (continued from page 424)

the northern Great Plains. Four inches fell at Ely, Nevada, and 18 inches at Lander, Wyoming. Snow in the Black Hills accumulated to 9 inches. On Monday, the 22d, a storm had moved from the Rocky Mountain region over the midcontinent area where numerous severe, local storms occurred and strong winds whipped up dust over Missouri, Iowa, and other portions of the mid-Mississippi and Ohio Valley regions. Temperatures averaged above normal over the central and eastern United States. Departures exceeded +5° over most of the area. The greatest departures were over an area extending from Abilene, Texas, through Oklahoma, the southern portions of Missouri, Illinois, and Indiana, to Lexington, Kentucky. Temperatures at Tulsa, Oklahoma, averaged 16° above normal. In contrast to the warm central and eastern portions of the Nation, the northern Great Plains were unseasonably cool. Negative departures, largest over the Great Basin, were as much as 15° at Ely, Nevada, and in central Oregon. Freezing temperatures during the week occurred as far south as North Carolina, Wisconsin, Iowa, and the southern Rocky Mountains. Precipitation exceeded 1.00 inch along the northern Pacific coast, over western Pennsylvania, northern Ohio, northern Illinois, eastern Iowa and a few scattered stations elsewhere. Rainfall ranged from 0.50 to 1.00 inch over Washington, Oregon, the higher elevations of California, portions of the northern High Plains, and from Missouri to New England. Elsewhere, precipitation was generally less than 0.50 inch. Most of the south Atlantic and Gulf coasts, the southern High Plains, and the southern Rocky Mountains received no rain. (Summary supplied by U. S. Weather Bureau).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Perid. saucia	Prod. ornith.	Spodop. exigua	Heliothis zea	vires.
ARKANSAS								
Hope 4/10-17	2	8		2				3
Fayetteville 4/17	1	3		1				2
FLORIDA								
Gainesville 4/15		1	1					
GEORGIA								
Tifton 4/11-17							16	2
ILLINOIS (County)								
Champaign 4/12-18	50	10		4				
KANSAS								
Garden City 4/12,15	36			13	2			
Manhattan 4/16-17	2							
Mound Valley 4/12	2							
Wathena 4/15	5			8				
MISSISSIPPI								
*Stoneville 4/12-18	326	38	9	38	9		7	2
MISSOURI								
Portageville 4/4-10, 11-17	11			1				
NEBRASKA								
North Platte 4/13-17	65	45		12				
SOUTH CAROLINA								
Charleston 4/8-14	7	1	2		2			4
Charleston 4/15-21	10	7	1		2			8
TENNESSEE (Counties)								
Maury 4/9-15	5	2						
Robertson 4/9-15	4	1			4			
Cumberland 4/9-15	1				1			
Greene 4/9-15	3							
Blount 4/9-15	4	7			5			
TEXAS								
Waco 4/13-19	69	15	25	46	3	7		
*Brownsville 4/13-17	8	38	2,654	117			608	1
WISCONSIN								
Middleton 4/3-18	33	9		2				
Madison 4/2-18	58	3		1				

Additional Light Trap Collections

TEXAS, *Brownsville (4/13-17) - Loxostege similalis - 12,456.

* Six traps - Brownsville; 2 traps - Stoneville.

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Alfalfa IN Wyoming DURING 1962
 (Commodity) (State or District) (Year)

Grasshoppers, leafhoppers, army cutworm, plant bugs,
 alfalfa weevil, alfalfa looper, lygus bugs, pea aphid

A. Pest or pest complex		
B. Number of <u>acres</u> ^a produced (From CRS)	No.	468,342
C. Average yield per <u>acre</u> ^a (From CRS)	Units/	2 ton
D. Price ^b per unit (<u>ton</u>) ^c (From CRS)	\$/	18.00
E. <u>Acres</u> ^a needing control	No.	412,200
F. <u>Acres</u> ^a treated	No.	257,700
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	13.5
I. Loss in yield, units per <u>acre</u> ^a , C x H	Units/	.27 ton
J. Loss in yield, \$ per <u>acre</u> ^a , D x I	\$/	4.86
K. Loss in quality, \$ per <u>acre</u> ^a	\$/	
L. Yield loss for all <u>acres</u> ^a , (E-F) x I	Units	41,715 ton
M. Control cost, \$ per <u>acre</u> ^a	\$/	4.00
N. Control cost for all <u>acres</u> ^a , F x M	\$	1,030,800
O. Yield loss for all <u>acres</u> ^a , (E-F) x J	\$	750,870
P. Quality loss for all <u>acres</u> ^a , (E-F) x K	\$	
Q. Combined control cost and losses, N + O + P	\$	1,781,670

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Dale Fullerton

Date 12-21-62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Alfalfa seed IN Wyoming DURING 1962
 (Commodity) (State or District) (Year)

A. Pest or pest complex	<u>Alfalfa weevil, lygus bugs, pea aphid, army cutworm, alfalfa plant bug, grasshoppers</u>	
B. Number of <u>acres</u> ^a produced (From CRS)	No.	<u>4,910</u>
C. Average yield per <u>acre</u> ^a (From CRS)	Units/	<u>2 cwt.</u>
D. Price ^b per unit (cwt.) ^c (From CRS)	\$/	<u>44.00</u>
E. <u>Acres</u> ^a needing control	No.	<u>4,910</u>
F. <u>Acres</u> ^a treated	No.	<u>4,000</u>
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	<u>20.0</u>
I. Loss in yield, units per <u>acre</u> ^a , C x H	Units/	<u>.4 cwt.</u>
J. Loss in yield, \$ per <u>acre</u> ^a , D x I	\$/	<u>1.76</u>
K. Loss in quality, \$ per <u>acre</u> ^a	\$/	<u></u>
L. Yield loss for all <u>acres</u> ^a , (E-F) x I	Units	<u>364 cwt.</u>
M. Control cost, \$ per <u>acre</u> ^a	\$/	<u>7.00</u>
N. Control cost for all <u>acres</u> ^a , F x M	\$	<u>28,000</u>
O. Yield loss for all <u>acres</u> ^a , (E-F) x J	\$	<u>7,000</u>
P. Quality loss for all <u>acres</u> ^a , (E-F) x K	\$	<u></u>
Q. Combined control cost and losses, N + O + P	\$	<u>35,000</u>

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Dale Fullerton

Date 12-21-62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING	Corn (Grain) (Commodity)	IN	Wyoming (State or District)	DURING	1962 (Year)
A.	Pest or pest complex	Southern and western corn rootworms, wireworms, two-spotted spider mite, corn leaf aphid, corn earworm			
B.	Number of acres ^a produced (From CRS)	No.		7,000	
C.	Average yield per acre ^a (From CRS)	Units/		60 bu.	
D.	Price ^b per unit (bu.) ^c (From CRS)	\$/		1.08	
E.	Acres ^a needing control	No.		4,500	
F.	Acres ^a treated	No.		1,400	
G.	Reduction due to not treating where needed:				
H.	Loss in yield, percent	%		5.0	
I.	Loss in yield, units per acre ^a , C x H	Units/		3 bu.	
J.	Loss in yield, \$ per acre ^a , D x I	\$/		3.24	
K.	Loss in quality, \$ per ^a	\$/			
L.	Yield loss for all acres ^a , (E-F) x I	Units		18,600 bu.	
M.	Control cost, \$ per acre ^a	\$/		3.00	
N.	Control cost for all acres ^a , F x M	\$		4,200	
O.	Yield loss for all acres ^a , (E-F) x J	\$		10,044	
P.	Quality loss for all ^a , (E-F) x K	\$			
Q.	Combined control cost and losses, N + O + P	\$		14,244	

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by _____ Dale Fullerton

Date 12-21-62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING _____	Corn (Silage) (Commodity)	IN _____	Wyoming (State or District)	DURING _____	1962 (Year)
A.	Pest or pest complex	Southern and western corn rootworms, wireworms, two-spotted spider mite, corn leaf aphid, corn earworm			
B.	Number of _____ acres ^a produced (From CRS)	No.	62,250		
C.	Average yield per _____ acre ^a (From CRS)	Units/	12 ton		
D.	Price ^b per unit (_____) ^c (From CRS)	\$/	7.00		
E.	_____ Acres ^a needing control	No.	33,700		
F.	_____ Acres ^a treated	No.	10,100		
G.	Reduction due to not treating where needed:				
H.	Loss in yield, percent	%	5.0		
I.	Loss in yield, units per _____ acre ^a , C x H	Units/	.6 ton		
J.	Loss in yield, \$ per _____ acre ^a , D x I	\$/	4.2		
K.	Loss in quality, \$ per _____ ^a	\$/			
L.	Yield loss for all _____ acres ^a , (E-F) x I	Units	14,160 ton		
M.	Control cost, \$ per _____ ^a	\$/	3.00		
N.	Control cost for all _____ acres ^a , F x M	\$	30,300		
O.	Yield loss for all _____ acres ^a , (E-F) x J	\$	99,120		
P.	Quality loss for all _____ ^a , (E-F) x K	\$			
Q.	Combined control cost and losses, N + O + P	\$	129,420		

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by _____ Dale Fullerton

Date _____ 12-21-62 _____

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING	Sugar beets (Commodity)	IN	Wyoming (State or District)	DURING	1962 (Year)
Beet webworm, sugar-beet root maggot, beet leafhopper, striped flea beetle					
A.	Pest or pest complex				
B.	Number of acres ^a produced (From CRS)	No.	50,380		
C.	Average yield per acre ^a (From CRS)	Units/	14 ton		
D.	Price ^b per unit (ton) ^c (From CRS)	\$/	17.00		
E.	Acres ^a needing control	No.	43,770		
F.	Acres ^a treated	No.	38,070		
G.	Reduction due to not treating where needed:				
H.	Loss in yield, percent	%	12.00		
I.	Loss in yield, units per acre ^a , C x H	Units/	1.68 ton		
J.	Loss in yield, \$ per acre ^a , D x I	\$/	28.60		
K.	Loss in quality, \$ per acre ^a	\$/			
L.	Yield loss for all acres ^a , (E-F) x I	Units	5,700 ton		
M.	Control cost, \$ per acre ^a	\$/	5.00		
N.	Control cost for all acres ^a , F x M	\$	190,350		
O.	Yield loss for all acres ^a , (E-F) x J	\$	163,020		
P.	Quality loss for all acres ^a , (E-F) x K	\$			
Q.	Combined control cost and losses, N + O + P	\$	353,370		

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by _____ Dale Fullerton _____

Date _____ 12-21-62 _____

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING	Beans (Commodity)	IN	Wyoming (State or District)	DURING	1962 (Year)
A.	Pest or pest complex	Flea beetles, Mexican bean beetle, lygus bugs, grasshoppers			
B.	Number of acres ^a produced (From CRS)	No.	76,400		
C.	Average yield per acre ^a (From CRS)	Units/	20 cwt.		
D.	Price ^b per unit (cwt.) ^c (From CRS)	\$/	6.10		
E.	Acres ^a needing control	No.	34,600		
F.	Acres ^a treated	No.	23,900		
G.	Reduction due to not treating where needed:				
H.	Loss in yield, percent	%	8.0		
I.	Loss in yield, units per acre ^a , C x H	Units/	1.6 cwt.		
J.	Loss in yield, \$ per acre ^a , D x I	\$/	9.76		
K.	Loss in quality, \$ per acre ^a	\$/			
L.	Yield loss for all acres ^a , (E-F) x I	Units	17,120 cwt.		
M.	Control cost, \$ per acre ^a	\$/	3.00		
N.	Control cost for all acres ^a , F x M	\$	71,700		
O.	Yield loss for all acres ^a , (E-F) x J	\$	104,432		
P.	Quality loss for all acres ^a , (E-F) x K	\$			
Q.	Combined control cost and losses, N + O + P	\$	176,132		

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Dale Fullerton

Date 12-21-62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Potatoes IN Wyoming DURING 1962
(Commodity) (State or District) (Year)

		Potato psyllid, Colorado potato beetle, flea beetles, leafhoppers, grasshoppers	
A.	Pest or pest complex		
B.	Number of <u>acres</u> ^a produced (From CRS)	No.	<u>4,625</u>
C.	Average yield per <u>acre</u> ^a (From CRS)	Units/	<u>300 cwt.</u>
D.	Price ^b per unit (cwt.) ^c (From CRS)	\$/	<u>1.25</u>
E.	<u>Acres</u> ^a needing control	No.	<u>4,500</u>
F.	<u>Acres</u> ^a treated	No.	<u>3,000</u>
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	<u>10.0</u>
I.	Loss in yield, units per <u>acre</u> ^a , C x H	Units/	<u>30 cwt.</u>
J.	Loss in yield, \$ per <u>acre</u> ^a , D x I	\$/	<u>37.50</u>
K.	Loss in quality, \$ per <u>acre</u> ^a	\$/	<u></u>
L.	Yield loss for all <u>acres</u> ^a , (E-F) x I	Units	<u>45,000 cwt.</u>
M.	Control cost, \$ per <u>acre</u> ^a	\$/	<u>5.00</u>
N.	Control cost for all <u>acres</u> ^a , F x M	\$	<u>15,000</u>
O.	Yield loss for all <u>acres</u> ^a , (E-F) x J	\$	<u>56,250</u>
P.	Quality loss for all <u>acres</u> ^a , (E-F) x K	\$	<u></u>
Q.	Combined control cost and losses, N + O + P	\$	<u>71,250</u>

Comment: _____

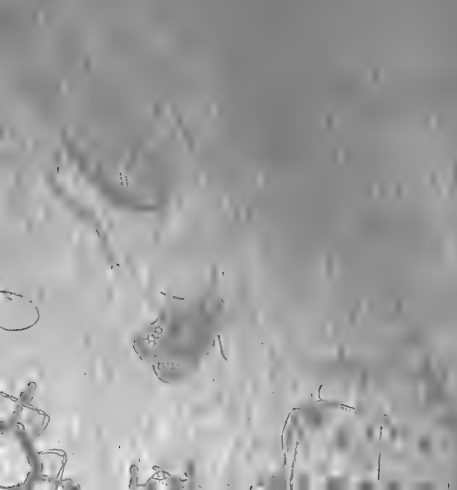
- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by _____ Dale Fullerton _____

Date 12-21-62

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Page 1 of 1

Printed on 10/10/2023

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ALFALFA WEEVIL damage ranged medium to severe in most alfalfa checked in 4 Virginia counties; all stages of pest present. Alfalfa weevil now found in all Tennessee counties except Lake, Obion and Weakley, in extreme northwest. In Laramie and Goshen Counties, Wyoming, adult counts one per square foot in alfalfa where controls applied, 3-4 where controls not applied. CLOVER LEAF WEEVIL leaf damage to clover observed throughout southern Missouri, and larvae caused moderate foliage injury to clovers throughout most sections of Maryland. (p. 453). PEA APHID ranged light to heavy in areas of Oklahoma with some controls continuing; continued heavy in some legumes in northwest Arkansas; high populations damaging in dry, southwest portion of Missouri. Heavy on alfalfa in Harper County, Kansas, and keeping alfalfa from making good growth; ranged 50-200 per sweep in Riley, Pottawatomie and Wabaunsee Counties. (p. 454). CORN EARWORM larvae present in legumes in Oklahoma, Arkansas and Texas; also present on tomatoes in Arkansas and heavy, local populations in Cameron County, Texas, attacking young corn in tassel stage. (pp.455-456).

CEREAL LEAF BEETLE active and laying eggs on wheat, quackgrass and other grasses in Indiana; development slowed by cold weather. Found for first time in Elkhart, Marshall and Starke Counties. Found for first time in Van Buren County, Michigan. Feeding and ovipositing in fields near hibernation sites; infestations heaviest in winter wheat. (p. 456). Examination of 100 stems of wheat in Riley County, Kansas, showed HESSIAN FLY infestations of 28 percent, with 1-8 larvae per infested stem. (p. 458).

TOMATO PINWORM larvae medium in leaves of tomato plants at Niland, California. BEET LEAFHOPPER and BEET ARMYWORM heavy on sugar beets in Stanfield area of Arizona. (p. 462).

A WEEVIL (Compso auricephalus) causing considerable damage to young cotton in local areas of Grimes, Brazos and Robertson Counties, Texas; some controls necessary. (p. 463).

MOUNTAIN PINE BEETLE causing severe loss of sugar pine on 2,500-acre stand on Sierra National Forest, California, and a CONIFER SAWFLY (Neodiprion taedae linearis) infesting over 75,000 acres of pines in Calhoun County, Arkansas. (p. 464).

DETECTION

First state records reported were an APHID (Myzocallis frisoni) in Maryland (p. 466), and a LATHRIDIID BEETLE (Adistemia watsoni) in Delaware. (p. 472). CEREAL LEAF BEETLE reported for first time in Elkhart, Marshall and Starke Counties, Indiana, and Van Buren County, Michigan. (p. 456).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 469). Native population appears to be relatively small, but area of dispersion is quite large.

CORRECTIONS and ADDITIONAL NOTES

See pages 472 and 474, respectively.

Reports in this issue are for week ending April 26, unless otherwise indicated.

WEATHER OF THE WEEK ENDING APRIL 29

The storm which, last week, brought snow to the central and northern Rocky Mountain States, moved eastward bringing wet, windy weather to the Great Lakes region, the Ohio River Valley, and the Middle and North Atlantic States. Snow was mixed with the rain near the Great Lakes, and over the higher elevations in West Virginia, Pennsylvania and New England. Meanwhile, heavy thunderstorms occurred over the Southeastern States. Following the storm, a dome of high pressure brought clearing skies and chilly temperatures to the Midwest. Gulf air streamed northward on the west side of the high pressure dome touching off showers and a few heavy thunderstorms from Oklahoma to Nebraska.

By Friday, a slowly deepening storm was spreading an extensive cloud shield over the western half of the country and dampening areas from the Rocky Mountains westward to the Pacific, as isolated thunderstorms occurred in the Missouri Valley and cool, bright, sunny weather prevailed in the East. The storm crossed the Rockies and slid down the eastern slope causing widespread cloudiness from the mountains to the Mississippi River. It produced showers and thunderstorms and, at higher elevations, snow.

Flagstaff, Arizona, received a 3-inch blanket, and 12 to 14 inches of new snow fell in the higher elevations near Elko, Nevada. From 4 to 6 inches fell over central and east-central Minnesota.

Rains saturated the Plains States, the upper Mississippi and the Ohio Valleys, and the northern portions of the Gulf States. Mineola, Texas, a few miles east of Dallas, received 6.95 inches.

Violent weather occurred late Sunday afternoon and evening of the 28th. A tornado damaged property at Anna, Texas; another destroyed farm buildings at Frankfort, Kansas. A few tornadoes also occurred in eastern Nebraska. Hailstones up to 3 inches in diameter fell at Harbine, Nebraska. Wind gusts reached 98 m.p.h. at Fort Worth, Texas. One of the most severe tornadoes destroyed or damaged dozens of homes and caused numerous personal injuries in Indianapolis, Indiana, on the 22d. Other tornadoes occurred in Illinois and Mississippi.

Precipitation totals for the week exceeded 0.50 inch over parts of the northern Rocky Mountain States, the Great Plains, most of the Mississippi and Ohio River Valleys, and the northern parts of the Gulf States. Some areas received an inch or more, and a few scattered localities received more than 2 inches. The rains were extremely light along the Atlantic and Gulf coasts, and over a wide area from western Texas to southern California. Many stations in the dry area have had no rain for 2 weeks or longer.

Temperatures averaged slightly warmer than normal over the Southern Atlantic and Gulf States, the Southern Plains, and at a few stations along the Canadian border. Elsewhere, temperatures averaged on the cool side. Departures ranged from +8° at San Angelo and San Antonio, Texas, to -12° at Las Vegas and Ely, Nevada. Temperatures averaged several degrees below normal at most stations west of 105° longitude and from Ohio to New England. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (*Hypera postica*) - ALABAMA - Numerous in Franklin, Etowah, Morgan, Madison, Tallapoosa and Elmore Counties on untreated alfalfa and white clover; very low population on treated fields. (Bass, Ledbetter, Howell, Barwood, Green). GEORGIA - Averaged 30 per sweep in untreated alfalfa in Paulding County; averaged 90 per sweep in same fields two weeks ago. Moderate feeding damage noted in Polk County field treated last fall with insecticide-fertilizer mixture; only light feeding in another Polk County field treated with granular insecticide. (Johnson, Apr. 17). TENNESSEE - Found in all counties of State except in Lake, Obion and Weakley Counties. These counties in extreme northwest corner of State. (Mullett). NORTH CAROLINA - Larvae averaged 20.2 per square foot pan count in 7 fields in Orange, Alamance and Guilford Counties; damage quite apparent. (Mount). Limited survey indicates good control obtained in western Piedmont and northeast mountain counties by fall applications. Satisfactory control reported from Buncombe County. However, central and northeastern Piedmont areas apparently obtained only one-half to two-thirds normal control from fall applications. (Campbell). VIRGINIA - Infestations ranged from very light to medium in alfalfa checked in Craig, Alleghany; Bath, Augusta, Rockingham, Shenandoah, Frederick, Clarke and Loudoun Counties. All stages present in most fields but first and second instars dominant. Medium to severe damage detected in most fields checked in Culpeper, Madison and Albemarle Counties. All stages present, including cocoons, but second-stage larvae relatively more abundant than in preceding counties. Adults common in all counties. (Tarpley). All stages medium to severe in Fluvanna County in fields fall treated with a certain chlorinated hydrocarbon. (Watts). Surveys in Appomattox County revealed: 23-84 larvae per sweep (average 55); no adults; few eggs; treated fields. Campbell County: Larvae ranged 30-99 (average 57) per sweep; one adult in 12 sweeps; few eggs; treated fields. Steeles Tavern, Augusta County: 3-19 larvae per 100 sweeps in treated fields; 92 larvae per 100 sweeps in untreated fields. (Woodside). MARYLAND - Egg laying continuing on alfalfa in most sections. Larvae ranged 6-11 per sweep, with damage conspicuous on untreated alfalfa in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.). DELAWARE - First and second instars numerous in untreated alfalfa in New Castle County. Egg laying considerably increased; 479 eggs per 100 old-attached alfalfa stems, approximately 44 eggs per 100 new stems (April 22) in one field in New Castle County. (Burbutis). COLORADO - Larval populations in Otero County moderate to high; counts 20-120 per 100 sweeps. Damage observed where populations at 120 level. Treated fields have 0-30 per 100 sweeps. Trace numbers of larvae found in Bent County. (Schweissing). WYOMING - In Laramie and Goshen Counties, adult counts per square foot one in fields where controls applied and 3-4 where controls not applied. (Fullerton). IDAHO - Adults actively feeding and copulating in southwest; numbers low; no eggs found. (Waters).

CLOVER LEAF WEEVIL (*Hypera punctata*) - MARYLAND - Larvae caused moderate but conspicuous foliage injury to clovers in most sections. (U. Md., Ent. Dept.). ILLINOIS - Counts per square foot in clover and alfalfa averaged 19 in west district, 9 in central district, 5 in east district and 15 in west-southwest district. Pupation started in west-southwest. (Ill. Ins. Rpt.). MISSOURI - Leaf damage observed on clover throughout southern portion of State; counts in east central area ranged 0-15 larvae per crown. (Munson, Thomas, Wood). KANSAS - Occasional larvae noted in Riley, Pottawatomie and Wabaunsee County alfalfa. (Peters). IDAHO - Larvae very active, about half grown. Noticeable damage appearing only on isolated plants. (Waters).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - MARYLAND - Adults common in red clover fields in Montgomery and Howard Counties. (U. Md., Ent. Dept.).

SWEETCLOVER WEEVIL (*Sitona cylindricollis*) - OHIO - Damage to sweetclover seedlings light to moderate in many northwest counties. (Lyon). IDAHO - Causing considerable damage to isolated, roadside, ditchbank plants in southwest. (Waters).

CLOVER ROOT CURCULIO (Sitona hispidula) - IDAHO - Adults average one per sweep in some alfalfa in Canyon County. (Waters).

VETCH BRUCHID (Bruchus brachialis) - TEXAS - Averaged one adult per 5 sweeps in Delta County vetch. (Turney).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ALABAMA - Few feeding on crimson clover in Lee and Autauga Counties. (McQueen).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Averaged 3-7 per sweep in alfalfa in Moapa Valley, Clark County, and 1-4 per sweep in Lathrop Wells, Nye County. (Bechtel, Zoller). UTAH - Ranged 1-4 per sweep in alfalfa in St. George area, Washington County. (Knowlton, Apr. 22). IDAHO - Adults easily found on alfalfa in Canyon County. Some new young present. Numbers still very low. (Waters). WYOMING - Activity just beginning in alfalfa in Laramie and Goshen Counties; averaged 15-20 per 100 sweeps. (Fullerton). TEXAS - Infestations on Delta County vetch very spotted and range from light to heavy. (Turney). OKLAHOMA - Populations light in Choctaw (southeast) and Marshall (south central) Counties; 25-50 and 150 per 10 sweeps, respectively. Light to heavy in north central, central, west central and some south central areas, with some controls continuing. Harvesting of first alfalfa cutting started in most areas. (Okla. Coop. Sur.). ARKANSAS - Continues heavy in some legume fields in northwest. (Ark. Ins. Sur.). KANSAS - Reported heavy on alfalfa in Harper County, south central. Populations keeping alfalfa from making much growth. Dry weather compounding situation. Some growers want to spray. (Gates). Counts in alfalfa in Riley and Pottawatomie Counties, northeast, and Wabaunsee County, east central, ranged 50-200 per sweep. Trace number of diseased aphids noted in all alfalfa checked. (Peters). MISSOURI - High populations continue to cause damage in dry, southwest area. Moderate to high numbers observed in clover and alfalfa in east central and southeast; counts ranged 15 to 100 plus per sweep. (Munson, Thomas, Wood). ILLINOIS - Varied 200-5,000 per 100 sweeps in alfalfa in east, central, west and west-southwest districts. Few being killed by parasites or disease. (Ill. Ins. Rpt.). WISCONSIN - Hatching observed as far north as Winnebago County; population increases not noticeable. (Wis. Ins. Sur.). OHIO - Nymphs and adults 10-12 per 50 sweeps in red clover in Wayne, Ashland and Huron Counties; stem mothers dominant. (Treece, Lyon). VIRGINIA - Infestations present in all alfalfa checked; ranged from very light to light in Craig, Alleghany, Bath, Augusta, Rockingham, Shenandoah, Frederick, Clarke, Culpeper, Madison and Albemarle Counties. (Tarpley). Increased greatly in Appomattox and Campbell Counties; ranged up to several hundred per sweep. (Woodside). MARYLAND - Ranged 6-37 per sweep on alfalfa in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.). DELAWARE - Increased in 2 fields of alfalfa in New Castle County; 3 per sweep. (Burbutis).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Light, spotted populations with highest counts 1-2 per sweep on alfalfa in Moapa Valley, Clark County. Heavy populations, 40-plus per stem in alfalfa seed fields and 5-10 per stem in several hay fields, in Lathrop Wells, Nye County. (Bechtel, Zoller). ARIZONA - Continues present in central area in some alfalfa; however, increasing very slowly except in Safford area where population appears quite heavy. (Ariz. Coop. Sur.). TEXAS - Infestations ranged light to heavy in alfalfa in Caldwell and Guadalupe Counties. Parasites and predators very numerous and show promise of bringing aphids under control. (Texas Coop. Rpt.; Massey). OKLAHOMA - Light in alfalfa checked in Choctaw and Marshall Counties; 10-25 and 30 per 10 sweeps, respectively. Light in Osage County, north central. (Okla. Coop. Sur.). KANSAS - None observed in Riley, Pottawatomie and Wabaunsee Counties. (Peters). NEBRASKA - Nymphs 2 per 10 sweeps in Merrick and Polk Counties and 6 per 10 sweeps in Platte County. (Bergman). ILLINOIS - Averaged 300 per 100 sweeps in field of alfalfa in Mason County (not same field reported previous week). (Ill. Ins. Rpt.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - MARYLAND - Averaged close to one per sweep on alfalfa and clover in Montgomery and Howard Counties. (U. Md., Ent. Dept.). DELAWARE - First eggs of season noted in new alfalfa growth on April 22 in New Castle County. (Burbutis). ALABAMA - Counts 2-4 per sweep in crimson clover, vetch and hop clover mixtures in Lee County. (McQueen). ILLINOIS - Adults varied 0-40 (averaged 19) per 100 sweeps in clover and alfalfa in east, central, west and west-southwest districts. (Ill. Ins. Rpt.). KANSAS - Occasional adult observed in Riley, Pottawatomie and Wabaunsee County alfalfa. (Peters). OKLAHOMA - Light to moderate, 6-15 per 10 sweeps, in Choctaw and Marshall Counties. (Okla. Coop. Sur.).

LYGUS BUGS (*Lygus* spp.) - IDAHO - First instars found on alfalfa on April 23 at Parma. (Waters). NEVADA - Adults light, but nymphal populations increasing, in alfalfa in Clark and southern Nye Counties. (Bechtel, Zoller). WYOMING - Adults per 100 sweeps in alfalfa averaged 25 in Goshen County and 17 in Laramie County. (Fullerton). COLORADO - Numerous in alfalfa in Prowers, Bent, Otero, Crowley and Pueblo Counties. (Schweissing). NEW MEXICO - Averaged 1-2 adults per 25 sweeps in alfalfa near Belen, Valencia County, and 12-28 per 25 sweeps in Chaves County. (N. M. Coop. Rpt.). TEXAS - Light in Caldwell and Guadalupe County alfalfa. (Texas Coop. Rpt.; Massey).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - MARYLAND - Nymphs ranged 1-4 per 10 stems on red clover in Montgomery and Howard Counties. (U. Md., Ent. Dept.). OHIO - Nymphs observed on weeds throughout northwest; 8-10 per wild carrot in Williams and Fulton Counties. Red clover and alfalfa not infested. (Lyon). ILLINOIS - First and second instars varied 2-52 (averaged 29.6) per 100 stems in clover and alfalfa in east district. (Ill. Ins. Rpt.).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - UTAH - Moderately numerous on alfalfa in orchards at Santa Clara, Washington County. (Knowlton, Apr. 22). NEW MEXICO - Averaged 1-3 adults per 25 sweeps in alfalfa in Chaves, Bernalillo and Valencia Counties. (N. M. Coop. Rpt.).

POTATO LEAFHOPPER (*Empoasca fabae*) - ILLINOIS - First collected in windsock at Urbana April 21 and swept from alfalfa in central, west, west-southwest and southwest districts April 23 and 24. Varied 0-40 (averaged 21) per 100 sweeps. (Ill. Ins. Rpt.).

COTTON FLEAHOPPER (*Psallus seriatus*) - TEXAS - Ranged light to heavy in Guadalupe County alfalfa; counts in some fields averaged 6-7 adults per 10 sweeps. (Texas Coop. Rpt.; Massey).

CUTWORMS - UTAH - Unspecified species caused some damage to planted range grasses near Mt. Carmel, Kane County. (Knowlton, Hatch, Apr. 22). SOUTH DAKOTA - Populations of *Nephelodes emmedonia* in winter wheat in Tripp and Lyman Counties averaged 4-5 fifth-stage larvae per foot of row. Several fields had one-fourth of plants destroyed. *Agrotis orthogonia* present in Hughes and Stanley County wheat fields. Populations light, with 1-2 first and second-stage larvae per foot of row. (Hintz). ARKANSAS - Outbreak of *Peridroma saucia* occurred on alfalfa in southern Mississippi County; some acreage treated. (Ark. Ins. Sur.). ILLINOIS - Averaged about 2 per square foot in clover and alfalfa in central, west and west-southwest districts and 0.5 per square foot in east district; species mostly *Lacinipolia reginera*. (Ill. Ins. Rpt.). OHIO - Larvae of undetermined species feeding on red clover throughout western area. No economic damage can be estimated at this time. (Triplehorn, Lyon).

CORN EARWORM (*Heliothis zea*) - OKLAHOMA - Early instars light in alfalfa checked in Choctaw County; 1-3 per 10 sweeps. (Okla. Coop. Sur.). TEXAS - Present in Caldwell and Guadalupe County alfalfa; 5-6 per 10 sweeps of first and second-stage larvae. (Texas Coop. Rpt.; Massey). Averaged 8 second and third instars per 10 sweeps in vetch in Delta County. (Turney). Heavy, local infestations in Cameron County, attacking young corn in tassel stage. (Texas Coop. Rpt.; Day). ARKANSAS - Eggs collected April 9 on crimson clover in Hempstead County, southwest. Small

larvae now appearing in crimson clover and tomatoes in Bradley County, south central area. Moth catches in light traps increasing though number is low. (Ark. Ins. Sur.). SOUTH CAROLINA - First adults of season collected in light traps at Clemson (April 13) and Charleston (April 14). (Nettles et al.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - IDAHO - All reports of damage in fall-seeded alfalfa investigated to April 26 have been attributed to winter kill and not this insect, in Parma area, especially Arena Valley. (Waters).

FORAGE LOOPER (Caenurgina erechtea) - KANSAS - Occasional small larva noted in Riley, Pottawatomie and Wabaunsee County alfalfa. (Peters).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Light in alfalfa checked in Choctaw (southeast) and Marshall (south central) Counties; 2-4 and 6 per 10 sweeps, respectively. Active in Garvin County. (Okla. Coop. Sur.). TEXAS - Light populations appearing in Caldwell and Guadalupe County alfalfa. (Texas Coop. Rpt.; Massey).

ALFALFA CATERPILLAR (Colias eurytheme) - OKLAHOMA - Light, 0-2 per 10 sweeps, in alfalfa in Choctaw County; first report of season. (Okla. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - First, second and third instars averaged 2-4 per 10-15 sweeps in alfalfa in Caldwell County. (Texas Coop. Rpt.; Massey).

THRIPS - ILLINOIS - Unidentified species common in clover and alfalfa; 10.2 per sweep in field of alfalfa in east district. (Ill. Ins. Rpt.).

SPIDER MITES (Tetranychus spp.) - NEVADA - Medium to heavy infestations, especially on lower leaves, in several fields of alfalfa in Moapa Valley, Clark County. (Bechtel, Zoller). FLORIDA - Tetranychus sp., probably tumidus, severely infesting corn at Gainesville, Alachua County. (Martinez, Mar. 28). MARYLAND - T. atlanticus light to moderate on red clover at Colesville, Montgomery County. Expected to increase on clover generally if dry weather continues. (U. Md., Ent. Dept.).

CEREAL LEAF BEETLE (Oulema melanopa) - INDIANA - Found beyond quarantine line in western Elkhart County, northern Marshall County and southeastern La Porte County. Also found in Starke County. Elkhart, Marshall and Starke new county records. Beetles active and laying eggs on wheat, quackgrass and other grasses. Development slowed down by cold weather of past two weeks. (Favinger, Wilson). MICHIGAN - Adults found in Hamilton Township of Van Buren County; infestation light. Seven new townships in Cass County also found infested. No new finds reported north of original quarantine line of Lincoln, Royalton, Sodus and Pipestone Townships, Berrien County. Van Buren is a new county record. (Turner). Feeding and oviposition continue in fields near hibernation sites. Heaviest infestations in winter wheat although quackgrass and reed canarygrass also being attacked. Spring-planted oats lack growth to date, but few plots of winter oats severely damaged by adult feeding. No feeding observed in bluegrass and other fine-leaved grasses. Adults active in warm, sunny periods and stay near ground during cold spells. Developing eggs common in areas where adults fed. No larvae found hatched by April 23. (Ruppel, Castro).

CORN FLEA BEETLE (Chaetocnema pulicaria) - OKLAHOMA - Causing some damage to early planted sweet corn in Stillwater area. (Okla. Coop. Sur.).

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - ARIZONA - Injuring early plantings of corn and grain sorghum. (Ariz. Coop. Sur.).

A FLEA BEETLE (Psylliodes convexior) - INDIANA - Adults 300-500 per 100 sweeps at New Carlisle, St. Joseph County. (Everly, Wilson).

A WIREWORM (Limonium sp.) - WYOMING - Larvae averaged less than one per square foot in wheat fields in Laramie and Goshen Counties. (Fullerton).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae injuring corn in Mobile County; first damage report of season. (Seibels).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Populations remain at low level in small grains throughout State. (Okla. Coop. Sur.). WISCONSIN - Nymphs found in most rye fields checked as far north as Fond du Lac County. Aphids not found in barley and wheat fields. (Wis. Ins. Sur.). ILLINOIS - Aphids, mostly this species, varied 0-70 (averaged 33) per 100 sweeps in wheat in east district. (Ill. Ins. Rpt.). INDIANA - Only occasional specimens being found in wheat fields in northern area. (Matthew).

GREENBUG (Schizaphis graminum) - OKLAHOMA - Populations continue noneconomic to light throughout State. Most wheat headed out and growing conditions improved; no trouble expected. (Okla. Coop. Sur.). NEBRASKA - Ranged 2-6 per 10 sweeps in wheat in central and eastern areas. (Bergman).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Continues present in great numbers on small grains; however, predators and parasites now starting to exert some control in many fields. (Ariz. Coop. Sur.). TEXAS - Infestations range light to heavy on grain sorghum in many coastal bend and upper coastal counties. Yellowing of plants evident in many instances. (Texas Coop. Rpt.).

RUSTY PLUM APHID (Hysteroneura setariae) - FLORIDA - Moderately infesting wheat at Davisville, Escambia County. (Boyd, Mar. 26).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Adults very common in most fields of grain; ranging 1-5 per 50 sweeps and found as far north as Winnebago County. (Wis. Ins. Sur.). MINNESOTA - Counts 2-3 per 20 sweeps in rye on April 16 at University of Minnesota Farm Campus. (Minn. Ins. Rpt.).

LEAFHOPPERS - SOUTH DAKOTA - Undetermined species found in small grain and alfalfa in south central and central regions of State; counts ranged 3-15 per 10 sweeps. (Hintz). WYOMING - Adults of Cuerna sp. averaged 300 per 100 sweeps in alfalfa in Laramie and Goshen Counties. (Fullerton). MISSOURI - High populations of unidentified species observed on grasses, small grains and corn in southwest and west central areas. (Munson, Thomas, Wood). KANSAS - Unidentified species reported heavy on oats, barley, wheat, grasses and corn in several southeast counties. (Gates).

STINK BUGS - ARIZONA - Light infestations appearing on heads of barley in Safford area. (Ariz. Coop. Sur.). TEXAS - Local infestations appearing on nearly matured oats in Goliad County. (Texas Coop. Rpt.; Bales). Oebalus pugnax pugnax heavy locally on wheat in dough stage in Guadalupe County. (Texas Coop. Rpt.; Massey).

CHINCH BUG (Blissus leucopterus) - TEXAS - Six to 10-inch corn in Waller County infested, with 6-8 adults per plant. (Weaver). Light, local infestations appearing on grain sorghum in Hunt County. (Wheelis, Turney).

FALSE CHINCH BUGS (Nysius spp.) - UTAH - Extremely abundant in some planted grass areas on range near Mt. Carmel, Kane County. (Knowlton, Hatch, Apr. 22). NEW MEXICO - N. raphanus abundant in field of barley near Belen, Valencia County; as high as 25-30 per 25 sweeps. (N. M. Coop. Rpt.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Limited winter survival studies completed. Percentage of infested stalks showing sign of bird-feeding on larvae and percentage survival of borers, respectively, was 36.0 and 2.80 in northeast quarter, 54.6 and 0.25 in northwest quarter, 12.5 and 19.20 in southwest quarter, and 5.5 and 34.20 in southeast quarter. Average percent for State of infested stalks showing sign of bird-feeding on larvae was 27.1 compared with 9.0 in 1962, and average percent of survival of borers was 14.11 compared with 22.58 in 1962. (Ark. Ins. Sur.).

ARMYWORM (Pseudaletia unipuncta) - DELAWARE - First adults of season collected April 17 in blacklight trap in Sussex County, with a total of 37 adults collected from April 17-24. (Burbutis).

SALT-MARSH CATERPILLAR (Estigmene acrea) -TEXAS - Controls needed on young corn in Harris and Waller Counties. (Goldsmith, Weaver). Moderate, widespread infestations present on clovers in De Witt County. (Texas Coop. Rpt.; Smith).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Examination of 100 stems of wheat in Riley County, north central, showed an infestation of 28 percent, with 1-8 larvae per infested stem. Larvae ranged from small to large. (Somsen, Gates, Burkhardt).

A SAWFLY (Dolerus unicolor) - ILLINOIS - Larvae, mostly newly hatched, varied 0-90 (averaged 21) per 100 sweeps in wheat in east district. (Ill. Ins. Rpt.).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Some light to moderate infestations continue in panhandle region on irrigated wheat; 74-450 per linear foot. (Okla. Coop. Sur.). COLORADO - Increasing rapidly on wheat and barley due to dry weather in eastern and southeastern areas. In Prowers, Bent and Otero Counties, counts 20-30 per linear foot on dry land and 0-10 on irrigated land. Populations doubled in two weeks. (Schweissing, Hantsbarger).

GRASSHOPPERS - NEW MEXICO - First to third-stage nymphs light in few locations in Lea County where showers occurred recently. Light infestation of first and second instars found near Tucumcari, Quay County. (N. M. Coop. Rpt.). WYOMING - Hatching of several species beginning in several areas of Platte and Goshen Counties. (Fullerton, Thornley). NEBRASKA - Schistocerca americana adult female picked up at Lincoln, Lancaster County, April 25. (Fitchett). Adults of Arphia pseudonietana and Chortophaga viridifasciata present in Butler and Polk Counties. (Fitchett, Bergman). NORTH DAKOTA - Egg development survey conducted in parts of McLean, Mountrail, Williams, Divide, Burke, Renville and Bottineau Counties. M. bivittatus and M. sanguinipes ranged from clear to segmented; Camula pellucida ranged from clear to eye spot; and M. femurrubrum eggs ranged from clear to coagulated. Development of M. bivittatus 2 percent clear, 78 percent coagulated, 10 percent eye spot and 10 percent segmented. Eggs of M. sanguinipes 5 percent clear, 6 percent coagulated, 13 percent eye spot and 14 percent segmented. C. pellucida eggs 2 percent clear, 78 percent coagulated and 20 percent eye spot. Eggs of M. femurrubrum 86 percent clear and 14 percent coagulated. (Wilson, Brandvik). MINNESOTA - Observations of egg development in Washington, Anoka, Sherburne and Dakota Counties showed the following: M. femurrubrum and M. differentialis from early coagulation to coagulation; M. packardii full segmentation; and M. bivittatus early segmentation. Counties surveyed in light, sandy soil areas. (Minn. Ins. Rpt.). WISCONSIN - First instars of Melanoplus confusus observed in uncultivated areas of Marquette County April 20, about 10 days earlier than in 1962. This is earliest appearance of this species in 4 years. (Wis. Ins. Sur.). ILLINOIS - First instars of unidentified species averaged 70 per 100 sweeps in field of red clover in Calhoun County and 250 per 100 sweeps in another cloverfield in same county. (Ill. Ins. Rpt.). ALABAMA - Nymphs of unidentified species 2-10 per sweep in crimson-hop clover mixtures in Lee County. (McQueen).

A SOD WEBWORM (Crambus sp.) - COLORADO - Larval infestation high in a lawn in Bent County. (Zonitch, Hantsbarger).

HARVESTER ANTS (Pogonomyrmex spp.) - UTAH - Active and numerous on farms and range lands in "Dixie area", Washington County; at least 3 species present. (Knowlton, Apr. 22).

A WHITE GRUB (Phyllophaga anxia) - NEBRASKA - First instars ranged 2-3 per square foot in upper six inches of soil in Cherry County wet meadows. (Jarvis).

A WESTERN FLOWER THRIPS (Frankliniella occidentalis) - CALIFORNIA - Nymphs and adults medium on safflower in Coalinga, Fresno County. (Cal. Coop. Rpt.).

FLEAHOPPERS - ARIZONA - Infestation heavy on safflower at Safford Experiment Farms. (Ariz. Coop. Sur.).

FRUIT INSECTS

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - CONNECTICUT - None noted as of April 26. (Savos). NEW YORK - Adults noted in flight April 17 in western Wayne County; infestation severe in this particular block in 1962. Adults not yet noted in Monroe County. (N. Y. Wkly. Rpt., Apr. 22). DELAWARE - Adult noted in Kent County April 19. (MacCreary). MARYLAND - Egg masses continue to be found in Hancock area orchards, Washington County; no hatch expected until after April 29. (U. Md., Ent. Dept.). VIRGINIA - Adults common in northern area apple orchards since first of April. Eggs now present, should hatch soon. (Hill). INDIANA - Thirty percent of eggs laid had hatched April 22. Protection advised for apple orchards at petal fall and first cover. (Hamilton, Apr. 23).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CALIFORNIA - Larvae medium on apricot trees in Patterson, Stanislaus County. (Cal. Coop. Rpt.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Adults began appearing in bait traps at Vincennes, Knox County, April 17-19. (Hamilton).

CODLING MOTH (Carpocapsa pomonella) - INDIANA - No adults emerged as of April 23. (Hamilton).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - CONNECTICUT - Larvae feeding on check trees in Storrs, Tolland County. (Savos).

PEACH TWIG BORER (Anarsia lineatella) - COLORADO - Numerous in some peach orchards in Mesa County. (Quist, Bulla).

SPRING CANKERWORM (Paleacrita vernata) - MICHIGAN - Heavy in localized areas in and around Flint, Genesee County. Larvae feeding on buds and leaves of some young apple trees in Berrien County. (Ruth, Tatter). MISSOURI - Feeding on apple and plum in southwest, west central and northwest areas. (Munson, Thomas, Wood).

CANKERWORMS - CONNECTICUT - Hatching continues; larvae should be quite noticeable in about 2 weeks. (Savos).

SHOT-HOLE BORER (Scolytus rugulosus) - ALABAMA - Killing one-acre peach orchard in Hale County; trees evidently previously weakened by other causes. (Deavours).

PLUM CURCULIO (Conotrachelus nenuphar) - DELAWARE - First adult of season jarred from peach in Kent County April 19. (MacCreary).

APPLE APHID (Aphis pomi) - CALIFORNIA - Adults medium on pear trees in Woodland, Yolo County. (Cal. Coop. Rpt.). CONNECTICUT - Continues to be scarce. (Savos).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OHIO - Nymphs and adults moderate to heavy on untreated apple tree in Defiance County; 5-30 per bud. (Lyon).

ROSY APPLE APHID (Anuraphis rosea) - NEW YORK - First of season noted April 18 in Ulster County; indications are that appearance is unusually late or numbers will be small. First noted in Monroe County April 17. (N. Y. Wkly. Rpt.). CONNECTICUT - Remains scarce. (Savos).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Adults medium on pear trees in Woodland, Yolo County. (Cal. Coop. Rpt.).

RUSTY PLUM APHID (Hysteroneura setariae) - FLORIDA - Severe on wild plum (Prunus sp.) at Vineland, Orange County (Apr. 1). (Fla. Coop. Sur.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - ALABAMA - Killed several apple trees in Lee County; other trees severely attacked in Lee and Coosa Counties. Attacking roots of trees. (Buttram).

APHIDS - NEW YORK - Small numbers feeding on buds of untreated apple and peach in Nassau County. (N. Y. Wkly. Rpt., Apr. 22). MARYLAND - Present in Hancock area orchards, Washington County; no damage observed. (U. Md., Ent. Dept.). ALABAMA - Ranged light to moderate on pecans in Russell and Barbour Counties. (Stone, Bagby). TEXAS - An undetermined species heavy locally on plum trees in Guadalupe County. (Texas Coop. Rpt.; Massey). UTAH - Hatching on apple trees at Kaysville, Davis County. (Knowlton).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Easily observed in local Ulster County orchards having protected sites. (N. Y. Wkly. Rpt., Apr. 22). DELAWARE - Adults jarred from peach trees in Kent County April 19. (MacCreary). VIRGINIA - Adults have been common in northern area apple orchards since first of April. (Hill). ALABAMA - In Lee County, 1-2 adults and 1-5 nymphs observed on terminal branches of pecans. (McQueen).

STINK BUGS - DELAWARE - Jarred from peach trees in Kent County April 19. (MacCreary).

SAN JOSE SCALE (Aspidiotus perniciosus) - CONNECTICUT - Number of reports being received indicates increase in home-orchard infestations during past 2 years. (Johnson, Apr. 24). VIRGINIA - Infesting home-orchard apples in King George, King George County. (Amos, Hall, Apr. 18). OHIO - Heavy autumn population on Stamen apple trees in Wayne County 95-100 percent killed as result of winter weather and controls. (Lyon).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Continues to appear in some orchards in Salt River Valley. Larvae of vedalia (Rodolia cardinalis) also being found. (Ariz. Coop. Sur.).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Adult migration from hibernation sites began March 25 in western area; first oviposition noted March 30, first hatch April 18. (N. Y. Wkly. Rpt.). CONNECTICUT - Eggs present on pear statewide. (Savos). MICHIGAN - Eggs numerous in some pear orchards in Berrien and Van Buren Counties. (Carpenter, Tatter).

FLOWER THRIPS (Frankliniella tritici) - INDIANA - Appearing on sticky-board traps in apple orchards in Vincennes area, Knox County, April 19. This species believed responsible for dimpling of apples. (Hamilton).

CALIFORNIA PEAR-SLUG (Pristiphora californica) - CALIFORNIA - Medium on pear trees in Placerville, El Dorado County, and in Palo Alto, Santa Clara County. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Eggs hatched on backyard trees in New Haven area; nymphs noted on trees in orchards since April 23. (Savos). NEW YORK - Eggs not numerous in Wayne County; difficult to find in some orchards. (N. Y. Wkly. Rpt., Apr. 22). NEW JERSEY - Overwintering eggs hatching on apple. (Ins.-Dis. Newstr., Apr. 23). MARYLAND - Hatching on apple April 20 at Hancock, Washington County. (U. Md., Ent. Dept.). VIRGINIA - Eggs began hatching in apple orchards in northern part of State April 15; hatch continues. (Hill). SOUTH CAROLINA - Averaged 5 per leaf on insides of apple trees at Longcreek, Oconee County. (Nettles et al.). INDIANA - Hatch of overwintering eggs complete in Vincennes area, Knox County. Most treated orchards show light mite populations. (Hamilton, Apr. 23).

A FRUIT-TREE MITE (Bryobia rubrioculus) - MICHIGAN - Nymphs abundant on untreated apple trees near Lausling, Ingham County. (Dowdy).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - ALABAMA - Very abundant and feeding on pistillate flowers of pecan in orchard at Fairview, Mobile County. Larvae in cases. (Seibels). Moderate in Barbour and Russell Counties; 20-30 larvae in cases noted per pecan tree. (Stone, Bagby).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Active in terminal growth of pecans in Marshall, Jefferson and Garvin Counties. (Okla. Coop. Sur.). ALABAMA - Entering tender shoots of pecan leaves in Mobile County. (Seibels).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - First activity of season reported on pecans in Mobile County. (Seibels).

BLACK PECAN APHID (Melanocallis caryaefoliae) - ALABAMA - Light on pecans in Mobile, Bullock and Russell Counties; ranged 0-3 per leaflet. (Seibels, Buttram).

GIANT BARK APHID (Longistigma caryae) - OKLAHOMA - Present on pecan trees in Durant area, Bryan County (south central). (Okla. Coop. Sur.).

LEAFHOPPERS - KANSAS - Oviposition by undetermined species damaging pecan twigs in Linn County (east central). (Gates).

THRIPS - ALABAMA - Heavy, 10-30 per terminal branch, on pecans in Lee County. (McQueen).

RED-BANDED THRIPS (Selenothrips rubrocinctus) - FLORIDA - Severe on Mangifera indica at Hialeah, Dade County (March 29). (Fla. Coop. Sur.).

CITRICOLA SCALE (Coccus pseudomagnoliarum) - CALIFORNIA - Adults heavy on leaves of citrus locally in Tulare, Tulare County. (Cal. Coop. Rpt.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Heavy on citrus in Sanger, Fresno County. (Cal. Coop. Rpt.).

YELLOW SCALE (Aonidiella citrina) - CALIFORNIA - Heavy on citrus in Sanger, Fresno County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Populations appear to be smaller than those of 1962; however, good controls have been secured in all instances. (Ariz. Coop. Sur.).

KATYDIDS - ARIZONA - Few again appearing in some groves in Salt River Valley. (Ariz. Coop. Sur.).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Infesting Citrus spp. at Wauchula, Hardee County (Apr. 16); Arcadia, De Soto County (Apr. 17); and Fort Lonesome, Hillsborough County (Apr. 16). (Fla. Coop. Sur.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Single adult and 4 pupae recovered from grapes in Livermore, Alameda County, April 23. This is first adult emergence in eradication area this year. (Cal. Coop. Rpt.).

WHITE-LINED SPHINX (Celerio lineata) - ARIZONA - Larvae causing considerable injury to many grape plantings in Queen Creek area, Maricopa County. (Ariz. Coop. Sur.).

FLEA BEETLES (Altica spp.) - ARIZONA - Injuring young grape plantings in Maricopa County. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

BLACK BLISTER BEETLE (Epicauta pennsylvanica) - ALABAMA - Feeding on variety of garden vegetables in Mobile County. (Selbels).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - TEXAS - Widespread populations causing light damage to garden potatoes in Comal and Guadalupe Counties. (Texas Coop. Rpt.; Massey). OKLAHOMA - Damaging potatoes in Payne County area. (Okla. Coop. Sur.). DELAWARE - First adults of season noted on tomato transplants in southeast Sussex County. (Burbutis).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Larvae medium on leaves of tomato plants in Niland, Imperial County. (Cal. Coop. Rpt.).

POTATO LEAFHOPPER (Empoasca fabae) - ALABAMA - Ranged 5-10 per foot of row on potatoes in Lee County. (McQueen).

AN APHID - TEXAS - Undetermined species moderate and widespread on tomatoes in Bowie County. (Lynch).

MELON APHID (Aphis gossypii) - TEXAS - Light numbers, probably this species, noted on watermelon in Guadalupe County. (Texas Coop. Rpt.; Massey).

CABBAGE MAGGOT (Hylemya brassicae) - MASSACHUSETTS - Egg laying underway in sunny, protected fields. (Crop Pest Cont. Mess.).

A FLEA BEETLE (Phyllotreta cruciferae) - DELAWARE - First adults of season causing light injury to young cabbage transplants in area of New Castle County. (Burbutis).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Feeding on beans in Lee County; averaged one per 5 feet of row. (McQueen).

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Heavy on sugar beets in Stanfield area, Pinal County. (Ariz. Coop. Sur.).

BEEF LEAFHOPPER (Circulifer tenellus) - ARIZONA - Heavy on sugar beets in Stanfield area of Pinal County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - UTAH - Moderate on sugar beets for seed in St. George-Washington area, Washington County. (Knowlton, Apr. 22).

A ROOTWORM - COLORADO - Larvae of undetermined species causing considerable damage to sugar beets in Sedgwick County. (Watson).

ASPARAGUS BEETLE (Crioceris asparagi) - MARYLAND - Moderate on spears and ferns of asparagus at Fairland, Montgomery County. (U. Md., Ent. Dept.).

LEAFHOPPERS - NEW MEXICO - Unspecified species a problem on lettuce in Dona Ana County. (N. M. Coop. Rpt.).

STRAWBERRY WEEVIL (Anthonomus signatus) - MARYLAND - Clipping of buds noticeable in strawberry plantings in Prince Georges County. (U. Md., Ent. Dept.).

SPIDER MITES (Tetranychus spp.) - MARYLAND - Light on strawberries at Glenn Dale, Prince Georges County. Numbers expected to increase if dry weather continues. (U. Md., Ent. Dept.). NEW JERSEY - Dry conditions favorable to T. telarius populations on strawberries. (Ins.-Dis. Newsltr. Apr. 23). MINNESOTA - Eggs and active stages, mainly T. telarius, heavy on large planting of strawberries in Minneapolis-St. Paul area. (Minn. Ins. Rpt.).

TOBACCO INSECTS

TOBACCO WIREWORMS - NORTH CAROLINA - Conoderus vespertinus larvae damaged 75-100 percent of tobacco transplants in a Bladen County field. (Sasser). GEORGIA - An undetermined species severe on tobacco in 2 Toombs County fields. (Johnson).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Adults appearing in Russelltown-Brownsville area. (Deer).

A WEEVIL (Compsus auricephalus) - TEXAS - Locally heavy, spotted populations causing considerable leaf damage to young cotton in areas of Grimes, Brazos and Robertson Counties. Controls necessary in several instances. (Wipprecht, Davis).

BOLLWORMS (Heliothis spp., et al.) - TEXAS - Light, terminal infestations occurring in southern and coastal bend areas. (Deer, Cook). ALABAMA - One to 2 adults of H. zea taken in light traps in Lee County. (McQueen).

TOBACCO BUDWORM (Heliothis virescens) - ALABAMA - One moth taken from potato plant and 1-5 moths taken per night around lights in Lee County. (McQueen).

COTTON APHID (Aphis gossypii) - TEXAS - Few light infestations appearing in localized areas of Calhoun, De Witt, Hill, Jackson, Victoria, Grimes, Robertson and Brazos Counties. (Texas Coop. Rpt.). ALABAMA - Ranged 0-15 per 2-leaf stage on cotton in Lee and Autauga Counties. (McQueen). GEORGIA - Light on cotton in northeast. (Johnson).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Generally noneconomic in most areas; however, areas in Hidalgo County have up to 35 percent infestation, with few nymphs appearing. Nymphs also appearing in 6 to 8-leaf cotton in Zapata County. (Texas Coop. Rpt.).

A FLEAHOPPER (Spangonicus albofasciatus) - ARIZONA - Appearing in some stub cotton. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Appearing in some stub cotton. (Ariz. Coop. Sur.).

THRIPS - GEORGIA - Heavy on cotton in northeast area. (Johnson). MISSISSIPPI - Infestations light in several fields in delta counties. (Pfrimmer et al.). TEXAS - Several species reported light in Calhoun, De Witt, Hill, Jackson, Victoria, Grimes, Robertson and Brazos Counties. (Texas Coop. Rpt.). ARIZONA - Few appearing on seedling cotton. (Ariz. Coop. Sur.).

SPIDER MITES - TEXAS - Several species generally light in Calhoun, De Witt, Hill, Jackson, Victoria, Grimes, Robertson and Brazos Counties, with moderate numbers present in localized areas. (Texas Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

MOUNTAIN PINE BEETLE (Dendroctonus monticolae) - CALIFORNIA - Loss of sugar pine in Stevenson Creek and Bald Mountain areas, Sierra National Forest, in 2,500-acre stand quite severe. Salvage logging will be started when weather permits. (J. R. Mount, USFS).

DOUGLAS-FIR ENGRAVER (Scolytus unispinosus) - CALIFORNIA - Infesting windthrown trees. Other trees in 40-160 acre stand of Douglas-fir in Thurman Creek area, Humboldt County, appear to be infested. This area subjected to burning and planting of grass in the past. (D. Peterson, USFS).

WHITE-PINE WEEVIL (Pissodes strobi) - WISCONSIN - Adults observed feeding and mating on white pine terminals in Clark County April 15. (Wis. Ins. Sur.). NEW YORK - Feeding injury apparent on white pine and white spruce on Long Island. Adult collected from spruce at Wyandanch April 19. (N. Y. Wkly. Rpt.).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - TEXAS - Causing moderate damage to pines in Harris County. (Texas Coop. Rpt.; Ellard).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Survey of all hosts in Portland area negative to April 27. (Capizzi).

PINE TUSSOCK MOTH (Dasychira plagiata) - WISCONSIN - Larvae feeding on larger pine trees in Bayfield County April 14. (Wis. Ins. Sur.).

EASTERN SPRUCE GALL APHID (Chermes abietis) - VERMONT - Present on Norway, blue and Sitka spruce. (MacCollom, Apr. 22). CONNECTICUT - A problem in Hebron, Tolland County. (Savos).

PINE BARK APHID (Pineus strobi) - WISCONSIN - First eggs hatched in Dane County April 14; eggs ranged 0-6 and waxy flocculence appearing on some. (Wis. Ins. Sur.). OHIO - Eggs and active nymphs observed near Fallsburg, Licking County, April 19. (Wolfe, Walker).

LARCH APHID (Cinara laricis) - WISCONSIN - Eggs under observation in Dane County not hatched by April 26. Numbers of eggs unusually abundant. (Wis. Ins. Sur.).

A FIR APHID (Cinara curvipes) - CALIFORNIA - Heavy on deodar cedar in Livermore, Alameda County. (Cal. Coop. Rpt.).

BLACK PINE LEAF SCALE (Aspidiotus californicus) - CALIFORNIA - Heavy infestations appearing on sugar pine in rather extensive portion of Tamarack Road area, Shasta County; this is new area of infestation. (W. A. Welder). Infestations on sugar pine in Soap Creek Camp and Hells Half Acre, where species caused widespread damage and timber loss 4 years ago, subsided and trees recovering. (R. Hall, USFS).

CONIFER SAWFLIES (Neodiprion spp.) - ARKANSAS - N. taedae linearis infesting more than 75,000 acres of pines in Calhoun County (south central); some trees completely defoliated. Scattered infestations present in northwest. (Ark. Ins. Sur.). OHIO - N. sertifer larvae observed on Scotch and red pines near Fallsburg, Licking County; heavier on Scotch pine than on red pine. (Wolfe, Walker, Apr. 19).

SPIDER MITES (Oligonychus spp.) - CALIFORNIA - Eggs and adults of O. subnudus medium on twigs of Monterey pine in Watsonville, Monterey County. (Cal. Coop. Rpt.). MASSACHUSETTS - Overwintering eggs of O. ununguis hatching rapidly. (Crop Pest Cont. Mess.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - KANSAS - Nests numerous in elm and wild plum at various locations over Riley County (northeast). Small trees completely defoliated in many instances. (Elzinga, Gates, Jones, Peters). MISSOURI - Webs observed on wild cherry, peach and plum throughout south central

and east central areas. (Munson, Thomas, Wood). ILLINOIS - Very scarce in east district. (Ill. Ins. Rpt.). WISCONSIN - Larvae appeared April 21 in Jackson County; in second stage and webs becoming conspicuous in Rock County April 23. (Wis. Ins. Sur.). CONNECTICUT - Hatching well underway, with small tents readily observed. Reports indicate pest will be abundant in many areas. (Johnson, Apr. 24). Larvae increasing in size; nests becoming conspicuous along roadsides. (Savos). VIRGINIA - Tents conspicuous on host plants in 20 western and northwestern counties along Allegheny Mountains. (Tarpley). NORTH CAROLINA - Larval feeding quite noticeable on wild cherry in Piedmont by mid-April; tents considerably expanded. (Mount).

FOREST TENT CATERPILLAR (Malacosoma disstria) - ALABAMA - Averaged one tent per 3 miles along highways in Madison County on wild cherry. (Buttram).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - UTAH - Apparently this species, present on some trees in Kanab area, Kane County. (Knowlton, Apr. 22).

WESTERN TENT CATERPILLAR (Malacosoma pluviale) - OREGON - Eggs hatched in northern Willamette Valley week of April 21. (Goeden).

TENT CATERPILLARS (Malacosoma spp.) - NEW JERSEY - Hatching on wild cherry. (Ins.-Dis. Newsltr., Apr. 23).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - As many as one out of 8 trees reported defoliated in Osage (east central) and Rice (central) Counties (Gates); 3-4 per leaf noted on Moraine honeylocust in Riley County (northeast) (Thompson). MISSOURI - Feeding on elms and other trees in southwest, west central and northwest areas. (Munson, Thomas, Wood).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Eggs hatching at East Windsor, Hartford County, April 18. (Phelps, Johnson).

LEAF ROLLER MOTHS - MISSOURI - Larvae of undetermined species feeding on several ornamentals and redbud, oaks, hickory, maple and several other trees. (Munson, Thomas, Wood). NEW YORK - No egg masses or activity of Argyrotaenia semipurpurana noted on pin oak in Huntington, Suffolk County, where very abundant in 1962. (N. Y. Wkly. Rpt., Apr. 22).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - TEXAS - Light to moderate numbers causing some defoliation of shade trees in Midland, Eastland and Young Counties. (Green, Cooper, McCarroll).

ELM BARK BEETLES - MINNESOTA - Scolytus multistriatus emerging in Minneapolis-St. Paul area; should continue for approximately one and a half months. Single new case of Dutch elm disease found in Monticello, Wright County. Only Hylurgopinus rufipes involved in this area. (Minn. Ins. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Active throughout State with extensive adult feeding and egg laying; first-generation larvae active in Stillwater area, Payne County. (Okla. Coop. Sur.). OREGON - Adults active in Salem area, but no egg laying observed by April 26. (Capizzi).

BRONZE BIRCH BORER (Agrilus anxius) - MINNESOTA - Heavy in some white birch clumps collected in wild for sale as nursery stock; trees taken off sale. (Minn. Ins. Rpt.).

TWIG PRUNER (Elaphidion villosum) - ALABAMA - Damaging oak in Calhoun County. (Bass).

GIANT BARK APHID (Longistigma caryae) - VIRGINIA - Adults very numerous in Richmond area. (Willey). NORTH CAROLINA - Heavy on willow oak in Wake County April 18. (Wray). FLORIDA - Severe on sycamore at Pensacola, Escambia County (April 3). (Fla. Coop. Sur.).

AN APHID (Myzocallis frisoni) - MARYLAND - Collected from oak at Upper Falls, Baltimore County, June 27, 1962, by C. W. McComb. Det. by L. M. Russell. This is a new State record. (U. Md., Ent. Dept.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - DELAWARE - Present on elms in area of Sussex County. (Burbutis).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - COLORADO - Killing willow, lilac and aspen in Broadmoor area of Colorado Springs, El Paso County. Eggs in Larimer County remain white; no evidence of development at present. (Jenkins). OHIO - Heavy on young ash trees in a park in Toledo, Lucas County. (Lyon). CONNECTICUT - A problem on shrubs in Ellington area, Tolland County. (Savos).

SCURFY SCALE (Chionaspis furfura) - DELAWARE - Eggs hatching on elms in New Castle County. (Bray).

DUSKY BIRCH SAWFLY (Croesus latitarsus) - WISCONSIN - Adults, believed to be this species, observed on birch in Dane County April 15. Buds just showing signs of breaking. (Wis. Ins. Sur.).

A GALL WASP (Callirhytis floridana) - FLORIDA - Severe on Quercus sp. at Tampa, Hillsborough County (Apr. 18). (Fla. Coop. Sur.).

SAWFLIES - OKLAHOMA - An unspecified species continues active on oaks in Stillwater area, Payne County; controls also continuing. (Okla. Coop. Sur.). KANSAS - An undetermined species ranged 2-3 per leaf on American elm in Riley County (northeast); partially destroying leaves. (Thompson).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - MARYLAND - Newly formed galls abundant on several maple trees at Bethesda, Montgomery County. (U. Md., Ent. Dept.).

LARGER CANNA LEAF ROLLER (Calpodes ethlius) - TEXAS - Damaging canna plants in Brazoria County. (Vaughn).

LEAF CRUMPLER (Acrobasis indigenella) - KANSAS - Numerous on purple leaf sand cherry in Riley County (northeast). Overwintering cases not yet loosened from twigs. (Thompson).

CANKERWORMS - MINNESOTA - Eggs hatching; first and second instars observed in Minneapolis-St. Paul area. Relatively high populations expected this year. (Minn. Ins. Rpt.). DELAWARE - Young larvae present on elms in southeast Sussex County. (Burbutis). ALABAMA - Attacking azaleas in Mobile and Lee Counties. (Seibels).

A TWIG BORER (Amphicerus sp.) - KANSAS - Adults, either A. bicaudatus or A. cornutus, emerged from Moraine honeylocust in Riley County (northeast). (Thompson).

ROOT WEEVILS (Brachyrhinus spp.) - MICHIGAN - Rather heavy larval population of B. ovatus found feeding on roots of 4-year-old white spruce nursery stock in Kent County. (Saylor). OHIO - Brachyrhinus sp. larvae damaging roots of azaleas in Lake County; no controls in force. (Walker, Apr. 19).

APHIDS - CALIFORNIA - Amphorophora nervata nymphs and adults heavy on strawberry madrone (Arbutus unedo) in Fresno, Fresno County. (Cal. Coop. Rpt.). UTAH - Unspecified species hatching on roses at Kaysville, Davis County. (Knowlton). FLORIDA - Aphis nerii moderate on 50 oleanders at Daytona Beach, Volusia County (Apr. 5). (Fla. Coop. Sur.). ALABAMA - Macrosiphum rosae light to medium (0-5 per blossom bud) in Mobile and Lee Counties. (Seibels). MARYLAND - Aphis gossypii infesting new leaves of althaea at College Park, Prince Georges County. (U. Md., Ent. Dept.). DELAWARE - First Periphyllus negundinis adults and nymphs of season

noted on boxelder April 24 in New Castle County. (Burbutis). NEW YORK - Unspecified species severe on lilies where no control applied in Nassau County. (N. Y. Wkly. Rpt., Apr. 22).

LEAFHOPPERS - ALABAMA - Small numbers of nymphs of undetermined species feeding on azaleas and camellias in Mobile-Baldwin County area. (Seibels).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Heavy on euonymus at Upper Marlboro, Prince Georges County. (U. Md., Ent. Dept.).

HEMISPHERICAL SCALE (Saissetia hemisphaerica) - CALIFORNIA - Heavy on ivy plants locally in Winters, Yolo County. (Cal. Coop. Rpt.).

COCCIDS - IDAHO - Hatching on Scotch pine in small nursery at Parma, Canyon County. (Scott).

Coccids in Florida - Aspidiotus destructor severe on Pandanus sp. at Miami, Dade County (Apr. 17). Chrysomphalus aonidium severe on 25 Cycas circinalis at Sebring, Highlands County, during early April. Coccus viridis moderate on Plumeria sp. at Sebring (Apr. 18). Fiorinia theae severe on 42 Camellia sp. and 102 Ilex sp. plants at Floral City, Citrus County (Apr. 16, 17), with plants quarantined; also severe on Ilex burfordii at Sebring (Apr. 17). Pinnaspis aspidistrae severe on Davallia fijiensis at Jacksonville, Duval County, during early April, and light on Platyterium sp. at Tavares, Lake County (Apr. 22). Saissetia hemisphaerica severe on D. fijiensis at Jacksonville during first part of April. (Fla. Coop. Sur.).

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) - CALIFORNIA - Adults medium on Ficus sp. in Fallbrook, San Diego County. (Cal. Coop. Rpt.).

A THRIPS (Frankliniella occidentalis) - UTAH - Active in garden flowers and numerous on dandelions at Kaysville, Davis County. (Knowlton).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Heavy on American holly at Upper Marlboro, Prince Georges County. (U. Md., Ent. Dept.).

CHRYSANTHEMUM GALL MIDGE (Diarthronomyia chrysanthemi) - CALIFORNIA - Larvae heavy in leaves of chrysanthemum nursery stock, Vista, San Diego County. (Cal. Coop. Rpt.).

ROSE-SLUG (Endelomyia aethiops) - OREGON - Adults depositing eggs on Salem area rose plantings April 23. (Goeden).

SPIDER MITES - ALABAMA - Tetranychus spp. most prevalent pests of ornamentals over Mobile County area; heavy on Karume azaleas and several species of holly. Drought in area undoubtedly contributing factor. (Siebels).. MARYLAND - Oligonychus sp. moderate on large azalea planting at College Park, Prince Georges County. (U. Md., Ent. Dept.).

BULB MITE (Rhizoglyphus echinopus) - FLORIDA - Severe on 100 narcissus bulbs at Doctors Inlet, Clay County (March 27). (Fla. Coop. Sur.).

CYCLAMEN MITE (Steneotarsonemus pallidus) - OHIO - Moderate on cyclamen and snapdragon plants in Erie County greenhouse; control has been difficult. (Lyon).

INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (Musca autumnalis) - VERMONT - Few noted on sunny barn walls and posts. (MacCollom, Apr. 22). OHIO - Ranged 4-5 per face on beef cattle in Wayne County. (Treece, Apr. 18). ILLINOIS - Varied 0-3 (average about 0.25) per face on 2 herds in St. Clair County, southwest district. (Ill. Ins. Rpt.).

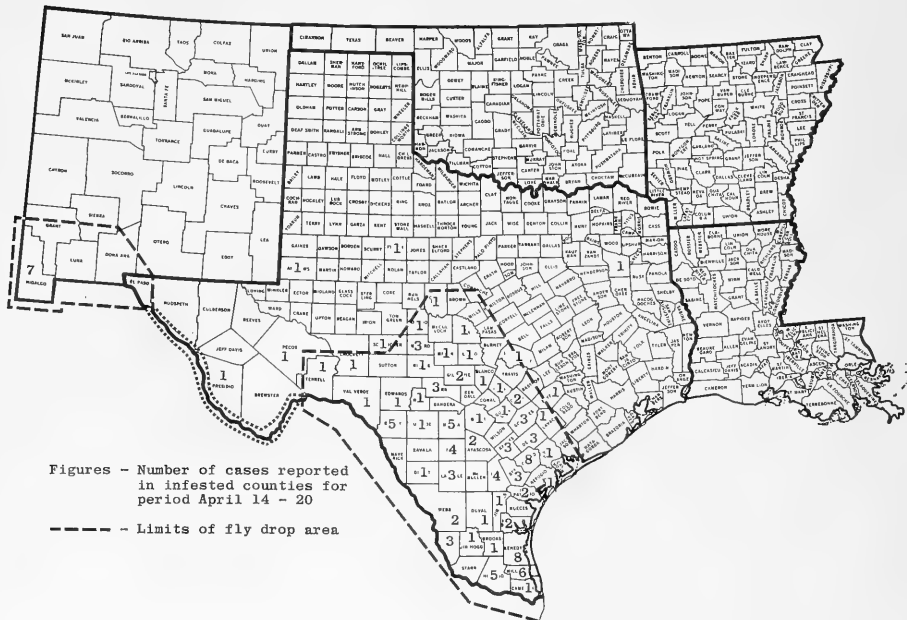
HOUSE FLY (Musca domestica) - OKLAHOMA - Increased somewhat; ranged 2-3 per Scudder grid in Stillwater area, Payne County. (Okla. Coop. Sur.). ALABAMA - Populations high under caged layers in Elmore County. (Ledbetter).

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

The period April 14 - 20 was the heaviest period this year with respect to number of screw-worm identifications. This period also showed the greatest fly release in the history of screw-worm eradication. A total of 114 screw-worm infestations was disclosed in 56 counties of TEXAS and NEW MEXICO. Over 105,000,000 flies were released over approximately 100,000 square miles. The native screw-worm population appears to be relatively small; however, area of dispersion is quite large.

Every screw-worm infestation reported continues to be looked upon as an emergency -- receiving extra sterile flies; infested herds are sprayed; and a study is made concerning animal movements.

A 50-mile extension of fly release area to the north and south of former area has been made. Number of sterile flies released on grid system greatly reduced and excess sterile flies diverted to drops along water courses and other favorable habitats. (Anim. Dis. Erad. Div.).



COMMON CATTLE GRUB (Hypoderma lineatum) - OHIO - Moderate to heavy at Huron County farm on beef steers imported from southern states. (Baker).

HORN FLY (Haematobia irritans) - OKLAHOMA - Activity increasing over State; ranged 200-300 per head on steers and up to 700 per head on bulls in Payne County areas. Some controls reported. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged one per head on cattle in Stillwater area, Payne County. (Okla. Coop. Sur.).

HORSE FLIES (Tabanus spp.) - OKLAHOMA - Populations ranged light to heavy in southeast area; activity reported in Payne County. (Okla. Coop. Sur.).

MOSQUITOES - MINNESOTA - Many early spring Aedes spp. in third and fourth instars in Minneapolis-St. Paul area; and some pupae present. Adults of overwintering Culex spp., Anopheles spp., and Culiseta spp. collected; latter species more numerous. (Minn. Ins. Rpt.). OHIO - Second instars of Aedes atropalpus found in Detwater ditch area, Lucas County, April 11; species not common in State. First and second instars of Culiseta moristans and Aedes impiger found in Lucas County, April 8. Overwintering Culex pipiens adults found in numerous resting places in Lucas County. (Brockway). NEBRASKA - Fourth instars and pupae of Culiseta inornata and Anopheles sp. present in Lancaster County; Anopheles sp. present in Johnson County. (Rapp).

SHEEP KED (Melophagus ovinus) - OHIO - Heavy on lambs in numerous flocks throughout northern part of State. (Baker).

BLOW FLIES - NEBRASKA - Adult activity noted in Crete, Saline County. (Rapp). OHIO - Dog treated for maggot infestation in old wound near Bellevue, Huron County. (Baker).

CATTLE LICE - UTAH - Treatment has increased during past 3 years in Kane County; most cattle in Orderville area treated. (Knowlton, Hatch, Apr. 22). OKLAHOMA - Populations of several species reported declining in several areas over State. (Okla. Coop. Sur.).

MASKED HUNTER (Reduvius personatus) - IDAHO - Two attacks reported from Coeur d'Alene and Harrison, Kootenai County; individual at Coeur d'Alene became unconscious. (Johnson).

AMERICAN DOG TICK (Dermacentor variabilis) - WISCONSIN - Active in Rusk and Chippewa Counties April 17-18. (Wis. Ins. Sur.). KANSAS - Female specimen found on table where children left jackets. (Thompson). OKLAHOMA - Infesting dogs in Stillwater area, Payne County. (Okla. Coop. Sur.). MARYLAND - Adult found on human at Pocomoke City, Worcester County. (U. Md., Ent. Dept., Apr. 1).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Continues heavy on cattle in eastern portion of State; extensive spraying and dipping programs underway. (Okla. Coop. Sur.).

TICKS - NEW JERSEY - Unspecified species beginning to appear. (Ins.-Dis. Newsltr., Apr. 23).

HOUSEHOLD AND STRUCTURAL INSECTS

DERMESTID BEETLES - MICHIGAN - Dermestes lardarius more common this spring than usual; recently reported from Seeland, Ottawa County; Fowlerville, Livingston County; and Detroit, Wayne County. (Janes). UTAH - Attagenus piceus infested homes at Brigham City, Box Elder County. (Knowlton).

DRUGSTORE BEETLE (Stegobium paniceum) - MARYLAND - Adults in homes in Montgomery County and at Baltimore. (U. Md., Ent. Dept., Apr. 22, 18).

MEAL MOTH (Pyralis farinalis) - MICHIGAN - Adults collected in home at Grand Rapids, Kent County. (Janes).

CLOVER MITE (Bryobia praetiosa) - CONNECTICUT - Abundant; 25 home infestations reported and verified. (Johnson, Apr. 24). Very active throughout State. (Savos). NEW YORK - Of some concern to many homeowners in Nassau County. (N. Y. Wkly. Rpt., Apr. 22). NEW JERSEY - A considerable nuisance in several areas. (Ins.-Dis. Newsltr., Apr. 23). MARYLAND - Caused nuisance in Montgomery, Prince Georges and Talbot Counties; spring infestations more numerous and widespread than usual. (U. Md., Ent. Dept.). VIRGINIA - Extremely abundant in and around homes in Montross, Westmoreland County (Tarpley, Ptucha), and in Port Hammond, Mathews County (Tarpley, Phillips). NORTH CAROLINA - Invaded some homes and motels in Boone, Watauga County. (Wilson, Apr. 19). OHIO - Heavy in home at Bowling Green, Wood County. (Moore).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - CONNECTICUT - Swarming approaching season peak. Total of 52 infested homes and properties reported; 40 verified by identification of submitted specimens. Infestations statewide, many in New Haven County area. (Johnson, Apr. 24). NORTH CAROLINA - Swarmed in yard of Wake County home April 18. (Wray). ALABAMA - Active and swarming throughout most of State during last 15-25 days. (McQueen, Apr. 26).

TERMITES - MICHIGAN - Undetermined species reported in house in Cadillac area, Wexford County. (Bierlein). CONNECTICUT - A problem in many areas of State. (Savos). NEW YORK - Swarming decreased in Nassau County, but additional activity anticipated. (N. Y. Wkly. Rpt., Apr. 22). NEW JERSEY - Swarming continues. (Ins.-Dis. Newsltr., Apr. 23). VIRGINIA - Winged adults noted in Franklin County (Tarpley, Tucker), and in Halifax County (Tarpley, Hall). MARYLAND - Reticulitermes spp. swarmed in and about homes in Prince Georges County and at Baltimore. (U. Md., Ent. Dept.).

CARPENTER ANTS (Camponotus spp.) - CONNECTICUT - A problem in Hartford area, Hartford County. (Savos). MARYLAND - C. pennsylvanicus damaged porch timber of home in Montgomery County; winged forms on property at Hyattsville, Prince Georges County. (U. Md., Ent. Dept., Apr. 19). VIRGINIA - Winged adults and workers of C. pennsylvanicus collected in Sterling, Loudoun County, from woodwork of home. (Tarpley, Brown). NORTH CAROLINA - C. pennsylvanicus noted in home in Wilkes County. (Wray). ALABAMA - Several swarms of C. ferrugineus emerged from home in Coffee County. (Ledbetter).

ANTS - NORTH CAROLINA - Acanthomyops interjectus collected in Wilkes County home. (Wray). CONNECTICUT - Tetramorium caespitum swarming inside homes in many areas. (Savos). OHIO - Winged forms of unspecified species moderate in motel at Columbus, Franklin County; control difficult. (Lyon).

CARPENTER BEES - NEW YORK - Unspecified species active in some homes throughout Nassau County. (N. Y. Wkly. Rpt., Apr. 22). MARYLAND - Adults of Xylocopa virginica noted around homes on 2 properties at Bethesda, Montgomery County. (U. Md., Ent. Dept., Apr. 19, 24).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - TEXAS - Abundant in stored milo in Lavaca County. (Texas Coop. Rpt.; Smith).

DERMESTID BEETLES - UTAH - Various species common in farm-stored grains and feed grains on livestock and poultry farms. (Knowlton). MARYLAND - Dermestes maculatus adults and larvae infested hides in garage at Westminster, Carroll County. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

LADY BEETLES - CONNECTICUT - Active, but no egg masses noted as yet. (Savos).
NEW YORK - Feeding on aphids in untreated apple and peach trees in Nassau County. (N. Y. Wkly. Rpt., Apr. 22). VIRGINIA - Coleomegilla maculata fuscilabris and Hippodamia convergens adults most common species in alfalfa. (Tarpley).
H. convergens collected on alfalfa in Palmyra, Fluvanna County. (Tarpley, Watts).
ALABAMA - C. maculata fuscilabris averaged 1 per 2 feet of row, feeding on aphids on turnips in Lee County. (McQueen). Few Chilocorus stigma feeding on aphids and/or obscure scale (Chrysomphalus obscurus) on pecans in Mobile and Lee Counties. (Seibels). TEXAS - Unspecified species very abundant in vetch in Delta County and alfalfa in Guadalupe County. (Turney, Massey). MISSOURI - Adults and larvae of several species increasing on aphid populations in southern part of State; 3-14 larvae per 5 sweeps noted in east central area. (Munson, Thomas, Wood). KANSAS - H. convergens adults and larvae averaged 20 per 100 sweeps in alfalfa in northeast. (Peters). ILLINOIS - Adults, mostly Hippodamia tredecimpunctata tibialis and H. convergens, varied 0-30 (average about 7) per 100 sweeps in clover and alfalfa in east, central, west and west-southwest districts. (Ill. Ins. Rpt.). MICHIGAN - Adalia bipunctata adults active around aphid colonies on apple and cherry trees in Ingham County. (Dowdy). UTAH - Unspecified species common, but not conspicuous, in Washington County; less numerous in all alfalfa examined in Cache, Box Elder, Weber, Salt Lake, Utah, Millard and Juab Counties. (Knowlton, Apr. 22).

A PUNCTUREVINE WEEVIL (Microlarinus lareynii) - ARIZONA - Established in Valley Farms, Eloy and area south of Casa Grande, Pinal County; averaged one larva per 10 seeds. (Ariz. Coop. Sur.).

LACEWINGS - TEXAS - Very abundant in vetch in Delta County and in alfalfa in Guadalupe County. (Turney, Massey). KANSAS - Few noted in northeast area alfalfa. (Peters). OHIO - Several adults noted in wheat in Morrow County. (Lyon). ILLINOIS - Adults, mostly Chrysopa oculata, varied 0-30 (average 12) per 100 sweeps in clover and alfalfa in west, west-southwest and southwest districts. (Ill. Ins. Rpt.). ALABAMA - C. oculata ranged 2-3 per tree and feeding on aphids on pecan in Lee County. (McQueen).

DAMSEL BUGS - UTAH - Active, but not numerous, on alfalfa in "Dixie area", Washington County. (Knowlton, Apr. 22). ILLINOIS - Nabis sp. adults vary 0-30 (average about 14) per 100 sweeps in clover and alfalfa in east, central, west and west-southwest districts. (Ill. Ins. Rpt.). VIRGINIA - Nabis spp. occasional in alfalfa. (Tarpley).

A FLOWER BUG (Orius insidiosus) - KANSAS - Few noted in alfalfa in northeast area. (Peters).

A PREDACEOUS STINK BUG (Brochymena sp.) - SOUTH DAKOTA - Two specimens collected on boxelder at Wessington Springs, Jerauld County. (Kantack, Spawn, Apr. 15).

FLOWER FLIES - ALABAMA - Feeding on aphids infesting roses and pines in Lee County. (McQueen). VIRGINIA - Occasionally observed in alfalfa. (Tarpley). CONNECTICUT - Larvae not difficult to find along southern coastal area. (Savos). MICHIGAN - Larvae feeding on aphids on apple trees in Ingham County. (Dowdy). UTAH - Larvae attacking Anuraphis rosea and other aphids on roses in Washington County. (Knowlton, Apr. 22).

HONEY BEE (Apis melifera) - MICHIGAN - Active on dandelions in Berrien County. (Tatter). SOUTH DAKOTA - Numerous reports of presence and activity around cattle feeding bunkers during late March and early April; apparently seeking black strap molasses or finely ground feed. (Spawn).

A PARASITIC ICHNEUMONID (Bathyplectes curculionis) - COLORADO - Ranged 10-30 per 100 sweeps in alfalfa in Larimer County. (Jenkins). DELAWARE - Adults present in alfalfa locally in Kent County on April 25. (Putler).

MISCELLANEOUS INSECTS

BEET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae of this species and Gastrophysa cyanea (a leaf beetle) heavy on dock in Russian River area near Healdsburg, Sonoma County. (Cal. Coop. Rpt.).

YELLOW MEALWORM (Tenebrio molitor) - OHIO - Larvae abundant in poultry house in Marion County. (Parrott, Blair).

A GROUND BEETLE (Geopinus incrassatus) - MARYLAND - Several teneral dug from tobacco bed at Upper Marlboro, Prince Georges County. (U. Md., Ent. Dept.).

A WATER SCAVENGER BEETLE (Hydrophilus triangularis) - WISCONSIN - Flying in Prairie du Chien area, Crawford County, April 16. (Wis. Ins. Sur.).

A MAY BEETLE (Phyllophaga rubiginosa) - KANSAS - Crawling on sidewalk in Riley County on April 23; this is about normal appearance for species. (Peters).

A LATHRIDIID BEETLE (Adistemia watsoni) - DELAWARE - Collected by D. MacCreary in home in Wilmington, New Castle County, on April 9; det. by L. M. Walkley. This is a new State record. (Burbutis).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - First adult taken April 23 from control plant in Sacramento, Sacramento County. Eradicative treatment continues; several new blocks added to infested area. With favorable weather, treatment of all infested areas to date will be completed soon. Spot checks in treated areas show good kill of nymphs. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 13(16):402 - Line 2: Coccus accuminatus should read Coccus acuminatus.

CEIR 13(16):407 - LIGHT TRAP COLLECTIONS - TEXAS, *Brownsville, 4/5-12 - Should read: Heliothis zea 171; H. virescens - 1.

CEIR 13(16):417 - A STAG BEETLE (Pseudolucanus capriolus) should read (Pseudolucanus capreolus).

CEIR 13(17):426 - PEA APHID (Acyrtosiphon pisum) - ILLINOIS - Should read: Ranged 0-350 (average 78) per 100...

CEIR 13(17):441 - A WATER SCAVENGER BEETLE (Hydrous triangularis) should read (Hydrophilus triangularis).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Perid. saucia	Prod. ornith.	Laphyg. frug.	Heliothis zea vires.
ARKANSAS							
Hope 4/18-24	8	6		2			3
Kelso 4/20-24	12	2		3			9
Fayetteville 4/18-24	15	29		5			4 1
FLORIDA							
Gainesville 4/23	1	1	23			1	
GEORGIA							
Tifton 4/18-24							36 1
ILLINOIS (County)							
Champaign 4/19-25	39	4		1			
KANSAS							
Garden City 4/17,19	4	1					
Manhattan 4/18, 21-25	8	1					
Mound Valley 4/17-18,20,23	24	1		3	3		
Wathena 4/17, 19-21	15	4		3			
MISSISSIPPI							
*Stoneville 4/19-25	310	30	23	26	85		62 4
SOUTH CAROLINA							
Clemson 4/6-12	1	1	2		5		
Clemson 4/13-19	4	1		1			2
Charleston 4/22-28	11	12	2	2	2		4
TENNESSEE (Counties)							
Madison 4/16-22	7	4		3			
Maury 4/16-22	78	28			4		5
Robertson 4/16-22	1	4		5			2
Cumberland 4/16-22	11	9		14			
Greene 4/16-22	14	2		10	2		
Johnson 4/16-22	178	70		16			
TEXAS							
Waco 4/20-26	14	41	39	18	42		92 1
*Brownsville 4/18-25	10	136	2169		38		438 21
WISCONSIN							
Middleton 4/19-25	22	5					
Madison 4/19-25	42			1			

Additional Light Trap Collections

TEXAS, *Brownsville (4/18-25) - Loxostege similalis - 14,974.

* Two traps - Stoneville; 6 traps - Brownsville.

ADDITIONAL NOTES

VERMONT - EASTERN TENT CATERPILLAR (Malacosoma americanum) hatched; small tents present on ornamentals. ELM LEAF BEETLE (Galerucella xanthomelaena) reported as nuisance in homes. CLOVER MITE (Bryobia praetiosa) may be problem in homes during next 2 weeks. FACE FLY (Musca autumnalis) still not abundant, but may be found on barn walls and fence posts on warm, sunny days. (MacCollom).

CONNECTICUT - Limited GYPSY MOTH (Porthetria dispar) hatch in East Hampton, April 22. EUROPEAN RED MITE (Panonychus ulmi) eggs hatching in New Haven and Niantic areas. RED-BANDED LEAFROLLER (Argyrotaenia velutinana) moths active in Niantic where first egg masses found. FRUIT-TREE LEAFROLLER (Archips argyrospilus) active in New Haven. Second-stage TENT CATERPILLARS in New Haven; activity noted in Glastonbury and Woodstock. CANKERWORMS feeding on pears and plums and PEAR PSYLLA (Psylla pyricola) eggs hatching in New Haven. PLANT BUGS active in New Haven and Southington. (Savos).

PENNSYLVANIA - SWALLOW BUG (Oeciacus vicarius) medium in home in Butler, Butler County, March 13. Det. J. L. Herring. A COCCID (Lepidosaphes yanagicola) heavy on euonymus at State College, Centre County, April 17. Det. G. B. Slesman. (Adams). FACE FLY ranged 20-30 per head per 100-cow herd at Alexandria, Huntingdon County, April 17. (Udine). In Fulton County, April 25, MEADOW SPITTLEBUG (Philaneus spumarius) hatching on alfalfa while eggs and larvae of ALFALFA WEEVIL (Hypera postica) present on same host. (Udine). STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) severely feeding on fir and hemlock in nursery in Sheffield, Warren County. (Adams).

NEW YORK - TENT CATERPILLARS (Malacosoma spp.) hatched in Nassau County. PEAR PSYLLA nymphs and first egg masses of RED-BANDED LEAF ROLLER found in Niagara County on April 26. Red-banded leaf roller moths observed on same date in Monroe County, but no eggs noted. ROSY APPLE APHID (Anuraphis rosea) hatch appears complete in Ulster County, and noted April 20 in Columbia County. LARCH CASEBEARER (Coleophora laricella) feeding on roadside larches with recent appearance of new foliage. CLOVER MITE still number one indoor pest and few ELM LEAF BEETLE infestations found indoors in Nassau County. TERMITES swarming decreasing in same county. (N. Y. Wkly. Rpt.).

WASHINGTON - GREAT BASIN WIREWORM (Ctenicera pruinina) infested 40 percent of seed potato pieces in field recently under irrigation at Othello, Adams County. (Landis). EUROPEAN RED MITE eggs and nymphs more abundant on peaches than noted in past 10 years. Light infestation, mostly nymphs, on apples at Wenatchee, Chelan County. (Anthon, O'Neill). APPLE RUST MITE (Aculus schlechtendali) eggs, adults and nymphs light on apples at Wenatchee. (O'Neill). PEA LEAF WEEVIL (Sitona lineata) more numerous than usual on alfalfa, and PEA APHID (Acyrtosiphon pisum) winged forms on same crop, both in northwest area. CABBAGE SEED POD WEEVIL (Ceutorhynchus assimilis) unusually abundant on mustard in northwest; usually appears first week in April, regardless of weather. (Eide).

1. The first part of the document discusses the importance of maintaining accurate records of all transactions and activities. It emphasizes that this is crucial for ensuring transparency and accountability in the organization's operations.

2. The second part of the document outlines the specific procedures and protocols that must be followed to ensure that all records are properly maintained and updated.

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SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Plant Pest Control Division
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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

PEA APHID building up to danger point on alfalfa in southern Illinois and increased appreciably in Wisconsin and Delaware. Pea aphid populations down in many areas of Oklahoma, but numerous in central Kansas. Also moderate to heavy in three New Mexico counties and moderately numerous in some Cache and Box Elder County, Utah, alfalfa fields. SPOTTED ALFALFA APHID becoming very heavy in area of Eddy County, New Mexico, and very heavy in some Graham County, Arizona, alfalfa; also continues to be found in Illinois and Nebraska. (p. 477). LYGUS BUGS building up in alfalfa in Arizona, New Mexico, Nevada and Utah. MEADOW SPITTLEBUG nymphs active in Wisconsin, Indiana, Michigan and Ohio; counts 2-5 per red clover stem in some Portage County, Ohio, fields. (p. 478). ALFALFA WEEVIL continues damaging in Virginia, Maryland and Delaware; damage to alfalfa 10-20 percent in Washington and Monroe Counties, Ohio. (pp. 478-479). VARIEGATED CUTWORM found in Illinois clover. (p. 480).

CEREAL LEAF BEETLE eggs hatching in Michigan and Indiana; adults severely damaged oats, 3-4 inches tall, in area of Berrien County, Michigan. Also found for first time in six Michigan counties and four Indiana counties. (p. 481). Wheat losses in Colorado high due to disease and drought and are being increased by presence of high BROWN WHEAT MITE populations. (p. 499). GREENBUG present in central Kansas, and few found on oats in Illinois. Small ARMYWORM larvae found in grass and few in wheat in Illinois. (p. 482). GRASSHOPPER nymphs continue to appear in several States; EASTERN LUBBER GRASSHOPPER severely infesting general ornamentals and grass at Sebring, Highlands County, Florida. (pp. 483, 499). Infestations of BANKS GRASS MITE unusually heavy for time of year on timothy in Smith Valley, Lyon County, Nevada. (p. 483). Specimens of WHEAT CURL MITE collected in Tripp County, South Dakota, from field of winter wheat showing symptoms of wheat streak mosaic. (p. 484).

RED-BANDED LEAF ROLLER egg mass counts high in all apple orchards surveyed in Doniphan County, Kansas, on April 24; counts up to 63 masses per tree. (p. 484). GREEN PEACH APHID a problem on peach trees locally in Bernalillo County, New Mexico, and infesting orchards in areas of Mesa and Delta Counties, Colorado. PEAR PSYLLA infestation expected to be heavy in Connecticut. (p. 485).

BOLLWORMS appearing on cotton in Georgia, and COTTON APHID extremely heavy on cotton in several Alabama counties. (pp. 489-490).

EASTERN TENT CATERPILLAR very abundant locally in southern Illinois and in parts of Ohio; also, tents quite numerous throughout central Connecticut. Larvae appearing in several additional States. SPRING CANKERWORM heavy on elms in west central Missouri and defoliation may be severe in parts of Iowa. Cankerworm activity reported from several States. GYPSY MOTH hatch reported from Massachusetts, Rhode Island and Connecticut. (p. 491).

DETECTION

A WHITEFLY (*Dialeurodes kirkaldyi*) collected for first time in North America at Key West, Florida. (p. 498). New State records reported were a WEEVIL (*Hexarthrum ulkei*) in Colorado (p. 497), and a MEALYBUG (*Rhizococcus pritchardi*) in Pennsylvania (p. 493). CEREAL LEAF BEETLE found for first time in Allegan, Kalamazoo, St. Joseph, Calhoun, Barry and Eaton Counties, Michigan, and in Fulton, Porter, Kosciusko and Lagrange Counties, Indiana. (p. 481).

(Continued on following page)

CORRECTIONS and ADDITIONAL NOTES

See pages 499 and 500.

SPECIAL REPORTS

Citrus Insect Situation in Florida - End of April. (p. 486). Citrus rust mite, citrus red mite, Texas citrus mite, black scale, whiteflies, aphids decreased in April in normal groves and increased in cold-injured groves. Aphids increased markedly to above-normal level in the latter-mentioned groves, following appearance of new flush of tender growth in April.

Status of the Screw-worm in the Southwest. (p. 495). Population is, although widespread, exceedingly sparse, with no apparent tendency toward a buildup in any area.

Interceptions of Special Interest at U. S. Ports of Entry. (p. 502).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods in Wyoming in 1962. Oats - p. 503, wheat - p. 504, barley - p. 505.

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods in North Dakota in 1962. Oats - p. 506.

Reports in this issue are for week ending May 3, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MAY 1963

The Weather Bureau's 30-day outlook for May calls for temperatures to average above seasonal normals over the southern two-thirds of the Nation lying east of the Continental Divide, with greatest departures over the Southern Plains. Below normal temperatures are predicted west of the Continental Divide and also in the northern border States. Elsewhere near normal averages with large fluctuations are indicated. Precipitation is expected to exceed normal over most portions lying west of the Continental Divide, as well as in areas extending from the northern Plains through the Great Lakes and Ohio Valley. Subnormal rainfall is indicated for the central Plains, the Gulf Coast States and east of the Appalachians. In unspecified areas, near normal amounts are anticipated.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price \$4.80 a year, \$2.40 a half year.

WEATHER OF THE WEEK ENDING MAY 6

Much needed rain fell over the Eastern and Gulf Coastal States early in the week in connection with a vigorous low centered over the Great Lakes and a cold front extending southward to the Gulf. Jackson Shoals, Alabama, received $8\frac{1}{2}$ inches in 24 hours. Tornadoes and hail in northern Mississippi killed 7 persons, injured more than 50, and caused about \$1 million damage to property. A tornado at

(Continued on page 500)

CEREAL AND FORAGE INSECTS

PEA APHID (*Acyrtosiphon pisum*) - NEW JERSEY - Populations low; 2-5 per sweep in 30 alfalfa fields surveyed in southern part of State. (Ins.-Dis. Newsltr., Apr. 30). DELAWARE - Considerably increased over previous week on alfalfa; counts in Kent and New Castle Counties ranged 25 to 400-plus per 10 sweeps. (Burbutis). MARYLAND - Ranged 4-45 per sweep on alfalfa in Caroline, Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). OHIO - Ranged 100-200 per 50 sweeps on alfalfa in Muskingum and Guernsey Counties; all stages present. (Lyon). ILLINOIS - Building up to danger point in alfalfa in southern area; 96-550 per sweep. From 0.1 to 9 per sweep present in red clover. Very few dead aphids observed; predators relatively scarce at present. (Ill. Ins. Rpt.). WISCONSIN - Increased appreciably. Most significant increases in new seedings, with counts ranging in neighborhood of 40 per 10 sweeps in several fields in southern and western areas. Counts in Rock, Walworth and Kenosha Counties averaged about 20 per 10 sweeps, and in Grant, Crawford, Vernon, Iowa, La Crosse and Trempealeau Counties, counts averaged about 2 per 10 sweeps in older alfalfa. No winged forms observed. Parasitism generally low; somewhat less than 2 percent. (Wis. Ins. Sur.). MINNESOTA - Common on alfalfa in southwest district; predators quite numerous. Averaged 2 per 10 sweeps in short alfalfa in southeast district. (Minn. Ins. Rpt.). SOUTH DAKOTA - Averaged 5 per 10 sweeps on Gregory and Charles Mix County alfalfa. (Hintz). NEBRASKA - Ranged 10-75 per 10 sweeps in alfalfa in south central area. (Bergman). KANSAS - Counts 50 per sweep on alfalfa in Dickinson County April 25. (Painter, Isaak). About 150 per sweep on alfalfa in Lincoln County. (Marvin). MISSOURI - Counts in alfalfa in west central and northwest areas ranged 15 to 100-plus per sweep. Lady beetles building up rapidly in infested areas. (Munson, Thomas, Wood). OKLAHOMA - High populations remain in scattered parts of central, south central and west central areas where high populations hastened some of first alfalfa cuttings. Populations declined considerably in east central, north central, south central and southwest where large populations of parasites and predators are present. (Okla. Coop. Sur.). TEXAS - Averaged 35-100 per sweep on alfalfa in Brazos County. (Randolph). None to light in vetch in Kaufman County; beneficials effective. (Turney). ALABAMA - Heavy buildup on caley peas in pastures in Macon County; controls started. (McQueen). UTAH - Moderately numerous in some Cache and Box Elder County alfalfa fields. Occasional adult present. (Knowlton). NEW MEXICO - Moderate to heavy in alfalfa in Eddy, Chaves and Otero Counties. Light to moderate in Dona Ana and Socorro Counties. (N. M. Coop. Rpt.). NEVADA - Occasional specimen present in alfalfa in Fallon and Stillwater areas, Churchill County; Yerington area, Lyon County; and Schurz area, Mineral County. (Bechtel).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ILLINOIS - Varied 0-10 per 100 sweeps in alfalfa in southwest district. (Ill. Ins. Rpt.). SOUTH DAKOTA - Survey in southeastern and south central areas negative for this species. (Hintz). NEBRASKA - Averaged 1.8 per 10 sweeps in Hall County (Hill) and 18 per 10 sweeps in Howard County (Calkins). Nymphs averaged one per 10 sweeps in Buffalo and Dawson Counties. (Bergman). OKLAHOMA - Surveys negative in east central areas and only light to moderate, 30-120 per 10 sweeps, in Harmon, Jackson and Tillman Counties. Moderate to heavy populations building up in Washita County, west central area. (Okla. Coop. Sur.). TEXAS - Averaged 10-30 per sweep on alfalfa in Brazos County. (Randolph). Widespread, light populations on alfalfa in Terry, Yoakum and Dawson Counties. (Texas Coop. Rpt.; Whitaker). NEW MEXICO - Populations becoming very heavy on alfalfa in Artesia area, Eddy County; approximately 1,000 acres treated. Building up in alfalfa near Tularosa, Otero County. Winged forms numerous. (N. M. Coop. Rpt.). ARIZONA - Very heavy in some Graham County alfalfa. Decreasing in central area. (Ariz. Coop. Sur.).

YELLOW CLOVER APHID (*Therioaphis trifolii*) - ILLINOIS - Varied 0-80 (averaged 27) per 100 sweeps in red clover in southwest district. (Ill. Ins. Rpt.). FLORIDA - Infesting white sweetclover at Gainesville, Alachua County, on April 22. (Stokes).

CLOVER APHID (Anuraphis bakeri) - MARYLAND - Light on red clover in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.).

LYGUS BUGS (Lygus spp.) - TEXAS - Light to medium, averaged 3 per 5 sweeps, in vetch in Kaufman County. (Turney). OKLAHOMA - Light to heavy in mature alfalfa in Ft. Gibson area, Muskogee County (15-75 per 10 sweeps). Nymphs and adults present. Light to moderate in Tillman and Jackson Counties, 7 and 12 per 10 sweeps, respectively. (Okla. Coop. Sur.). UTAH - Very abundant on mustards and pasture in North Logan; 90 percent L. hesperus. Fewer present in alfalfa at Logan and Hyde Park, Cache County. (Knowlton, Hanson). NEW MEXICO - Averaged 12-15 per 25 sweeps in Eddy County alfalfa; abundant in alfalfa near Luis Lopez, Socorro County. (N. M. Coop. Rpt.). ARIZONA - Causing some injury to alfalfa in Maricopa County. (Ariz. Coop. Sur.). NEVADA - Adults and early instars present in many alfalfa fields in Churchill, Lyon and Mineral Counties, with highest counts 2-3 per sweep. (Bechtel).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Very active in clover, oats and wheat in central area. (McQueen). OHIO - Adults 8-10 per 50 sweeps in red clover and alfalfa in Licking County; less in other northeast counties. (Lyon). ILLINOIS - Adults varied 0-80 (averaged 24) per 100 sweeps in clover and alfalfa in southwest district; few found in east district. Nymphs of this species, Adelphocoris rapidus and A. lineolatus varied 10-220 per 100 sweeps in clover and alfalfa in southwest. (Ill. Ins. Rpt.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MARYLAND - Nymphal populations on red clover and alfalfa light; considerably below those of 1962. (U. Md., Ent. Dept.). OHIO - Active nymphs found on thistle, wintercress, dandelion, wild carrot and red clover in Summit, Portage, Trumbull and Mahoning Counties; counts 2-5 per red clover stem in some Portage County fields. (Lyon). MICHIGAN - Nymphs present in legumes and strawberries in Berrien County. (Howitt). INDIANA - Hatching in northern area, La Porte County to Lagrange County, April 30. Hatching underway in Rush County, east central area, April 23. (Matthew). WISCONSIN - Eggs hatched in south and southwest areas, and spittle masses evident in some fields. Counts generally averaged 2 per 10 stems, although one field of alfalfa in southern Grant County had average of 27 per 10 stems. (Wis. Ins. Sur.).

RAPID PLANT BUG (Adelphocoris rapidus) - WISCONSIN - First nymph of season observed in alfalfa in Grant County. (Wis. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - OHIO - No specimens have been collected in forage fields in northeast. (Lyon).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Adults appear more prevalent in grain than previously, possibly due to increased plowing of existing rye fields. (Wis. Ins. Sur.). MINNESOTA - Averaged 4 per 20 sweeps in winter wheat and rye at St. Paul Campus; averaged 1 per 20 sweeps in grassy alfalfa in southeast district. (Minn. Ins. Rpt.).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - DELAWARE - First adults of season fairly common on alfalfa in Kent County. (Burbutis). UTAH - This species and Dikraneura carneola numerous in field of grassy alfalfa at Hyde Park, Cache County. (Knowlton, Hanson).

ALFALFA WEEVIL (Hypera postica) - NEW JERSEY - Numbered one per sweep in field of alfalfa near Bridgeton, Cumberland County. Fields not fall treated should be watched closely; untreated fields may require controls about May 6 in southern counties. (Ins.-Dis. Newsltr., Apr. 30). DELAWARE - Larval counts per 10 sweeps vary from less than 10 in treated fields to 30-80 in some untreated fields in New Castle and Kent Counties; adults present in most fields. (Burbutis). MARYLAND - Adults ranged 1-7 per 10 sweeps on alfalfa in Caroline, Talbot and Queen Annes Counties. Larvae generally light in fall-treated fields in four tidewater

counties; over 25 per sweep on untreated alfalfa, with noticeable damage in Anne Arundel County. (U. Md., Ent. Dept.). VIRGINIA - Larvae ranged 9-63 per sweep (average 40) in alfalfa checked in Appomattox County. Some fields show practically all white tops. Larvae ranged 18-70 per sweep (average 36) in alfalfa checked in Campbell County; much evidence of feeding. (Woodside). Larvae and adults severely damaging 8 acres of Ladino clover in Kenbridge, Lunenburg County; field bordered on two sides with heavily infested alfalfa. (Rowell, Powers). OHIO - Damage to alfalfa 10-20 percent in Washington and Monroe Counties; counts 8 adults and 2 larvae per 30 sweeps in old field of alfalfa in latter county. Larval development first to third stages. Belmont County had few first and second instars; none found in Harrison County. (Treece). UTAH - Weather stopped control in Box Elder County. Therefore, less acreage than normal received very early stubble treatments. (Knowlton). Active in alfalfa in Logan-Hyde Park area, Cache County. (Knowlton, Hanson). Adult activity reported April 27 in Salt Lake and Tooele Counties. (Knowlton). NEVADA - Only occasional larvae found in fields checked in Fallon and Stillwater areas, Churchill County; northwest of Yerington, Lyon County; and Schurz, Mineral County. Averaged one larva per sweep in Schurz area and one larva and/or adult in Lyon County. Most fields in these areas received adult controls. (Bechtel, Busted, York).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - MARYLAND - Adults common in red clover in Queen Annes and Talbot Counties. Larvae infesting over 60 percent of stems in field of red clover in Queen Annes County. (U. Md., Ent. Dept.). ALABAMA - Per sweep counts on crimson clover in Macon County one adult and 1-4 larvae. (McQueen). ILLINOIS - Adults varied 0-60 (averaged 12) per 100 sweeps in clover and alfalfa in southwest district; one field of red clover had 90 percent of stems infested by larvae. (Ill. Ins. Rpt.).

AN ALFALFA WEEVIL (*Hypera brunneipennis*) - CALIFORNIA - Larvae light on alfalfa in Ramona, San Diego County. Species now present in desert, coastal and mountain areas in southern parts of State. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (*Hypera punctata*) - MARYLAND - Larvae caused light to moderate foliage damage to red clover in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). ILLINOIS - About 20 percent now pupated in southwest district; 0-16 (average 7.3) larvae per square foot in east district, with no pupation. (Ill. Ins. Rpt.).

CLOVER HEAD WEEVIL (*Hypera meles*) - MARYLAND - Adults light in red clover in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.).

SWEETCLOVER WEEVIL (*Sitona cylindricollis*) - OHIO - Light to moderate damage occurred on seedling sweetclover throughout northeast; 1-5 percent damage observed in most fields presently. (Lyon). ILLINOIS - Varied 0-100 (averaged 11) per 100 sweeps in clover and alfalfa in southwest, but little leaf notching observed. One sweetclover field in east district had 25 percent of leaves badly notched. (Ill. Ins. Rpt.). UTAH - Active in alfalfa in Logan-Hyde Park area, Cache County. (Knowlton, Hanson). Early growth of sweetclover conspicuously damaged in Tooele-Erda area of Tooele County and Granger area of Salt Lake County. (Knowlton, Apr. 27). IDAHO - Adults numerous and causing considerable damage to field margin plants in vicinity of Eden and Jerome. (Priest).

A WEEVIL (*Sitona scissifrons*) - WISCONSIN - Adults very common in alfalfa in western regions; averaged 2 per 10 sweeps. (Wis. Ins. Sur.). SOUTH DAKOTA - Counts 3 per 10 sweeps in field of alfalfa in Charles Mix County. (Hintz).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - MARYLAND - Adults averaged about one per 10 sweeps on red clover in Montgomery and Talbot Counties during period April 20 to May 1. (U. Md., Ent. Dept.). ILLINOIS - Varied 0-150 (averaged 19) per 100 sweeps in clover and alfalfa in southwest; little damage noted. (Ill. Ins. Rpt.).

VETCH BRUCHID (Bruchus brachialis) - TEXAS - Adults averaged 1 per 30 sweeps in Kaufman County and 1 per sweep in some areas of Denton County. (Turney). Adults continuing to oviposit on pods in Brazos County. (Randolph).

CLOVER ROOT BORER (Hylastinus obscurus) - IDAHO - First adult flight observed in southwest April 29, one-half mile from nearest red clover field. In 20-minute observational periods, 5 adults seen in each square yard. (Waters).

CLOVER STEM BORER (Languria mozardi) - ALABAMA - Adults one per sweep on milkweed in Lee and Macon Counties. (McQueen).

CORN EARWORM (Heliothis zea) - TEXAS - Occasional larva found in vetch in Kaufman County. (Turney). Budworms infesting 10-25 percent of young corn plants in Brazos County. (Randolph). OKLAHOMA - Only an occasional early instar observed in alfalfa in Muskogee County area; none reported from any other locality of State. (Okla. Coop. Sur.). ARKANSAS - Activity increased; moths active in daytime in Bradley County, south central, on April 27, in both corn and crimson clover. Moths observed in 20 percent of corn whorls in one field. Egg deposition continues in clovers, corn and tomatoes. Trap-crop corn in Bradley County had 91 eggs on 200 row feet, while no eggs found on tomatoes for which trap crop was planted. One moth of H. virescens observed in corn whorl on April 27 in Bradley County. (Ark. Ins. Sur.). ALABAMA - Larvae of this species or H. virescens, 6 to 15 days old, averaged one per 5 sweeps in crimson clover in Macon, Lee, Elmore and Montgomery Counties. (McQueen). FLORIDA - Light on 3 acres of corn at Homestead, Dade County. (Knowles, Apr. 22).

ALFALFA CATERPILLAR (Colias eurytheme) - WISCONSIN - Moths common in alfalfa in southwest. (Wis. Ins. Sur.). SOUTH DAKOTA - Larvae and adults light in alfalfa in Charles Mix and Bon Homme Counties. (Hintz). ARIZONA - Larvae appearing in Graham County. (Ariz. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - SOUTH DAKOTA - Larvae and adults light in alfalfa in Charles Mix and Bon Homme Counties. (Hintz).

CLOVER HEAD CATERPILLAR (Grapholita interstinctana) - ILLINOIS - Adults varied 0-40 (averaged 10) per 100 sweeps in clover and alfalfa in southwest district. (Ill. Ins. Rpt.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - NEBRASKA - Pupation began in central area April 25. Large moth flights expected to begin in mid-May. Some damage continues to alfalfa from North Platte, Lincoln County, west. (Pruess). Late instars approximately one per square foot in alfalfa May 2 in Lincoln County. (Pruess, Bergman). UTAH - Very scarce in alfalfa and wheat in Bothwell and Promontory areas, Box Elder County. Damage generally below normal this spring. (Knowlton).

VARIEGATED CUTWORM (Peridroma saucia) - MISSOURI - Infestations reported in alfalfa in southeast; counts ranged 1-3 half-grown larvae per square foot. (Munson, Thomas, Wood). ILLINOIS - Varied 0-100 (averaged 15.3) per 100 sweeps in red clover and alfalfa in southwest district; all newly emerged larvae. (Ill. Ins. Rpt.).

DARK-SIDED CUTWORM (Euxoa messoria) - NEBRASKA - Hatched and few found in alfalfa in Lincoln County. (Pruess).

CUTWORMS (undetermined) - MISSOURI - Observed in few fields of corn in west central and northwest areas. Some fields will need replanting. (Munson, Thomas, Wood). OHIO - Larvae feeding on red clover in Summit County; economic loss could not be accurately estimated. (Lyon).

CEREAL LEAF BEETLE (*Oulema melanopa*) - MICHIGAN - Adults recently found in 6 more counties. Latest finds reported from Allegan, Kalamazoo, St. Joseph, Calhoun, Barry and Eaton Counties. Only light infestations found in these new areas. Intensive cooperative surveys continuing. (Turner, Patterson, Hinz). First newly hatched larvae found on wheat near Galien, Berrien County, on May 2. Oats, 3-4 inches tall, being severely damaged by adult feeding. Adults and eggs very abundant in oat fields near Galien. (Ruppel).
INDIANA - First egg hatch observed May 2. Beetles found as far south as northern Fulton County. (Wilson, Paschke, Favinger). Fulton, Porter, Kosciusko and Lagrange Counties found infested for first time. (Favinger).

DISTRIBUTION OF CEREAL LEAF BEETLE IN THE UNITED STATES



▨ Counties found infested during 1962

⋯ Counties found infested to May 3 in 1963

CORN FLEA BEETLES (Chaetocnema spp.) - ILLINOIS - C. pulicaria varied 0-20 (averaged about 5) per 100 sweeps in wheat and grass in southwest, but one field of oats had 250 per 100 sweeps, with feeding noticeable on oat plants. (Ill. Ins. Rpt.). ARIZONA - C. ectypa causing injury to grain sorghum in Maricopa County. (Ariz. Coop. Sur.).

SUGARCANE BEETLE (Euethoeola rugiceps) - ALABAMA - Caused serious damage to 40 acres of corn in Mobile County. (Seibels).

SAND WIREWORM (Horistonotus uhlerii) - ALABAMA - Extremely heavy populations reported on corn in Monroe County; one-third loss of crop reported. (Lemons).

A BILLBUG (Sphenophorus callosus) - GEORGIA - Moderate infestation on corn in Sumter County. (Johnson).

GREENBUG (Schizaphis graminum) - ILLINOIS - Not observed in wheat or oats in northeast. Varied 0-160 (averaged 21.8) per 100 sweeps in wheat in southwest district. (Ill. Ins. Rpt.). WISCONSIN - Found in rye in Trempealeau County on April 17. Nymphs present and forming wing pads in Crawford County. (Wis. Ins. Sur.). SOUTH DAKOTA - Alates detected in a grassy field of alfalfa in Charles Mix County; first of season. (Hintz). NEBRASKA - Ranged 6-10 per 10 sweeps in central area wheat. (Bergman). KANSAS - Found in most wheat fields examined in Riley (northeast), Dickinson, Saline, Ellsworth, Russell and Ellis (central) Counties on April 25. Counts ranged 0-15 per sweep. (Painter, Isaak). Few found in wheat in Lincoln County, central. Counts, one colony on every 2-3 plants. (Marvin). OKLAHOMA - Light counts reported from only few scattered areas of State, with no indication of a buildup. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - ILLINOIS - Varied 12-30 (averaged 21) per 100 sweeps in wheat and oats in northeast district, and 0-1,060 (averaged 335) per 100 sweeps in southwest district on wheat. (Ill. Ins. Rpt.). WISCONSIN - Collected on rye in Trempealeau County on April 17. Nymphs forming wing pads in Crawford County. Colonies forming in barley fields in Sauk County and few present in new grain in Walworth County. (Wis. Ins. Sur.). SOUTH DAKOTA - Alates detected in grassy field of alfalfa in Charles Mix County; first of season. (Hintz). NEBRASKA - Averaged 5 per 10 sweeps in central area wheat. (Bergman). KANSAS - Counts variable in Riley, Dickinson, Saline, Ellsworth, Russell and Ellis Counties, but generally light. (Painter, Isaak).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Widespread infestations in corn are light, while populations in grain sorghum are light to heavy in Caldwell, Hays and Gadsuade Counties. (Texas Coop. Rpt.; Massey).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - CALIFORNIA - Medium populations on leaves of barley in Coalinga area, Fresno County. (Cal. Coop. Rpt.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Light in grain sorghum in Brazos County. (Randolph). OKLAHOMA - Light in young corn in Bixby and Muskogee areas, with counts of 1-3 per plant present on 10-15 percent of plants. Heavy infestation reported on corn in Mayes County. (Okla. Coop. Rpt.).

PLANT BUGS - WISCONSIN - Few nymphs of Leptopterna dolabratus and Trigonotylus sp. appearing in grain in more advanced areas. (Wis. Ins. Sur.).

ARMYWORM (Pseudaletia unipuncta) - MISSOURI - Infestations of small larvae reported in dense spots in barley and wheat in southeast; counts ranged 1-5 per square foot. (Munson, Thomas, Wood). ILLINOIS - Small larvae varied 0-10 (averaged 3.6) per 100 sweeps in wheat, and 0-110 (averaged 16.4) per 100 sweeps in grass in southwest district. (Ill. Ins. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - FLORIDA - Infesting 90 acres of sweet corn at Belle Glade, Palm Beach County. (Smith, Apr. 22). This species and Spodoptera exigua light on corn at Homestead, Dade County. (Knowles, Apr. 22).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - TEXAS - Light in grain sorghum in Brazos County. (Randolph).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Approximately 50 percent of overwintered borers pupated in Kent County; no adult emergence noted to April 29. (Burbutis). MARYLAND - Pupation well advanced on Eastern Shore; first emergence expected weeks of May 6 and 13. (U. Md., Ent. Dept.). IOWA - First pupa found May 2 in Boone County study area. (Iowa Ins. Inf.).

BRONZED CUTWORM (Nephelodes emmedonia) - MISSOURI - Infestations observed in bluegrass lawns and in grass pastures in northwest; counts 0-15 per square foot in infested areas. (Munson, Thomas, Wood).

GARDEN WEBWORM (Loxostege similalis) - TEXAS - Numerous; severe damage noted to experimental grain sorghum plots in Brazos County. (Randolph).

SOD WEBWORMS - OHIO - Many cemeteries and private home lawns seriously damaged from last year. Several bluegrass lawns contain dead spots up to 4 by 10 feet in area in Pike and Pickaway Counties. (Poliyka).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Infestation in Riley (north-east), Dickinson, Saline, Ellsworth, Russell and Ellis (central) Counties ranged from zero to abundant on April 25. Adults, eggs and larvae noted. (Painter, Isaak).

CORNFIELD ANT (Lasius alienus) - OHIO - Activity occurring in southeast. Ants pile dirt on lawn which smothers out grass stands. (Poliyka).

GRASSHOPPERS - TEXAS - Nymphs numerous in small, weedy areas. Feeding primarily on Johnson grass in De Witt County. (Texas Coop. Rpt.; Smith). ALABAMA - Melanoplus packardii nymphs plentiful in melons and crimson clover in Mobile, Macon and Lee Counties. (Seibels, McQueen). WISCONSIN - Few second instars of M. confusus observed in Marquette County. (Wis. Ins. Sur.). NORTH DAKOTA - Egg development survey conducted in parts of Towner, Rolette, Pierce, McHenry, Ward, Sheridan and Wells Counties. Development of M. sanguinipes 4 percent clear, 64 percent coagulated, 16 percent eye spot and 16 percent segmented; M. bivittatus 2 percent clear, 76 percent coagulated, 12 percent eye spot and 10 percent segmented; Camnula pellucida 4 percent clear, 87 percent coagulated and 9 percent eye spot; and Melanoplus femurrubrum 100 percent clear. In light soil of some areas, eggs of M. sanguinipes and M. bivittatus were 30-40 percent segmented. (Brandvik). NEBRASKA - First instars of Aeoloplides turnbulli, Ageneotettix deorum, Amphitornus coloradus, Aulocara elliotti, Cordillacris occipitalis, Melanoplus sanguinipes, and second and third instars of M. confusus abundantly collected on rangeland at North Platte, Lincoln County, April 25. Arphia conspersa and Eritettix simplex collected as adults. (Pruess). FLORIDA - Romalea microptera severely infesting general ornamentals and grass at Sebring, Highlands County, on April 25. (Hanlon).

TERMITES - WYOMING - Infestations found in sagebrush on rangeland in areas of Washakie County. Populations quite large in areas of infestation. (Fullerton).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Damaging on sandy areas in Salt Lake County; about 200 acres treated to April 27. Dryland and irrigated wheat both affected. (Knowlton, Parrish; Apr. 27). NEVADA - Generally very light in most alfalfa in Churchill, Lyon and Mineral Counties, with some spotted, medium infestations in drier areas of some fields near Fallon, Churchill County. (Bechtel, York).

BANKS GRASS MITE (Oligonychus pratensis) - NEVADA - Heavy populations and damage noted to timothy in Smith Valley, Lyon County. In areas of some fields, stand apparently killed out. Infestations of this degree unusual for area so early in season. (Batchelder, Bechtel, Martinelli).

A MITE (Aculus dubius) - RHODE ISLAND - Light on timothy in Kingston, Washington County. (Kerr).

WHEAT CURL MITE (Aceria tulipae) - SOUTH DAKOTA - Specimens collected in Tripp County from field of winter wheat showing symptoms of wheat streak mosaic. Populations of mite could not be determined. (Hintz).

COTTON FLEAHOPPER (Psallus seriatus) - ARIZONA - Continues to increase on young safflower on experiment farm in Graham County; as many as 1,000 adults per 100 sweeps. (Ariz. Coop. Sur.). TEXAS - Light in vetch in Kaufman County. (Turney).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Medium populations present on safflower plantings in Fresno County. (Cal. Coop. Rpt.).

FRUIT INSECTS

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Hatching started May 2 and 3 and hatched rapidly since. (Crop Pest Cont. Mess.). CONNECTICUT - Hatch completed in most of State; no new adults nor egg laying reported, but nymphs in last instar in New Haven. Very numerous on leaves in Storrs but not very active yet. (Savos). MARYLAND - Immatures unusually heavy on apple in Hancock area, Washington County. (U. Md., Ent. Dept.). OHIO - Moderate on crab apple trees in Franklin County. (Blair). INDIANA - Egg laying continued buildup during period April 24-30 at Vincennes, Knox County, although temperatures during first 3 days were cool. Number of mobile forms per leaf decreased, probably because of adverse weather. This is probably temporary situation as eggs have been laid. (Hamilton). No hatch observed nor reported in northern counties as of April 30. (Matthew).

A FRUIT-TREE MITE (Bryobia rubrioculus) - UTAH - Eggs largely unhatched in Tooele-Erna area orchards, Tooele County. (Knowlton, Apr. 27). Hatched in orchards at Garland, Box Elder County, by May 4. (Knowlton).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - MARYLAND - Blistering leaves of pear in Baltimore. (U. Md., Ent. Dept.).

CODLING MOTH (Carpocapsa pomonella) - KANSAS - Pupae readily found in Doniphan County on April 25 indicating emergence expected within week or 10 days, depending upon weather. (Eshbaugh). INDIANA - First adults emerged in overwintering orchard cages April 28 at Vincennes, Knox County. This compares with May 7 in 1962, May 11 in 1961 and May 4 in 1960. With favorable weather, earlier emergence could mean an increased third brood next August. (Hamilton). MARYLAND - Pupation about 80 percent complete in cages by May 1 at Hancock, Washington County. (U. Md., Ent. Dept.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - CONNECTICUT - Definitely considered active in warmer parts of State. (Savos). MARYLAND - Egg masses generally scarce; some found in abandoned orchard at Hancock, Washington County, May 1. (U. Md., Ent. Dept.). MICHIGAN - Egg masses common on plum and apple trees in some orchards in Berrien and Van Buren Counties. (Howitt). INDIANA - Egg masses present in La Porte County, northwest area; no hatch evident by April 30. (Matthew). KANSAS - Egg mass counts high in all apple orchards surveyed in Doniphan County on April 24. Counts up to 63 masses per tree noted. Hatching during week. (Eshbaugh).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - CONNECTICUT - Larval feeding on sour cherry noted in Hartford County. In second instar at New Haven. (Savos). OHIO - Larvae inside rolled apple leaves in untreated orchard near Niles, Trumbull County; 50-60 percent of all leaves rolled or twisted together. (Lyon).

A GEOMETRID MOTH (probably Operophtera occidentalis) - OREGON - Larvae continue to cause damage in Willamette Valley orchards, especially filberts and cherries. Inclement weather prevented normal treatment. (Stephenson).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - KANSAS - Large numbers of adults noted in orchards in Doniphan County early in April. Injury not yet visible. (Eshbaugh, Apr. 24).

LESSER PEACH TREE BORER (Synanthedon pictipes) - INDIANA - Single adult emerged April 9 from peach wood recently brought into insectary at Vincennes, Knox County. Temperatures in insectary a little higher than those in orchards, but early emergence is predicted for area. (Hamilton, Apr. 30)

PEACH TWIG BORER (Anarsia lineatella) - COLORADO - Spinning up in twigs and transforming into pupae at present. High populations noted in few orchards in Mesa County. (Bulla).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Bait trap records show peak adult activity occurred April 19-22 in Vincennes area, Knox County. Few adults from overwintering larvae still coming to traps. (Hamilton, Apr. 30).

APPLE APHID (Aphis pomi) - UTAH - Nymphs present on apple foliage at Garland, Box Elder County. (Knowlton). NORTH DAKOTA - Appearing; light to moderate on foliage of apple and cotoneaster in southeastern part of State. (N. D. Ins. Sur.). MINNESOTA - Very numerous on apple tree buds in Minneapolis-St. Paul area. (Minn. Ins. Rpt.). ALABAMA - Light to medium on isolated apple trees in Lee and Coosa Counties. (Bagby).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - KANSAS - Becoming a problem in some orchards in northeast area. (Eshbaugh, Apr. 24). COLORADO - This species and ROSY APPLE APHID (Anuraphis rosea) moderate to high in Olathe area, Montrose County; controls recommended. Colonies range 2-60 per tree in Rogers Mesa and Paonia areas, Delta County. (Bulla).

ROSY APPLE APHID (Anuraphis rosea) - CONNECTICUT - About half-grown in Southington, Hartford County; some leaf curl noted. (Savos). MARYLAND - No clusters seen in commercial orchards in Hancock area, Washington County. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Problem on peach trees in Albuquerque, Bernalillo County. (N. M. Coop. Rpt.). COLORADO - Colonies range 2-4 per peach tree in moderately infested orchards in Mesa County. Abundant in Paonia area, Delta County, with colonies beginning leaf curl in peach orchards. (Bulla).

BLACK CHERRY APHID (Myzus cerasi) - COLORADO - Colonies appearing on cherry trees in Larimer County. (Hantsbarger).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Hatching begun at Storrs, Tolland County; infestation expected to be heavy. (Savos). MICHIGAN - Eggs abundant in orchard in Oakland County; newly hatched nymphs noted in orchard at Grand Traverse County. (Procter, Mullett).

SAN JOSE SCALE (Aspidiotus perniciosus) - COLORADO - Abundant on apple trees in Garfield County; controls used in most commercial orchards. (Bulla).

A FLEA BEETLE (Altica litigata) - FLORIDA - Collected in citrus grove at Orlando, Orange County (Bass, Apr. 22); light on Citrus sinensis at Babson Park, Polk County (Keen, Apr. 23).

PLUM CURCULIO (Conotrachelus nenuphar) - NEW JERSEY - Few moving into peach orchards. (Ins.-Dis. Newsltr., Apr. 30).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - CONNECTICUT - First of season noted at New Haven on May 6; increasing abundance expected rapidly. (Savos).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Light in Kaufman and Collin Counties; practically all pupated. (Turney). Most areas of State show pest to be 7-14 days earlier than normal and lighter populations than in past 2 years. (Thomas). FLORIDA - Light on twigs of pecan in April at Monticello, Jefferson County. (Phillips).

PECAN BUD MOTH (Gretchena bolliana) - FLORIDA - Feeding on young pecan nuts at Monticello, Jefferson County, in April. (Phillips).

A WEEVIL (Conotrachelus aratus) - FLORIDA - Moderate on pecan, hickory and hickan at Monticello, Jefferson County, in April. (Phillips).

PECAN SPITTLEBUG (Clastoptera achatina) - FLORIDA - Moderate on pecans in Monticello, Jefferson County, in April. (Phillips).

FALL WEBWORM (Hyphantria cunea) - FLORIDA - First larval colony of season noted on pecan at Monticello, Jefferson County, April 19. (Phillips).

Citrus Insect Situation in Florida - End of April - Populations in Freeze-defoliated Groves - CITRUS RUST MITE (Phyllocoptiruta oleivora) infested 42 percent of groves; 12 percent economic. Population increasing and will continue upward trend. Highest districts ridge and west coast. TEXAS CITRUS MITE (Eutetranychus banksi) infested 9 percent of groves; 4 percent economic. CITRUS RED MITE (Panonychus citri) infested 9 percent of groves; 4 percent economic. Both E. banksi and P. citri will gradually increase, but few infestations will be heavy before June. APHIDS infested 48 percent of groves; 4 percent economic. Population increase to above-average level in late April, coincided with new flush of growth. Infestations will continue buildup until tender growth hardens. WHITEFLY eggs are present in 22 percent of groves. Less than 30 percent of groves infested with SCALE INSECTS; all infestations very light and few expected to be important through June. Populations in Groves with Little or No Freeze Damage - CITRUS RUST MITE infested 39 percent of groves; 16 percent economic. Population declined but will start increase from current low level during latter part of May. Highest district west coast. TEXAS CITRUS MITE infested 39 percent of groves; 14 percent economic. Population will remain near current average level until mid-May, then increase rapidly. Highest district Indian River. CITRUS RED MITE infested 22 percent of groves; 8 percent economic. Population below normal. Only scattered infestations will be important until summer increase starts in early June. No groves were infested with SIX-SPOTTED SPIDER MITE (Eotetranychus sexmaculatus); populations lowest in 12 years of record. PURPLE SCALE (Lepidosaphes beckii) infested 87 percent of groves; 14 percent economic. Population near normal for April. Only scattered groves with important infestations. Highest districts upper east coast and Indian River. GLOVER SCALE (L. gloverii) infested 80 percent of groves; 21 percent economic. L. gloverii is more abundant than in prior years; further increase expected. CHAFF SCALE (Parlatoria pergandii) infested 80 percent of groves; 29 percent economic. Population above average and will continue near current level. BLACK SCALE (Saissetia oleae) infested 9 percent of groves; 3 percent economic. Population below normal and much below level of past 2 years. Summer brood of crawlers will appear in May; few infestations expected to be important. FLORIDA RED SCALE (Chrysomphalus aonidum) infested 11 percent of groves; none economic. C. aonidum at lowest level in 12 years of record and will remain low. YELLOW SCALE (Aonidiella citrina), Coccus acuminatus, and BROWN SOFT SCALE (C. hesperidum) increasing. WHITEFLIES dropped to normal level but will increase in May. APHID infestations are below normal and will remain light in most groves. Special Comment - There is still considerable difference in insect and mite populations between cold-injured groves and those unharmed. Citrus rust mite, citrus red mite, Texas citrus mite, black scale, whiteflies and aphids decreased in April in normal groves and increased in damaged groves. Aphids increased markedly to above-normal level in cold-injured groves, following appearance of new flush of tender growth in April. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - First treatment of host plants and brush made; placement of additional traps in area recently dropped from treatment area nearly completed. To date, 949 traps on 371 properties added, bringing total to 2,142. No indications of infestations noted. (Cal. Coop. Rpt.).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Moderate on Citrus reticulata at Mascotte, Lake County. (Henderson, Brown, Apr. 25).

A MAY BEETLE (Phyllophaga elizoria) - FLORIDA - Light on Citrus sp. at Haines City, Polk County (Norton, Hebb, Apr. 8). This is a rare species which caused damage in citrus nurseries before. (Fla. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Second hatch causing some injury in Yuma, Yuma County. Thrips very low on citrus at present. (Ariz. Coop. Sur.).

RUSTY PLUM APHID (Hysteroneura setariae) - ARIZONA - On grapes in Safford area, Graham County. (Ariz. Coop. Sur.).

GRAPEVINE APHID (Aphis illinoisensis) - ALABAMA - Light in Lee, Elmore and Macon Counties. (McQueen). FLORIDA - Severe on wild grape at Lake Jem, Orange County. (Brown, Apr. 16)

GRAPE FLEA BEETLE (Altica chalybea) - ALABAMA - Larvae active on grapes and scuppernongs in Covington, Macon, Elmore, Lee and Conecuh Counties. (Hugain, Kinard).

GREENHOUSE SLUG (Milax gagates) - CALIFORNIA - Adults heavy in grape vineyards in Ukiah, Mendocino County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

PEA APHID (Acyrtosiphon pisum) - ALABAMA - Covered 15-20 percent of stems and leaves of southern peas in southwest Covington County. (Stephenson).

FOXGLOVE APHID (Acyrtosiphon solani) - WASHINGTON - This species and Pentatrichopus fragaefolii present, but not abundant, on strawberries in northwestern area. (Eide).

MELON APHID (Aphis gossypii) - ALABAMA - Heavy on cantaloups and watermelons in Mobile and Baldwin Counties. (Seibels, Wilson).

CABBAGE APHID (Brevicoryne brassicae) - OKLAHOMA - Counts light to moderate on cabbage in Bixby area, Tulsa County; ranged 15-35 per plant, mostly winged forms. (Okla. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - First adults and nymphs of season noted on cabbage locally in New Castle County. (Burbutis).

POTATO PSYLLID (Paratrioza cockerelli) - NEVADA - Generally heavy populations of adults and eggs, with nymphs appearing, on Lycium sp. in Fallon, Churchill County; Schurz, Mineral County; and most of areas between these two places. (Bechtel). COLORADO - Not yet found on Lycium spp. in southeastern nor northern areas. (Bulla).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - OHIO - Severe on cucumbers in greenhouse in Medina County; all stages present. (Neiswander).

BEET LEAFHOPPER (Circulifer tenellus) - WYOMING - Survey in Washakie County indicates very small overwintering population on rangeland; larger population occurred on summer-cypress (Kochia sp.) along ditch banks and roadsides. Efforts to prevent movement into beet fields underway. (Fullerton). CALIFORNIA - Survey continues in areas north of the Tehachapi Mountains. No populations of significance found in Merced or Stanislaus Counties. Treatment completed in Fresno County between Cantua Creek and Big Panonche Canyon. If found on the flatlands and near mouths of canyons, additional treatment may be necessary. Survey in Riverside County revealed that Russian-thistle germinated in old thistle area. Several beet fields south of Sunnymead; Riverside County, showed light numbers present, with only traces of curly top showing. (Cal. Coop. Rpt.).

HARLEQUIN BUG (Murgantia histrionica) - ALABAMA - Few specimens taken on turnips in Elmore County. (McQueen).

SWEETPOTATO HORNWORM (Agrius cingulatus) - ALABAMA - Causing some damage to sweetpotatoes in Baldwin County. (Wilson).

STRAWBERRY LEAF ROLLER (Ancylics comptana fragariae) - ARKANSAS - Heavier than normal in Woodruff County. (Ark. Ins. Sur.). NEBRASKA - Adult activity very prevalent in Lincoln, Lancaster County, from mid-April on. (Fitchett, Staples). UTAH - Not found in 2 strawberry patches at Hurricane, Washington County. (Knowlton).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Heavy locally in Elmore County; adults continue in flight in most central counties. (McQueen). Attacked 90 percent of cabbage plants in field of southwest Covington County. (Stephenson).

FLEA BEETLES - DELAWARE - Phyllotreta cruciferae adults increased slightly on young cabbage; feeding injury noted locally in New Castle County. First adults of Epitrix cucumeris present on young potatoes locally in Kent County. (Burbutis). MARYLAND - Phyllotreta spp. on radishes and turnip greens in Talbot County. E. hirtipennis noted on newly set tomatoes at Centerville, Queen Annes County. (U. Md., Ent. Dept.). ALABAMA - E. cucumeris and Systema blanda caused light damage to cantaloups in Mobile County. (McQueen). Unidentified species causing some damage to sweetpotatoes in Baldwin County. (Wilson). Light numbers of Phyllotreta striolata appearing on melons in Mobile County. (Seibels). COLORADO - Larvae of undetermined species damaging beets in Larimer County. (Hantsbarger).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - ALABAMA - Extensive feeding noted on cantaloup leaves in Mobile County. (Seibels).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - TEXAS - Widespread, light populations on potatoes in Blanco County and heavy in single planting in Hays County. (Texas Coop. Rpt.; Massey). OKLAHOMA - Light to moderate and damaging potatoes in Choctaw County. (Okla. Coop. Sur.). MISSOURI - Adults on potatoes in gardens in west central area; no larvae seen. (Munson, Thomas, Wood). ALABAMA - Light on potatoes locally in Elmore County. (McQueen). Larvae and adults appearing on horse-nettle in untreated areas in Mobile County. (Seibels). Averaged one egg mass, larva or adult per potato plant in field in southwest Covington County. (Stephenson).

STRAWBERRY WEEVIL (Anthonomus signatus) - MARYLAND - Bud damage in untreated strawberry plantings in Wicomico County heavy. (U. Md., Ent. Dept.).

CABBAGE MAGGOT (Hylemya brassicae) - MASSACHUSETTS - First eggs laid; controls recommended. (Crop Pest Cont. Mess.).

ONION MAGGOT (Hylemya antiqua) - COLORADO - Not found in soil samples from experimental onion plots in Montrose County. (Schweissing).

THRIPS - ALABAMA - Unidentified species causing considerable damage to water-melons in Baldwin County. (Wilson).

A SNOWY TREE CRICKET (Oecanthus sp.) - OHIO - Caused moderate to heavy damage to raspberry canes in Portage and Summit Counties. Several canes with egg punctures, with 60-90 eggs per cane. No eggs hatched. (Walker, Lyon).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - NEW JERSEY - Early season dry conditions have been ideal for mite development on strawberries. (Ins.-Dis. Newsltr., Apr. 30). WASHINGTON - Fairly abundant in some strawberry fields in northwestern area. (Eide). MINNESOTA - Heavy on strawberry and raspberry plants on April 20; no dormant spray used on raspberry plants. (Minn. Ins. Rpt.).

GARDEN SYMPHYLAN (Scutigera immaculata) - IOWA - Found in garden at Clarinda, Page County, April 26; caused obvious damage in 1962. (Iowa Ins. Inf.). First ARS record for county.

TOBACCO INSECTS

WIREWORMS (Conoderus spp.) - NORTH CAROLINA - C. vespertinus and C. falli infested 2 newly set tobacco fields near Bladenboro, Bladen County. Both fields 70-80 percent infested; one plowed and being reset. Total of 3 C. falli larvae and 10 C. vespertinus larvae recovered from the 2 fields. Two larvae of C. vespertinus received, with report of severe infestation in field near Elizabethtown, Bladen County, and 13 C. vespertinus recovered from tobacco field in Duplin County, near Wallace. About 80 percent of plants infested, but most of them not severely so at time of examination. (Mount).

CUTWORMS - NORTH CAROLINA - Undetermined species cutting about 5 percent of newly set plants in field in Duplin County. (Mount).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Terminal bud damage by adults found in Guadalupe County. (Texas Coop. Rpt.; Massey). ALABAMA - Conspicuously absent; none reported other than 3 live specimens in Shelby and Talladega Counties during early March. (McQueen).

BOLLWORMS (Heliothis spp., et al.) - TEXAS - Light populations reported in Hidalgo and Calhoun Counties. (Texas Coop. Rpt.). ALABAMA - Larvae feeding in crimson clover in Macon, Lee, Elmore and Montgomery Counties; moths of H. virescens continue to be taken around night lights. (McQueen). GEORGIA - Five larvae per 100 terminals on cotton in Colquitt County; first of season. (Johnson).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Emergence rather slow from cages at Safford Experiment Station. Only two moths emerged since April 16 and they emerged on April 25 from bolls buried 2 inches and April 29 from surface bolls. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Appearing on some cotton in Salt River Valley; however, predators appear to be effective. (Ariz. Coop. Sur.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - TEXAS - Creating problem in many fields in Jackson County. (Watts).

GARDEN WEBWORM (Loxostege similalis) - TEXAS - Heavy in limited area of Guadalupe County. (Texas Coop. Rpt.; Massey).

COTTON APHID (Aphis gossypii) - GEORGIA - Light to moderate on cotton in north-east and southern areas. (Johnson). TEXAS - Light infestations in Caldwell, Hays, Guadalupe, Medina and Hidalgo Counties; heavy in areas of Jackson County. (Texas Coop. Rpt.). ALABAMA - Extremely heavy, 1-20 per 2-3 leaf stalks of cotton, in Lee, Macon, Tallapoosa, Russell, Montgomery and Elmore Counties. (McQueen). ARIZONA - Appearing on seedling cotton in Graham County. (Ariz. Coop. Sur.).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Light infestations reported in Guadalupe and Calhoun Counties on cotton; medium to heavy in some plantings in Hidalgo and Calhoun Counties. (Texas Coop. Rpt.).

PLANT BUGS - TEXAS - Heavy populations, probably Lygus sp., in cotton adjacent to alfalfa in Hidalgo County. (Texas Coop. Rpt.; Page).

THRIPS - ARIZONA - Continue present on cotton in Graham, Pima, Pinal and Maricopa Counties. (Ariz. Coop. Sur.). TEXAS - Light in Kaufman, Collin, Navarro, Medina, Hidalgo, Jackson, Calhoun, Hays, Caldwell and Guadalupe Counties on cotton. Moderate to heavy in some fields in Jackson, Collin, Kaufman and Calhoun Counties. (Texas Coop. Rpt.). MISSISSIPPI - Small numbers present in most delta area cotton fields. (Merkl et al.). GEORGIA - Moderate to heavy infestations on cotton in northeast; light to moderate in southern area. (Johnson). ALABAMA - Frankliniella fusca and other species very light on cotton in central area. (McQueen).

SPIDER MITES - ARIZONA - Infesting some cotton in Queen Creek area, Maricopa County; one field severely injured. (Ariz. Coop. Sur.). TEXAS - Several species light on cotton in Caldwell, Hays and Jackson Counties. (Texas Coop. Rpt.). ALABAMA - Tetranychus telarius heavy in one isolated field border on three-leaf cotton in Macon County. (McQueen).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EASTERN TENT CATERPILLAR (Malacosoma americana) - RHODE ISLAND - First hatch noticed in Cranston, Providence County, April 15; small webs now seen in localized pockets statewide. (Cartier, Mathewson). CONNECTICUT - Tents quite numerous along roadsides throughout central portion of State; nests 3 to 6 inches. (Savos, Johnson). MARYLAND - Destructive to many ornamental flowering crab apple trees in Anne Arundel and Prince Georges Counties. (U. Md., Ent. Dept.). OHIO - Larvae observed on wild cherry at Cuyahoga, Summit, Portage, Belmont, Washington, Meigs, Monroe and Guernsey Counties. Heaviest populations occurred in Guernsey County with 3-4 webs per 10-15 foot tree containing 300-500 larvae per web. Larvae in webs observed near Columbus, Franklin County, April 27. (Shambaugh, Lyon). MICHIGAN - Young larvae and webs observed on such trees as wild cherry and neglected apple in Oakland, Ingham and Grand Traverse Counties. (Siefert, Wells, Mullett, Gardner). ILLINOIS - Varies from light to very abundant in spots in southern area; 36 nests counted on one wild cherry tree about 35 feet tall. Most wild cherry completely stripped of leaves in some areas. (Ill. Ins. Rpt.). WISCONSIN - Larvae now in second and third stages in southern portions of State. (Wis. Ins. Sur.). SOUTH DAKOTA - Present on wild plum in Charles Mix and Bon Homme Counties; larval development ranged from newly hatched to third stage. (Hintz).

CANKERWORMS - MASSACHUSETTS - Eggs hatching. (Crop Pest Cont. Mess.). RHODE ISLAND - Adults of Paleacrita vernata noted in Cranston, Providence County, April 11 in area where numerous adults of Alsophila pomataria trapped earlier; no evidence of hatch. (Cartier). CONNECTICUT - Some feeding observed, but larvae still small. (Savos). MISSOURI - Heavy infestations of P. vernata common on elms in west central area; most larvae half grown. (Munson, Thomas, Wood). ILLINOIS - Larvae common on oak and elm trees examined in southwest. (Ill. Ins. Rpt.). IOWA - P. vernata adults appeared early; first male seen March 5; heavy emergence started March 20 and was about finished by April 4. Wingless females observed on April 4. Hatching began April 17-18 in Shenandoah area, and probably across southern area. On April 26, larvae ranged 1-10 per elm leaf, with 10-80 percent loss of leaf surface. Defoliation this year could be severe in area south of U. S. Highway 30; some defoliation may occur as far north as U. S. Highway 20. (Iowa Ins. Inf.). MINNESOTA - Feeding begun in Twin City suburban areas, but hatch not complete. (Minn. Ins. Rpt.). KANSAS - P. vernata averaged 3 per leaf on oak in Wyandotte County on April 25. Larvae also actively moving up tree trunks. (Charlton).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - First hatch observed in Kingston, Washington County; caterpillars still on mass. (Mathewson). CONNECTICUT - Eggs hatched in East Hampton. (Gaines). MASSACHUSETTS - Eggs hatching. (Crop Pest Cont. Mess.).

LINDEN LOOPER (Erannis tiliaria) - MASSACHUSETTS - Egg hatching. (Crop Pest Cont. Mess.).

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) - FLORIDA - Infesting maple at Hart Springs, Gilchrist County, on April 28. Collected and determined by L. A. Hetrick. (Fla. Coop. Sur.).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Heavy, isolated infestations on loblolly and slash pines in Lee and Macon Counties; many specimens pupated. (McQueen).

PINE TUSSOCK MOTH (Dasychira plagiata) - MINNESOTA - Larvae active in jack pine in Willow River area, Pine County, and Mission Township, Crow Wing County. Most larvae in late second stage, with few in early third stage. (Minn. Ins. Rpt.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Tunneling in young terminal growth of pecans in Garvin County, south central. Also active in Cleveland County (south central) and in Jackson and Cotton Counties (southwest). (Okla. Coop. Sur.).

LARCH CASEBEARER (Coleophora laricella) - WISCONSIN - Extremely abundant and causing severe damage to larches in Grant County. (Wis. Ins. Sur.).

PALM LEAF SKELETONIZER (Homaledra sabalella) - FLORIDA - Infesting palms at Naples, Collier County, on April 15. (Whitesell).

A NOTODONTID (Nadata gibbosa) - KANSAS - Fourty percent of some pin oaks skeletonized in Riley County, northeast. Larval counts averaged one per 10 leaves. (Thompson).

HOLLY LEAF MINERS (Phytomyza spp.) - DELAWARE - All species pupated throughout State by April 30. (Burbutis). MARYLAND - Fly emergence of P. illicicola due week of May 6 at College Park, Prince Georges County. (U. Md., Ent. Dept.).

BIRCH LEAF MINER (Fenusa pusilla) - CONNECTICUT - Adults active in southern area. (Savos, Johnson).

A PINE SAWFLY (Neodiprion pratti pratti) - MARYLAND - First and second instars found April 30 and May 1 on roadside Virginia pines in Lanham-Landover area of Prince Georges County. (U. Md., Ent. Dept.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Larval damage occurring in north central areas around Stillwater and Perry. Eggs present in east central areas, but not hatching on trees checked. Eggs also deposited in Okmulgee County. (Okla. Coop. Sur.). IDAHO - Adults emerging in Parma area. This is first year that numbers of adults seen before elms leaved out. (Gittins).

COTTONWOOD LEAF BEETLE (Chrysomela scripta complex) - FLORIDA - Severely infesting poplar at Lockhart (Mar. 26), weeping willow at Windermere (Apr. 12), Salix sp. at Winter Park (Apr. 22), Salix sp. at Orlando (Apr. 26), Orange County; and lightly infesting Salix sp. at Sanford, Seminole County (Apr. 24). (Fla. Coop. Sur.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - IOWA - Began emerging April 25 in Kiokuk County. (Iowa Ins. Inf.).

PINE ROOT COLLAR WEEVIL (Hylobius radicus) - MICHIGAN - Damaging Christmas tree plantations in Lake County where it seems to be spreading. (Mars).

PINE BARK APHID (Pineus strobi) - MARYLAND - Heavy on numerous white pines in Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Infesting white pines locally during April in Botetourt, Cumberland, Pittsylvania and Nottoway Counties. (Rowell, Seay, Schilling). OHIO - Eggs and nymphs moderate to heavy on white pines in Wayne County; approximately 5-10 percent of eggs hatched. (Lyon).

LARCH APHID (Cinara laricis) - WISCONSIN - Eggs hatched in Dane County. (Wis. Ins. Sur.).

SPITTLEBUGS - WISCONSIN - Spittle masses becoming noticeable on scrub pines in Spring Green area of Sauk County; species probably Aphrophora parallela. (Wis. Ins. Sur.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - MARYLAND - Heavy on silver maple at Jarrettsville, Harford County. (U. Md., Ent. Dept.).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - MARYLAND - Galls heavy on 5-year-old maple locally in Baltimore. (U. Md., Ent. Dept.). VIRGINIA - Infesting maples locally in Goochland County. (Rowell, Truett; Apr. 22).

APHIDS - DELAWARE - Several species common to fairly numerous on white birch, maple, boxelder and roses in New Castle County. (Burbutis). MARYLAND - Aphis spiraeicola heavy on spiraea at Lanham, Prince Georges County; A. gossypii heavy

on althaea in Queen Annes and Wicomico Counties; and Drepanaphis acerifoliae infesting swamp maple at University Park, Prince Georges County. (U. Md., Ent. Dept.). OHIO - Anuraphis viburnicola active on snowball in Pike County. (Neiswander). OKLAHOMA - Several species building up and heavy populations now present on variety of ornamentals over State. (Okla. Coop. Sur.). ARIZONA - Cinara tujafilina caused some damage to arborvitae in Yuma area. (Ariz. Coop. Sur.). NEVADA - Rhopalosiphum berberidis spottedly heavy on barberry in Reno, Washoe County, and Pterocomma sp. spottedly medium on Salix in Schurz, Mineral County. (Bechtel). CALIFORNIA - Acyrtosiphon solani and Nasonovia lactucae heavy on Sonchus oleraceus locally in Sacramento, Sacramento County. Rhopalosiphum conii adults heavy on honeysuckle in Arroyo Grande, San Luis Obispo County; and Neothomasia populicola adults medium on poplar leaves in San Luis Obispo, San Luis Obispo County. (Cal. Coop. Rpt.).

Coccids in Florida - Aonidiella taxus moderately infesting Podocarpus sp. at Lakeland, Polk County, April 22; Asterolecanium puteanum severely infesting 1,000 Japanese holly plants at Glen St. Mary, Baker County, on April 16; Fiorinia theae severely infesting camellia at Titusville, Brevard County, on April 25; Phenacaspis cockerelli moderate to severe on Magnolia grandiflora at Palm Bay (Apr. 23) and on bird-of-paradise at Cocoa Beach (Apr. 24), Brevard County; Protospulvinaria pyriformis moderately infesting gardenia at Largo (Apr. 22), Pinellas County, and tree ivy at Port Orange (Apr. 24), Volusia County; Pseudaulacaspis pentagona moderately infesting tea olive and Saissetia hemisphaerica moderately infesting Ficus laevigata at Eustis, Lake County, on April 19; and S. oleae moderately infesting Ficus pandurata at Miami, Dade County, on April 18 and gardenia at Largo, Pinellas County, on April 22. (Fla. Coop. Sur.).

WALNUT SCALE (Aspidiotus juglansregiae) - DELAWARE - Fairly common in New Castle County on holly, dogwood and "buckeye". (Bray).

BROWN SOFT SCALE (Coccus hesperidum) - OHIO - Light to moderate on citrus plants in greenhouse in Trumbull County; 12-20 crawlers under each scale frequently observed. (Lyon).

A MEALYBUG (Rhizoecus pritchardi) - PENNSYLVANIA - Abundant on roots of African-violet at Bethayres-Huntingdon Valley, Montgomery County, on February 8. Det. by H. L. McKenzie. First State Record. (Menusan).

A PSYLLID (Trioza magnoliae) - FLORIDA - Severely infesting sweetbay at Avalon, Orange County, on April 22. (Griffith).

OMNIVOROUS LOOPER (Sabulodes caberata) - CALIFORNIA - Medium populations on leaves and twigs of Kafirplum, Harpephyllum caffrum, in Cambria, San Luis Obispo County. (Cal. Coop. Rpt.).

NOCTUIDS - FLORIDA - Spodoptera exigua and Trichoplusia ni infesting 900 chrysanthemums at Punta Gorda, Charlotte County. (Walsh, Apr. 22).

A TULIP BORER (Euzophera ostricolorella) - INDIANA - Found in Owen County (Giese).

LEAF BEETLES - FLORIDA - Altica litigata infestations moderate to severe on Cuphea sp. at Cocoa, Brevard County, on April 24 (Levan) and A. marevagans severe on Ligustrum lucidum (glossy privet) at Macclenny, Baker County, on April 16 (Collins). Blepharida rhois infesting winged sumac and Rhabdopterus picipes feeding on foliage of wax-myrtle at Gainesville, Alachua County, on April 29 and 15, respectively. (Esser). B. rhois was causing extensive damage to foliage. (Fla. Coop. Sur.).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - RHODE ISLAND - Larvae damaging ornamental border of Sedum sp. in Newport, Newport County. (Mathewson).

JUNIPER TWIG MIDGES (Oligotrophus spp.) - INDIANA - Emerging in Marion County on May 2; oviposition imminent. (Schuder).

AN EPHYDRID FLY - OREGON - Larvae mining cotyledons of several thousand seedlings of Schefflera sp. in greenhouse in Portland, Multnomah County. (Goeden).

THRIPS - ARKANSAS - Undetermined species have been heavy on roses in some areas; infestations in some cases deformed blooms. (Ark. Ins. Sur.). RHODE ISLAND - Gnophotrips piniphilus moved out on new tips of black pine in Washington County. (Cartier). CALIFORNIA - Heavy populations of Heliothrips haemorrhoidalis, adults and immatures, on leaves of strawberry-tree in Morro Bay, San Luis Obispo County. (Cal. Coop. Rpt.).

MITES - FLORIDA - Brevipalpus phoenicis and Eotetranychus sexmaculatus infesting azalea at Floral City, Citrus County, on April 16. (Sellers). CALIFORNIA - Oligonychus coniferarum adults heavy on leaves of Juniper trees and Tetranychus telarius heavy on sweet peas and other garden plants in Needles, San Bernardino County. (Cal. Coop. Rpt.). IDAHO - Mites, probably Oligonychus ununguis, attacking Fitzer and Sabin junipers at Parma. (Scott).

INSECTS AFFECTING MAN AND ANIMALS

HORN FLY (Haematobia irritans) - GEORGIA - Infestations in Spalding County on treated dairy animals ranged 0-100 per animal (average 15). Treated beef animals had 10-200 (average 31) per animal; untreated animals had 0-400 (average 80) per animal. (Roberts, Apr. 26). ILLINOIS - Varied 2-30 (average about 5) per animal in southwest district. (Ill. Ins. Rpt.). OKLAHOMA - Building up across State with average counts of 300 per head on steers, 250 per head on cows, and 1,000 per head on bulls in Stillwater area, Payne County. Counts of 100-200 per head on cattle rapidly increasing in Ottawa County with 40-60 per head on calves and 100-150 per head on cows in Tillman County. (Okla. Coop. Sur.). ALABAMA - Medium in one herd in Macon County; controls underway. (McQueen).

FACE FLY (Musca autumnalis) - MICHIGAN - Adults averaged 3 per animal in Holstein herd in Shiawassee County on April 28 as temperatures went above 60° F. (Dowdy). IOWA - First cases noted in Benton County on cattle April 5 and at Ames, Story County, April 6. Early warm weather brought adults out of hibernation 3-4 weeks ahead of 1962. Egg laying assumed started. (Iowa Ins. Inf.).

HOUSE FLY (Musca domestica) - OKLAHOMA - Counts continue about 2 per Scudder grid in barns in Stillwater area, Payne County. (Okla. Coop. Sur.).

CATTLE GRUBS (Hypoderma spp.) - OHIO - Eighty percent of H. lineatum infestations occurred in a Herford herd in Jefferson County; many larvae appeared ready to leave the animals. (Haverfield). IOWA - Causing cattle to run north of Grinnell, Poweshiek County, on April 23; controls recommended to prevent additional weight loss. (Iowa Ins. Inf.). UTAH - Infestations moderate in Tooele County, most commonly 2-10 per animal or none. (Biggs, Knowlton, Apr. 27).

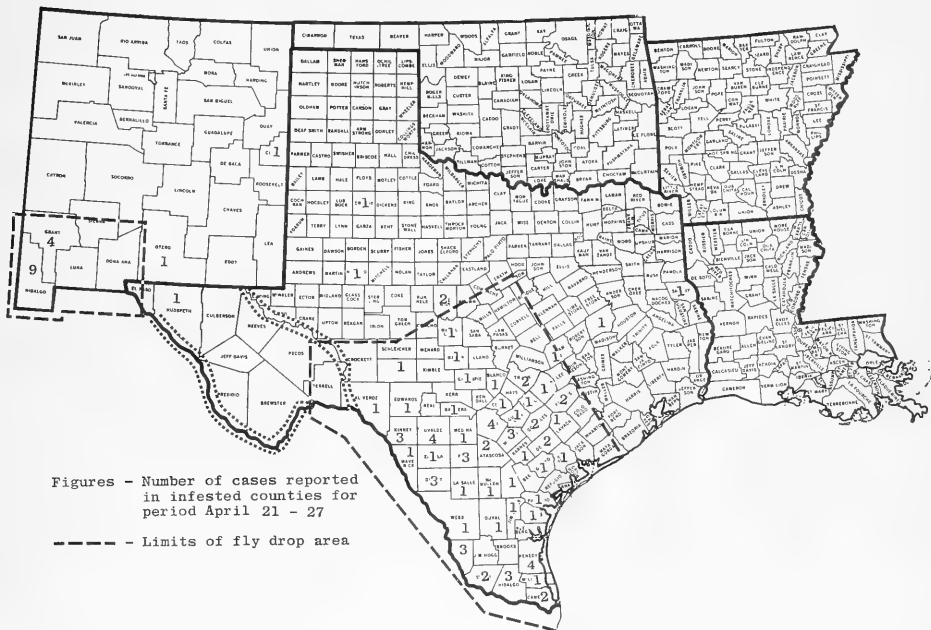
SHEEP KED (Melophagus ovinus) - NEVADA - Medium to heavy on several flocks in Fallon, Churchill County. (Busteed). UTAH - Number of herds of sheep in Sanpete County treated after shearing. (Knowlton, Funk).

DEER FLIES (Chrysops spp.) - OKLAHOMA - Moderate counts on cattle in Latimer County area. (Okla. Coop. Sur.).

BLACK FLIES - RHODE ISLAND - Biting in Coventry, Kent County, and Kingston, Washington County, areas since April 18. (Mathewson, Kerr, Cartier). MICHIGAN - Adults of undetermined species annoying to herd of young cattle in Shiawassee County. (Dowdy).

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

Livestock producers in Texas and New Mexico submitted larvae from 489 cases of myiasis to the identification center at Mission, Texas, during the period April 21-27. Total of 95 specimens from 55 counties in Texas and New Mexico were confirmed as screw-worm. This is a slight reduction in number compared with the previous week. During corresponding period in 1961, 975 cases were confirmed as screw-worm and 151 cases as not screw-worm. The large number of counties reporting the relatively few numbers of cases continues to indicate that the population is, although widespread, exceedingly sparse with no apparent tendency toward a buildup in any area. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period April 21 - 27
----- - Limits of fly drop area

MOSQUITOES - DELAWARE - Aedes canadensis adults annoying in one woodland area of Sussex County. (Burbutis). A. cantator adults common in areas of New Castle County. (Lake). MICHIGAN - Larvae and pupae of Aedes sp. common in woodland swamp areas in Shiawassee County. (Cushman). MINNESOTA - First hatch reported March 24; apparently occurred in melt water resulting from heavy snowstorm on March 19. Development of spring Aedes spp. until April 24 about two weeks ahead of 1961. Presently, development about one week ahead. First spring Aedes spp. found April 25 and, by May 2, less than 2 percent pupated. No adults noted. Larva of 16 Aedes spp. taken to date; no Culex spp. larvae found. (Minn. Ins. Rpt.). IOWA - Overwintered female Culex pipiens pipiens abundant in garages in Ames, Story County. (Iowa Ins. Inf.). OKLAHOMA - Psorophora spp. caused annoyance in favorable areas around Stillwater, Payne County; adults and larvae noted. (Okla. Coop. Sur.). UTAH - Some emergence noted in north end of Skull Valley, Tooele County. (Knowlton, Apr. 27).

WASPS - NEW JERSEY - Unspecified species causing considerable concern to many homeowners. (Ins.-Dis. Newsltr., Apr. 30).

FLEAS - MARYLAND - Undetermined species troubling to workers in brooder house in Worcester County. (U. Md., Ent. Dept.).

MITES - UTAH - Controls necessary in Tooele County area in poultry houses; controls effective in commercial flocks. (Biggs, Knowlton, Apr. 27).

AMERICAN DOG TICK (Dermacentor variabilis) - NEW JERSEY - Numerous in several areas. (Ins.-Dis. Newsltr., Apr. 30). RHODE ISLAND - Several complaints from Kingston and North Kingstown, Washington County, and Warwick, Kent County since April 18. (Mathewson, Cartier, Hannah). WISCONSIN - Increasing in Iron, Marathon and Shawano Counties. (Wis. Ins. Sur.). OKLAHOMA - Caused some concern to dog owners in Stillwater area, Payne County; Oklahoma City, Oklahoma County; and Washita, Caddo County. (Okla. Coop. Sur.).

BROWN DOG TICK (Rhipicephalus sanguineus) - FLORIDA - Collected on dog at Winter Park, Orange County. (Mrs. C. Dennis, Apr. 23). OKLAHOMA - Caused some concern to dog owners in Stillwater area, Payne County; Oklahoma City, Oklahoma County; and Washita, Caddo County. (Okla. Coop. Sur.).

A BROWN SPIDER (Loxosceles reclusa) - ARKANSAS - Several specimens reported during week; 2 found in concrete block house and 10 in utility room of brick veneer house in Little Rock. Specimens reported from Malvery, Dornalle and El Dorado also. (Ark. Ins. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

TERMITES - RHODE ISLAND - Alates swarming statewide. (Mathewson, Hyland, Cartier, Hannah). CONNECTICUT - Noted at Meriden, Wallingford, North Haven, Avon, Danbury, Manchester, Trumbull; Cornwall, West Hartford and New Haven since April 26. (Savos). NEW JERSEY - Swarming of unspecified species continues about homes. (Ins.-Dis. Newsltr., Apr. 30). VIRGINIA - Working in wall of home at Richmond; traveled through wood and sheetrock and made small holes in wall about 6 feet above floor level. (Tarpley, Davis, Apr. 18). IOWA - Swarmed in late March and early April; winged forms collected in Winneshiek and Madison Counties, pest control operators report swarming at Ottumwa, Wapello County, and Davenport, Scott County. (Iowa. Ins. Inf.). OHIO - Reticulitermes flavipes moderate to heavy in many homes throughout Jefferson and Carroll Counties; most calls pertain to this species. (Fisher). IDAHO - Reticulitermes hesperus infested 2 homes in Parma. (Scott).

BROWN-BANDED COCKROACH (Supella supellectilium) - OREGON - Now commonly occurring in Portland area homes, Multnomah County. (Every). UTAH - Infested homes and apartments. Cockroaches have been much more troublesome in Brigham City, Tremonton-Garland area, Box Elder County, the past few years than formerly. (Knowlton).

ORIENTAL COCKROACH (Blatta orientalis) - RHODE ISLAND - Infested homes in Providence April 18 and Johnston April 30, Providence County. (Cartier, Mathewson).

A WEEVIL (Hexarthrum ulkei) - COLORADO - Caused extensive damage to old pine flooring in home in Denver County. Collected July 19, 1962; det. by R. E. Warner. First State record. (Gilmore).

BLACK CARPET BEETLE (Attagenus piceus) - CONNECTICUT - Larvae active in many homes; adults occasionally reported. (Johnson, Savos).

CARPET BEETLE (Anthrenus scrophulariae) - UTAH - Caused number of complaints in Salt Lake County. (Knowlton).

LARDER BEETLE (Dermestes lardarius) - IOWA - Continual problem in many homes in Elburon, Tama County, last winter. (Iowa Ins. Inf.).

CASEMAKING CLOTHS MOTH (Tinea pellionella) - CALIFORNIA - Medium in interior of home and on walls at Bakersfield, Kern County. (Cal. Coop. Rpt.).

WEBBING CLOTHES MOTH (Tineola bisselliella) - OHIO - Treatments in several homes in Carroll County area necessary. (Fisher).

CLOTHES MOTHS - UTAH - Caused number of complaints in Salt Lake County. (Knowlton).

CARPENTER ANTS (Camponotus spp.) - RHODE ISLAND - Specimens received from all parts of State; alates common during past 3 months. (Mathewson, Cartier, King). CONNECTICUT - C. pennsylvanicus swarming and workers active in many homes. (Johnson, Savos). IOWA - Winged adults and workers of unspecified species noted in all parts of State. (Iowa Ins. Inf.).

PAVEMENT ANT (Tetramorium caespitum) - CONNECTICUT - Swarming in many homes; expected to swarm outside soon. (Savos).

CLOVER MITE (Bryobia praetiosa) - VERMONT - Causing complaints by entering buildings, getting on beds and on clothing on lines. (MacCollom). RHODE ISLAND - Household complaints statewide during April. (Mathewson, Cartier, Hannah). CONNECTICUT - Noted at Danbury, West Hartford, Meriden, Wallingford, Bradford, Stonington and New Haven since April 26. (Savos). NEW JERSEY - Very troublesome in households in many areas. (Ins.-Dis. Newsltr., Apr. 30). VIRGINIA - Common in and around home in Dublin, Pulaski County. (Rowell, Derting, Apr. 18). OHIO - Heavy in high school in Summit County. (Hunter). IOWA - Left winter quarters and appeared on walls of homes. (Iowa Ins. Inf.). WISCONSIN - Causing concern in Brown County. (Wis. Ins. Sur.). UTAH - Entered number of homes in Richfield area, Sevier County; Farmington-Layton area, Davis County; and Tremonton-home area, Box Elder County. (Knowlton). NEVADA - Continues a problem to homeowners in southern Washoe County. (Nev. Coop. Rpt.).

STORED-PRODUCT INSECTS

Stored-products insects in Oklahoma - SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) and CONFUSED FLOUR BEETLE (Tribolium confusum) infested candy in retail outlets in north central area. (Okla. Coop. Sur.).

KHAPRA BEETLE (Trogoderma granarium) - NORTH DAKOTA - Inspections of seedhouses negative at Fargo and West Fargo, Cass County; Bismark, Burleigh County; and Dickinson, Stark County. Few larval specimens of T. parabile and INDIAN-MEAL MOTH (Plodia interpunctella) noted. (N. D. Ins. Sur.).

BENEFICIAL INSECTS

LADY BEETLES - ARIZONA - Rodolia cardinalis controlling cottony-cushion scale (Icerya purchasi) in citrus orchards in Yuma, Yuma County. (Ariz. Coop. Sur.). UTAH - Hippodamia convergens active on alfalfa in Box Elder and Cache Counties. (Knowlton). COLORADO - Hippodamia sp. larvae appearing in eastern area in trace numbers. (Jenkins). KANSAS - Lady beetle larvae noted feeding on pea aphid (Acyrtosiphon pisum) on alfalfa in Dickinson County April 25. (Charlton). TEXAS - Several species plentiful in vetch in Denton County. (Turney). ALABAMA - Chilocorus stigma active in pecan and pines. Coleomegilla maculata fuscilabris active in turnips, wheat and vetch. Hippodamia convergens extremely active in wheat, cotton and beans. One specimen of Olla abdominalis taken from slash pines in Macon County. (McQueen). VIRGINIA - H. convergens and C. maculata fuscilabris extremely abundant in alfalfa at Goodview, Bedford County; numerous pupae received for identification. (Tarpley, Painter, Apr. 25). OHIO - Adults of Hippodamia sp. ranged 3-6 per 50 sweeps in alfalfa in Guernsey County large populations of lady beetles noted in alfalfa and red clover fields in many northwestern counties. (Lyon).

ASSASSIN BUGS - ALABAMA - Sinea diadema and unidentified species active on crimson clover in Macon County; averaged 2 per sweep. (McQueen).

BIG-EYED BUGS (Geocoris spp.) - ALABAMA - G. punctipes active in vetch-oat mixture in Elmore and Macon Counties. UTAH - G. decoratus now active in pea aphid (Acyrtosiphon pisum) infested alfalfa in Cache County. (Knowlton, Hanson). G. decoratus active in alfalfa in Box Elder and Cache Counties. (Knowlton).

DAMSEL BUGS (Nabis spp.) - MARYLAND - Moderate in alfalfa fields in Caroline, Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). ILLINOIS - Adults varied 0-50, average 10, per 100 sweeps in clover and alfalfa in southwest district. No nymphs noted. (Ill. Ins. Rpt.). COLORADO - Appearing in trace numbers in alfalfa in Larimer County. (Jenkins). UTAH - N. alternatus now active in pea aphid (Acyrtosiphon pisum) infested alfalfa in Cache County. (Knowlton, Hanson). N. alternatus active in alfalfa in Box Elder and Cache Counties. (Knowlton).

FLOWER BUGS (Orius spp.) - TEXAS - Plentiful in vetch in Denton County. (Turney). ALABAMA - O. insidiosus ranged 1-2 per 5 terminals on pecan throughout central area. (McQueen).

FLOWER FLIES - KANSAS - Larvae plentiful in orchards in Doniphan County; but with cool weather, these beneficial insects not keeping pace with aphid populations. (Eshbaugh, Apr. 24).

LACEWINGS - TEXAS - Plentiful in vetch in Denton County. (Turney). ILLINOIS - Chrysopa oculata adults varied 0-10, average about 3, per 100 sweeps in clover and alfalfa in northeast, east, and southwest districts. (Ill. Ins. Rpt.). ALABAMA - Chrysopa oculata active on clover, pecans, pines, oats and wheat throughout State; larvae extremely active in crimson clover fields. (McQueen). C. oculata attacked larvae of leaf roller moths and leaf folders on ornamentals in Mobile County. (Seibels).

A PARASITIC ICHNEUMONID (Bathyplectes curculionis) - COLORADO - Ranged 50-100 per 100 sweeps in alfalfafield in Larimer County. (Jenkins).

MISCELLANEOUS INSECTS

A WHITEFLY (Dialeurodes kirkaldyi) - FLORIDA - Collected on undetermined host at Key West, Monroe County, November 8, 1962, by J. Knowles. Determined by L. M. Russell. This is the first collection of the species in the State and on the Continent of North America. D. kirkaldyi was described in 1907 from Hawaii. Possible economic importance of species uncertain; recorded on citrus in Pacific

area. Detailed paper to be published by L. M. Russell in Florida Entomologist. (PPC).

SPRINGTAILS - DELAWARE - Undetermined species generally abundant throughout State especially on corn stubble, young cabbage plants, several lawns and one field of alfalfa in New Castle County. (Burbutis).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ALABAMA - First of year record; young larvae feeding on horse-nettle in Mobile County. (Seibels).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Adults heavy along roadsides and ditchbanks on mustard in Tulare, Kings and Fresno Counties. (Cal. Coop. Rpt.).

SMALL MILKWEED BUG (Lygaeus kalmii) - ALABAMA - Quite common on milkweeds in Lee and Macon Counties. (McQueen).

A COREID BUG (Leptocoris rubrolineatus) - CALIFORNIA - Many infestations occurring on boxelder and maple trees in Sacramento, Sacramento County; household nuisance in several instances. (Cal. Coop. Rpt.).

GIANT WATER BUG (Lethocerus americanus) - MICHIGAN - First specimen of season noted in Gogebic County, collected April 7. (Mattson).

BAMBOO POWDER-POST BEETLE (Dinoderus minutus) - GEORGIA - Probably this species in toy bamboo flute from Japan. (Beckham).

A SAP BEETLE (Carpophilus humeralis) - CALIFORNIA - This species and VINEGAR FLIES (Drosophila spp.) medium in open air market in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

STRIPED BLISTER BEETLE (Epicauta vittata) - ALABAMA - First of year record; one adult taken on horse-nettle in Mobile County. (Seibels).

CARPENTER BEE (Xylocopa virginica) - RHODE ISLAND - In flight in Jamestown, Newport County. (Mathewson, Apr. 24).

CORRECTIONS

CEIR 13(16):393 - GRASSHOPPERS - KANSAS - Line 2: Arphia pseudorietana should read Arphia pseudonietana.

CEIR 13(16):400 - Note on LARCH SAWFLY (Pristiphora erichsonii) should be for LARCH APHID (Cinara laricis).

ADDITIONAL NOTES

COLORADO - GRASSHOPPER nymphs, Aulocara sp. and Melanoplus sp., observed in all eastern areas; second instars of Aulocara sp. dominant at present in southeastern area. Populations 1-3 per square foot on grassland in Huerfano and Kiowa Counties. Counts 1-5 per square foot on Conservation Reserve land in Huerfano, Baca, Prowers, Kiowa, Cheyenne and Kit Carson Counties. BROWN WHEAT MITE (Petrobia latens) present on wheat in Baca, Prowers, Kiowa, Cheyenne and Kit Carson Counties at high populations of 100-500 per linear foot of drill row. Considerable loss has occurred due to drought, 35 percent due to disease and 15 percent due to CUTWORMS and mites. GREENBUG (Schizaphis graminum) present in trace numbers, 10-30 per 100 sweeps, in wheat in Kiowa, Cheyenne and Kit Carson Counties. (Jenkins). LYGUS BUG (Lygus spp.) nymphs 4-8 per 100 sweeps on alfalfa in Mesa County. (Bulla). ALFALFA WEEVIL (Hypera postica) populations, adults and larvae, low in field of alfalfa in Larimer County where no controls used. Population ranged 0-10 per 100 sweeps. Low population due primarily to presence of a parasite. Populations in Arkansas Valley show considerable

variation in numbers in different areas and use of controls does not appear to be the influencing factor. In Mesa County, no larvae found. (Jenkins, Schweissing, Bulla). PEA APHID (*Acyrtosiphon pisum*) populations at low levels in alfalfa in Larimer, Weld, Adams, Prowers, Otero and Crowley Counties. with counts 0-50 per 100 sweeps. Parasites an important factor in some areas. Populations light in Mesa County; 2-5 per 100 sweeps. (Jenkins, Bulla). SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) found in trace numbers on alfalfa in Otero County. (Schweissing). PINE NEEDLE SCALE (*Phenacaspis pinifoliae*) caused severe damage to ornamental pine in Larimer County. (Hantsbarger). OYSTERSHELL SCALE (*Lepidosaphes ulmi*) eggs not showing signs of development as of May 3 in Larimer County. (Jenkins).

Weather of the week ending May 7 (continued from page 476)

Alabaster, Alabama, demolished 8 homes and a service station. Twisters also struck in Missouri, Illinois, Indiana, Arkansas and Florida. As the storm moved eastward, snow, whipped by northwesterly winds, brought a return of winter to Lower Michigan and nearby parts of Indiana and Ohio. Grand Rapids received 3 inches of new snow. Midday temperatures remained in the 50's and 60's over the Great Plains and Mississippi Valley almost to the Gulf. Frontal showers occurred in the Far Northwest, and hot sunshine over the southwestern deserts shot the mercury into the 90's. Cool air continued moving southward over the central Plains and Prairies. Numerous new record low temperatures were registered from Kansas to Tennessee and north-eastward on the first day of the month. Also on May 1, a few flakes of snow fell in the Nation's Capital, the first May snowfall in Washington in 20 years. Record-breaking low temperatures occurred in North Carolina on May 2. While the chilly weather continued in the Northeast, strong southerly winds, sometimes gusty, brought summer temperatures, increasing cloudiness, and scattered thunderstorm activity to the Great Plains and Mississippi Valley. By Thursday, the storm in the Northeast was bringing cold rain and snow to New England. Minimum temperatures were in the 30's and 40's and 3 inches of snow fell in the Berkshires of Massachusetts. Meanwhile, a storm in the Far Northwest moved inland. Rain spattered and hail rattled in spots of Oregon and Washington. At the opposite corner of the Nation, drought-breaking rains soaked the Florida Peninsula. Almost 10 inches fell at Boca Raton by dawn Saturday. Picnic weather prevailed over much of the Nation on Saturday. It was bright, sunny and pleasantly warm at Churchill Downs, Kentucky, for the annual Run for the Roses. However, a weak storm over Kansas began pumping moisture-laden Gulf air northward to clash with cold Polar air from Canada. This produced a rain belt from the lower Mississippi Valley to Lower Michigan. Hailstones up to 3/4 inch in diameter fell at Kansas City. A tornado damaged farm buildings near Homewood, Kansas, and gusts reached 77 m.p.h. at Detroit, Michigan. Thunderstorm activity over the Southern Plains increased Sunday afternoon and evening. A 7-inch downpour flooded highways near Abilene, Texas, and damaging winds struck San Angelo. The arid Southwest warmed into the 90's. On May 4, the mercury shot to 103° at Kingman, Kansas, the first 100° temperature in the State in 1963. Rainfall for the week exceeded 0.50 inch over most of the eastern half of the Nation and near the coast of Washington, Oregon and northern California. Much of these areas received more than 1.00 inch and numerous localities received 2.00 inches or more. No rain of importance fell over California, except along the extreme northern coast, Nevada, Utah, Arizona, New Mexico and western Texas.

Temperatures averaged above normal from the central Plains southwestward to Mexico, over extreme southern New England, and parts of Michigan, Wisconsin and Minnesota. Temperatures averaged below normal from Indiana, Ohio and Pennsylvania southward to the Gulf and over the northern High Plains, northern Rockies and the Pacific Northwest. Temperature departures ranged from +6° at Winnemucca, Nevada, and Winslow, Arizona, to -6° in north central Tennessee. (Summary supplied by U. S. Weather Bureau).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Protoparce quin.	Ostrinia sexta	Heliiothis nubil.	Heliiothis zea vires.
ARKANSAS								
Hope 4/25-5/1	3	1						4
Warren 4/25-5/1								1
Kelso 4/25-5/1	8	1	1					4
Fayetteville 4/25-5/1	7	5	2					2
FLORIDA								
Gainesville 5/2		1						
GEORGIA								
Tifton 4/25-5/1					3		28	7
ILLINOIS (County)								
Champaign 4/26-5/2	38	7	5					
IOWA								
Soldier 4/5-7		5	2					
Soldier 4/8-15		2	1					
Hastings 4/1-7	1	7	1					
Hastings 4/8-15	3	7	3					
Dubuque 4/1-15	59	2	5					
Columbus Jct. 4/16-18	71	67	114					
Columbus Jct. 4/28	524	138	120					
KANSAS								
Garden City 4/24,26,29	12	3						
Manhattan 4/26-5/3	7	4	2					1
Mound Valley 4/25,27,30	6	1		1				
Wathena 4/24-27	43	8	2	1			1	
MISSISSIPPI								
*Stoneville 4/26-5/2	64	13	8	35	2			6 5
MISSOURI								
Portageville 4/17-24	40	1						
Portageville 4/25-5/1	56	4	1					7
NEBRASKA								
North Platte 4/18,19,24	16	5	9					
Lincoln 4/13-24	13	12		5				
SOUTH DAKOTA								
Brookings 5/2	2							
TEXAS								
*Brownsville 4/26-5/2	10	367	54	21	16	46		483 25
Waco 4/27-5/3	4	14	34	29				70 1
WISCONSIN								
Middleton 4/26-5/2	35	3	5					
Madison 4/26-5/2	91	6	6					

Additional light trap collections

TEXAS (Brownsville 4/26-5/2) Laphygma fragiperda - 253; Trichoplusia ni - 3,173;
Feltia subterranea - 2,407; Pectinophora gossypiella - 20; Loxostege similalis - 19,051.

*Two traps Stoneville; six traps Brownsville.

INTERCEPTIONS OF SPECIAL INTEREST AT U. S. PORTS OF ENTRY

Some important interceptions that were reported by the Plant Quarantine Division, ARS, USDA, on February 28, 1963, follow. These reports are based on the identifications received from Federal taxonomists at the U. S. National Museum during the month, but do include any of special interest from recent months that were not previously reported.

MEXICAN FRUIT FLY (Anastrepha ludens) - (Lw.) (or probably that species) 81 times (18 times in stores and 63 times in baggage); 1 time at Chicago, Illinois; 2 times at San Ysidro, California; in Texas, 5 times at Nogales, 14 times at El Paso, 5 times at Del Rio, 24 times at Laredo, 4 times at Eagle Pass, 3 times at Hidalgo, 4 times at Brownsville and 5 times at Houston; 1 time at Baltimore, Maryland; 13 times at Idlewild International Airport, New York.

A WIREWORM (Agriotes sp.) (an important European genus) larvae in eggplants in stores at New York, New York.

MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) (or probably that species) 47 times (8 times in stores, 35 times in baggage and 4 times in mail); 2 times at San Juan, Puerto Rico; 1 time at Houston, Texas; 2 times at Miami, Florida; 9 times at Honolulu, Hawaii; 4 times at Boston, Massachusetts; 2 times at Philadelphia, Pennsylvania; 2 times at Tampa, Florida; 11 times at Idlewild International Airport, New York; 14 times at New York, New York.

A FRUIT FLY (Ceratitis colae Silv.) (or possibly this African species) in baggage at Idlewild International Airport, New York.

PEACH FRUIT MOTH (Carposina niponensis Wlsm.) 3 times in apple stores; one time each at Wilmington, North Carolina; Philadelphia, Pennsylvania; and Honolulu, Hawaii.

OLIVE FRUIT FLY (Dacus oleae) (Gmel.) 14 times; 1 time at Baltimore, Maryland; 1 time at District of Columbia Inspection House; 12 times at New York, New York.

FRUIT FLIES (Dacus spp.) 10 times (6 times in stores, 3 times in baggage, 1 time in mail); 1 time at Philadelphia, Pennsylvania; 1 time in Hawaii; 3 times at New York, New York; 1 time at District of Columbia Inspection House; 4 times at Boston, Massachusetts.

A GRASSHOPPER (Gastrimargus brevipes Sjost.) (a pasture damaging species in parts of East and Southern Africa) with animal shipment at Idlewild International Airport, New York.

BEAN BUTTERFLY (Lampides boeticus (L.)) in string beans in baggage at Idlewild International Airport, New York.

A WEEVIL (Lixus sp.) (important genus in Southern Europe and Mediterranean region) in turnips in stores at New York, New York.

A TERMITE (Nasutitermes chaquimayensis (Holmg.)) (a neotropical species) in plant material cargo at Miami, Florida.

EUROPEAN CARROT BORER (Phalonia zephyrana (Treit.)) twice in carrots in stores at Philadelphia, Pennsylvania.

A POTATO WEEVIL (Premnotrypes sp.) in stores at Mobile, Alabama.

EUROPEAN CHERRY FRUIT FLY (Rhagoletis cerasi (L.)) 77 times (46 times in stores and 31 times in baggage); 1 time at Boston Massachusetts, and 76 times at Idlewild International Airport, New York.

KHAPRA BEETLE (Trogoderma granarium Everts) (or probably that species) 20 times (3 times in stores, 2 times in ship's holds, 1 time in baggage and 14 times contaminating cargoes of gum arabic, gum karaya, guar gum); 1 time each at Port Arthur and Corpus Christi, Texas; 5 times at Charleston, South Carolina; 2 times at Baltimore, Maryland; 11 times at New York, New York.

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Oats IN Wyoming DURING 1962
(Commodity) (State or District) (Year)

A. Pest or pest complex	<u>Wireworms, greenbug, English grain aphid grasshoppers, grain aphids, Army cutworm</u>	
B. Number of <u>acres</u> ^a produced (From CRS)	No.	<u>136,732</u>
C. Average yield per <u>acre</u> ^a (From CRS)	Units/	<u>45 bu.</u>
D. Price ^b per unit (bu.) ^c (From CRS)	\$/	<u>.63</u>
E. <u>Acres</u> ^a needing control	No.	<u>75,393</u>
F. <u>Acres</u> ^a treated	No.	<u>41,804</u>
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	<u>7.0</u>
I. Loss in yield, units per <u>acre</u> ^a , C x H	Units/	<u>3.15 bu</u>
J. Loss in yield, \$ per <u>acre</u> ^a , D x I	\$/	<u>1.98</u>
K. Loss in quality, \$ per <u>acre</u> ^a	\$/	<u></u>
L. Yield loss for all <u>acres</u> ^a , (E-F) x I	Units	<u>105,805 bu.</u>
M. Control cost, \$ per <u>acre</u> ^a	\$/	<u>3.00</u>
N. Control cost for all <u>acres</u> ^a , F x M	\$	<u>125,412</u>
O. Yield loss for all <u>acres</u> ^a , (E-F) x J	\$	<u>66,506</u>
P. Quality loss for all <u>acres</u> ^a , (E-F) x K	\$	<u></u>
Q. Combined control cost and losses, N + O + P	\$	<u>191,918</u>

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Dale Fullerton

Date 12-21-62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING _____	Wheat _____ (Commodity)	IN _____	Wyoming _____ (State or District)	DURING _____	1962 (Year)
		Wireworms, greenbug, English grain aphid, grasshoppers, grain aphids, army cutworm			
A. Pest or pest complex _____					
B. Number of _____ acres ^a produced (From CRS)			No.		268,173
C. Average yield per _____ acre ^a (From CRS)			Units/		38 bu.
D. Price ^b per unit (bu.) ^c (From CRS)			\$/		1.72
E. _____ Acres ^a needing control			No.		194,687
F. _____ Acres ^a treated			No.		56,330
G. Reduction due to not treating where needed:					
H. Loss in yield, percent			%		7.0
I. Loss in yield, units per _____ acre ^a , C x H			Units/		2.66 bu.
J. Loss in yield, \$ per _____ acre ^a , D x I			\$/		4.58
K. Loss in quality, \$ per _____ ^a			\$/		
L. Yield loss for all _____ acres ^a , (E-F) x I			Units		368,029 bu.
M. Control cost, \$ per _____ acre ^a			\$/		3.00
N. Control cost for all _____ acres ^a , F x M			\$		168,990
O. Yield loss for all _____ acres ^a , (E-F) x J			\$		633,675
P. Quality loss for all _____ ^a , (E-F) x K			\$		
Q. Combined control cost and losses, N + O + P			\$		802,665

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by _____ Dale Fullerton _____

Date 12-21-62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Barley IN Wyoming DURING 1962
(Commodity) (State or District) (Year)

A. Pest or pest complex	<u>Wireworms, greenbug, English grain aphid grasshoppers, grain aphids, army cutworm</u>	
B. Number of <u>acres</u> ^a produced (From CRS)	No.	<u>107,823</u>
C. Average yield per <u>acre</u> ^a (From CRS)	Units/	<u>40 bu.</u>
D. Price ^b per unit (bu.) ^c (From CRS)	\$/	<u>.86</u>
E. <u>Acres</u> ^a needing control	No.	<u>52,548</u>
F. <u>Acres</u> ^a treated	No.	<u>22,100</u>
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	<u>6.0</u>
I. Loss in yield, units per <u>acre</u> ^a , C x H	Units/	<u>2.4 bu.</u>
J. Loss in yield, \$ per <u>acre</u> ^a , D x I	\$/	<u>1.82</u>
K. Loss in quality, \$ per <u>acre</u> ^a	\$/	<u></u>
L. Yield loss for all <u>acres</u> ^a , (E-F) x I	Units	<u>73,171 bu.</u>
M. Control cost, \$ per <u>acre</u> ^a	\$/	<u>3.00</u>
N. Control cost for all <u>acres</u> ^a , F x M	\$	<u>63,300</u>
O. Yield loss for all <u>acres</u> ^a , (E-F) x J	\$	<u>55,488</u>
P. Quality loss for all <u>acres</u> ^a , (E-F) x K	\$	<u></u>
Q. Combined control cost and losses, N + O + P	\$	<u>118,788</u>

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Dale Fullerton

Date 12-21-62

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Oats IN North Dakota DURING 1962
 (Commodity) (State or District) (Year)

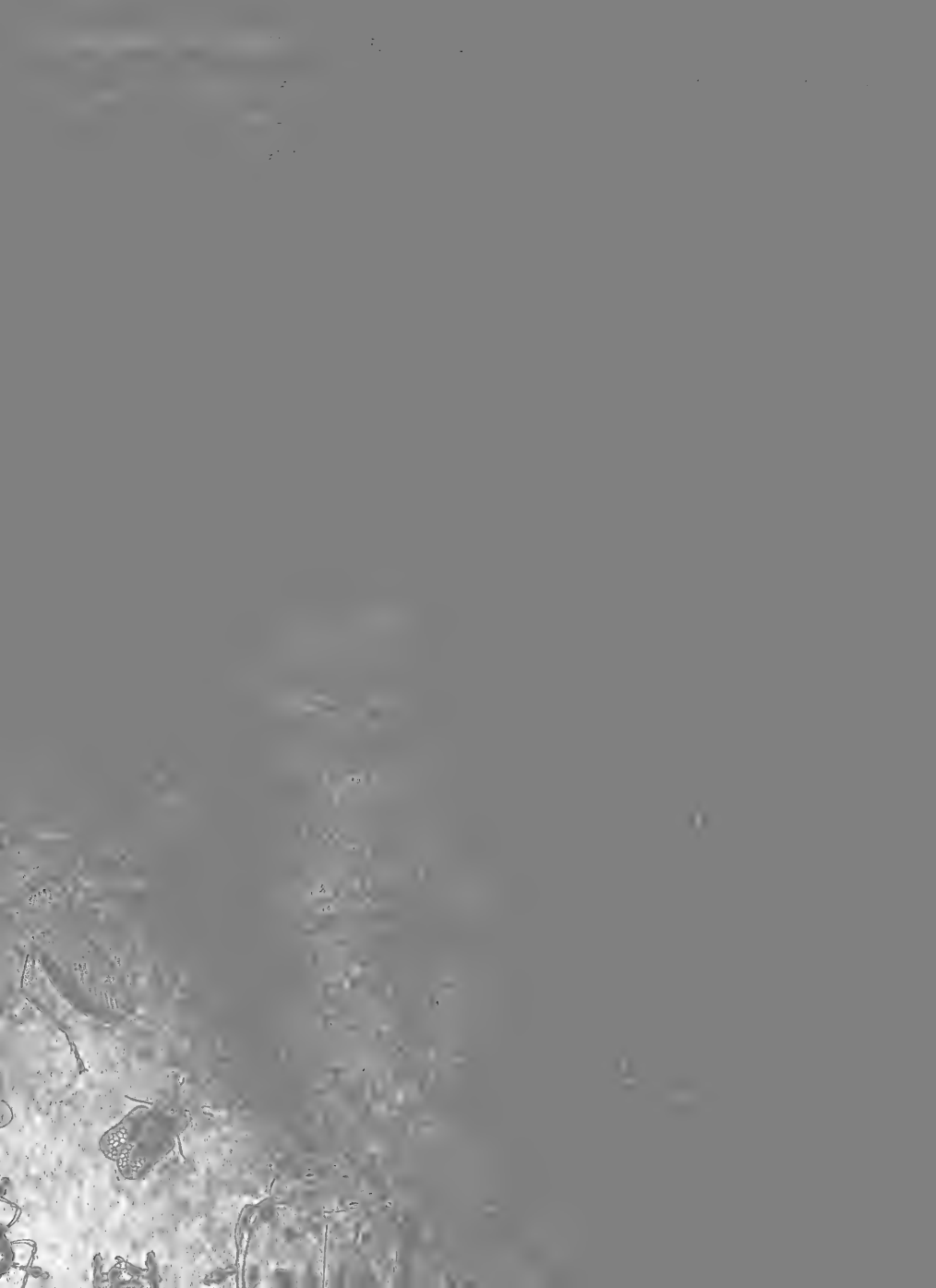
A. Pest or pest complex <u>Grasshoppers</u>		
B. Number of <u>acres</u> ^a produced (From CRS)	No.	<u>1,886,000</u>
C. Average yield per <u>acres</u> ^a (From CRS)	Units/	<u>52 bu.</u>
D. Price ^D per unit (bu.) ^C (From CRS)	\$/	<u>.51</u>
E. <u>Acres</u> ^a needing control	No.	<u>175,000</u>
F. <u>Acres</u> ^a treated	No.	<u>50,000</u>
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	<u>1</u>
I. Loss in yield, units per <u>acre</u> ^a , C x H	Units/	<u>.52 bu.</u>
J. Loss in yield, \$ per <u>acre</u> ^a , D x I	\$/	<u>.27</u>
K. Loss in quality, \$ per <u>acre</u> ^a	\$/	<u></u>
L. Yield loss for all <u>acres</u> ^a , (E-F) x I	Units	<u>65,000 bu.</u>
M. Control cost, \$ per <u>acre</u> ^a	\$/	<u>.75</u>
N. Control cost for all <u>acres</u> ^a , F x M	\$	<u>37,500.00</u>
O. Yield loss for all <u>acres</u> ^a , (E-F) x J	\$	<u>33,750.00</u>
P. Quality loss for all <u>acres</u> ^a , (E-F) x K	\$	<u></u>
Q. Combined control cost and losses, N + O + P	\$	<u>71,250.00</u>

Comment: 7.6 percent of acreage abandoned

- a. Acres, head of cattle or other producing units used by Crop Reporting Service,
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Richard D. Frye

Date 2-1-63



July 17, 1962

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COOPERATIVE
ECONOMIC INSECT
REPORT



Issued by
PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D.C.

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Hatching of GRASSHOPPERS reported in Minnesota, Wisconsin, Missouri and Texas; nymphs active in Oklahoma, Texas and Alabama. (p. 509). PEA APHID counts variable in Kansas; locally very heavy in Butler County. Potentially a problem in Wisconsin and increasing in Colorado. (pp. 509, 510, 536). SPOTTED ALFALFA APHID collected in Virginia. MEADOW SPITTLEBUG potentially a problem in Wisconsin. (p. 510). ALFALFA WEEVIL widespread and causing serious damage to untreated alfalfa in sections of Virginia, Maryland and Delaware; results of fall treatments east of Blue Ridge Mountains in Virginia variable. (p. 511). ARMY CUTWORM caused severe damage to older alfalfa in area of Humboldt County, Nevada, and averaged one per square foot in alfalfa and small grains in Albany County, Wyoming. (p. 512).

CEREAL LEAF BEETLE treatment program underway in Berrien County, Michigan; surveys in Ohio, Illinois and Wisconsin negative. (pp. 512, 536). SIX-SPOTTED LEAFHOPPER populations many times greater than at same time in 1957 in Minnesota when State had its last damaging outbreak, and populations more prevalent than in recent years in Wisconsin; also, adults common in South Dakota. A CHINCH BUG unusually abundant on corn in southern Louisiana, and unprecedented outbreak of CYDNID BUGS (*Sehirus cinctus* and *Corimelaena* sp.) occurred throughout southern area of same State. (p. 513). GREENBUG found on oats in Minnesota, Iowa and Illinois. (pp. 514, 536). CORN EARWORM light to extremely heavy in whorls of corn in southern Louisiana. (p. 514). EUROPEAN CORN BORER survival in Iowa averaged 76 percent. (p. 536).

Light to heavy HALL SCALE populations found on few peach and almond trees on property in Stilson Canyon in Chico area of Butte County, California; previously eradicated from city of Chico, Butte County, and Davis, Yolo County. PLUM CURCULIO heavy on untreated plums in southern Louisiana, and moderate numbers appearing on peaches and plums in Jefferson County, Texas; generally light in Missouri. CODLING MOTH emergence noted in Maryland, Missouri, Wisconsin and Indiana. (p. 516). Egg masses of RED-BANDED LEAF ROLLER appearing in New York, Pennsylvania, Maryland and Michigan; infestations present over most of Missouri. EUROPEAN RED MITE activity noted in Connecticut, New York, Maryland and Michigan. TWO-SPOTTED SPIDER MITE unusually heavy on apples in areas of Lafayette and Jackson Counties, Missouri. (p. 517).

CABBAGE MAGGOT continues most important vegetable insect problem in Massachusetts; adult populations high and egg laying very heavy in Bridgeport area of Connecticut. Egg laying by cabbage maggot also noted in Michigan and Oregon. COLORADO POTATO BEETLE activity and damage reported in Alabama, Delaware, Maryland, Virginia, Oklahoma and Washington. (p. 519).

NANTUCKET PINE TIP MOTH locally heavy in southern Arkansas; and heavy, isolated infestations present on pines in Houston, Henry, Barbour and Russell Counties, Alabama. (p. 524). Injury by CANKERWORMS increasing in Connecticut and defoliation heavy in portions of central, eastern and southeastern Nebraska. Heavy infestation expected in Minnesota and potentially a problem in Wisconsin. FOREST TENT CATERPILLAR damage ranged from moderate to complete defoliation of tupelo-gum, sweetgum and several species of oak throughout southern Louisiana. (p. 525). ELM LEAF BEETLE beginning to cause damage to elms in several States. (p. 526).

FACE FLY activity noted on livestock in Virginia, Ohio, Michigan, Illinois, Wisconsin and Missouri. HORN FLY building up in number of States; controls applied in Alabama. HORSE FLIES moderate to heavy in eastern Oklahoma and

(Continued on following page)

heavy along coastal areas of Louisiana; DEER FLIES becoming annoying to man and animals in Dorchester County, Maryland. BLACK FLIES annoying man and animals in many Lower Peninsula counties of Michigan and biting in Rhode Island. (p. 530).

DETECTION

A DRYWOOD TERMITE (*Incisitermes minor*) recorded for first time in Nevada. (p. 533).
CEREAL LEAF BEETLE found in Hillsdale County, Michigan, a new county record. (p. 536).

CORRECTIONS and ADDITIONAL NOTES

See pages 533 and 536.

SPECIAL REPORTS

Beet Leafhopper Survey in Idaho. (p. 520).

Status of the Screw-worm in the Southwest. (p. 529).

Hawaiian Insect Notes. (p. 535).

Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1962. (p. 537).

Reports in this issue are for week ending May 10, unless otherwise indicated.

WEATHER OF THE WEEK ENDING MAY 13

Pleasant spring weather prevailed over most of the Nation at the beginning of the week. Sunshine and mild temperatures visited most of the country. Midday temperatures reached the 60's and 70's over the Northeast and the 80's over the Southeast, the Plains and the Rocky Mountain States. A few locations in the southwestern deserts experienced temperatures above the 100° mark on Tuesday. By midweek, a strong flow of warm air poured northward over the eastern two-thirds of the Nation. In contrast to the unprecedented low temperatures registered at a number of stations on May 1 and 2, record high temperatures were logged on the 8th and 9th as an early season heat wave spread over the central and southern Plains and eastward to the Atlantic. Afternoon temperatures reached the 90's at many locations. Maximum temperatures reached 100° or higher in Texas, Oklahoma, Kansas and southeastern Colorado. On May 9, the temperature at Washington National Airport climbed to 96°, setting a new early season record. The previous record was set on May 18, 1877.

Meanwhile, cool Canadian air poured over the Border into our northern tier of States producing general cloudiness from Washington to Maine. The cold air held afternoon temperatures to the 50's and 60's from the Dakotas to Maine, and pushed early morning temperatures downward into the 20's and 30's. Thunderstorms broke out along the forward edge of the cold air. Snow fell in the northern Rockies and in northern New England. The New England storm dumped 7 inches of snow at Farmington, Maine, a record for the State for so late in the season.

By the weekend, the warm air was in full retreat and cool, comfortable weather replaced the oppressive temperatures in the central and eastern part of the United States. Hot, humid weather continued over the southern Plains. Presidio, Texas, registered 107° on Saturday.

(Continued on page 523)

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - UTAH - Hatching recently commenced in Tooele-Grantsville area alfalfa, Tooele County. (Knowlton). TEXAS - Unusually large numbers of nymphs appearing in areas of Limestone County. (Brown). OKLAHOMA - Nymphal surveys made in Carter, Murray and Harmon Counties. Range checks in Carter County showed 2-8 nymphs per square yard, with Melanoplus bivittatus and M. packardii dominant. Murray County range checks showed 1-8 per square yard, with M. bivittatus, M. packardii and Ageneotettix deorum dominant. Cropland checks showed 2 per square yard in Carter County and fewer than 1 per square yard in Murray County. Harmon County checks showed an average of 9 per square yard with A. deorum and Amphitornus coloradus dominant. (Okla. Coop. Sur.). MISSOURI - Hatching progressing rapidly in southwest. Majority of nymphs present appear to be Melanoplus sanguinipes. M. bivittatus nymphs ranged from first to third stage. Counts in two areas in southwest revealed 4-16 M. bivittatus per square yard. (Munson, Thomas, Wood). WISCONSIN - M. femurrubrum egg pods in Rock and Green Counties all in coagulated stage. Few first instars of M. sanguinipes noted along roadsides and in sparse, sandy alfalfa fields in Richland, Sauk, Iowa and Dane Counties. First instars of M. bivittatus observed at edge of soil bank field in Adams County. Conditions generally dry; situation favorable for grasshopper buildup. (Wis. Ins. Sur.). MINNESOTA - Few first instars of Melanoplus spp. observed in Anoka and Dakota Counties. In east central district, eggs of M. femurrubrum and M. differentialis coagulated; M. sanguinipes, coagulated to early eye spot; M. bivittatus and M. packardii segmented. (Minn. Ins. Rpt.). ALABAMA - Heavy local infestation of Melanoplus sp. nymphs on oats and clover in Lowndes County. (Mathews).

MORMON CRICKETS - UTAH - Infesting 50 acres in mountains near Tooele, Tooele County. (Knowlton).

PEA APHID (Acyrtosiphon pisum) - WASHINGTON - Low population of small and mature apterae on alfalfa at Walla Walla and Lowden, Walla Walla County, probably due to parasitism by Aphidius spp. (Landis). UTAH - Light to moderate in Tooele, Utah, Salt Lake, Box Elder and Cache County alfalfa; one percent of aphids now winged in some fields. No damaging populations encountered. (Knowlton). NEW MEXICO - Generally light, but apparently building up in Bernalillo, Sandoval and Valencia County alfalfa. (N. M. Coop. Rpt.). OKLAHOMA - Light to moderate populations continue in uncut alfalfa throughout south central and north central areas. (Okla. Coop. Sur.). KANSAS - Counts ranged 5-200 per sweep in most alfalfa in central, south central, southeast, east central and northeast areas. Heaviest counts observed in northern Butler County where 10 sweeps collected a tennis ball-size group of aphids. Honeydew heavy in latter field. Up to 15 per leaflet noted. Beneficial insects scarce in field. (Peters). NEBRASKA - Approximately 500 per 10 sweeps in Otoe County alfalfa. (Bergman). WYOMING - Appearing on alfalfa in Albany County; averaged 20 per 100 sweeps. (Fullerton). MINNESOTA - Counts on alfalfa ranged 60-200 per 100 sweeps in east central district. (Minn. Ins. Rpt.). WISCONSIN - Counts per sweep in alfalfa by county averaged 12 in Jefferson and Walworth, 10 in Racine, 5 in Marquette, 4 in Adams, Richland and Kenosha, 3 in Iowa, 2 in Crawford, 1.5 in Grant and Dane, 1 in Vernon, Rock, Green and Sauk, and 0.5 in Lafayette and Columbia. Alates appearing in alfalfa in southern area; populations relatively high and parasitism low. Potentially a problem. (Wis. Ins. Sur.). MISSOURI - Counts very low in clover and alfalfa in southeast and southwest areas. Parasite and predator populations increased rapidly and controlled infestations in southern area. (Munson, Thomas, Wood). ILLINOIS - Light, 0-10 per sweep, in clover and alfalfa in east and northeast districts, and moderate, 30-300 per sweep, in alfalfa in west and west-southwest districts. (Ill. Ins. Rpt.). INDIANA - Ranged 20-300 per 25 sweeps in alfalfa in Decatur and Shelby Counties. (Matthew). OHIO - Nymphs and adults 10-20 per sweep in alfalfa in Wayne County. Averaged 2-3 nymphs and adults per sweep in Fulton and Lucas Counties from alfalfa and red clover. (Treece, Lyon). PENNSYLVANIA - First appearance on alfalfa in south central area May 2. (Pepper). NEW JERSEY - Survey of several fields of alfalfa

from Burlington to Warren County, shows 1-6 per sweep; ranged 1-4 per sweep in Gloucester, Salem and Cumberland Counties. (Ins.-Dis. Newsltr., May 7). MARYLAND - Averaged over 75 per sweep on alfalfa at Annapolis, Anne Arundel County, and over 300 per sweep on alfalfa at Cambridge, Dorchester County. (U. Md., Ent. Dept.). VIRGINIA - Infestations ranged from medium in Botetourt, Page and Warren Counties to light in Rappahannock to very light in Alleghany, Spotsylvania and Louisa Counties. (Tarpley). Reported severe on red clover at Boones Mill, Franklin County. (Tarpley, Milford, Welch).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - ARIZONA - Numerous in Salt River Valley alfalfa; appearing on many other crops but not causing injury. Damage to alfalfa light. (Ariz. Coop. Sur.). OKLAHOMA - Moderate infestation reported from Cotton County (southwest); light counts of 0-30 per 10 sweeps in Murray County (south central). None noted in Noble, Kay and Garfield Counties (west central). (Okla. Coop. Sur.). NEBRASKA - Averaged 30 per 10 sweeps in Howard County. (Calkins). ILLINOIS - Averaged 7 per sweep in field of alfalfa in Mason County, central district. None found in west or west-southwest district. (Ill. Ins. Rpt.). VIRGINIA - Single specimen collected in Henry County May 5 and single winged specimen collected in Montgomery County on May 10. (Pienkowski).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - WISCONSIN - Eggs began hatching in southern area during last week of April, and spittle masses becoming noticeable in many fields. Potentially a problem. Counts per 10 stems in alfalfa by counties 13 in Iowa, 7 in Sauk, 5.5 in Grant, 5 in Crawford, 3 in Rock, 1.5 in Jefferson and 1 in La Crosse and Dane. (Wis. Ins. Sur.). ILLINOIS - Nymphs per 100 sweeps varied 0-10 (averaged 6) in clover and alfalfa in northeast district and 4-36 (averaged 26) in east district. (Ill. Ins. Rpt.). MARYLAND - Nymphs ranged 0.5-4 per 10 stems of red clover in Queen Annes and Talbot Counties. Noticeable on red clover in Frederick County. (U. Md., Ent. Dept.). DELAWARE - First nymphs of season common on some alfalfa in New Castle County. (Burbutis, May 7).

POTATO LEAFHOPPER (*Empoasca fabae*) - ILLINOIS - Adults per 100 sweeps varied 0-8 in clover and alfalfa in northeast, 0-4 in east, 50-150 in central, 20-110 in west and 80-960 in west-southwest district. (Ill. Ins. Rpt.). INDIANA - Leafhoppers, probably this species, ranged 1-9 per 25 sweeps in Decatur and Shelby County alfalfa. (Matthew). VIRGINIA - Present in Montgomery County on alfalfa and birdsfoot trefoil and observed at lights. (Pienkowski).

A LEAFHOPPER (*Cuerna* sp.) - WYOMING - Adults averaged 43 per 100 sweeps in alfalfa in Albany County. (Fullerton).

TARNISHED PLANT BUG (*Lygus lineolaris*) - LOUISIANA - Nymphs and adults present in white clover in Acadia Parish; populations as high as 30 per 100 sweeps. (Newsom). ALABAMA - Very active on clover, oats, wheat and pecans in central area. (McQueen). MARYLAND - Nymphs abundant, averaging over 5 per sweep, on alfalfa at Annapolis, Anne Arundel County. Adults moderate in red clover in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). RHODE ISLAND - Appearing at Peace Dale, Washington County. (Cartier). WISCONSIN - Averaged about 3 per 10 sweeps in most alfalfa. (Wis. Ins. Sur.). MINNESOTA - Averaged 25 per 100 sweeps in east central, southeast and south central districts. (Minn. Ins. Rpt.).

LYGUS BUGS (*Lygus* spp.) - NEW MEXICO - Averaged 5-10 per 25 sweeps in Valencia County alfalfa. (N. M. Coop. Rpt.). OKLAHOMA - Light to moderate, 5-25 per 10 sweeps, noted in alfalfa in north central area. Up to 30 per 10 sweeps observed in Murray County, south central. (Okla. Coop. Sur.). INDIANA - Adults ranged 4-34 per 25 sweeps; early instars ranged 6-24 per 25 sweeps. (Matthew).

PLANT BUGS (*Adelphocoris* spp.) - MINNESOTA - *A. lineolatus* and *A. rapidus* recently hatched in southeast and south central districts. (Minn. Ins. Rpt.). WISCONSIN - *A. rapidus* nymphs appearing in alfalfa; averaged 5 per 10 sweeps in Dane County field. (Wis. Ins. Sur.).

STINK BUGS (Hymenarcys nervosa and Euschistus servus) - LOUISIANA - Present on clovers generally; ranged up to 15 per 100 sweeps on crimson clover in West Feliciana Parish. (Newsom).

ALFALFA WEEVIL (Hypera postica) - OHIO - Damage to alfalfa heavy in Lawrence County; 80 percent of leaf surface destroyed. All stages present. (Crawford, Blair). PENNSYLVANIA - Eggs still abundant on stems of alfalfa in Franklin County; 75 percent of stems show feeding. (Pepper, May 2). NEW JERSEY - Averaged 2 per sweep in several fields from Burlington to Warren County; ranged 1-7 in Gloucester, Salem and Cumberland Counties. (Ins.-Dis. Newsltr., May 7). DELAWARE - All instars numerous on untreated alfalfa throughout State. Adults appear common in some fields in New Castle County. (Burbutis). MARYLAND - Larvae ranged from 2 to over 70 per sweep on alfalfa in Anne Arundel, Dorchester and Frederick Counties; damage to untreated alfalfa in all sections conspicuous. Pupation underway May 9 in Anne Arundel County. (U. Md., Ent. Dept.). VIRGINIA - Wide-spread and caused serious damage to alfalfa not fall treated in Lee and Scott Counties. Control excellent where applied as recommended in these counties; however, results of fall treatment in areas east of Blue Ridge Mountains entirely different. (Rowell). No feeding signs observed on regrowth in Campbell County. Larvae decreased in Appomattox County, but plant tops show more signs of feeding; few adults found. (Woodside). Larval counts per 100 sweeps in alfalfa 30-40 in Botetourt County (very light), up to 6,300 in Alleghany County (severe), 1,200 in Page County (medium), 8,000 in Rappahannock County (severe) and 10 per sweep in Warren County (very light). Very severe infestations in Spotsylvania, Louisa, Albemarle, Nelson, Amherst and Roanoke Counties; alfalfa very discolored and with superficial appearance of being dead in spots. (Tarpley). Larvae averaged 2.2 per square foot pan counts in Montgomery County on May 3. Larvae 25-30 per square foot on May 5 just east of Rustburg, Campbell County. Larvae per square foot pan count on May 10 averaged 7.5 in Montgomery County, with high of 30.3 per square foot for untreated soil bank field; 0.5 and 0.6 larva found in two known treated fields. (Pienkowski). Considerable injury evident in fall treated fields in Rockingham County. (Peterson). Freeze of April 30 killed larvae in two fields in Smyth County that showed considerable damage. (Eller). TENNESSEE - Adults feeding on second-growth alfalfa in some areas. (Mullett). GEORGIA - Moderate feeding damage caused by larvae on second-growth alfalfa in Polk County; field treated with insecticide-fertilizer mixture in fall of 1962. Moderate damage on Ladino clover in Floyd County caused by larvae and adults. (Johnson). UTAH - Larvae common in Tooele, Salt Lake and Davis County alfalfa not stubble treated. At Grantsville, counts 4-7 adults and 2-16 larvae per 20 sweeps, with local injury evident. (Knowlton). NEVADA - Laying eggs in Lovelock, Pershing County. No larvae observed. (Lauderdale).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ALABAMA - Few adults and larvae on crimson clover in Lowndes, Dallas, Monroe, Houston, Henry and Barbour Counties. (McQueen). MARYLAND - Adults averaged 2 per 10 sweeps on red clover at Easton, Talbot County. Larvae common in axils and buds of red clover in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Larvae noted in some alfalfa in central and eastern areas; no damage noted. (Peters).

CLOVER HEAD WEEVIL (Hypera meles) - LOUISIANA - Populations of newly transformed adults ranged 40-130 per 100 sweeps on white and crimson clovers throughout southern area. (Newsom).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - UTAH - Damage light to moderate in most Cache and Box Elder County fields examined to May 8. (Knowlton). MINNESOTA - Feeding on roadside sweetclover heavy. (Minn. Ins. Rpt.). ILLINOIS - Adults averaged 240 per 100 sweeps in one sweetclover field in northwest district. New seedlings of sweetclover being severely damaged. (Ill. Ins. Rpt.). OHIO - Moderate to heavy damage still observed on many sweetclover plants throughout northern and central areas. (Lyon).

CLOVER ROOT CURCULIO (Sitona hispidula) - UTAH - Fairly numerous in field of alfalfa at Kingston, Piute County. (Knowlton).

A CLOVER WEEVIL (Tychius stephensi) - ILLINOIS - Found in very small numbers in east and northeast districts. (Ill. Ins. Rpt.).

VETCH BRUCHID (Bruchus brachialis) - ALABAMA - Counts 4-6 per sweep in maturing vetch in Dallas County. (McQueen). ARKANSAS - Numbers low, 12-20 per 100 sweeps, in roadside vetch in eastern area. (Ark. Ins. Sur.).

CLOVER ROOT BORER (Hylastinus obscurus) - ILLINOIS - Adults active in clover and alfalfa in east and northeast districts; 0-50 per 100 sweeps. (Ill. Ins. Rpt.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - LOUISIANA - Ranged 0-32 per 100 sweeps in soybeans in East Baton Rouge, Iberville, St. Mary, St. Martin and St. Landry Parishes. (Newsom). INDIANA - One adult taken in 200 sweeps of field of alfalfa in Decatur County; first occurrence of season in area. (Matthew).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - LOUISIANA - Ranged 0-15 per 100 sweeps in soybeans in East Baton Rouge, Iberville, St. Mary, St. Martin and St. Landry Parishes. (Newsom).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Averaged 2-5 adults per 25 sweeps in Sandoval County alfalfa. (N. M. Coop. Rpt.).

A LEAF BEETLE (Colaspis* lata) - LOUISIANA - Present in soybeans in St. Mary Parish; ranged up to 5 per 100 sweeps. (Newsom).

BEAN LEAF BEETLE (Cerotoma trifurcata) - NEBRASKA - Adults averaged one per 10 sweeps in eastern and southeastern area alfalfa. (Bergman).

VARIEGATED CUTWORM (Peridroma saucia) - MISSOURI - Moderate to heavy in alfalfa in southeast and southwest; counts ranged 0-12 small and half-grown larvae per square foot. (French). OHIO - Larvae found feeding on red clover near Fremont, Sandusky County. No economic damage could be determined. Observed in many northwest and southwest counties. (Holdsworth, Lyon).

ARMY CUTWORM (Chorizagrotis auxiliaris) - NEVADA - Larvae heavy, 8-10 larvae per crown, in older alfalfa in Orovida, Humboldt County. Larvae about half grown and severe damage has occurred. (Lauderdale). WYOMING - Larvae averaged 1 per square foot in alfalfa and small grains in Albany County. (Fullerton).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Adults abundant in vicinity of alfalfa in Bernalillo, Chaves and Eddy Counties. Larvae averaged 1-2 per 25 sweeps in Bernalillo County alfalfa. (N. M. Coop. Rpt.).

CEREAL LEAF BEETLE (Oulema melanopa) - OHIO - Williams, Fulton, Henry and Lucas Counties surveyed intensively, with negative results. (Adair, Lyon). ILLINOIS - Survey of 68 fields of wheat, oats and grass in northeast and east districts negative. (Ill. Ins. Rpt.). WISCONSIN - Checks being made weekly; surveys to date negative. (Wis. Ins. Sur.).

A BLISTER BEETLE (Epicauta sp.) - LOUISIANA - Feeding on seedling rice in one field of St. Landry Parish and causing noticeable damage in localized areas of field involved. (Newsom).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Heavy on young sweet corn at Fairland, Montgomery County. (U. Md., Ent. Dept.).

* Brown, W. J. 1961. Canad. Ent. 93(11):973.

WIREWORMS - WASHINGTON - Undetermined species damaging wheat at Walla Walla, Touchet and Milton-Freewater area of Walla Walla County. (Landis).

JAPANESE BEETLE (Popillia japonica) - OHIO - Grubs per square foot 10-15 in eastern Cuyahoga County; counts 1-2 per square foot near Parma (Cuyahoga County), an area previously treated with an insecticide. (Webster, Moore, Sheppard).

A MAY BEETLE (Phyllophaga lanceolata) - TEXAS - Very light infestations on Johnson grass in De Witt County and moderate infestations present on alfalfa in Caldwell County. (Texas Coop. Rpt.; Smith, Massey).

SUGARCANE BEETLE (Euethoea rugiceps) - ALABAMA - Several specimens taken in Dallas and Lowndes Counties. (Mathews et al.)

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - LOUISIANA - Adults emerged from winter quarters in mid-April and have been active throughout rice-growing area since that time. Larvae have not appeared yet. (Newsom).

MAIZE BILLBUG (Sphenophorus maidis) - ALABAMA - Heavy population and damage in field of seedling corn in Mobile County. (Seibels).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - High numbers in small grains in east central and southeast districts; counts ranged 40-2,000 per 100 sweeps. Populations many times greater than at same time in 1957 when State had its last damaging outbreak. This species transmits aster yellows, a virus disease, of many crops such as carrot, tomato, lettuce, onion, flax and potato. Flax losses in 1957 ranged 10-80 percent. This could happen again if weather conditions are favorable for leafhopper development and spread. (Minn. Ins. Rpt.). SOUTH DAKOTA - Adults commonly found in most grain fields inspected; counts ranged 2-25 per 10 sweeps. (Orlob). WISCONSIN - Populations more prevalent than in recent years and half-grown nymphs present in some overwintering small grain fields. Potentially a problem. (Wis. Ins. Sur.). ILLINOIS - Counts per 100 sweeps varied 0-190 (averaged 53) in oats and 0-90 (averaged 21) in wheat in northeast district. Counts per 100 sweeps in east district 50-250 (averaged 112) in oats and 0-30 (averaged 17) in wheat. One field of oats in west-southwest district had 1,300 per 100 sweeps. (Ill. Ins. Rpt.).

RICE STINK BUG (Oebalus pugnax pugnax) - LOUISIANA - Populations in oats in Acadia Parish ranged 10-200 per 100 sweeps. Generally present in much smaller numbers on various species of wild grasses throughout State. (Newsom). ARKANSAS - Present in most fields of small grain in eastern area; counts below economic level, 30-100 per 100 sweeps. (Ark. Ins. Sur.).

CHINCH BUG (Blissus leucopterus) - ILLINOIS - Adult counts per 100 sweeps 0-270 (average 97) in wheat and 0-380 (average 86) in oats in east district. No eggs observed. (Ill. Ins. Rpt.).

A CHINCH BUG (Blissus sp.) - LOUISIANA - Unusually abundant on corn in southern area. Some fields in St. Landry Parish requiring treatment. Populations as high as 70 adults and nymphs per plant in one field in St. Landry Parish. (Newsom).

CYDNID BUGS (Sehirus cinctus and Corimelaena sp.) - LOUISIANA - Unprecedented outbreak occurred throughout southern area. S. cinctus appears to be seriously damaging sugarcane in localized areas of fields in Assumption Parish bordering headlands, pastures, ditchbanks and similar areas. Corimelaena sp. damaging along margins of pastures from which they have moved in fantastic numbers. (Newsom).

MEADOW PLANT BUG (Leptopterna dolabratus) - WISCONSIN - Nymphs of this species and Trigonotylus sp. becoming common in new grain fields. (Wis. Ins. Sur.).

A GRASS BUG (Thyrillus pacificus) - CALIFORNIA - Adults medium on wild oats in Five Points area, Fresno County. (Cal. Coop. Rpt.).

SPITTLEBUGS - ALABAMA - Unidentified species heavily infesting grasses and weeds in Mobile County area, but quite light in central area of State. (Seibels et al.).

GREENBUG (Schizaphis graminum) - MINNESOTA - Found on oats and winter rye and wheat in south central and southeast districts; first of season. Populations extremely low. (Minn. Ins. Rpt.). ILLINOIS - Not found in grain fields in east and northeast districts, but one field of oats in west district had 5 per sweep. Counts 2 per sweep in grass in east district. (Ill. Ins. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Building up in localized areas in heads of wheat and barley in Noble, Kay and Garfield Counties, north central. (Okla. Coop. Sur.). WYOMING - Averaged 15 per 100 sweeps in small grains in Albany County. (Fullerton). ILLINOIS - Varied 0-5 per sweep in wheat and oats in northern half of State. (Ill. Ins. Rpt.). MARYLAND - Light on barley in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Infestations becoming heavy on grain sorghum in Brazos County. (Newton).

GRAIN APHIDS - SOUTH DAKOTA - Small numbers of Schizaphis graminum, Rhopalosiphum padi-fitchii complex, and Macrosiphum avenae found on winter wheat and emerging spring grains in south central areas. (Orlob). M. avenae found as follows on April 30: Two winged forms per 150 sweeps in Douglas County and one apterous form in 125 sweeps in Brule County on winter wheat. On May 1, a field of winter wheat in Haakon County produced one nymph in 100 sweeps and, on May 3, blue grass along roadside produced one nymph in 200 sweeps. (Kieckhefer).

ARMYWORM (Pseudaletia unipuncta) - MISSOURI - Observed in some fields of wheat and barley where growth dense and some plants down. Averaged 36 small larvae per square foot in down spots in field checked in southeast, but majority of counts ranged 0-7 per square foot. Few small larvae found in fescue in south central and central areas. (Munson, Thomas, Wood). ILLINOIS - Averaged 7 per foot of row in lodged wheat in one Mason County field. (Ill. Ins. Rpt.). VIRGINIA - More moths collected in light trap on Eastern Shore to May 8 than any other year. (Hofmaster). MARYLAND - Surveys in small grain fields in Dorchester, Queen Annes and Talbot Counties proved negative. (U. Md., Ent. Dept.).

WHEAT HEAD ARMYWORM (Faronta diffusa) - OKLAHOMA - Damaged wheat in experimental plots in Stillwater area during week of May 3. (Okla. Coop. Sur.).

CORN EARWORM (Heliothis zea) - LOUISIANA - Averaged 5 per 100 sweeps in crimson clover in West Feliciana Parish, mostly last instar. Light to extremely heavy in whorls of corn in southern area. Tasseling sweet corn in gardens in East Baton Rouge Parish heavily infested with fourth and fifth instars. (Newsom). ALABAMA - This species and/or H. virescens averaged one larva (6-15 days of age) per sweep in crimson clover in Lowndes County; also one per 5 sweeps in Houston County. Larval counts in whorls of corn one per 50 plants in Houston and Henry Counties. (McQueen).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MISSOURI - Pupation 50 percent in New Madrid County, southeast. Pupation observed in Carroll County on May 2; almost a month early for this area. (Keaster, Allemann). VIRGINIA - Movement behind that of other years on Eastern Shore; only 15 taken in light trap to May 8. (Hofmaster). DELAWARE - First adults of season emerged in outdoor cage May 5. (Bray).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - ARKANSAS - Moth emergence approximately 50 percent in south central area. (Whitcomb).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Second and third instars generally light throughout sugarcane area. (Newsom).

HESSIAN FLY (Phytophaga destructor) - OHIO - Adult emergence occurred throughout State. Eggs and larvae light on few wheat plants. (Lyon).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - GEORGIA - Adults caused heavy damage to corn in Meriwether County by tunneling in stem. (Blasingame).

SAWFLIES - ILLINOIS - Larvae of unspecified species per 100 sweeps 0-80 in wheat in east, central and west districts, and 10-320 in grass in east district. (Ill. Ins. Rpt.).

THRIPS - MARYLAND - Undetermined species averaged over 5 per sweep on barley in Queen Annes County. (U. Md., Ent. Dept.). ILLINOIS - Counts per 100 sweeps 200-1,300 (average 610) in wheat in northeast and east districts, and 17 per sweep observed in a clover-alfalfa mixture in east district. Species mostly Frankliniella tritici. (Ill. Ins. Rpt.). ALABAMA - F. fusca and other unidentified species very active on peanuts in southeast counties. (McQueen). OREGON - Unidentified species heavily infesting Benton County orchardgrass seed fields during April and early May. Infestations estimated at 5 or more per leaf, which appear to be russeted. Growers applying controls. (Dickason).

WHEAT CURL MITE (Aceria tulipae) - SOUTH DAKOTA - Light infestations in fields found infected with wheat streak mosaic. (Orlob).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Recent storms drastically reduced populations in Salt Lake County and improved crop conditions. (Knowlton). NEW MEXICO - Moderately heavy, spotted populations of mites, probably this species, damaging alfalfa in Valencia County. (N. M. Coop. Rpt.).

WINTER GRAIN MITE (Penthaleus major) - OHIO - This species and Bryobia sp. numerous in a field of wheat in northern Williams County. (Treece, Johnston).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Third instars found during last week of April in Wayne County. (N. Y. Wkly. Rpt.).

SOD WEBWORMS - ARIZONA - Causing considerable injury to lawns, along with cutworms, in Graham County. (Ariz. Coop. Sur.). UTAH - Moths very numerous locally at Logan, Cache County. (Knowlton). LOUISIANA - Damaging lawns in southern area. (Newsom).

A LAWN CHINCH BUG (Blissus sp.) - LOUISIANA - First-generation nymphs causing moderate damage to St. Augustine grass lawns in New Orleans area. Nymphs appearing in lawns as far north as Baton Rouge; damage occurring at an unusually early date. Extreme drought conditions in area contributing to injury being caused. (Newsom).

RHODES GRASS SCALE (Antonina graminis) - ARIZONA - Damaging to St. Augustine grass in Salt River Valley; control needed in many instances. (Ariz. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - NEW YORK - Caused severe damage to turf at Ithaca, Tompkins County. (N. Y. Wkly. Rpt., May 6). WYOMING - Caused slight damage to lawns in Albany County. (Fullerton).

FRUIT INSECTS

HALL SCALE (*Nilotaspis halli*) - CALIFORNIA - Light to heavy populations found on few peach and almond trees on property in Stilson Canyon in Chico area, Butte County. Species was under eradication treatment for many years and has been eradicated from city of Chico, Butte County, and Davis, Yolo County. Present infestation somewhat isolated and host destruction requested to eliminate pest. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (*Pseudaulacaspis pentagona*) - FLORIDA - Infested pear and persimmon at Daytona Beach, Volusia County (May 2); first record for pear in State. Light on persimmon at De Land, Volusia County (May 1). (Fla. Coop. Sur.).

APPLE APHID (*Aphis pomi*) - SOUTH CAROLINA - Less numerous than in 1962. (Nettles et al., Apr. 30). MISSOURI - Egg counts indicate overwintering populations very heavy; however, earlier hot, dry weather, coupled with controls, reduced populations to negligible point. (Wkly. Rpt. Fr. Grs., May 8). WISCONSIN - Building up rapidly on untreated apple trees; wing pads noted on aphids in Dane County. (Wis. Ins. Sur.).

ROSY APPLE APHID (*Anuraphis rosea*) - MARYLAND - Scarce to May 8 in apple orchards at Hancock, Washington County. (U. Md., Ent. Dept.). CONNECTICUT - Still hard to find, but in second generation at Mount Carmel and leaves beginning to curl. (Savos). MICHIGAN - First nymphs observed in Berrien County May 3. (Tatter, Carpenter). CALIFORNIA - Nymphs medium on apple in Fresno, Fresno County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (*Myzus persicae*) - ALABAMA - Heavy on isolated peach trees in Clay and Lee Counties. (Barfield). NEW MEXICO - Problem on peach trees in northern counties. (N. M. Coop. Rpt.).

A CICADA - ARKANSAS - Up to 12-15 per peach tree in orchard in Cross County; young trees about 6 feet tall with heaviest infestations. (Ark. Ins. Sur.).

PEAR PSYLLA (*Psylla pyricola*) - MICHIGAN - Hatching appears largely complete in southwest. (Carpenter).

PLUM CURCULIO (*Conotrachelus nenuphar*) - TEXAS - Moderate numbers appearing on peaches and plums in widespread areas of Jefferson County. (Crocker). LOUISIANA - Heavy on untreated plums in southern area; many larvae entered soil to pupate. (Newsom). MISSOURI - Generally light over State; however, in some central area orchards, especially in young trees near woodlands, damage ranges occasional to moderately heavy. (Wkly. Rpt. Fr. Grs., May 8). MICHIGAN - No activity observed to May 8. (Carpenter, Pshea).

ROUNDHEADED APPLE TREE BORER (*Saperda candida*) - MISSOURI - Heavily damaged young apple trees in home orchard in New Franklin area, Howard County. (Wkly. Rpt. Fr. Grs., May 8).

CODLING MOTH (*Carpocapsa pomonella*) - MARYLAND - First moths emerged in cages at Hancock, Washington County, May 7. (U. Md., Ent. Dept.). INDIANA - Between 30-40 percent of overwintering larvae emerged in cages at Vincennes area, Knox County. Ovipositing started and adults came to bait traps in orchard May 5. Treatments needed by May 13. (Hamilton). MISSOURI - First adults taken April 28 in southeast; emergence presently at peak. No active adults reported from other areas. (Wkly. Rpt. Fr. Grs., May 8). WISCONSIN - Single adult found on window in Middleton May 8; first blacklight trap collection in area in 1962 was on May 22. (Wis. Ins. Sur.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - NEW YORK - Egg masses noted in Clyde area, Wayne County, May 3. (N. Y. Wkly. Rpt.). PENNSYLVANIA - Egg masses appearing on apples in Erie County. (Adams, May 1). MARYLAND - Heavy numbers of egg masses found May 7 in apple orchard at Westminster, Carroll County. (U. Md., Ent. Dept.). MISSOURI - Infestations present over most of State; pupation underway in most areas. (Wkly. Rpt. Fr. Grs., May 8). MICHIGAN - First eggs of season deposited on April 27; 75 percent hatched on May 8 in Berrien and Van Buren Counties. Eggs deposited on May 1 in dark stage which precedes hatching. First eggs observed in Kent County on May 3. (Carpenter, Pshea).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - MISSOURI - Infestations present over most of State, with pupation underway in most areas. (Wkly. Rpt. Fr. Grs., May 8). CONNECTICUT - Noted in Glastonbury and New Haven. (Savos).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - OHIO - Light on apple trees in Wayne County; 5 percent of leaves infested. (Forsythe, Lyon). RHODE ISLAND - Light on untreated apple in Kingston, Washington County, and at West Warwick, Kent County. (Mathewson).

GREEN FRUITWORM (Lithophane antennata) - SOUTH CAROLINA - Controls recommended in Pickens County. (Nettles et al., Apr. 30).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - MISSOURI - Outbreak reported in single southeast area orchard last week of April. (Wkly. Rpt. Fr. Grs.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - INDIANA - Emergence of adults increased May 5-6 in insectary in Vincennes area, Knox County; this indicates field activity at least 10 days ahead of average. First controls needed by May 20. (Hamilton).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - First larval entries found in terminal twigs May 4 in Vincennes area, Knox County. Adults from overwintering brood still being captured in bait traps. (Hamilton, May 7). ALABAMA - Very active in peach twigs in Lee County. (Hagler).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - About 50 percent hatched around Litchfield and very close to maturity in other parts of State. (Savos). NEW YORK - Some activity noted on apple in full bloom in Nassau County. Eggs noted in Wayne County; ready to hatch May 3. (N. Y. Wkly. Rpt., May 6). MARYLAND - Immature stages, adults and newly deposited eggs present in apple orchards at Hancock, Washington County. (U. Md., Ent. Dept.). SOUTH CAROLINA - Limited infestations in Oconee County. (Nettles et al., Apr. 30). MISSOURI - Egg counts indicate overwintering populations extremely high; however, little trouble experienced so far. (Wkly. Rpt. Fr. Grs., May 8). MICHIGAN - Hatch of overwintering eggs which started about April 28 now nearly complete in Berrien County. Few newly hatched nymphs observed in Charlevoix County on May 3. Orchards very considerably in numbers of eggs and nymphs present. (Carpenter, Tatter, Mullett).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MISSOURI - Unusually heavy on apples in vicinity of Lexington and Buckner, Lafayette and Jackson Counties, respectively; ranged as high as 100 per leaf. This is at least one month early for pest to be troublesome. Reported plentiful on weeds in orchards, on trunks and on low branches touching ground in other areas. In southeast, was threat earlier in season, but now under control as result of treatment and weather conditions unfavorable for development. (Wkly. Rpt. Fr. Grs., May 8).

APPLE RUST MITE (Aculus schlechtendali) - NEW YORK - First of season noted in orchard in Clinton County May 3. (N. Y. Wkly. Rpt.).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - MICHIGAN - Injury becoming evident on new foliage in Livingston County pear orchard. (Dowdy).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Active on pecans in Dallas, Monroe, Covington and Houston Counties. Unidentified plant bug nymphs and adults continue active on pecans in most areas of State. (McQueen). NEW YORK - Observed in orchard in Clinton County May 3. Found on apple flowers in Niagara County May 6. (N. Y. Wkly. Rpt.).

PECAN LEAF PHYLLOXERA (Phylloxera notabilis) - ALABAMA - Light on 3 pecan trees in orchard in Mobile County. (Ledbetter).

SAN JOSE SCALE (Aspidiotus perniciosus) - ALABAMA - Heavy, isolated infestation on untreated pecan trees in Henry County. (McQueen).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - ALABAMA - Light on pecan locally in Mobile and Baldwin Counties. (Ledbetter).

A PECAN CATOCALA (Catocala sp.) - TEXAS - Readily found on pecan trees in several areas of State. (Texas Coop. Rpt.).

A LEAF BEETLE (Anomoea sp.) - TEXAS - Heavy locally on walnut and pecan trees in Throckmorton, Throckmorton County. (Lindsey).

BLACK CITRUS APHID (Toxoptera aurantii) - CALIFORNIA - Medium on citrus nursery stock in Fresno, Fresno County. (Cal. Coop. Rpt.).

CITRUS MITES - ARIZONA - Unspecified species continue to appear in some Yuma County groves; should be controlled in some cases. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Populations continue to appear low in Maricopa County. (Ariz. Coop. Sur.).

A LEAFHOPPER (Empoasca kraemeri) - FLORIDA - Moderate on mango at Goulds, Dade County. (Brown, May 2).

GRAPE FLEA BEETLE (Altica chalybea) - SOUTH CAROLINA - Noted on scuppernong vines in Hampton County; this is one of the first complaints in years. (Nettles et al., Apr. 30). ALABAMA - Larvae active on grapes and scuppernongs in Covington, Conecuh and Geneva Counties. Larvae and adults now feeding intensively on native weeds in Henry County. (Beasley et al.).

IMPORTED CURRANTWORM (Nematus ribesii) - OREGON - Adults emerged in Salem area week of May 1. (Goeden).

GOOSEBERRY FRUITWORM (Zophodia convolutella) - WISCONSIN - Adults collected in blacklight traps at Madison in greater numbers than in previous years. (Wis. Ins. Sur.).

TRUCK CROP INSECTS

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - DELAWARE - First adults of season noted on beans in central Sussex County. (Burbutis). LOUISIANA - Ranged 0-2 per 100 sweeps on sweetpotatoes in mother-beds in St. Landry, Evangeline, St. Martin and Lafayette Parishes. (Newsom). ALABAMA - Heavy on squash locally in Henry County; averaged one adult per 45 feet of row on snap beans in Geneva County. (Stephenson et al.).

GARDEN SPRINGTAIL (Bourletiella hortensis) - MARYLAND - Common on potatoes, radishes, lettuce and carrots in home gardens in Dorchester, Queen Annes and Talbot Counties. (U. Md., Ent. Dept.).

APHIDS - MARYLAND - Common on strawberries in Wicomico and Somerset Counties. (U. Md., Ent. Dept.). OKLAHOMA - Moderate to heavy on various garden crops throughout State. Heavy, and damaging radishes in Noble County area. Heavy on tomatoes in Delaware County area. (Okla. Coop. Sur.).

CUTWORMS (undetermined) - MISSOURI - Caused considerable damage to newly set cabbage plants in Boone County. (Wkly. Rpt. Fr. Grs., May 8). MICHIGAN - Damaging asparagus in Kalamazoo County and other crops in Livingston County. (Thompson, Haugard).

THRIPS - MARYLAND - Undetermined species infesting asparagus, onions and potatoes in home gardens in Dorchester and Talbot Counties. (U. Md., Ent. Dept.). MICHIGAN - Thrips tabaci adults and nymphs on winter onions in Kalamazoo County. (Thompson).

CABBAGE MAGGOT (Hylemya brassicae) - OREGON - Egg laying at bases of cauliflower in Gresham area. (Crowell). CONNECTICUT - Adult populations high and egg laying very heavy in Bridgeport area. (Minnum). MASSACHUSETTS - Continues most important vegetable insect problem. Lower temperatures delayed egg laying and hatching which will prolong period cole crops will need protection. (Wheeler). MICHIGAN - Adults ovipositing on young radishes in Kalamazoo County. (Thompson).

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Light in cabbage in Mobile County. (Seibels). OKLAHOMA - First activity of season noted in Bixby area (east central) April 30 on cabbage. Counts ranged 0-5 (average under 1) per leaf on cabbage in Bixby area. (Okla. Coop. Sur.).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Moderate in cabbage in Mobile County (Seibels); adults continue in flight in all central counties (McQueen). VIRGINIA - Caused damage to some cabbage fields. (Tarpley). MICHIGAN - Adults common in Kalamazoo County. (Thompson).

DIAMOND-BACK MOTH (Plutella maculipennis) - ALABAMA - Many adults and pupae present; larvae feeding on cabbage in Mobile County. (Seibels, Bolton).

CABBAGE APHID (Brevicoryne brassicae) - ALABAMA - Light on cabbage in Mobile County. (Seibels, Bolton). OKLAHOMA - Declining on cabbage in Bixby area. (Okla. Coop. Sur.). VIRGINIA - Scattered on cabbage. (Tarpley).

FLEA BEETLES - WISCONSIN - Various species feeding on cabbage seedbed in sufficient numbers to necessitate control in Columbia County. (Wis. Ins. Sur.). CONNECTICUT - Active on small cabbage plants. (Minnum). DELAWARE - Phyllotreta cruciferae common on cabbage in area of New Castle County; feeding injury becoming noticeable. (Burbutis).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - DELAWARE - Adults and injury common on tomatoes in an area of Sussex County. (Burbutis). MARYLAND - Adults abundant and laying eggs in several potato and tomato fields in Dorchester, Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). VIRGINIA - Large numbers of overwintering adults moved into potato and tomato fields. Some egg masses already hatched; most growers treated. (Tarpley). ALABAMA - Heavy on potatoes locally in Henry and Houston Counties. Few specimens taken on horsenettle plants in cotton fields in Lawrence County. (Canderday et al.). OKLAHOMA - Damaging potatoes in several areas in State. (Okla. Coop. Sur.). WASHINGTON - Leaving hibernation and feeding on nightshade at Walla Walla, Walla Walla County. (Landis).

FLEA BEETLES (Epitrix spp.) - DELAWARE - E. cucumeris increased on potatoes in New Castle County, with light feeding injury; very common on beans in area of Sussex County. (Burbutis). MARYLAND - Epitrix spp. light to moderate on potatoes and tomatoes in Talbot and Dorchester Counties. (U. Md., Ent. Dept.).

TOMATO FRUITWORM (Heliothis zea) - LOUISIANA - Moderate to heavy on untreated tomatoes in Baton Rouge area. (Newsom).

HORNWORMS (Protoparce spp.) - ALABAMA - Occasional larva in 3-acre tomato field in Houston County. (Kimbrough).

POTATO APHID (Macrosiphum euphorbiae) - LOUISIANA - Moderate to heavy on potatoes and tomatoes throughout southern area. (Newsom).

BEEF LEAFHOPPER (Circulifer tenellus) - IDAHO - Average counts per 100 square feet, by area, compared with previous years were as follows:

Area	1963	1962	1961	1960
Glenns Ferry	24	41	91	5
Jerome	8	22	40	17
Mountain Home	20	24	26	5
Perrine	12	17	22	20
Sailor Creek	25	113	60	60
Twin Falls	4	14	29	34
Bruneau-Murphy	25	13	--	--

Average population in desert-range breeding areas 16 per 100 square feet, compared with 72 in 1962, 44 in 1961, 19 in 1960, 17 in 1959, 16 in 1958 and 65 in 1957. Waste patches (corrals, potato pits, high spots, lava outcrops, roadsides) contained far fewer host plants than in 1962. Although host plants in good condition, beet leafhopper population below previous years. Beet leafhopper population in cultivated areas also much below previous years. An area of approximately 4,000 acres south of Glenns Ferry carrying relatively high host plant and beet leafhopper populations; may require chemical controls. An area of approximately 6,000 acres in Mountain Home area has high host plant and relatively high beet leafhopper populations; may require controls. With normal weather, beet leafhopper migration into cultivated crops will start in late May. Early June movement into western Twin Falls County may be slightly lower than in 1962 and slightly higher in Jerome and Gooding Counties. (Evans). CALIFORNIA - Check of sugar beet fields and weed hosts adjacent to foothills breeding areas indicates no movement from foothills yet occurred. Treatments continue in Kings and Kern Counties; spring treatment anticipated to be completed in mid-May unless heavy populations develop in other areas. South of the Tehachapi Mountains, light populations were found locally with a count of 1 per 20 sweeps in a few beet fields near Lancaster, Los Angeles County. (Cal. Coop. Rpt.). COLORADO - Adults found on alfalfa in Otero County. (Schweissing).

HOP FLEA BEETLE (Psylliodes punctulata) - UTAH - Flea beetles, largely this species, damaging young sugar beets in several hundred acres of southern Salt Lake County and Tremonton-Garland area of Box Elder County. Damage, combined with frost injury, necessitated a number of fields being replanted; more replanting expected. (Knowlton).

WIREWORMS (Limonius spp, mostly canus) - WASHINGTON - Caused severe larval damage to sugar beets (50 percent loss in a 10-acre field); undetermined species caused some damage to peas at Walla Walla, Touchet and Milton-Freewater area, Walla Walla County. (Landis).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - LOUISIANA - Adults ranged from 1 per 370 sweeps to 7 per 200 sweeps in 6 infested mother-beds of 18 inspected in St. Landry, Evangeline, St. Martin and Lafayette Parishes. (Newsom).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - LOUISIANA - Ranged 25-100 per 100 sweeps on sweetpotatoes inspected in St. Landry, Evangeline, St. Martin and Lafayette Parishes. (Newsom).

PALE STRIPED FLEA BEETLE (Systema blanda) - LOUISIANA - Ranged from less than one to 2 per 300 sweeps on sweetpotatoes inspected in St. Landry, Evangeline, St. Martin and Lafayette Parishes. (Newsom).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - LOUISIANA - Light (0-7 per 100 sweeps) on sweetpotatoes in St. Landry, Evangeline, St. Martin and Lafayette Parishes. (Newsom).

SWEETPOTATO HORNWORM (Agrius cingulatus) - ALABAMA - Causing some damage to sweetpotatoes in Baldwin County. (Oates).

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Scarce on commercial peas throughout Sussex County. (Burbutis). WISCONSIN - Winged forms appearing in Rock and Grant Counties but none found yet on peas. Some migration could occur by May 17. (Wis. Ins. Sur.).

MELON APHID (Aphis gossypii) - ALABAMA - Heavy on beans in Houston County. (McQueen).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Adults and larvae light on beans in Geneva County; few adults taken on beans in Lee County; averaged 2 adults per 100 feet of row on beans in Houston County. (Stephenson et al.).

BEAN LEAF BEETLE (Ceratomyza trifurcata) - DELAWARE - First adults of season common on beans in central Sussex County. (Burbutis). MARYLAND - Adults caused conspicuous foliage injury to several bean plantings in Dorchester and Wicomico Counties. (U. Md., Ent. Dept.). ALABAMA - Very light on snap beans in Henry, Houston and Lee Counties. (McQueen). OKLAHOMA - Noted in Murray and Cleveland Counties in home gardens. (Okla. Coop. Sur.).

ASPARAGUS BEETLES (Crioceris spp.) - MICHIGAN - Adults and eggs of C. asparagi and C. duodecimpunctata common in southwest. (Carpenter, Thompson). DELAWARE - First adults of C. duodecimpunctata of season common on asparagus in eastern Sussex County. (Burbutis).

CARROT BEETLE (Bothynus gibbosus) - IDAHO - Adults, probably this species, first noted near Parma, Canyon County, in home carrot patch May 6. (Waters).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - COLORADO - Trace numbers present on onions in Otero County. (Schweissing).

STRAWBERRY WEEVIL (Anthonomus signatus) - NEW YORK - Only one field of strawberries out of 22 examined showed injury April 23-25 in Suffolk County. (N. Y. Wkly. Rpt.).

A WEEVIL (Brachyrhinus cribricollis) - CALIFORNIA - Larvae heavy in stems, crowns and roots of strawberry plants in Anaheim, Orange County. (Cal. Coop. Rpt.).

A SAP BEETLE (Lobiopa insularis) - LOUISIANA - Larvae appearing in some fields throughout strawberry-growing area. (Newsom).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - WASHINGTON - Adults numerous on strawberry plantings in Pullman area, Whitman County. (Johansen).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Plentiful in some strawberry plantings in Niagara County. (N. Y. Wkly. Rpt., May 6).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - FLORIDA - Moderate on Brazor blackberry at Fort Pierce, St. Lucie County. (Hayslip, May 1).

A CYDNID BUG (Corimelaena sp.) - LOUISIANA - Heavy in some strawberry fields in Livingston and Tangipahoa Parishes, with fruit being damaged; control required in many fields. (Newsom).

FLOWER THRIPS (Frankliniella tritici) - LOUISIANA - Heavy in strawberry blossoms throughout strawberry-growing area. (Newsom).

A STONEFLY (Brachyptera pallida) - WASHINGTON - Adults feeding on raspberries at Bellingham, Whatcom County, week ending May 3. Det. by S. G. Jewett, Jr. (Eide).

SPIDER MITES (Tetranychus spp.) - MARYLAND - Building up and becoming serious on strawberries in Somerset County. (U. Md., Ent. Dept.). LOUISIANA - Generally light on strawberries. (Newsom). DELAWARE - T. telarius injuring strawberries in area of New Castle County. (MacCreary). NEW YORK - Serious infestations of T. telarius found in only 2 of 22 fields of strawberries examined April 23-25. (N. Y. Wkly. Rpt.). MASSACHUSETTS - T. telarius building up on strawberries. (Wheeler).

TOBACCO INSECTS

A WHITE FRINGED BEETLE (Graphognathus sp.) - GEORGIA - Moderate infestation on tobacco in Toombs County. (Scott, Apr. 30).

SOUTHERN POTATO WIREWORM (Conoderus falli) - NORTH CAROLINA - Present in field near Burgaw, Pender County, in which 40 percent of plants had been infested. However, many plants had not been severely injured. Also found in a field near Pollocksville, Jones County, in which many plants have been reset. C. vespertinus recovered from field in Onslow County. (Mount).

CUTWORMS - NORTH CAROLINA - Species reported previous week (CEIR 13(19):489), from Duplin County, determined as Agrotis ipsilon. (Mount).

COTTON INSECTS

THRIPS - ARIZONA - Unspecified species causing some injury to cotton at higher elevations in Harquahala Valley and several parts of Maricopa County where fields are near alfalfa. (Ariz. Coop. Sur.). TEXAS - Infestations of several species variable but generally light to moderate, except in some of blacklands (central) area, where few heavy infestations observed. (Texas Coop. Rpt.). OKLAHOMA - Moderate infestation of Frankliniella spp. reported on cotton in Bryan County, south central. (Okla. Coop. Sur.). LOUISIANA - Present in most fields in Madison Parish during past 2 weeks, mostly as adults. Nymphs now appearing; controls general. (Smith et al.). Frankliniella fusca generally light throughout State, but building up in some areas. (Newsom). MISSISSIPPI - Light in most delta county fields, but building up in some fields, mostly in heavier soils. (Pfrimmer). ALABAMA - F. fusca and other unidentified thrips light to medium on cotton in central area. Also medium to heavy in Bibb County (control started). Light to medium isolated infestations in Lawrence County and medium infestations in Shelby and Limestone Counties. (Canderday, Henderson, Clark, Barfield). Several species 1-4 per three-leaf cotton plant in Pickens County and light in several fields of cotton in Elmore County. (Morris, Ledbetter). GEORGIA - Light to heavy on cotton in northeast and northwest. (Johnson).

APHIDS - TEXAS - Low numbers of Aphis gossypii appearing in scattered areas, but no generally damaging populations reported. (Texas Coop. Rpt.). LOUISIANA - Light to moderate on seedling cotton throughout State; A. gossypii and Myzus persicae principal species. (Newsom). MISSISSIPPI - Unspecified aphids reduced from previous reports in delta counties. (Pfrimmer). ALABAMA - A. gossypii very light in Lowndes County; heavy, 2-20 per plant, in many fields in Monroe, Houston, Covington, Conecuh and Henry Counties, with Hippodamia convergens and syrphid larvae feeding freely on aphids. Medium infestation of same aphid reported in Lawrence County. (Canerday, Mathews, et al.). GEORGIA - Light to moderate infestations of Aphis gossypii on cotton in northeast and northwest counties. (Johnson).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Economic infestations up to 35 percent appearing in portions of southern area; infestations approaching 25 percent in Waco area. (Texas Coop. Rpt.).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Remains light and generally noneconomic in southern area; none found in Waco area. (Texas Coop. Rpt.). LOUISIANA - Only 4 weevils taken to May 10 from trap plantings of fruiting greenhouse-grown cotton plants in Madison Parish. (Smith et al.). ALABAMA - None reported. (McQueen).

FLEA BEETLES - MISSISSIPPI - Causing some damage to seedling cotton in few fields in delta counties. (Pfrimmer).

BOLLWORM (Heliothis zea) - TEXAS - Light populations in southern area causing light damage. (Texas Coop. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Eighteen moths emerged in cages at Safford, Graham County; majority from bolls that were on top of ground. (Ariz. Coop. Sur.).

COTTON LEAFWORM (Alabama argillacea) - TEXAS - First larva of season collected near Brownsville April 29. (Robertson, Newton).

CUTWORMS - MISSISSIPPI - Very little damage reported in delta counties. (Pfrimmer).

SPIDER MITES - ARIZONA - Present in cotton fields near alfalfa at higher elevations in Harquahala Valley and several parts of Maricopa County. (Ariz. Coop. Sur.). ALABAMA - Tetranychus telarius heavy locally on three-leaf cotton in Autauga County. (Canerday).

Weather of the week ending May 13 (continued from page 508)

On Sunday, widespread rains occurred over the north-central part of the Nation. Heavy thunderstorms, some accompanied by hail and high winds, occurred over Minnesota, Wisconsin and the eastern portions of Kansas and Nebraska. By Monday morning, scattered thunderstorms were occurring from northern Arkansas to West Virginia. Rainfall totals for the week ending May 12 exceeded 0.50 inch at scattered locations, mostly over the northern third of the United States. A number of localities in the area received more than 1.00 inch, and rainfall at a few stations exceeded 2.00 inches. Brookings, Oregon, received 11.64 inches during the week. This amount is greater than any May total of record for that station.

Wide areas in the lower Mississippi Valley, the southern Plains, the southern Rocky Mountains and the southwestern deserts received no rain. Temperatures over most of the Nation averaged above normal. Over most of the middle States, the temperature departures exceeded +6°. Temperatures at some stations in the middle part of the country averaged from 8° to 12° above normal. The cooler-than-normal areas were northern New England, northern New York, Montana, Idaho, northern and western Nevada and the Pacific Coastal States. Temperatures averaged 9° to 10° below normal in the Sacramento River Basin. (Summary supplied by U. S. Weather Bureau).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - OKLAHOMA - First generation active in Stillwater area, Payne County; larvae ranged 1-3 per terminal on young trees. (Okla. Coop. Sur.). ARKANSAS - Locally heavy in southern area; full-grown larvae and pupae present. (Ark. Ins. Sur.). ALABAMA - Heavy, isolated infestations on loblolly and slash pines in Houston, Henry, Barbour and Russell Counties; 5-25 adults on some 3 to 6-year-old plants. (McQueen).

PINE WEBWORM (Tetralopha robustella) - ALABAMA - Light in 3 to 6-year-old slash and loblolly pine in Conecuh, Covington and Houston Counties. (McQueen).

PINE TIP MOTHS - ARKANSAS - Activity of first adult brood about over. Older larvae of first larval brood approaching full growth in southern area. Weather conditions of past few weeks may result in damage above normal by first larval generation. Trees will be less tolerant to attack and populations will be heavier because of dry, warm weather. (Ark. For. Pest Rpt., May).

A SPRUCE NEEDLE MINER (probably "Recurvaria" sp.) - MINNESOTA - Reported active at Little Falls, Morrison County. (Minn. Ins. Rpt.).

BARK BEETLES - LOUISIANA - Dendroctonus terebrans and Ips calligraphus heavy in areas recently logged in Livingston Parish. (Newsom). ARKANSAS - Local increases of Ips spp. and D. terebrans reported from all pine areas of State. Small, local spots involved; infestations worse in burned areas; salvage being done by several companies holding infestations in check. Shortage of moisture making threat of infestations greater. All stands should be watched closely, especially those on poorer sites. Danger spots also occur where wildfire has occurred, where stands are too thick, or following logging operations. Seed trees should be given close attention. Weather has been favorable for D. frontalis infestations which could become established at any time. (Ark. For. Pest Rpt., May).

WHITE-PINE WEEVIL (Pissodes strobi) - NEW YORK - Adults feeding in Schenectady-Albany County area. (N. Y. Wkly. Rpt., May 6). PENNSYLVANIA - Up to 5 per terminal; mating noted in Huntingdon County on Scotch pine. (Udine, May 2). MINNESOTA - Adults active; feeding and egg-laying punctures found on small white pines in Chisago County, but scarce and scattered. (Minn. Ins. Rpt.).

PINE BARK WEEVILS - ARKANSAS - Pissodes nemorensis activity about ceased; no specimens taken in traps during 2 weeks ending April 26. Hylobius pales continues active, but at reduced rate; egg deposition in field on decline. Activity of Pachylobius picivorus increased and egg deposition well underway. H. pales is dominant species. (Ark. For. Pest Rpt., May).

PINE BARK APHID (Pineus strobi) - VIRGINIA - Common on white pine in all parts of Fairfax County. (Hall). NEW JERSEY - Controls recommended. (Ins.-Dis. Newsltr., May 7).

PINE SPITTLEBUG (Aphrophora parallela) - NEW JERSEY - Controls recommended on Scotch, red and white pines. (Ins.-Dis. Newsltr., May 7).

CONIFER SAWFLIES - PENNSYLVANIA - Neodiprion sertifer heavy on Scotch pine in Crawford County; eggs or larvae on every tree examined in 30-acre plantation. (Adams, May 2). MARYLAND - N. pratti pratti light to moderate on many Virginia pines in Laurel area, Prince Georges County. (U. Md., Ent. Dept.). ARKANSAS - N. taedae linearis larval populations heavier than in recent years; weather conditions in late March and early April favored hatching and larval feeding. Approximately 75,000 acres of pine in Calhoun County affected, with infestations extending into Drew, Ashley and Bradley County areas. In northwest, activity began about a week later (April 12), with moderate to severe defoliation indicated in scattered and small plantings. (Ark. For. Pest Rpt., May). Only occasional larva found May 9. Many larvae killed by disease. Growth of new

needles making good progress on trees where feeding occurred. (Ark. Ins. Sur.).
OKLAHOMA - An undetermined species heavy in native pines in Talihiina area, Le Flore County; severe on 2 sections, less in surrounding area. (Okla. Coop. Sur.). TEXAS - Heavy, local populations of N. lecontei completely defoliating several small pines in Houston County. (McCoy). MINNESOTA - Diprion similis adults emerging; beginning to lay eggs. Defoliation by second-generation larvae in fall of 1962 was severe in localized areas of Pine, Carlton, Aitkin and Crow Wing Counties; most damage was to white and Scotch pines. Small larvae, probably N. pratti banksianae, found on roadside plantings of jack pine in Chisago and Sherburne Counties. (Minn. Ins. Rpt.).

A WEB-SPINNING SAWFLY (Neurotoma sp.) - FLORIDA - Collected on Pinus sp. at Monticello, Jefferson County, May 3 by R. H. Miller. These first specimens of genus in State collection of Arthropods. (Fla. Coop. Sur.).

CANKERWORMS - RHODE ISLAND - Larvae observed in Cranston, Providence County; Warwick, Kent County; and Kingston, Washington County. (Cartier, Mathewson). CONNECTICUT - Injury increasing. (Savos). NEW JERSEY - Infestations noted on oak, hickory, beech and maple in Bordentown area, Burlington County, Martinsville, Somerset County, and in Middlesex County. (Ins.-Dis. Newsltr., May 7). MINNESOTA - Examination of trees in suburban areas north of St. Paul-Minneapolis, from Coon Rapids (Anoka County) to Mahtomedi (Washington County) revealed eggs 100 percent hatched; most larvae in first and second stages. Heavy infestation can be expected in all suburban areas that were infested in 1962. (Minn. Ins. Rpt.). WISCONSIN - Numbers of unspecified males taken in light traps much higher than in previous years. Eggs of Alsophila pometaria have hatched and feeding evident. These pests a potential problem. (Wis. Ins. Sur.). NEBRASKA - Palaecrita vernata larvae causing heavy defoliation of trees in portions of central, eastern and southeastern areas. (Bergman). ARIZONA - Unspecified species feeding on trees in Globe area, Gila County. (Ariz. Coop. Sur.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - RHODE ISLAND - Tents up to 4 inches in diameter. Concentration reported in Blackstone Valley area, Providence County. (Cartier, Mathewson). PENNSYLVANIA - Tents teacup size in wild cherry in McKean County; infestations fewer than in 1962. (Adams, Apr. 30). MARYLAND - Heavy on wild cherry and neglected fruit trees in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). VIRGINIA - Tents becoming conspicuous in Bath and Highland Counties; occasional tents noted in Orange, Louisa, Caroline, Stafford, Prince William, Fairfax and King George Counties. (Tarpley). ARKANSAS - Larvae have ceased feeding and crawling down to pupate. (Ark. For. Pest Rpt., May). OHIO - Light to moderate on wild cherry, crab apple and abandoned apple trees in northwest. Webs averaged 2 per peach tree in Holmes County. Light on wild cherry in Summit County. (Still, Lyon, Rings).

FOREST TENT CATERPILLAR (Malacosoma disstria) - LOUISIANA - Pupation almost complete; adults emerging. Damage ranged from moderate to complete defoliation of tupelo-gum, sweetgum and several species of oak throughout southern part of State. Populations so heavy in some areas that larvae moved off defoliated normal hosts and defoliated adjacent pecans. Predation on pupae by several bird species extremely heavy in Baton Rouge area; parasitism by tachinids and sarcophagids light to moderate. (Newsom). DELAWARE - Larvae present on oak in an area of Sussex County; light injury noticeable. (Burbutis).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - NEVADA - Light to heavy on bitterbrush (Purshia tridentata) and desert peach (Prunus andersoni) in southern Washoe County; many larvae almost full grown. (Nev. Coop. Rpt.).

TENT CATERPILLARS - NEW JERSEY - Feeding heavily on wild cherry; controls recommended. (Ins.-Dis. Newsltr., May 7). NEW YORK - Tents common throughout Suffolk County and larvae small; first observed at Ithaca, Tompkins County, week of April 26; about 2 inches in diameter in Schenectady-Albany County area. (N. Y. Wkly. Rpt., May 6). CONNECTICUT - Injury increasing. (Savos).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Feeding on huckleberry in hardwood area in Covington County; occasional outbreak noted on pecans in Dale County. (Kimbrough et al.). LOUISIANA - First generation of black-headed race in fourth and fifth stages in southern area; populations unusually light. First-generation larvae of red-headed race not yet observed. (Newsom).

HICKORY SHUCKWORM (Laspeyresia caryana) - OKLAHOMA - Overwintering generation emerging in Stillwater area, Payne County. First activity noted April 30. (Okla. Coop. Sur.).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - General hatch occurred statewide week of May 5. (Johnson, Savos, Gaines). NEW YORK - First hatching observed in Albany County. (N. Y. Wkly. Rpt., May 6).

BUCK MOTH (Hemileuca maia) - LOUISIANA - Pupating, but majority of larvae still in last stage. Populations in many areas being controlled by undetermined disease; parasitism by tachinids unusually light. (Newsom).

OLETHREUTID MOTHS - CALIFORNIA - Proteoteras aesculana larvae heavy in maple trees in Yuba City, Sutter County. (Cal. Coop. Rpt.). WASHINGTON - Eucosma sp. larvae moderate to heavy in mugho pine at Yakima, Yakima County. Det. by R. L. Furniss. (Landis).

A TUSSOCK MOTH - NEVADA - Early stage larvae present on bitterbrush (Purshia tridentata) in Steamboat area of Washoe County. (Nev. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEW MEXICO - Adults appearing and feeding on Chinese elm in Albuquerque, Bernalillo County. Controls being applied to hinder spread to new areas. (N. M. Coop. Rpt.). OKLAHOMA - Increased activity noted about State. Controls initiated in many areas. (Okla. Coop. Sur.). ARKANSAS - Adults emerging from hibernation. (Ark. For. Pest Rpt., May). NEBRASKA - Adults migrating from overwintering sites to elms in eastern and southeastern areas. (Bergman). OHIO - Light damage to elm leaves observed at Columbus, Franklin County; adults and eggs present; 28-30 eggs per cluster found on undersides of leaves. (Davidson, Lyon). RHODE ISLAND - Adults appearing on occasional elms in Washington County. (Mathewson, Hannah).

ELM CALLIGRAPHA (Calligrapha scalaris) - OKLAHOMA - Defoliating elms in Ponca City area, Kay County. (Okla. Coop. Sur.). KANSAS - Few adults observed on American elms in Riley County May 3; no eggs or larvae observed. (Thompson).

IMPORTED WILLOW LEAF BEETLE (Plagioderia versicolora) - RHODE ISLAND - Adults appearing in Kingston, Washington County. (Mathewson).

TWIG GIRDLER (Oncideres cingulata) - NEW YORK - Larvae, probably this species, damaged hickory at Waterville, Oneida County, and Lansing, Tompkins County. Great quantity of twigs under infested trees. (N. Y. Wkly. Rpt., May 6).

A CERAMBYCID (Ipochus fasciatus) - CALIFORNIA - Medium in black walnut in Lakeside, San Diego County. (Cal. Coop. Rpt.).

LACE BUGS (Corythucha spp.) - MARYLAND - Scattered numbers occurring on maple at Snow Hill, Worcester County, and on sycamores at College Park, Prince Georges County. (U. Md., Ent. Dept.). RHODE ISLAND - First adult of season noted in Kingston, Washington County. (Mathewson).

HACKBERRY-NIPPLE-GALL MAKER (Pachypsylla celtidismamma) - NEBRASKA - Adults active; eggs and galls present. (Bergman).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Adults abundant around birch in Washington County. (Mathewson). NEW JERSEY - Adults active and leaf puncture marks quite heavy; controls recommended. (Ins.-Dis. Newsltr., May 7). NEW YORK - Adults, apparently this species, on birch on Long Island. Adults active

on warmer days in Nassau County. (N. Y. Wkly. Rpt., May 6). DELAWARE - First adults present in New Castle County. (Bray).

ELM LEAF MINER (Fenusula ulmi) - MARYLAND - Mines conspicuous on several American elms at Cambridge, Dorchester County. (U. Md., Ent. Dept.).

TEXAS LEAF-CUTTING ANT (Atta texana) - TEXAS - Activity causing concern in several widely scattered areas. (Texas Coop. Rpt.).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - MARYLAND - Galls noticeable on maples around properties in Delmar, Wicomico County, and at Baltimore. (U. Md., Ent. Dept.).

APHIDS - CALIFORNIA - Lachnus salignus heavy on pussy willow in San Jose, Santa Clara County. Calaphis betulaeacoleus adults heavy on birch trees in Stockton, San Joaquin County. All stages of Myzocallis californicus heavy on oaks in Stockton. All stages of Aphis nerii heavy on Hoya spp. in Escondido, San Diego County. Aphids have been unusually heavy this spring, probably because of cold winter and abundant rainfall. (Cal. Coop. Rpt.). NEW MEXICO - Unspecified species a problem on rose bushes in Albuquerque area, Bernalillo County. (N. M. Coop. Rpt.). OKLAHOMA - Continue heavy in some areas on variety of ornamentals. Predators and parasites eliminated populations in some locations in Stillwater area, Payne County. (Okla. Coop. Sur.). MISSOURI - Heavy on roses in Columbia area, Boone County. (Wkly. Rpt. Fr. Grs., May 8). KANSAS - Unspecified species heavy on maple and pine in Doniphan County (Eshbaugh); ranged 75-100 more per leaf on sugar maple in Atchison County, with winged and wingless forms present. (Thompson). SOUTH DAKOTA - Aphis pomi ranged 3-15 per bud on flowering crab apple in Brookings, Brookings County. (Spawn). MINNESOTA - Extremely high aphid populations noted on oak, elm, birch and various shrubs in St. Paul-Minneapolis area. (Minn. Ins. Rpt.). RHODE ISLAND - Undetermined species heavy on white birch in Warwick, Kent County, and present on willow in Lincoln, Providence County. (Cartier, Mathewson). NEW JERSEY - Calaphis betulaeacoleus prevalent on birch; controls recommended. (Ins.-Dis. Newsltr., May 7). PENNSYLVANIA - Rhopalosiphum conii stem-mothers abundant on honeysuckle at State College, Centre County. (Pepper, May 4). FLORIDA - Aphis gossypii moderate on gardenia at Lakeland, Polk County (Apr. 22), and Aphis nerii moderate on oleander at Avon Park, Highlands County (Apr. 24). (Fla. Coop. Sur.).

COCCIDS - DELAWARE - First Lepidosaphes ulmi crawlers of season noted on lilac in New Castle County. (Bray). VIRGINIA - Ceroplastes floridensis has continued to advance up Eastern Shore and now must be regarded as a major pest of ornamentals. Hatch should occur in late May. (Hofmaster). OHIO - Unaspis euonymi heavy and Lepidosaphes yanagicola light on euonymus in Wayne County area; a 99-percent winter mortality was recorded. (Neiswander). KANSAS - Many crawlers of unspecified species per leaf on specimen of Colorado blue spruce in Sherman County. (Thompson). LOUISIANA - Fiorinia theae very heavy on camellia, azalea, and Burford holly in East Baton Rouge Parish. Pinnaspis strachani causing heavy mortality of privet; also heavy on Chinese tallowtree in East Baton Rouge Parish. (Newsom). ARIZONA - Heavy infestation of Coccus hesperidum found on Algerian ivy in Salt River Valley. (Ariz. Coop. Sur.).

Coccids in Florida - Asterolecanium puteanum light on 1,000 Ilex rotundifolia at Glen St. Mary, Baker County (Apr. 29). Ceroplastes floridensis light on Fatsia sp. at Pembroke, Polk County (Apr. 29); severe on Ilex sp. at Cocoa, Brevard County (May 2); severe on Ilex opaca (May 2) and light on Feijoa sp. (May 2) and Cedrus deodara (May 3) at Daytona Beach and De Land, Volusia County. Chrysomphalus aonidium moderate on Strelitzia reginae and severe on Osmanthus sp. at Pembroke (Apr. 26); moderate on Carissa grandiflora at Cocoa and Liriope spicata at Daytona Beach (May 2). Coccus hesperidum severe on Ardisia sp. and Ervatamia sp. at St. Petersburg, Pinellas County (May 2). Comstockiella sabalis severe on Sabal palmetto at Port Orange (Apr. 30) and light at Daytona Beach (May 2), Volusia County. Diaspis boisduvalii light on 100 Cattleya sp. at Bartow, Polk County (Apr. 29), and moderate on Strelitzia reginae at St. Petersburg

(May 2). Eucalymnatus tessellatus moderate on Arecastrum romanzoffianum at Daytona Beach (May 2). Fiorinia theae infested Camellia japonica at Glen St. Mary (Apr. 29), but no live forms found; severe on Camellia sp. and Ilex opaca at Daytona Beach (May 2). Aspidiotus cyanophylli moderate on 30 Chrysalidocarpus lutescens at Sanford, Seminole County (May 2), and Yucca sp. at Daytona Beach (May 2). Odonaspis penicillata light to moderate on bamboo at Miami, Dade County, and at Daytona Beach (May 2). Pinnaspis aspidistrae ranged light to moderate on Liriope sp., Arecastrum romanzoffianum and Nephrolepis sp. at Daytona Beach (May 2). Pseudaulacaspis pentagona severe on Allamanda sp. at Jacksonville, Duval County, and moderate on Koelreuteria sp. at De Land (May 2). Pseudococcus adonidum moderate on Chamaedorea erumpens at Pembroke (Apr. 29), and on C. elegans at Orlando, Orange County (May 5). Pseudococcus citri moderate on Gardenia sp. at Lakeland (Apr. 22) and severe on Crassula sp. at Port Orange (Apr. 30). Pseudococcus nipae severe on Chrysalidocarpus lutescens at De Land (May 3). Protopulvinaria pyriformis moderate on Hedera helix and Aralia sp. at Daytona Beach. Saissetia hemisphaerica ranged moderate to severe on Osmanthus sp. at St. Petersburg in early May; on Agave americana at Kendall, Dade County (Apr. 30); and on Cycas revoluta at Seffner, Hillsborough County (May 2). (Fla. Coop. Sur.).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - ALABAMA - Appeared in Mobile area approximately 30 days ago and now apparently increasing rapidly. No increase noted in central area. (Seibels et al.).

A PSYLLID (Pachypsylla celtidisvesicula) - OHIO - Eggs heavy on undersides of hackberry leaves in Franklin County; 800-1,000 per leaf in some instances; adults moderate. Light numbers of adults and eggs observed in Wayne County. (Appleby, Lyon).

FLOWER THRIPS (Frankliniella tritici) - LOUISIANA - Extremely heavy on rose and daylily in southern part of State. (Newsom).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CALIFORNIA - Larvae medium on leaves of liquidamber trees in Petaluma, Sonoma County. (Cal. Coop. Rpt.).

LEAF ROLLER MOTHS - LOUISIANA - Heavy populations of Archips influmatana defoliating pecan in St. Landry and St. Martin Parishes. (Newsom). CALIFORNIA - Batodes angustiorana pupae heavy on leaves and twigs of Taxus sp. in San Mateo County. Pest recorded from 3 coast counties in San Francisco Bay area. (Cal. Coop. Rpt.).

LILAC BORER (Podosesia syringae syringae) - NEW JERSEY - Preventive applications recommended. (Ins.-Dis. Newsltr., May 7).

A LEAF MINING WEEVIL (Prionomerus calceatus) - LOUISIANA - Severely damaging magnolia in Baton Rouge area. Adults emerging, but majority of population still larvae and pupae. (Newsom).

A SCARAB (Hoplia sp.) - CALIFORNIA - Medium populations damaging rose gardens in Sacramento area, Sacramento County. Number of complaints this early indicates pest may be severe on roses this season. (Cal. Coop. Rpt.).

HOLLY LEAF MINERS (Phytomyza spp.) - DELAWARE - Adult emergence noted throughout State. (Burbutis, MacCreary, Kelsey). OREGON - First adult emergence of P. ilicis noted; over 90 percent still pupae. (Goeden). NEW YORK - No adult emergence of P. ilicicola observed. (N. Y. Wkly. Rpt., May 6). MARYLAND - P. ilicicola adult emergence underway May 9 at College Park, Prince Georges County. (U. Md., Ent. Dept.).

SPIDER MITES - RHODE ISLAND - Oligonychus ununguis noted as heavy on spruce in Kingston, Washington County. (Mathewson). NEW JERSEY - Oligonychus ilicis active on azaleas; controls recommended. (Ins.-Dis. Newsltr., May 7). OKLAHOMA - Infesting juniper in Stillwater area, Payne County. (Okla. Coop. Sur.). LOUISIANA - Light to moderate populations of Oligonychus bicolor developing on oak in East

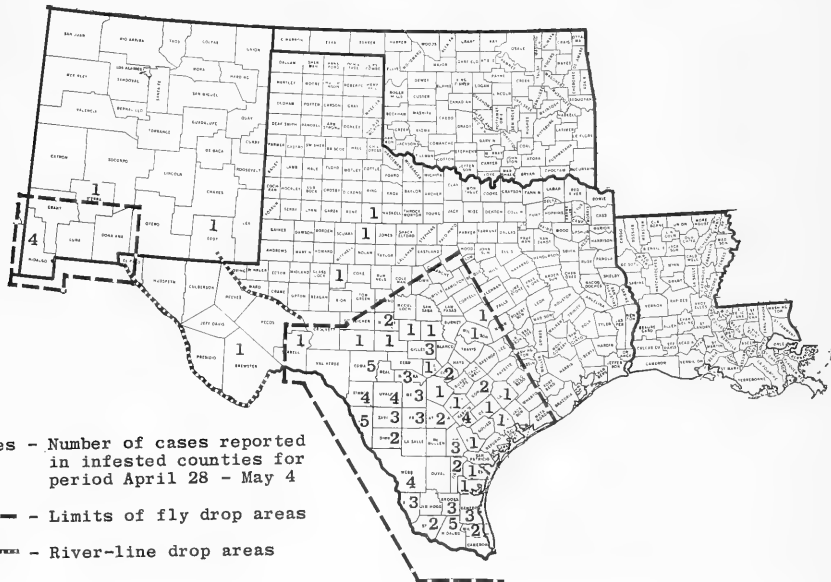
Baton Rouge Parish. Tetranychus spp. defoliating roses in some gardens in Baton Rouge. (Newsom).

A RUST MITE - LOUISIANA - Undetermined species heavy on camellia in East Baton Rouge, Washington and St. Tammany Parishes. (Newsom).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During period April 28-May 4, total of 94 infestations reported from Texas and 6 from New Mexico. Texas specimens came from 44 counties; New Mexico reported specimens from 3 counties. Counties outside normal drop areas of Texas and New Mexico reporting infestations receiving emergency measures including sterile flies, intensive inspections and spraying of infested herds. During recent weeks, 22 cases of screw-worm myiasis disclosed outside periphery of regular fly release, all of which continue to receive sterile flies and surveillance to disclose any possible additional cases. There were 109,279,050 sterile flies released during this period. (Anim. Dis. Erad. Div.).



FACE FLY (Musca autumnalis) - MICHIGAN - Averaged 3 per face on cattle in St. Joseph County May 3. First observed on horse in Sanilac County April 25. (Thompson, Sowerby). WISCONSIN - Reports of large overwintering populations and early infestations of cattle indicate this pest is increasing. Apparently already troublesome on cattle in Marquette and Richland Counties. (Wis. Ins. Sur.). ILLINOIS - Remains light; 0-2 per face in central, west and west-southwest districts. (Ill. Ins. Rpt.). MISSOURI - Some activity noted in north central area; ranged 0-5 per animal. (Cates, Wingo). OHIO - Ranged 1-2 per face on dairy animals in Wayne County. None found on 8 of 9 dairy herds checked in Fulton County; ranged 0-1 per face in infested herd. (Treece, Lyon). VIRGINIA - Averaged 4 per eye in one herd in Highland County; negative in other counties checked. (Tarpley).

HOUSE FLY (Musca domestica) - ALABAMA - Averaged 100 per sweep in dairy barn in Escambia County and 20 per sweep in dairy barn in Elmore County. (McQueen). WYOMING - Becoming active around many homes and buildings in Albany County. (Fullerton).

HORN FLY (Haematobia irritans) - ALABAMA - Medium on herds in Lowndes County; controls underway. (Mathews). Ranged 200-1,500 per animal in 3 beef herds in Mobile County. Averaged 50 per animal on a dairy herd in Baldwin County and a dairy herd in Escambia County. Ranged 25-50 per animal on a beef herd in Pickens County and on a dairy herd in Elmore County. (Ledbetter). GEORGIA - In Spalding County, averaged 8 per treated dairy cow and 113 per untreated dairy animal; averaged 28 per treated beef animal and 226 per untreated beef animal. (Roberts, Apr. 30). SOUTH CAROLINA - Beginning to build up statewide; several hundred seen on bulls and considerably smaller number on other animals in same herd. (Nettles et al., Apr. 30). OKLAHOMA - Light to moderate numbers common throughout State, with counts per head of 300 in McCurtain County, 100-200 in McIntosh County, 100 in Garvin County and 200-300 in Noble and Payne Counties. (Okla. Coop. Sur.). MISSOURI - Populations of 6 to over 300 per animal noted in southwest and north central areas. (Cates, Wingo). KANSAS - Ranged from less than 5 to over 50 per animal on cattle in central and eastern areas. (Peters). ILLINOIS - Very light; 0-80 per animal, but increasing in northern half of State. (Ill. Ins. Rpt.).

STABLE FLY (Stomoxys calcitrans) - LOUISIANA - Unusually heavy in Baton Rouge area. (Newsom). ILLINOIS - None observed. (Ill. Ins. Rpt.). IOWA - Appeared at Ames May 7. This is 17 days earlier than in 1962. (Iowa Ins. Inf.).

TABANIDS - LOUISIANA - Small numbers of Tabanus lineola adults appearing in Baton Rouge area. Hybomitra lasiophthalma heavy along coastal areas. (Newsom). OKLAHOMA - Moderate to heavy counts of Tabanus spp. reported from several counties in eastern half of State; averaged 2 per head in Okmulgee County (east central). (Okla. Coop. Sur.). ILLINOIS - None observed. (Ill. Ins. Rpt.). MARYLAND - Chrysops spp. becoming annoying to man and animals in Dorchester County. (U. Md., Ent. Dept.).

HEEL FLIES (Hypoderma spp.) - IOWA - Running cattle near Ames May 8-9. (Iowa Ins. Inf.).

BLACK FLIES (Simulium spp.) - RHODE ISLAND - Adults biting and heavy concentration of larvae and pupae noted in West Kingston, Washington County. Adults biting in rural areas of Providence County. (Gould, Mathewson, King). MICHIGAN - Undetermined species annoying man and animals in many Lower Peninsula counties. (Dowdy).

MOSQUITOES - DELAWARE - Aedes canadensis adults abundant and annoying in a wooded area of Sussex County. (Burbutis). OHIO - Eggs, third and fourth stage larvae and pupae of Aedes mitchellae and A. sticticus collected in Lucas County; also, pupae of Anopheles barberi collected in wooded area and adults of Culex erraticus and Culiseta inornata collected in light trap. (Brockway). IOWA - Unspecified species emerging from temporary pools in central area. Larval populations range

10-20 per dip generally. Larval control program underway in Des Moines. (Iowa Ins. Inf.). MICHIGAN - Aedes spp. adults emerged during past few days in southern area. (Dowdy). OKLAHOMA - Psorophora spp. continue annoying to residents in Payne and Noble County areas. (Okla. Coop. Sur.). UTAH - Unspecified species annoying in northern Skull Valley and in Grantsville-Burmeister area of Tooele County. (Knowlton).

HORSE BITING LOUSE (Bovicola equi) - CALIFORNIA - Heavy on horses and burros locally in Florin, Sacramento County. Causing severe hair drop. (Cal. Coop. Rpt.).

CAT FLEA (Ctenocephalides felis) - CALIFORNIA - Adults medium and annoying to occupants of home in Citrus Heights, Sacramento County. (Cal. Coop. Rpt.).

A BAT BUG (Cimex pilosellus) - OHIO - Infestation reported from Mt. Eaton, Wayne County. Occupants of second-floor bedrooms reported annoyed; bats heavy in attic. (Rings).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Populations continue heavy on livestock and annoying to humans in eastern part of State. (Okla. Coop. Sur.). GEORGIA - Heavy on beef cattle in Hancock County; averaged 50 per animal. (Roberts, Coleman).

AMERICAN DOG TICK (Dermacentor variabilis) - NEW JERSEY - Numerous in many areas. (Ins.-Dis. Newsltr., May 7). MARYLAND - Infested dogs on a property in Frederick County May 3. (U. Md., Ent. Dept.).

HOUSEHOLD AND STRUCTURAL INSECTS

TERMITES - OHIO - Inquiries indicate Reticulitermes flavipes infestations in many Franklin County homes. (Triplehorn, Holdsworth). ALABAMA - R. flavipes caused serious damage to commercial building in Lowndes County. (Mathews). SOUTH DAKOTA - Reticulitermes sp. collected from log cabin on ranch in Harding County. (Kantack, Spawn). MARYLAND - Reticulitermes sp. swarmed around restaurant at Annapolis, Anne Arundel County. (U. Md., Ent. Dept.). NEW YORK - Swarming continues in Suffolk County. (N. Y. Wkly. Rpt., May 6). NEW JERSEY - Swarming. (Ins.-Dis. Newsltr., May 7). TEXAS - Swarming caused alarm to residents in several areas of State during past month. (Texas Coop. Rpt.). CONNECTICUT - Infestations verified and reported as abundant as in past years. Possibly at peak week of May 5. (Johnson, Savos, Gaines). Problem at Hebron, Willimantic, Storrs, Weston and Westbrook. (Savos). MICHIGAN - Swarming in 2 locations in Kalamazoo County. (Thompson).

CLOVER MITE (Bryobia praetiosa) - CONNECTICUT - More abundant than in last several years. (Johnson, Savos, Gaines). PENNSYLVANIA - Entered homes in Huntingdon County. (Udine, Apr. 30). NEW JERSEY - Very troublesome in many areas. (Ins.-Dis. Newsltr., May 7). MARYLAND - Abundant in home at Simpsonville, Howard County. (U. Md., Ent. Dept., May 6). MICHIGAN - Heavy and causing annoyance around hospital and numerous homes in Livingston County. (Haugard). WYOMING - Becoming a problem to many homeowners in Albany County. (Fullerton). UTAH - Increasing problem in northern homes in State. (Knowlton).

A POWDER-POST BEETLE (Lyctus linearis) - ALABAMA - Caused complaints from 3 homeowners in Elmore County; attacked timber and built-in fixtures. (Morris, Ledbetter).

OLD-HOUSE BORER (Hylotrupes bajulus) - ALABAMA - Attacked timbers on home in Mobile County. (Seibels). NORTH CAROLINA - Infesting a home in Forsyth County. (Wray).

BENEFICIAL INSECTS

LADY BEETLES - NEW MEXICO - Abundant in alfalfa in Bernalillo, Sandoval and Valencia Counties. (N. M. Coop. Rpt.). UTAH - Increasing in pea aphid (Acyrtosiphon pisum) infested Cache County alfalfa fields. (Knowlton). WYOMING - Adults of several species average 12 per 100 sweeps in alfalfa in Albany County. (Fullerton). COLORADO - Hippodamia sp. larvae range 60-80 per 100 sweeps in Larimer County. (Jenkins). KANSAS - Various species, primarily Hippodamia convergens, plentiful in most alfalfa examined and appear to be aiding in control of Acyrtosiphon pisum. (Peters). OHIO - Chilocorus stigma adults abundant on hackberry trees in Wayne County. (Lyon). RHODE ISLAND - Active in fields in Washington County; Adalia bipunctata and Hyperaspis signata collected. (Mathewson). VIRGINIA - Very few larvae in alfalfa checked week ending May 10; common only in Warren and Spotsylvania Counties. Adults common in most fields checked. Coccinella novemnotata common in Botetourt, Page, Rappahannock and Warren Counties; H. convergens common in Alleghany, Rappahannock, Warren and Spotsylvania Counties; Coleomegilla maculata fuscilabris common in Page, Rappahannock and Warren Counties. (Tarpley). SOUTH CAROLINA - Unspecified species numerous in clover in Newberry County. (Nettles et al., Apr. 30). ALABAMA - H. convergens extremely active in cotton, beans, peanuts, vetch and pine trees in central and southern areas. Few C. maculata fuscilabris noted in home garden, oats, vetch and cotton in central and southern areas. Cycloneda sanguinea not too plentiful but feeding in pines, vetch and oats in Lowndes, Dallas, Wilcox and Houston Counties. (McQueen).

A MELYRID BEETLE (Collops sp.) - NEW MEXICO - Abundant in alfalfa in Bernalillo, Sandoval, and Valencia Counties. (N. M. Coop. Rpt.).

DAMSEL BUGS - KANSAS - Plentiful in most alfalfa examined and apparently aiding in control of Acyrtosiphon pisum. (Peters). OHIO - Nabis fesus noted in field of alfalfa in Wayne County. (Lyon).

BIG-EYED BUGS (Geocoris spp.) - COLORADO - Found on sugar beet seedlings in Otero County; numerous aphids present on the beets. (Schweissing). ALABAMA - G. punctipes active in vetch and oat mixture, on pecan and calley peas in central and southern areas. (McQueen).

A FLOWER BUG (Orius insidiosus) - KANSAS - Plentiful in most alfalfa examined and apparently aiding in control of Acyrtosiphon pisum. (Peters). ALABAMA - Ranged 1-2 per sweep in vetch in Dallas County. (McQueen).

AN ASSASSIN BUG (Sinea diadema) - ALABAMA - Most active on crimson clover in Lowndes, Monroe, Covington, Houston, Henry and Dallas Counties. (McQueen):

GOLDEN-EYE LACEWING (Chrysopa oculata) - ALABAMA - Active on clover, pecan, oats, and wheat throughout central and southern areas (McQueen); attacking larvae of leaf roller moths and leaf folders on ornamentals in Mobile County (Seibels).

FLOWER FLIES - ALABAMA - Undetermined larvae feeding on cotton aphid (Aphis gossypii) in Houston and Henry Counties. Noted on vetch and calley peas in Lowndes, Dallas and Wilcox Counties. (McQueen). NEW YORK - Single adult and eggs observed in orchard in Clinton County May 3. (N. Y. Wkly. Rpt.).

SARCOPHAGID FLIES - KANSAS - Larvae plentiful in most alfalfa examined; apparently aiding in control of Acyrtosiphon pisum. (Peters).

HONEY BEE (Apis mellifera) - CALIFORNIA - Rainy weather hampered package bee and queen operations in Sacramento Valley, but increased prospects for honey production in areas southward. Bee breeders in Sacramento Valley unable to obtain mating of queens due to adverse weather. Now necessary to import queens from Southern States to ship with package bees. Colonies in Sacramento and San Joaquin Valleys, which built up rapidly in March, depleted their stores during April rains and had to be fed to prevent starvation. Rains in southern area

interrupted a citrus nectar flow which promised to be best in years. Prospects for buckwheat are fair. Sage is expected to yield in some coastal areas where early rainfall has been sufficient. Large number of colonies being certified for movement to summer locations in other States. (Cal. Coop. Rpt.).

A PARASITIC ICHNEUMONID (Bathyplectes curculionis) - COLORADO - Adults number 50-100 per 100 sweeps in alfalfa in Larimer County. (Jenkins).

Beneficial Insects in Utah - FLOWER FLIES, Nabis alternatus, Geocoris decoratus, Hippodamia convergens, and other LADY BEETLES and LACEWINGS make up substantial biological control complex for pea aphid (Acyrtosiphon pisum) in Tooele-Erda-Grantsville alfalfa fields in Tooele County. (Knowlton).

MISCELLANEOUS INSECTS

A DRYWOOD TERMITE (Incisitermes minor) - NEVADA - Heavy in partly dead velvet ash trees (Fraxinus velutina) at Pine Creek, Spring Mountains, Clark County, at 4,000 feet elevation. Collected by R. C. Bechtel and D. F. Zoller during week ending May 3. Determined by R. C. Bechtel and confirmed by T. E. Snyder. This is a new State record. (Bechtel).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Abnormally scarce on weed hosts at Walla Walla, Walla Walla County, although winter and spring weather favorable for development. (Landis).

MEADOW SPITTLEBUG (Philaenus spumarius) - OREGON - Emergence which began in early April continues slowly into May. Development retarded by cool, rainy season. (Rosenstiel).

A MUSCID FLY (Hylemya sp.) - CALIFORNIA - Adults heavy and hanging to trees and shrubs in French Camp, San Joaquin County. Fungus, Entomophthora muscae, very effective in killing large numbers of flies of several species; wet spring favorable for fungus growth. (Cal. Coop. Rpt.).

SEED-CORN MAGGOT (Hylemya cilicrura) - UTAH - Caused much damage to garden planted seeds of northern and central areas during recent cold, wet period. (Knowlton).

A SLUG (Arion ater) OREGON - Locally common in Salem residential areas; also reported from Forest Grove. (Goeden).

SMALL MILKWEED BUG (Lygaeus kalmii) - ALABAMA - Quite common on milkweeds throughout central and southern areas. (McQueen).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - OREGON - Started to pupate on farm with light sandy soil in Marion County. (Rosenstiel).

A WEEVIL (Compsus auricephalus) - ARKANSAS - Collected from holly in St. Francis County. (Hill).

A WEEVIL (Sciopthes obscurus) - OREGON - Beginning to pupate on light sandy soil on farm in Multnomah County. (Rosenstiel).

CORRECTIONS

CEIR 13(14):354 - Second paragraph, line nine, Pterocoma smithiae should read Pterocomma smithiae.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot ips.	Perid. saucia	Prod. ornith.	Protoparce quinq. sexta	Heliothis zea vires.
ARKANSAS						
Hope 5/2-8		4				
Kelso 5/2-8	3	1				2
Fayetteville 5/2-8						1
COLORADO						
Rocky Ford 5/1-7	54		35			2
FLORIDA						
Gainesville 5/6				1		
GEORGIA						
Tifton 5/2-8					2	6
ILLINOIS (County)						
Champaign 5/3-9	18	3	11			
KANSAS						
Garden City 5/6			3			1
Manhattan 5/4-9	6	1	4	1		1
Wathena 5/2	9	1	1			
MISSISSIPPI						
*Stoneville 5/3-9	15	7	2	15	3	5 3
MISSOURI						
Portageville 5/2-8	7	1	1			
NEBRASKA						
North Platte 4/25-5/1	355	61	151			
OHIO						
Wooster 5/3-9	3					
SOUTH CAROLINA						
Clemson 4/27-5/3	5	1	2			
Charleston 4/29-5/5	5	4		1		2
TEXAS						
Waco 5/4-10	9	9	19	16		13 1
*Brownsville 5/3-9	1	43	20	6	7	31 248 11
WISCONSIN						
Middleton 5/3-8	41	5	5			
Madison 5/3-8	69	2	8			
Nenno 5/2-6	6					

Additional Light Trap Collections

TEXAS, *Brownsville (5/3-9) - Laphygma frugiperda - 70; Trichoplusia ni - 832; Loxostege similalis - 7,959; Pectinophora gossypiella - 20.

COLORADO, Rocky Ford (5/1-7) - Loxostege sticticalis - 231.

* Two traps - Stoneville; 6 traps - Brownsville.

HAWAIIAN INSECT NOTES

The following notes and exhibitions on Hawaii insect conditions were presented at the 688th meeting of the Hawaiian Entomological Society held on April 8, 1963.

A GELECHIID MOTH (Dichomeris ianthes) - Discovered damaging alfalfa at Ewa, Oahu, in July 1961 by J. W. Beardsley.

A LACE BUG (Corythucha morrilli) - Found breeding on sourbrush (Pluchea odorata) during investigation of an infestation of a noctuid moth (Achaea janata) on castorbean in the quarry at Moiliili on March 13. This is a new host record in Hawaii for C. morrilli. (W. C. Mitchell).

SOUTHERN GREEN STINK BUG (Nezara viridula) - Found damaging eggplant on farm in Waianae Valley. (J. Kim).

A SCALIONID WASP (Telenomus basalis) - This egg parasite of Nezara viridula recovered for first time on soybeans. Egg cluster found on leaf at McKinley High School, Honolulu, Oahu, produced this species. No release of this wasp was made at this site and it is believed parasites released in Department of Agriculture grounds have traveled to this area. (J. Kim).

A PARASITIC TACHINA FLY (Trichopoda pennipes) - Recovered in Ewa, Oahu, for first time on April 5, when one adult was captured and 4 others observed feeding on Ilima flowers. This is first observation of flies that have emerged in the field. Release in this area last made on February 20. Previous report in February (CEIR 13(10):186-187) of recovery of 5 parasitized Nezara viridula adults with eggs of this fly attached, in Nuuanu area produced 3 puparia from which 2 flies emerged. Since that date, 18 parasitized N. viridula adults have been found. (J. Kim).

A PARASITIC BRACONID (Apanteles militaris) - Numerous cocoons noted during investigation of heavy outbreak of cutworms (tentatively determined as Agrotis dislocata) at Waiakea, Maui, March 20. This is first record of recovery for island of Maui. Det. by J. W. Beardsley. A. militaris was released on Hawaii and Kauai in 1960 and recovered on Hawaii a year later, but has not been released on Maui. It is believed the species was carried from Hawaii to Maui by air currents. It is unlikely Agrotis dislocata is the host, since no A. militaris has been recovered from material being held; however, A. dislocata was heavily parasitized by tachinids. (H. Nakao).

A PARASITIC TACHINA FLY (Eucelatoria armigera) - Adults reared from geometrid larvae were exhibited; determined by D. E. Hardy. Attempts being made to propagate this species from Achaea janata and Anacamptodes fragilaria. (H. Nakao).

A WATER SCAVENGER BEETLE (Tropisternus lateralis binotatus) - Adult collected in puddle in dirt road at Makua, Oahu, April 4. Numerous adults collected in temporary stream in Lualualei Valley, Oahu, in March. Det. by P. J. Spangler. (N. L. H. Krauss).

AN ALYDID BUG (Alydus pilosulus) - Adult collected on Bidens pilosa at Luluku, Kaneohe, Oahu, March 20. Det. by J. W. Beardsley. (N. L. H. Krauss).

A REDUVIID BUG (Scadra rufidens) - An adult collected in the Bingham Tract, Honolulu, Oahu, March 20, is a new State record. Det. by J. W. Beardsley. (N. L. H. Krauss).

A SCIARID MIDGE (Sciara hardyi) - Abundant and annoying in houses at night in Waianae and on Pamoia Road, Manoa, Oahu, during March. Det. by D. E. Hardy. (N. L. H. Krauss).

A MILICHIID FLY (Milichiella lacteipennis) - A dozen or so of this small fly noted on, and flying about, live nymph of Nezara viridula on a plant in Luualualei Valley, Oahu, March 27. What was apparently this same species observed flying about an adult N. viridula which appeared to be injured. (N. L. H. Krauss).

A PYRALID MOTH (Cryptoblabes aliena) - Larvae noted as light on blossoms of young macadamia trees in seedling orchard of Waimanalo Experimental Farm of University of Hawaii on Oahu. Larvae lightly webbed and fed on blossoms. Exuviae found in webs along with scats. Macadamia has not been reported to be a host plant, although the insect, because of its general habits, might be expected to feed on macadamia blossoms. No aphids or other sucking insects found associated with larvae. Det. by D. Habeck. (C. W. Rutschky).

CATTLE TAIL LOUSE (Haematopinus quadripertusus) - Apparently has not been previously reported from Hawaii. During first week of April, specimens were collected from cattle at Waimanalo, Oahu. Det. by C. R. Joyce. H. quadripertusus may have been present in State for some time, but not recognized because of ready confusion with short-nosed cattle louse (H. eurysternus). (C. R. Joyce).

A SPECHID WASP (Chalybion bengalense) - Specimen observed in Hilo, Hawaii, at old Kokosui Brewery, on February 6, constitutes a new record for island of Hawaii. (E. S. Shiroma).

A SAP BEETLE (Conotelus mexicanus) - Inspection of interception records indicates this species was first intercepted at Hilo on December 7, 1957. Since that time, this species has been intercepted on 14 different occasions with cut flowers from Hilo. This constitutes a new locality record for island of Hawaii. (E. S. Shiroma).

ADDITIONAL NOTES

IOWA - Annual spring mortality survey for EUROPEAN CORN BORER (Ostrinia nubilalis) completed; percent survival 72 in southwest, 78 in northwest, 80 in central, 50 in northeast, 85 in southeast (average for State 76). First pupa found in Boone County May 1; 50 percent pupated by May 9 in Ankeny. Damage by CLOVER LEAF WEEVIL (Hypera punctata) reported from Marion, Plymouth, Page and Ringgold Counties; light infestations observed in Polk and Story Counties. PEA APHID (Acyrtosiphon pisum) ranged from less than one to 3 per sweep. MEADOW SPITTLEBUG (Philaenus spumarius) second instars light in alfalfa and red clover in central area. Small flights of GREENBUG (Schizaphis graminum) occurring; no yellow dwarf observed in oats yet. Exit holes of PERIODICAL CICADAS appearing at Des Moines.

MICHIGAN - Aerial spraying for CEREAL LEAF BEETLE (Oulema melanopa) in quarantined area of Berrien County started May 9. One additional county (Hillsdale) found infested during week. (Ring, Boyer). COOLEY SPRUCE GALL APHID (Chermes cooleyi) hatching on Douglas-fir in Wayne County; light infestation reported from Emmet County. (Dollhopf, Festerling).

COLORADO - PEA APHID increasing on alfalfa in Larimer County; counts 200-300 per 100 sweeps. No evidence of damage to alfalfa at present. ALFALFA WEEVIL (Hypera postica) larvae 10-30 per 100 sweeps on alfalfa in Larimer County; trace numbers show evidence of being parasitized by Bathyplectes curculionis. Adult LYGUS BUGS (Lygus spp.) moderate on alfalfa in Larimer County (10-20 per 100 sweeps); no nymphs observed. (Jenkins).

Estimates of Damage by the European Corn Borer
to Grain Corn in the United States in 1962

Compiled in Survey and Detection Operations, PPC, ARS

The loss of corn grown for grain from damage attributed to the European corn borer (*Ostrinia nubilalis*) in 1962 is estimated to be 88,245,000 bushels. This loss is approximately 2.4 percent of the total national crop estimated at 3,643,615,000 bushels. 1/ The value of the crop lost, based on the season average prices received by farmers for corn 2/, is \$93,695,000. These loss estimates are only for the States shown on Table 1 and are based on the counties or districts surveyed during the fall of 1962 within those States. 3/

Table 1 is a composite of State and Federal estimates. These estimates were prepared by using production data 1/, and prices received 2/, released by the Statistical Reporting Service. The basis for the loss estimates was determined by the survey of European corn borer populations during the fall of 1962. 3/ The index of 3 percent loss per borer per plant was used to compute the loss in bushels.

Estimated losses caused by the European corn borer in the last eleven years are as follows:

1962	88,245,000 Bushels	\$ 93,695,000
1961	65,044,000 "	68,998,000
1960	102,991,000 "	96,085,000
1959	67,763,000 "	71,979,000
1958	100,699,000 "	98,434,000
1957	180,897,000 "	158,841,000
1956	97,971,000 "	119,535,000
1955	155,355,000 "	182,579,000
1954	191,614,000 "	261,415,000
1953	90,000,000 "	125,466,000
1952	53,270,000 "	77,205,000

1/ Crop Production, 1962 Annual Summary by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 18, 1962.

2/ Crop Values, Season Average Prices Received by Farmers and Value of Production - 1961 and 1962 - by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 18, 1962.

3/ Cooperative Economic Insect Report 13(3):33-40.

Table 1. Estimates of Damage by the European Corn Borer to Corn Grown for Grain in the United States in 1962

State	Dis- tricts Included <u>1/</u>	Total State Production	Estimated Data			
			Value Per Bushel	Value of Production	Loss of Crop	
	Number	1,000 Bu.	Dollars	\$1,000	1,000 Bu.	\$1,000
Arkansas	4	6,728	1.19	8,006	33	39
Delaware	1	7,497	1.30	9,746	166	216
Illinois	7	686,410	1.06	727,595	21,139	22,408
Indiana	12	352,436	1.02	359,485	3,424	3,492
Iowa	12	742,976	1.07	794,984	19,854	21,244
Kansas	3	66,198	1.09	72,156	636	693
Maryland	3	21,240	1.28	27,187	387	495
Minnesota	7	275,188	0.99	272,436	5,287	5,234
Missouri	8	176,204	1.11	195,586	3,601	3,997
Nebraska	7	313,357	1.09	341,559	23,871	26,019
North Dakota	1	5,239	1.02	5,344	403	411
Ohio	5	202,388	1.02	206,436	925	944
Pennsylvania	8 <u>2/</u>	44,128	1.34	59,132	689	923
South Dakota	6	113,008	0.96	108,488	7,200	6,912
Wisconsin	9	107,310	1.06	113,749	630	668
Totals		3,120,307		3,301,889	88,245	93,695

1/ Cooperative Economic Insect Report 13(3):33-40.

2/ North Central District not included.

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ECONOMIC INSECT
REPORT

PLANT AND ANIMAL CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ALFALFA WEEVIL continues to cause serious damage to alfalfa in the East and is active in Western States; recorded for first time in Arkansas and in 8 new Ohio counties. (pp. 541-542). PEA APHID widespread; some damaging populations reported on alfalfa. (p. 543). SPOTTED ALFALFA APHID distributed over much of Nebraska earlier than normal; first collection date in South Dakota 2 weeks later than in 1962. Also found in Floyd County, Indiana. POTATO LEAFHOPPER apparently entered Illinois in large numbers during strong winds of May 8; common on alfalfa in southwest Wisconsin and present in Indiana and Ohio. (p. 544). CORN EARWORM activity light and scattered in Oklahoma and Alabama. VARIEGATED CUTWORM defoliating some varieties of sweetclover in Labette County, Kansas, and damaging regrowth alfalfa in southwest and southeast Missouri. (p. 545).

Aerial treatment program for CEREAL LEAF BEETLE completed in Michigan. EUROPEAN CORN BORER survival in North Dakota 80 percent compared with 62 percent in 1962. (p. 546). BLACK CUTWORM damage to corn in Neosho County, Kansas, severe enough to require replanting in some cases. BROWN WHEAT MITE causing some damage to wheat in Goshen County, Wyoming. (p. 547).

CODLING MOTH eggs began hatching at Vincennes, Indiana, on May 9; larval entries noted in Cape Girardeau area of Missouri; and adult activity reported in Delaware, Colorado and Oregon. RED-BANDED LEAF ROLLER eggs hatching in Massachusetts and New York. (pp. 548, 556). PLUM CURCULIO adults reported in Wisconsin, Michigan and New York; presently most important pest of fruit trees in Massachusetts; and injury noted in Pennsylvania, New Jersey, Maryland and Delaware. (pp. 549, 556). EUROPEAN RED MITE active from Indiana to Northeast States; some bronzing noted in Vermont. (pp. 550, 556).

SIX-SPOTTED LEAFHOPPER appears more numerous in Michigan than on comparable dates in recent years. (p. 551). ONION MAGGOT causing 10-15 percent loss of onions in Adams and Weld Counties, Colorado. (p. 553).

BOLL WEEVIL activity continues light in Texas, and emergence into cotton fields at Tallulah, Louisiana, remains very low. (p. 554). THRIPS and APHIDS the major pests of cotton in most cotton-growing areas. (p. 555).

CANKERWORMS feeding heavily on various trees and shrubs in Minneapolis-St. Paul area of Minnesota, and FALL CANKERWORM abundant and severely defoliating many oaks and elms in the Cass-Brown County area of Illinois. (p. 558). ELM LEAF BEETLE causing widespread defoliation of elms across Oklahoma, and LOCUST LEAF MINER adult populations heavy in areas of Ohio. (p. 559).

HORN FLY populations increasing in north central Oklahoma and north central Texas; continued moderate to heavy on untreated cattle in Missouri; and medium to heavy in several Mississippi counties with controls being applied. (p. 561).

DETECTION

ALFALFA WEEVIL (*Hypera postica*) recorded for first time in Arkansas, and in Licking, Perry, Fairfield, Pickaway, Pike, Adams, Highland and Coshocton Counties, Ohio. (p. 541). AZALEA WHITEFLY (*Pealius azaleae*) recorded in New York, and

(Continued on following page)

a SAWFLY (Neodiprion taedae linearis) in Oklahoma; first ARS records of these species in those States. (pp. 556, 558). New county records for IMPORTED FIRE ANT are Brantley and Telfair, Georgia, and Lafayette, Mississippi. (p. 566).

CORRECTIONS and ADDITIONAL NOTES

See pages 556 and 566.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 562). Eight new Texas counties reported infestations for first time this year.

Insects Not Known to Occur in the United States (pygmy mangold beetle (Atomaria linearis Stephens)). (p. 569).

Reports in this issue are for week ending May 17, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-MAY TO MID-JUNE 1963

The Weather Bureau's 30-day outlook for the period mid-May to mid-June calls for temperatures to average above seasonal normals over the southern two-thirds of the Nation extending from the Rocky Mountain States to the southern Appalachians. Below normal temperatures are expected to prevail in West Coast States, northern New England, and the South Atlantic States. In unspecified areas, near normal temperature averages are anticipated. Precipitation is predicted to exceed normal in the Far West and over the northern tier of States extending eastward to the Great Lakes. Subnormal rainfall is expected to continue over the southern Plains, West Gulf States, and east of the Appalachians -- areas where spring has been dry. In unspecified regions, about normal amounts are indicated.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price \$4.80 a year, \$2.40 a half year.

WEATHER OF THE WEEK ENDING MAY 20

As a weakening frontal system moved eastward on Monday, it brought spotty showers to the Atlantic States. The southern end of the system slowed to a crawl and extended westward from North Carolina to Kansas. Heavy rain showers and a few severe thunderstorms occurred over the middle and lower Missouri River Valley in connection with this trailing extension as it became stationary. A severe windstorm struck Topeka, Kansas, about 1:30 Wednesday morning, damaging 17 house trailers and sending a number of persons to hospitals. Hail as large as baseballs pounded some fields in Marshall County, Kansas, causing crop losses up to 100 percent. Heavy hail also fell in the Benkelman, Nebraska, area. In Spartanburg County, South Carolina, a hailstorm destroyed 1,000 acres of peaches and severely damaged about 2,000 acres more. Afternoon temperatures south of the stationary front soared to the upper 80's and 90's. North of the front, they

(Continued on page 556)

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - UTAH - Unspecified species hatching in San Juan and Grand Counties. (Knowlton, Argyle, May 13). IDAHO - First instars of Melanoplus sanguinipes averaged one per roadside alfalfa plant in Hammett area. (Portman). COLORADO - Second instars of Melanoplus sp. light at present in Dolores and Montrose Counties. (Hantsbarger). NEBRASKA - Moderate populations of Arphia conspersa and Chortophaga viridifasciata present in panhandle area alfalfa. Wheat fields in panhandle area and rangeland in Sioux County contain moderate populations of A. conspersa, C. viridifasciata, Pardalophora apiculata and Xanthippus corallipes latefasciatus. First instars of Ageneotettix deorum, Amphitornus coloradus, Cordillacris occipitalis and Melanoplus sanguinipes collected from University pasture in Sioux County. (Hagen). Populations averaged 30 per square yard in Dawes County rangeland; 75 percent of total population first and second-instar A. deorum, with remaining 25 percent Aeropedellus clavatus (first to fourth instar), Amphitornus coloradus (first to second instar), Aulocara eliotti (first to second instar), Eritettix simplex (third instar to adult), Melanoplus confusus (first to fourth instar), Psoloessa delicatula (third instar to adult) and Trachyrhachys kiowa (first to second instar). (Bell). First to third instars of M. bivittatus high as 45 per square yard in Box Butte, Holt and Knox County alfalfa. (Bergman). OKLAHOMA - Nymphal surveys conducted in panhandle and northwest counties; counts of several species ranged 0-3 per square yard in panhandle counties of Beaver, Cimarron and Texas, with counts of 4-8 per square yard in Harper County and 9-20 per square yard in Woodward County. Locally heavy infestation (25 per square yard) noted on rangeland in Major County. Population may increase; hatches not yet complete. (Okla. Coop. Sur.). TEXAS - Several species causing light damage to pastures and forage crops in Fayette, Guadalupe, Kaufman and Delta Counties. (McClung, Massey, Turney). NORTH DAKOTA - Egg development survey conducted in Cass, Traill, Griggs, Richland, Sargent, Ransom and Barnes Counties. Development generally ranged from clear to segmented. Eggs of M. sanguinipes, 6 percent clear, 23 percent coagulated, 18 percent eye spot and 53 percent segmented; M. bivittatus, 6 percent clear, 50 percent coagulated, 25 percent eye spot and 19 percent segmented; M. femurrubrum, 71 percent clear and 29 percent coagulated; Camnula pellucida, 60 percent eye spot and 40 percent segmented. Very few Melanoplus differentialis eggs observed, but those seen were all in eye-spot stage. First nymphal emergence observed in light, sandy soil in western Richland County; first instars of M. bivittatus involved. Habitats surveyed included soil bank, small grains and alfalfa. (Wilson, Brandvik). WISCONSIN - Egg pods of M. femurrubrum in coagulated stage in La Crosse, Trempealeau and Marquette Counties; those of M. differentialis coagulated in Trempealeau County. (Wis. Ins. Sur.). VIRGINIA - M. viridipes very abundant locally in Russell County; feeding on grasses and weeds. Det. by R. Mills. (Altizer).

MORMON CRICKETS - UTAH - Infesting 15,000 acres in Bear Mountain area, Daggett County; spotty over 2,000 acres in area south of Kanosh, Millard County. Baiting underway for control on 50 acres of infested area in mountains south of Tooele, Tooele County. (Thornley, Knowlton).

ALFALFA WEEVIL (Hypera postica) - ARKANSAS - Single specimen collected in Mississippi County during early May; a new State record. (Ark. Ins. Sur.). ALABAMA - Light to medium, isolated infestations of larvae and adults on alfalfa, crimson clover, purple hairy vetch, hop clover and ball clover from Jefferson County throughout northern area. (McQueen). OHIO - Eight new counties found infested: Licking, Perry, Fairfield, Pickaway, Pike, Adams, Highland (Holdsworth, Blair, Lyon) and Coshocton (Treece). Damaged alfalfa fields widespread in Meigs County; populations medium to heavy. (Blakeslee, Blair). Common in Perry, Pickaway, Licking and Fairfield Counties. (Holdsworth). No larvae found in fall-treated plots in Lawrence County; 217 larvae per 5 sweeps collected in untreated areas. (Blair). Adults 2-3 per 50 sweeps in Adams, Pike and Highland Counties; larvae varied 0-20 per 50 sweeps. (Lyon). Severe damage in Washington County; larvae in second and third stages. Feeding damage observed in Coshocton County. (Treece). NEW YORK - Very small larvae ranged 0-12 per 15

sweeps in several fields of alfalfa in Gardiner area, Ulster County; first larvae to May 10. Only 3 adults found in all sweeps. (N. Y. Wkly. Rpt.). MASSACHUSETTS - Adult populations high; egg laying underway. (Shaw, Wheeler). RHODE ISLAND - Not found in 4 fields checked at Kingston, Washington County. (Mathewson). PENNSYLVANIA - Untreated alfalfa badly infested in south central and southeast areas; pupae, eggs, larvae and adults present. (Pepper, Menusan). Eggs and adults present in Cambria County. Larval feeding found on older side shoots, but larvae not found; heavy frost may have been lethal. (Udine). Untreated alfalfa heavily infested in southwest; drought conditions emphasizing damage. Treated fields with few larvae but no eggs. (Udine). DELAWARE - Larvae varied 1-17 per sweep and from first stage to full grown in New Castle County. (Burbutis). MARYLAND - Larvae caused moderate to heavy damage to untreated, first-growth alfalfa in all sections. Pupation underway in eastern and southern sections. (U. Md., Ent. Dept.). VIRGINIA - Averaged 62 (ranged 9-169) per 10 sweeps in treated fields in Steeles Tavern area (Rockbridge and Augusta Counties). Evidence of feeding on new growth of alfalfa in Appomattox and Campbell Counties. (Woodside). Larvae averaged 200 per 100 sweeps in new growth in Mecklenburg County. (Tarpley). Millions of newly emerged adults present in alfalfa in Louisa County; damaging second and third cuttings; control necessary. (Hunter, Rowell). Widespread in Rockingham County; fall treatments not holding up. (Peterson). NEBRASKA - Very low populations of adults present in panhandle area; no larvae found to May 9. (Hagen). COLORADO - Larvae increasing in some areas; light in Delta and Mesa Counties (1-10 per 100 sweeps) and moderate numbers developing in Larimer County (200 per 100 sweeps). (Bulla, Jenkins, Hantsbarger). WYOMING - Adults averaged 8-12 per 100 sweeps in alfalfa in Goshen County; controls applied to 90 percent of fields in county. (Fullerton). UTAH - Adults 1-3 per 10 sweeps in untreated alfalfa in North Logan-Richmond area, Cache County; few small larvae found. (Knowlton). Adults numerous in untreated alfalfa in Garland-Tremonton-Crescent and Brigham areas of Box Elder County. Larvae rare and small. Adults and larvae 1-7 and 0-5 per 10 sweeps, respectively, in Logan area, Cache County. (Knowlton, Bohart). Larval damage occurring in some Tooele County fields. (Knowlton). IDAHO - Larval and adult populations appear low in Canyon County, southwest. Considerable feeding injury observed in all alfalfa checked in Bannock County area, southeast; populations mostly first instars and adults, the latter actively mating. Considerable injury to second crop possible in Bannock County alfalfa. (Bechtolt, Portman). NEVADA - Generally light in Reno-Sparks area, Washoe County, since most fields treated; but larvae varied 5-40 per sweep in few untreated fields. Larvae extremely variable in size, and eggs and adults also present. (Bechtel, Gardella).

CLOVER LEAF WEEVIL (Hypera punctata) - WISCONSIN - Larvae, ranging from recently hatched to nearly mature, relatively common in alfalfa in Grant County and in Prairie du Chien area of Crawford County. Found only in older fields and in portions of fields where timothy or brome predominates, substantiating theory that species is largely responsible for stand reduction. (Wis. Ins. Sur.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ALABAMA - Adults and larvae light on crimson and hop clover in Tallapoosa, Coosa, Shelby and Jefferson Counties. (McQueen).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - IDAHO - Adult populations low; occurring spottedly in sweetclover in south central area. (Portman). UTAH - Foliage injury generally light in Cache County. (Knowlton, May 13). NORTH DAKOTA - Adult feeding on alfalfa in southern Richland County light to moderate; counts ranged 1-3 per sweep. (N. D. Ins. Sur.). MINNESOTA - Roadside sweetclover in central district shows numerous feeding notches. (Minn. Ins. Rpt.). NEBRASKA - Light to moderate damage occurred in north and northeast areas. (Bergman).

CLOVER ROOT CURCULIO (Sitona hispidula) - IDAHO - Adults light in alfalfa sampled in Notus-Middleton area, Canyon County. (Bechtolt).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Generally present throughout State on alfalfa; counts generally low, 1-3 per 10 sweeps, except in field in Spink County where 61 per 100 sweeps reported. (Walstrom, Hintz). MINNESOTA - Ranged 20-60 per 100 sweeps in central district on alfalfa. (Minn. Ins. Rpt.).

VETCH BRUCHID (Bruchus brachialis) - OREGON - Adults have been out of hibernation for approximately 3 weeks. Commonly occurring in miscellaneous sweepings and blacklight trap catches. No apparent buildup in vetch occurred to May 18. (Goeden). TEXAS - Adults averaged one per 30 sweeps in Kaufman County vetch. Eggs still being deposited on new pods formed during second growth. (Turney). ALABAMA - Ranged 1-6 per sweep in maturing vetch in central and northern counties. (McQueen).

CLOVER STEM BORER (Languria mozardi) - ALABAMA - Few specimens taken in crimson clover in Tallapoosa, Jefferson, Cullman, Limestone, Calhoun and Madison Counties. (McQueen).

PEA APHID (Acyrtosiphon pisum) - NEVADA - Generally light in Reno-Sparks area, Washoe County; highest counts 50-60 per sweep in several fields of alfalfa. (Bechtel, Gardella). UTAH - Moderately numerous in alfalfa in Fielding-Tremonton area, Box Elder County. Predators also numerous. (Knowlton). WYOMING - Counts averaged 30-40 per 100 sweeps in Goshen County alfalfa. (Fullerton). COLORADO - Light on alfalfa in Delta, Mesa, Montrose and Larimer Counties; 4-250 per 100 sweeps. (Bulla, Jenkins). NEW MEXICO - Medium to heavy on alfalfa in Eddy County. Light to medium on alfalfa in Dona Ana, Sierra, Chaves and Valencia Counties; some average counts 8-20 per 25 sweeps in lightly infested counties. (N. M. Coop. Rpt.). TEXAS - Building up rapidly in Delta and Kaufman County vetch; some fields becoming heavily infested. (Turney). OKLAHOMA - Populations considerably lower in most areas since alfalfa cut. Counts in Choctaw County ranged 30-50 per 10 sweeps. In south central area, counts ranged 10-30 per 10 sweeps. Infestations ranged 50-400 per 10 sweeps in Caddo County, southeast. Moderate to heavy populations of predators present in these fields. (Okla. Coop. Sur.). KANSAS - Counts in alfalfa in southeast generally less than 5 per sweep. (Peters). NEBRASKA - Averaged 22 per 10 sweeps on alfalfa in panhandle area. (Hagen). Approximately 100-600 per 10 sweeps in north and northeast areas. (Bergman). SOUTH DAKOTA - Populations continue to increase on alfalfa; counts ranged 50-750 per 10 sweeps in southeast. (Hintz). NORTH DAKOTA - Trace numbers in southeast area alfalfa. (N. D. Ins. Sur.). MINNESOTA - Counts ranged 90-300 per 100 sweeps in alfalfa in central district; few alates found in some fields. (Minn. Ins. Rpt.). WISCONSIN - Slight, overall increase noted. Average counts per sweep in alfalfa by county 33 in La Crosse, 21 in Sauk, 14 in Trempealeau and Buffalo, 4 in Pierce, 3 in Iowa, 2 in Rock, 1.7 in Grant, 1.5 in Pepin and 1 in Jackson, Wood, Waushara and Dane. (Wis. Ins. Sur.). MISSOURI - Counts ran as high as 50-75 per sweep in alfalfa in northwest, but lady beetle populations building up rapidly. (Munson, Thomas, Wood). ILLINOIS - Very abundant in alfalfa in west-southwest and east-southeast districts, but alfalfa nearing bud stage and moisture generally good; therefore, little damage evident. Populations varied 12-300 per sweep in central and west districts and 6-80 per sweep in northwest district. (Ill. Ins. Rpt.). INDIANA - Ranged from 25 to over 200 per sweep on alfalfa in Bartholomew, Jackson, Scott, Clark, Floyd, Harrison, Crawford, Warrick, Vanderburgh, Pike and Daviess Counties, southern area. (Matthew). OHIO - Extremely heavy in south central counties; 75-100 per sweep in southern Brown County. All stages present. (Lyon). PENNSYLVANIA - Few present on alfalfa in southwest; most parasitized. (Udine). Averaged 2 per sweep on alfalfa in Armstrong County. (Adams). RHODE ISLAND - Scarce on tips of alfalfa in Kingston area, Washington County. (Mathewson). NEW JERSEY - Built up rapidly during past 10 days in some fields in southern part of State. (Ins.-Dis. Newsltr., May 14). MARYLAND - Heavy, over 1,000 per sweep, on alfalfa at Snow Hill, Worcester County. Averaged 30 per sweep on alfalfa in Carroll County. (U. Md., Ent. Dept.). VIRGINIA - Several hundred per sweep in alfalfa at Raphine, Rockbridge County; very few predators seen. (Woodside). None collected in second cutting of alfalfafield in Mecklenburg County. (Tarpley).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Appearing on alfalfa in Pinal and Maricopa Counties, but causing no damage. (Ariz. Coop. Sur.). NEW MEXICO - Heavy in alfalfa in Chaves and Eddy Counties; light on resistant varieties in area. (N. M. Coop. Rpt.). TEXAS - Averaged 6-12 per 10 sweeps in Washington County alfalfa. (Texas Coop. Rpt.; McClung). OKLAHOMA - Continues low throughout State, with only light counts observed in southern area. (Okla. Coop. Sur.). KANSAS - None observed in southeast. (Peters). NEBRASKA - Population ranged 2-30 per 10 sweeps in Boyd, Holt, Knox and Stanton Counties. (Bergman). SOUTH DAKOTA - Collected from alfalfa in Bon Homme and Charles Mix Counties; first of season. Populations averaged 28 apterous adults and nymphs per 100 sweeps. First collection date this year (May 14) 2 weeks later than first collection date of 1962. In cages manually infested with spotted alfalfa aphid last fall (Spink County alfalfa fields) for overwintering of oviparous forms, none detected so far this spring, even after careful observation of caged alfalfa plants. (Hintz, Walstrom). INDIANA - Found in only one field (Floyd County) of those examined in 11 southern counties. Not found in field infested last fall in Harrison County, same area. Also not found in other fields surveyed in Bartholomew, Jackson, Scott, Clark, Harrison, Crawford, Warrick, Vanderburgh, Pike and Daviess Counties. (Matthew).

YELLOW CLOVER APHID (Therioaphis trifolii) - IDAHO - Populations light and spotted in south central area. (Portman). INDIANA - Light on red clover in Daviess County, southwest; counts averaged 7 per 25 sweeps. (Matthew).

APHIDS - IDAHO - Populations of numerous species continue to build up on alfalfa in lower Clearwater Valley area; counts nearing 10 per square yard in fields at Lewiston. Populations continue low on alfalfa in southwest. (Halfhill, Portman, Bechtolt). OHIO - Light to moderate numbers of unidentified species observed on roots of asters and alfalfa near Germantown, Montgomery County. Ants heavy in same area. Red clover yielded only 7 bushels of seed due to severe infestations last fall. (Lyon).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Appearing commonly in alfalfa in southwest. (Wis. Ins. Sur.). ILLINOIS - Apparently entered State in large numbers during strong winds of May 8. Populations in alfalfa per 100 sweeps, by district, were 80-1,520 (average 418) in northwest, 925-1,460 (average 1,131) in northeast (La Salle County only), 40-3,400 (average 563) in west, 110-2,240 (average 975) in central, 80-520 (average 220) in east (Champaign and Piatt Counties only), 0-1,400 (average 274) in west-southwest, and 24-145 (average 78) in east-southeast. (Ill. Ins. Rpt.). INDIANA - Specimens taken from alfalfa in most southern counties; ranged 2-9 per 25 sweeps. (Matthew). OHIO - Nymphs 2-3 per 50 sweeps in field of alfalfa near Waverly in Ross County. (Lyon).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - TEXAS - Averaged 1-3 adults per 20 sweeps in Fayette County alfalfa (Texas Coop. Rpt.; McClung) and one per 30 sweeps in Kaufman County vetch (Turney).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Nymphs becoming noticeable due to growth, although little change observed in numbers, indicating that hatch is complete. One adult observed in Trempealeau County, although most nymphs not quite half grown. (Wis. Ins. Sur.). OHIO - Many forage fields within given county had variable populations. Red clover in Ross County had 2-30 per 10 stems. Fourth and fifth instars found in most south central counties. (Lyon). MARYLAND - Light to moderate on alfalfa, red clover and crimson clover in Queen Annes and Worcester Counties. (U. Md., Ent. Dept.).

LYGUS BUGS (Lygus spp.) - NEVADA - Numerous adults and early instars present in all alfalfa checked in Reno-Sparks area, Washoe County. (Bechtel, Gardella). ARIZONA - Increasing rapidly on alfalfa in all areas of State. (Ariz. Coop. Sur.). UTAH - L. elisus and L. hesperus adults common to numerous in Cache County alfalfa and orchards where mustards numerous; few small nymphs present. Numerous in alfalfa in Fielding-Bear River City area of Box Elder County; 80 percent L. elisus. (Knowlton). NEW MEXICO - Generally light over most of areas reporting, with

exception of lower Eddy County where counts averaged 25-30 per 25 sweeps. (N. M. Coop. Rpt.). COLORADO - Low levels on alfalfa in Mesa and Larimer Counties; 50-100 per 100 sweeps. (Bulla, Jenkins). NEBRASKA - Adults averaged 35 per 10 sweeps in panhandle area alfalfa. (Hagen).

PLANT BUGS - NORTH DAKOTA - Trace numbers of Lygus lineolaris observed in south-east area alfalfa. (N. D. Ins. Sur.). MINNESOTA - Populations of L. lineolaris low, 10-20 per 100 sweeps, in central district. Nymphs of Adelphocoris lineolatus and A. rapidus appearing in nearly all alfalfa fields. (Minn. Ins. Rpt.). WISCONSIN - Adults of L. lineolaris and nymphs of A. rapidus prevalent on alfalfa in southwest; counts 2-6 per 10 sweeps in most fields. (Wis. Ins. Sur.). ILLINOIS - Nymphs of Adelphocoris spp. and Lygus spp. varied 0-12 per sweep in alfalfa. Adults of A. rapidus and A. lineolatus observed in east-southeast and west-southwest districts. (Ill. Ins. Rpt.). MISSOURI - Moderate populations of adults and nymphs of A. rapidus observed in alfalfa and clover in northwest areas; counts ranged 3-5 per sweep. L. lineolaris light in alfalfa in northwest; 0-2 per sweep. (Munson, Thomas, Wood). OHIO - Nymphs of Leptopterna dolabratus light to moderate in red clover and alfalfa throughout many south central counties; 20-30 per sweep in Ross County. (Triplehorn, Lyon). PENNSYLVANIA - Lygus lineolaris averaged one per 5 sweeps on alfalfa in northwest. (Adams, May 8). DELAWARE - First nymphs of L. lineolaris and A. rapidus present on alfalfa in New Castle County. (Burbutis). MARYLAND - Leptopterna dolabratus adults abundant in borders of several barley fields in Worcester and Somerset Counties. (U. Md., Ent. Dept.). ALABAMA - Lygus lineolaris light on clovers, oats and vetch in northern area. (McQueen).

ASH-GRAY BLISTER BEETLE (Epicauta fabricii) - ILLINOIS - Adults observed in alfalfa in west-southwest district for first time this season. (Ill. Ins. Rpt.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - NEBRASKA - Adults noticeable in eastern third of State. (Bergman). OHIO - Adults easily collected from forage crops throughout south central area. (Lyon). MISSISSIPPI - Heavy on Tallahatchie County vetch; controls applied. (Ouzts).

CORN EARWORM (Heliothis zea) - TEXAS - Averaged 1-3 larvae per 30 sweeps in Kaufman and Delta County vetch. (Turney). OKLAHOMA - Ranged 0-3 per 10 sweeps on alfalfa in south central and southeast areas; averaged 5 per 10 sweeps in McIntosh and Muskogee Counties. Light and feeding in corn terminals in Bryan, Garvin (south central) and Choctaw (southeast) Counties. (Okla. Coop. Sur.). ARKANSAS - Larvae from early deposited eggs now pupating. Late emerged moths continue egg deposition, especially in silking sweet corn in Bradley County, south central. (Ark. Ins. Sur.). ALABAMA - This species and/or H. virescens averaged one per 6 sweeps on vetch. Few moths noted in Lee, Cullman and Limestone Counties. On vetch in Jefferson, Cullman, Morgan and Limestone Counties. Few larvae noted on young corn in central counties. (McQueen).

ARMY CUTWORM (Chorizagrotis auxiliaris) - WYOMING - Larvae averaged less than one per square foot in alfalfa in Goshen County; adult flights large in all parts of county. (Fullerton). COLORADO - Larvae present in alfalfa in Rio Grande County in trace numbers. Damage negligible in most fields. Adults very numerous in Larimer County. (Jenkins). NEBRASKA - Larval populations on alfalfa in Scotts Bluff County very low, less than one per square yard. (Hagen). Adults active in Niobrara, Knox County. (Bergman).

VARIEGATED CUTWORM (Peridroma saucia) - KANSAS - Defoliating some varieties of sweetclover in Labette County, southeast. Damage varied with variety; some completely defoliated while others show very little feeding damage. (Ford, Peters). MISSOURI - Damage to alfalfa regrowth still being reported in southwest and southeast areas. Some larvae migrating from legumes and grassy areas to row crops in southeast. Few small larvae observed in alfalfa in northern area. (Munson, Thomas, Wood). ILLINOIS - Averaged 4 per square foot in field of clover in Morgan County. (Ill. Ins. Rpt.).

ALFALFA CATERPILLAR (Colias eurytheme) - UTAH - Small numbers of adults flying in Box Elder County alfalfa; larvae small and scarce. (Knowlton). ARIZONA - Adults appearing on alfalfa in Yuma area. (Ariz. Coop. Sur.). NEW MEXICO - Larvae active in alfalfa in Valencia and Bernalillo Counties; counts 4-8 and 10-14 per 25 sweeps. (N. M. Coop. Rpt.). OKLAHOMA - Light, 0-3 per 10 sweeps, on alfalfa in south central area. (Okla. Coop. Sur.). OHIO - Larvae and adults common in Clinton, Warren and Highland Counties. (Lyon).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Light, 0-3 per 10 sweeps, on alfalfa in south central counties. (Okla. Coop. Sur.).

GARDEN WEBWORM (Loxostege similalis) - OKLAHOMA - Counts 1-3 per 10 sweeps on alfalfa in Garvin County area, south central. (Okla. Coop. Sur.).

THRIPS (undetermined) - NEW MEXICO - Unusually light in alfalfa checked in reporting areas. (N. M. Coop. Rpt.). MARYLAND - Common in barley in Worcester and Somerset Counties. (U. Md., Ent. Dept.). GEORGIA - Light to moderate infestations on peanuts in several southern counties. (Johnson).

CLOVER MITE (Bryobia praetiosa) - NEW MEXICO - Light on alfalfa in Los Lunas area, Valencia County. (N. M. Coop. Rpt.).

SPIDER MITES - VIRGINIA - Causing severe damage to red clover in areas in Prince Edward, Buckingham and Bedford Counties. (Rowell, Peery, Ellis, Boone). ARIZONA - Present on alfalfa. (Ariz. Coop. Sur.). COLORADO - Tetranychus telarius causing injury to foliage of clover in Montrose County. (Bulla).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - Aerial treatment program completed; 23,196 acres in Berrien and Cass Counties sprayed by fixed-wing aircraft and 714 acres by helicopter. Manpower now being shifted back to an intensive ground survey. Treated area to be surveyed to determine kill and beetle migration back into sprayed fields. Surveys also to continue in counties near primary infestation. Adults outside treated area continue to feed and deposit eggs on grain crops and suitable grasses. Larval injury appearing. Most larvae in early stages. (Cath, Ring). Adults of Disonycha xanthomelas, which superficially resemble O. melanopa adults, found on young oats in Eaton County. (Johnson, Lahrng).

CORN FLEA BEETLE (Chaetocnema pulicaria) - OKLAHOMA - Ranged 15-20 per 25 plants on corn in McIntosh and Muskogee County area. (Okla. Coop. Sur.). KANSAS - Counts on young corn averaged less than one per 10 plants in southeast. (Peters). MARYLAND - Light to moderate on young field corn on lower Eastern Shore. Heavy on young sweet corn at Trappe, Talbot County. (U. Md., Ent. Dept.).

SUGARCANE BEETLE (Euetheola rugiceps) - ALABAMA - Few specimens taken around night lights in most central area counties. (McQueen).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH DAKOTA - Survival survey conducted in Richland, Sargent, Ransom and Cass Counties. Total of 54 borers collected (43 living and 11 dead). Survival 80 percent compared with 69 in 1962. (N. D. Ins. Sur.). MINNESOTA - No pupation found in central district. (Minn. Ins. Rpt.). NEBRASKA - Approximately 50-60 percent pupated in Lancaster County. (Roselle). Population mostly fifth instar in north and northeast areas. (Bergman). WISCONSIN - Pupation begun in warmer sections. (Wis. Ins. Sur.). DELAWARE - Adult population low; only one female collected as of May 11 in blacklight trap (May 7) in Sussex County. (Burbutis). MARYLAND - Moth emergence underway May 9 at Centreville, Queen Annes County. (U. Md., Ent. Dept.).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - MISSISSIPPI - Light on corn in Forrest County. (Ouzts).

ARMYWORM (Pseudaletia unipuncta) - MINNESOTA - Moths observed in field of winter wheat in Sibley County. (Minn. Ins. Rpt.). ILLINOIS - Average 8 per linear foot in field of wheat and 11 per linear foot in field of rye in central area where grain lodged. Two per linear foot found in standing grain in same fields. (Ill. Ins. Rpt.). MICHIGAN - Several adults taken in blacklight traps recently in Berrien and Schoolcraft Counties. (Newman, Cushman). MARYLAND - Small larvae moderate in field of barley at Pocomoke City, Worcester County, on May 14; negative in over 15 small grain fields surveyed on Eastern Shore. (U. Md., Ent. Dept.).

FALL ARMYWORM (Laphygma frugiperda) - FLORIDA - Infesting 325 acres of sweet corn at Canal Point, Palm Beach County. (Smith, Faircloth; May 9).

BLACK CUTWORM (Agrotis ipsilon) - KANSAS - Damaging corn in Neosho County, southeast; severe enough to cause replanting in some cases. (Gates). MARYLAND - Larvae, about one-third grown, damaged 20 percent of young corn plants in Carroll County fields. (U. Md., Ent. Dept.).

PALE WESTERN CUTWORM (Agrotis orthogonia) - UTAH - Damaged some wheat fields in Milford area, Beaver County. (Knowlton, Esplin).

SALT-MARSH CATERPILLAR (Estigmene acrea) - TEXAS - Moderate infestations widespread on young corn in Austin and Waller Counties. (Texas Coop. Rpt.; McClung).

GREENBUG (Schizaphis graminum) - WISCONSIN - Beginning to attack oats, particularly in Trempealeau County area. (Wis. Ins. Sur.). MINNESOTA - Populations in small grain extremely low, but found in nearly all fields. Counts 0-10 per 100 sweeps in central district. (Minn. Ins. Rpt.). SOUTH DAKOTA - Counts one per 10 sweeps on small grains in Hamlin County. (Hintz). NEBRASKA - Very light, 2-10 per 10 sweeps, on oats in north and northeast areas. (Bergman).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Medium to heavy on early spring barley in Valencia County. Barley just beginning to joint up, with some in later stages. (N. M. Coop. Rpt.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - MICHIGAN - Winged adults actively migrating from apple trees in Ingham County. (Dowdy).

ENGLISH GRAIN APHID (Macrosiphum avenae) - MARYLAND - Populations increasing, ranged 2-15 per sweep in barley on lower Eastern Shore. (U. Md., Ent. Dept.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - Trace numbers found in small grain fields in southeast area. (N. D. Ins. Sur.). MINNESOTA - Counts in small grain in central district varied greatly from field to field; 30-300 per 100 sweeps. Winter wheat had highest populations in area surveyed. (Minn. Ins. Rpt.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Adults averaged 3 per stalk on young corn in Austin and Waller Counties. (Texas Coop. Rpt.; McClung). KANSAS - Heavy population caused stand reduction in field of oats in Labette County, southeast. (Ford).

HESSIAN FLY (Phytophaga destructor) - WISCONSIN - Flies, believed to be this species, prevalent in several fields of wheat in southwestern part of State. (Wis. Ins. Sur.).

WHEAT STEM MAGGOT (Meromyza americana) - KANSAS - Occasional "white heads" noted in most fields of wheat in southeast. (Peters).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Very light in several fields of alfalfa in southern Washoe County. (Bechtel). WYOMING - Survey of wheat-growing areas of Goshen County showed some mite damage. Largest mite populations found in areas west of Yoder. Small populations present in all other areas. (Fullerton).

WHEAT CURL MITE (Aceria tulipae) - NEBRASKA - Moderate infestations present on wheat in southwest Kimball County; area had large sections of volunteer wheat in 1962. (Hagen).

SOD WEBWORMS - COLORADO - Crambus sp. causing considerable damage to lawns in Mesa County. (Quist, Hantsbarger). MISSOURI - Heavy flights of adult Crambus spp. observed about lawns in central area. (Munson, Thomas, Wood).

SPITTLEBUGS - TEXAS - Undetermined species readily found on pasture grasses in Fayette County. (Texas Coop. Rpt.; McClung).

RED HARVESTER ANT (Pogonomyrmex barbatus) - TEXAS - Some pastures in Washington County have up to 5 mounds per acre. (Texas Coop. Rpt.; McClung).

A SCARAB (Paracotalpa granicollis) - NEVADA - Adults numerous in range plants, especially flowers of bitterbrush (Purshia tridentata) in southern Washoe County. (Bechtel).

JAPANESE BEETLE (Popillia japonica) - OHIO - First, second and third stage larvae heavy at golf course in Cuyahoga County; heaviest counts, 50 grubs per square foot in rough, untreated areas. Approximately 25,000 grubs collected. (Custer, Cowden).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW YORK - Marked increase in pupation occurred May 10 in eastern area; first moth flight expected May 12-19. (N. Y. Wkly. Rpt., May 13). DELAWARE - Adults emerged daily in cage since May 5 in area of Kent County. (MacCreary). MARYLAND - Eggs deposited May 10 on apple at Hancock, Washington County. (U. Md., Ent. Dept.). OHIO - No emergence by May 14. (Forsythe). MICHIGAN - Pupation approximately 70 percent in Van Buren and Kalamazoo Counties; about 30 percent by May 14 in Kent County cages. (Carpenter, Gilmore). INDIANA - First eggs hatched May 9 at Vincennes, Knox County. (Hamilton). MISSOURI - Adult activity reduced in Cape Girardeau area and new entries noted in untreated apples. Possible new entry noted on May 15 in Kansas City area. (Wkly. Rpt. Fr. Grs.). COLORADO - Adults first appeared May 3 in Clifton area, Mesa County; no adults this date in Montrose and Delta Counties. (Bulla). OREGON - First emergence noted at Salem; moths appeared at blacklight traps. (Goeden).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MASSACHUSETTS - Eggs hatching. (Crop Pest Cont. Mess.). CONNECTICUT - Moths flying in Niantic area; no new egg masses reported. (Savos, May 13). NEW YORK - Adults observed May 6 in Clinton County; considerable number of moths noted in flight May 9 in problem orchard of 1962, and several egg masses noted in one block in orchard. Eggs and adults noted in treated Niagara County orchard; very few adults and eggs observed in Orleans County. (N. Y. Wkly. Rpt., May 13). MARYLAND - None found to May 17 on apples in Hancock area, Washington County. (U. Md., Ent. Dept.). VIRGINIA - Practically none observed in most parts of State. (Bobb). MICHIGAN - First-brood hatch appears largely complete in Berrien County, especially on plums and sweet cherries. Some relatively late-laid eggs in Van Buren County still unhatched. (Carpenter).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CONNECTICUT - Active in Cheshire area orchards; most localized in areas near woods, but well distributed throughout one orchard. Could cause considerable damage if not controlled. (Savos, May 13).

LESSER PEACH TREE BORER (Synathedon pictipes) - MISSOURI - Inspections recommended because of considerable winter injury in many orchards. (Wkly. Rpt. Fr. Grs.). INDIANA - Adults extremely abundant and laying eggs in peach orchards at Vincennes, Knox County. Adults from overwintering larvae continue to emerge in insensary. (Hamilton, May 14). OHIO - Emerged in Wayne County May 14; heavy in peach orchard. (Forsythe). VIRGINIA - Emergence began May 16 in Tidewater area, Richmond County. (Bobb).

PEACH TWIG BORER (Anarsia lineatella) - COLORADO - Adults taken in light traps in Mesa County and larvae noted flagging terminals in Paonia area, Delta County. Controls recommended in Mesa County. (Bulla).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - ALABAMA - Very active in peach twigs in Lee, Coosa and Chilton Counties. (Sessions et al.). MISSOURI - Few larvae noted in peach terminals in Kansas City; larvae in southeast nearly half grown. (Wkly. Rpt. Fr. Grs.). INDIANA - First-brood entries now readily found at Vincennes, Knox County. Flight of spring-brood moths nearing completion; no adults taken in bait traps since May 8. (Hamilton, May 14). CONNECTICUT - None collected in bait pails to May 13. (Savos).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - VERMONT - Appears more abundant. (MacCollom, May 13). OHIO - Webs averaged one per apple tree in Brown and Warren Counties; defoliation ranges 1-5 percent. (Lyon).

CANKERWORMS - CONNECTICUT - Injury quite noticeable over State. (Savos, May 14). NEW YORK - Paleacrita vernata infestation noted in Orleans County. (N. Y. Wkly. Rpt., May 13).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Larvae spotty in orchards in New Haven and Bethel areas. (Savos, May 14).

PISTOL CASEBEARER (Coleophora malivorella) - NEW YORK - Larvae feeding on foliage of young apple trees in Clinton County May 8. (N. Y. Wkly. Rpt.).

PLUM CURCULIO (Conotrachelus nenuphar) - MARYLAND - Damaged apples found May 10 in orchard at Hancock, Washington County. (U. Md., Ent. Dept.). DELAWARE - Eggs and young larvae present in untreated peaches in Sussex County. Feeding scars also noted on apples. (MacCreary). PENNSYLVANIA - Adults and injury noted on plums in south central area. (Pepper). NEW JERSEY - Survey showed population doubled in 7 days in untreated peach orchard at Pitman, Gloucester County. Egg-laying punctures also noted. First egg scar noted on blueberries May 13. (Ins.-Dis. Newsltr., May 14). NEW YORK - No injury noted in Ulster County despite high temperatures and no controls. (N. Y. Wkly. Rpt., May 13). MASSACHUSETTS - Presently most important pest of fruit trees; adults ready to leave orchards and more to come. (Crop Pest Cont. Mess.). MICHIGAN - Adults active in apricot trees in Berrien County since May 10. (Tatter). WISCONSIN - Adults appeared first week of May at Madison. (Wis. Ins. Sur.).

RED-LEGGED FLEA BEETLE (Derocrepis erythropus) - PENNSYLVANIA - Appearing in numbers on home garden cherry in Blair County; caused damage in 1962. (Udine).

APHIDS - CONNECTICUT - Aphis pomi and Anuraphis rosea well in second generation and becoming increasingly easier to find at New Haven, Southington, Woodstock and Storrs. (Savos). RHODE ISLAND - Small, localized infestations of A. rosea present on apple at Kingston, Washington County. (Mathewson). MISSOURI - Light populations of A. rosea causing leaf curling in Kansas City area. (Wkly. Rpt. Fr. Grs.). COLORADO - Colonies of Myzus persicae abundant in some orchards in Mesa County. (Bulla).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - WISCONSIN - From 35 to 40 percent of fruit trees in area of Taylor County infested. Crawler stage coincides with blossoming of apples. (Wis. Ins. Sur.).

SAN JOSE SCALE (Aspidiotus perniciosus) - INDIANA - First crawlers found May 10 at Vincennes, Knox County. (Hamilton). UTAH - Damaging number of apple trees in Bear River City-Fielding area, Box Elder County. (Knowlton, Finch).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Egg hatch complete at Storrs. (Savos, May 13). NEW YORK - Eggs mostly yellow and about to hatch in Oswego, Cayuga and Onondaga Counties. (N. Y. Wkly. Rpt., May 13). MICHIGAN - Hatch complete in test orchard in Oakland County and in orchards in Berrien County. (Howitt, Tatter).

TARNISHED PLANT BUG (Lygus lineolaris) - VERMONT - Few observed in orchards. (MacCollom, May 13). NEW YORK - Working pear buds in Oswego, Cayuga and Onondaga Counties. (N. Y. Wkly. Rpt., May 13). ALABAMA - Active on pecans in Tallapoosa, Coosa, Chilton and Shelby Counties. (McQueen).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - ALABAMA - Causing some damage and drop of pears and apples in Lee and Clay Counties. (Barwood).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Damaging and causing some drop of peaches in Clay County. (Barwood).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - CONNECTICUT - Active in Niantic and New Haven areas. (Savos, May 13).

GRASSHOPPERS - UTAH - Peach orchards that were denuded by grasshoppers in 1962 at Moab, Grand County, also suffered frost damage during past winter; up to 50 percent of trees dead, following this combined injury. (Thornley, Knowlton, May 13).

EUROPEAN RED MITE (Panonychus ulmi) - MARYLAND - No buildups on apple in Hancock area, Washington County. (U. Md., Ent. Dept.). PENNSYLVANIA - Fairly abundant on apples in southeast area. (Menusan). NEW JERSEY - Adults present in southern counties; laying eggs on apple. (Ins.-Dis. Newsltr., May 14). CONNECTICUT - Second generation present in Hamden area and laying eggs. Adults in most of State and scattered through trees away from hatching point. (Savos, May 13). NEW YORK - Few nymphs found in 3 untreated Clinton County orchards May 7. Egg hatch progressed very rapidly in Monroe County in spite of cool temperatures. Except near Lake Ontario, hatch probably complete. Eggs not too numerous in Oswego, Cayuga and Onondaga Counties, except on pears. (N. Y. Wkly. Rpt., May 13). VERMONT - Eggs hatched, but very little activity noted because of exceptionally cool days and nights. (MacCollom, May 13). MICHIGAN - Nymphs common on untreated apple, plum and pear orchards in southern counties. (Carpenter, Tatter, Procter, Sowerby). INDIANA - In block near Vincennes, Knox County, mobile forms averaged less than one, and eggs less than 3 per leaf on May 13. In grower-treated apple orchards, populations vary, depending more on thoroughness of application than on material used; however, populations still light generally. (Hamilton). OHIO - Adults present in Wayne County orchards. (Forsythe).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - INDIANA - Building up on ground cover in apple orchards at Vincennes, Knox County; moving into lower parts of apple trees. (Hamilton, May 14). MISSOURI - Few noted, especially on young trees and on ground under older trees, in Kansas City area. (Wkly. Rpt. Fr. Grs.). CONNECTICUT - Fairly abundant and ovipositing on trees around Southington. (Savos). PENNSYLVANIA - Fairly abundant on apples in south central area. (Pepper).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Egg laying started in south central area with controls started in most areas. No activity noted in Stillwater area, Payne County. (Okla. Coop. Sur.). TEXAS - Eggs of first generation appearing as far north as the west cross timbers section in north central area of State; controls being applied. (Texas Coop. Rpt.). GEORGIA - Light on pecan nuts in several southern counties; first report of season May 14. (Johnson). ALABAMA - Light to moderate and active on 40-acre pecan orchard in Mobile County. Entering bases of small nuts in Houston and Henry Counties. No larvae reported further north. Coleophora caryaefoliella and A. juglandis also light to moderate in Mobile County orchard. (Seibels, Amling).

BLACK PECAN APHID (Melanocallis caryaefoliae) - ALABAMA - Heavy on hickory and pecans in Coosa and Clay Counties. Light in Mobile County. (Seibels, Barwood).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Feeding on pecan in Baldwin County. (Wilson).

A LEAF ROLLER MOTH (Archips rosana) - OREGON - Unusually long period of larval development in Willamette Valley filbert orchards. (Stephenson).

A LEAF BEETLE (Syneta albida) - OREGON - Occurring in increasing numbers in filberts in Yamhill County; not yet requiring controls. (Stewart).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Five specimens collected in Hidalgo County during April; 54 specimens collected for season. (PPC, South. Reg., Apr. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Last scheduled treatment in Broward County made April 10. No suspicious specimens caught in traps. (PPC, South. Reg.).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - This species especially, and other spider mites, appearing heavy on citrus nursery stock and in citrus groves. (Ariz. Coop. Sur.).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Present on citrus in Maricopa and Yuma Counties, but being controlled by vedalia (Rodolia cardinalis). (Ariz. Coop. Sur.).

BROWN SOFT SCALE (Coccus hesperidum) - ARIZONA - Found on citrus in Tucson area, Pinal County. (Ariz. Coop. Sur.).

GRAPE FLEA BEETLE (Altica chalybea) - GEORGIA - Causing moderate defoliation to grapes in several areas. (Johnson). ALABAMA - Larvae and adults now feeding mainly on evening-primrose. (McQueen).

A GALL MIDGE - OHIO - Females of unspecified species ovipositing on grape blossoms in Holmes County. Concentrations of eggs heavy. (Still).

IMPORTED CURRANTWORM (Nematus ribesii) - INDIANA - Moderate to heavy on currants throughout Lafayette area, Tippecanoe County. (Chandler).

CURRANT APHID (Capitophorus ribis) - INDIANA - Causing leaf deformation on currants in Lafayette area, Tippecanoe County. (Chandler). PENNSYLVANIA - Quite numerous on currants in Centre County. (Adams).

A CLEARWING MOTH - MICHIGAN - Larvae of undetermined blueberry borer, discovered for first time in State in 1962, actively feeding in infested planting in western area. (Howitt).

TRUCK CROP INSECTS

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - WISCONSIN - Unusually abundant in grain fields; ranged 1-10 per sweep. Half-grown nymphs commonly appearing in older grain fields. Analysis of specimens show none to be infectious; it appears that actual abundance will not be as serious as anticipated. (Wis. Ins. Sur.). MICHIGAN - Adults collected in Berrien, Ingham and Clinton Counties. Appears more numerous than on comparable dates in recent years. (Lucas, Wells, Hoffman).

FLEA BEETLES - MARYLAND - Epitrix spp. unusually abundant on commercial and garden potatoes and tomatoes in eastern and southern areas. Phyllotreta spp. heavy on turnips, cabbage and radish in gardens in same areas. (U. Md., Ent. Dept.). ALABAMA - P. striolata heavy on tomatoes, potatoes and flowers in Lee, Tallapoosa, Chambers and Clay Counties. Caused heavy damage to turnips in some fields in Mobile County. (Barwood, Seibels).

WIREWORMS - WASHINGTON - Adults of several species flying for past month in eastern part of State. Larvae abundant in some locations and damaging small gardens and fields of beets, potatoes, peas and barley. Infestations of Limoni spp. increased last several years. (Landis).

APHIDS - NEW JERSEY - Species which carry virus diseases quite active in some raspberry plantings; controls should be applied, especially to young plants. Controls should also be started to protect nonbearing, virus-free strawberry fields. (Ins.-Dis. Newsltr., May 14). MARYLAND - Undetermined species light to moderate on potatoes and tomatoes at College Park, Prince Georges County; also numerous on strawberry plantings at Fruitland, Wicomico County. Aphis rumicis heavy on dock along field borders and roadsides in central Worcester County. (U. Md., Ent. Dept.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW YORK - First adults noted on early potatoes in Suffolk County. (N. Y. Wkly. Rpt., May 13). RHODE ISLAND - No adults found during lengthy search; deep ground freeze may have reduced population; late season delayed potato development greatly. (Mathewson). MARYLAND - Adults and eggs heavy on potatoes and tomatoes in several fields in Worcester and Wicomico Counties. (U. Md., Ent. Dept.). ALABAMA - Light to heavy on potatoes in home gardens in central and northern counties. Controls used in 80-90 percent of home gardens. (Sanders et al.). OKLAHOMA - Continues damaging in several areas of State. (Okla. Coop. Sur.).

POTATO FLEA BEETLE (Epitrix cucumeris) - NEW YORK - First adults observed on early potatoes in Suffolk County. (N. Y. Wkly. Rpt., May 13). DELAWARE - Very numerous on potatoes in one area of Kent County, especially along field edges. Present on tomatoes in New Castle County. (Burbutis).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Not found on Lycium sp. in Larimer County by May 10. (Jenkins).

POTATO APHID (Macrosiphum euphorbiae) - ALABAMA - Control difficult in Baldwin County. (Wilson).

SEED-CORN MAGGOT (Hylemya ciliicrura) - WASHINGTON - Larvae damaging potato seed pieces at Othello, Grant County; 25 acres a total loss due to maggots and associated rots. Cold, wet spring probably a factor. (Landis).

POTATO TUBERWORM (Gnorimoschema operculella) - CALIFORNIA - Larvae light on potatoes in Edison, Kern County. (Cal. Coop. Rpt.).

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Ranged 2-7 per 10 sweeps on peas in New Castle County; present on peas in Sussex County. (Burbutis). WISCONSIN - Alates appearing in pea fields; alfalfa cutting beginning in some areas, which will probably enhance migration. (Wis. Ins. Sur.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults caused conspicuous foliage injury to commercial beans near Princess Anne, Somerset County. (U. Md., Ent. Dept.). DELAWARE - Common on beans in northern Sussex County. (Burbutis). ALABAMA - Light on beans in Tallapoosa, Lee, Coosa, Cullman and Lawrence Counties. (McQueen).

CABBAGE MAGGOT (Hylemya brassicae) - OHIO - Caused considerable damage to small cabbage transplants in Lorain County. (Blair). RHODE ISLAND - Larvae, probably this species, on radishes in Warwick, Kent County. (Hannah).

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Larvae under one per plant on cabbage in Bixby area; 8-10 eggs per plant present. Medium in Choctaw County. (Okla. Coop. Sur.). ALABAMA - Light to heavy locally on cabbage in Tallapoosa, Coosa, Chilton and Cullman Counties; control difficult in Cullman County. (Sanders et al.).

IMPORTED CABBAGEWORM (Pieris rapae) - MARYLAND - Larval damage becoming noticeable on cabbage and broccoli at locations in Prince Georges and Worcester Counties. (U. Md., Ent. Dept.). ALABAMA - Moderate on cabbage in central and northern counties. Adults continue flight in same area. (McQueen).

DIAMONDBACK MOTH (Plutella maculipennis) - ALABAMA - Causing complete loss of several fields of turnips in Mobile County. (Wallace).

SOUTHERN CABBAGEWORM (Pieris protodice) - ALABAMA - Very light on cabbage in Tallapoosa County. (McQueen).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Adults heavy on lettuce plantings in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

CUCUMBER BEETLES - OKLAHOMA - Acalymma vittata and Diabrotica undecimpunctata howardi started feeding on cucumbers in Bixby area, east central. Light populations also observed in Choctaw County, southeast. (Okla. Coop. Sur.). ALABAMA - Diabrotica undecimpunctata howardi light to medium on cucurbits in home gardens throughout central and northern area. (McQueen). Acalymma vittata light to medium in home gardens in Cullman County. (Sanders). MARYLAND - Adults of Acalymma vittata noted on young garden squash in Prince Georges and Worcester Counties. (U. Md., Ent. Dept.). DELAWARE - First adults of Acalymma vittata of season in blacklight traps May 9 in Sussex County. (Burbutis).

TOMATO FRUITWORM (Heliothis zea) - CALIFORNIA - Light in watermelon plantings in Holtville, Imperial County. (Cal. Coop. Rpt.).

SQUASH VINE BORER (Melittia cucurbitae) - ALABAMA - Heavy on squash in Geneva County. (Stephenson).

HOP FLEA BEETLE (Psylliodes punctulata) - UTAH - Damaging small, poor stands of sugar beets in Garland-Tremonton area, Bear River City area, and Willard-Brigham area of Box Elder County. (Knowlton, Finch).

BEET ARMYWORM (Spodoptera exigua) - CALIFORNIA - Light on sugar beet planting in Cambria, San Luis Obispo County. (Cal. Coop. Rpt.).

TORTOISE BEETLES - ALABAMA - Metriana bicolor feeding light on sweetpotatoes and bindweed in Coosa and Cullman Counties. Agroiconota bivittata feeding light on sweetpotatoes and bindweed in Coosa and Cullman Counties and on radish in Tallapoosa County. (McQueen).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - ALABAMA - Attacking sweetpotatoes in Cullman County; controls underway. (Sanders).

ONION MAGGOT (Hylemya antiqua) - NEW YORK - Adults active in Orange County. (N. Y. Wkly. Rpt., May 13). COLORADO - Causing 10-15 percent loss of onions in Adams and Weld Counties; in some fields, loss approached 90 percent where no treatment applied. No insect activity in onion fields in Montrose County. (Lesser, Vrona, Hantsbarger, Bulla).

ASPARAGUS BEETLE (Crioceris asparagi) - MARYLAND - Eggs moderate on asparagus at Westminster, Carroll County. (U. Md., Ent. Dept.). CONNECTICUT - Feeding on new shoots. (Savos).

VARIEGATED CUTWORM (Peridroma saucia) - ARIZONA - Caused injury to mature carrots in Maricopa County; unspecified cutworms very numerous in higher elevation gardens. Controls may be needed in many places. (Ariz. Coop. Sur.).

CARROT BEETLE (Bothynus gibbosus) - WASHINGTON - Adults taken in light traps at Winchester, Grant County. (Hagel).

RHUBARB CURCULIO (Lixus concavus) - WISCONSIN - High in Dane County; feeding punctures expected soon. (Wis. Ins. Sur.).

CALIFORNIA PRIONUS (Prionus californicus) - UTAH - Larvae working in crowns of rhubarb at Clearfield, Davis County. (Knowlton, Burningham).

STRAWBERRY LEAF ROLLER (Archips comptana fragariae) - NEW JERSEY - Few moths observed, but no serious infestations noted. (Ins.-Dis. Newsltr., May 14). MICHIGAN - Newly hatched larvae causing injury in untreated planting in southwestern part of State. (Tatter, Carpenter). WISCONSIN - Half-grown larvae common on strawberries in Juneau County during first week of May; second generation expected soon. (Wis. Ins. Sur.). MISSOURI - Larvae beginning to roll leaves of strawberries in southeast. (Wkly. Rpt. Fr. Grs.).

OMNIVOROUS LEAF TIER (Cnephasia longana) - OREGON - Light on strawberry fields in Marion County. (Hanna).

EASTERN RASPBERRY FRUITWORM (Byturus rubi) - RHODE ISLAND - Adults appeared on raspberries in South Kingstown, Washington County. (Mathewson).

STRAWBERRY APHID (Pentatrichopus fragaefolii) - OREGON - Populations very low and scattered in Marion County strawberry fields. Above normal lady beetle populations may be suppressing numbers. (Hanna).

STRAWBERRY WEEVIL (Anthonomus signatus) - ALABAMA - Few specimens taken on blackberries in Mobile County. (Seibels).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MINNESOTA - Hatched on strawberries and raspberries in Washington County. (Minn. Ins. Rpt.).

TOBACCO INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - VIRGINIA - Larvae medium locally on tobacco plants at Callands, Pittsylvania County. Considerable injury noted on 500 square yards of plant beds; controls recommended. (Reynolds, Blair).

FLEA BEETLES - OHIO - Unidentified species caused light to moderate damage to tobacco seedlings near Peebles, Adams County. (Lyon). VIRGINIA - Epitrix hirtipennis adults ranged 3-8 per plant in field of untreated, newly set tobacco in Pittsylvania County. (Dominick).

WIREWORMS (Conoderus spp.) - NORTH CAROLINA - C. falli collected on farm in southern tip of Sampson County. Larva and pupa collected; pupa determined by attached larval skin. About 10 percent of farm infested. C. vespertinus collected on 2 farms in northwestern Sampson County during first half of May and collected on farm in Moore County; latter infestation severe in areas of field. (Rabb, Mount).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to moderate on tobacco in several southern counties. (Johnson).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Infestations less than 10 percent in southern area; few being found in central area fields. (Texas Coop. Rpt.). LOUISIANA - Emergence into cotton fields remains very low in Tallulah area due to continued dry weather. Weevils found at rate of 25 per acre in one March-planted field just beginning to develop squares; none found in 5 other fields. Total of 17 weevils taken at 14 trap plant locations adjacent to hibernation quarters. (Smith et al.). MISSISSIPPI - Light on cotton in Holmes County. (Ouzts). ALABAMA - None reported. (McQueen).

BOLLWORMS (Heliothis spp., et al.) - TEXAS - Light infestations reported from southern area; damage negligible. (Texas Coop. Rpt.). ALABAMA - Few 2-4 day-old larvae on cotton in Jefferson and Limestone Counties. (Ezell et al.) GEORGIA - Counts made in 20 cotton fields in southern area. Eggs ranged 0-5, averaged 2, per 100 terminals. Larvae ranged 0-6, averaged 2, per 100 terminals. Some cotton beginning to square. (Johnson).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Found in Pinal County on some stub cotton. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ALABAMA - Larvae active on 2 to 6-leaf cotton in Tallapoosa, Jefferson, Cullman and Limestone Counties; no serious damage anticipated. (McQueen).

THRIPS - CALIFORNIA - Moderately abundant on seedling cotton. (T. Leigh, Ext. Ser.). ARIZONA - Caused serious injury to cotton in central areas; many fields show delayed squaring due to injury during April. Some fields need controls. (Ariz. Coop. Sur.). TEXAS - Infestations generally light over State, with some moderate infestations present in upper coastal counties and a few heavy infestations in Blackland section, central area. (Texas Coop. Rpt.). LOUISIANA - Damage becoming severe in untreated fields in Tallulah area. Infestations recurring in 5-7 days following treatments, regardless of insecticide used. Commercial control very general presently. (Smith et al.). MISSISSIPPI - Populations increased in many fields where control measures not used in delta counties. Plant injury greatest on heavier soils. Frankliniella fusca dominant species in area. (Pfrimmer). Infestations light to heavy in Bolivar, Copiah, Forrest, Holmes, Humphreys, Madison, Marshall, Monroe, Prentiss, Quitman, Sunflower, Tallahatchie, Tunica and Walthall Counties; controls being applied. (Ouzts). ALABAMA - Light to medium populations of several species in central area. Medium to heavy in Cullman, Lawrence, Morgan, Limestone and Madison Counties; 1-5 per 3-leaf plant; controls started. (Ezell, Sanders, et al.). GEORGIA - Light to heavy on cotton in northeast, northwest, south central and southwest areas. (Johnson).

APHIDS - CALIFORNIA - Aphis craccivora very abundant in flight and on cotton plants in Kern County. Cotton seedlings have 150-250 per plant. (T. Leigh, Ext. Ser.). ARIZONA - Unspecified species found on cotton in Maricopa, Pinal, Yuma and Graham Counties. Populations not heavy, but some injury noted. (Ariz. Coop. Sur.). TEXAS - A. gossypii light to very light in several areas; checked by predators. (Texas Coop. Rpt.). MISSISSIPPI - Unspecified species light to medium on cotton in Bolivar, Lowndes, Madison, Montgomery, Prentiss and Tallahatchie Counties. (Ouzts). ALABAMA - A. gossypii medium to heavy in most 3 to 6-leaf cotton in central and northern counties where controls not applied. (Ezell, Sanders, et al.). GEORGIA - A. gossypii light to heavy on cotton in northeast, northwest, south central and southwest areas. (Johnson).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Infestations generally very light, except in some parts of extreme southern area where infestations of up to 50 percent being observed. (Texas Coop. Rpt.).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Very abundant in many isolated locations throughout Tulare, Kings and Fresno Counties. (T. Leigh, Ext. Ser.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Increasing on stub cotton in Maricopa County; some controls may be necessary very soon. (Ariz. Coop. Sur.).

PERIODICAL CICADAS - ARKANSAS - Caused minor concern to cotton growers in localized areas in Chicot (southeast) and Crittenden (east central) Counties. (Ark. Ins. Sur.).

WHITEFLIES - ARIZONA - Found on cotton in Maricopa, Pinal and Yuma Counties; injury not too bad, but may be reflected later. (Ariz. Coop. Sur.).

SPIDER MITES - CALIFORNIA - Detectable in many cotton fields, but population light. (T. Leigh, Ext. Ser.). ARIZONA - Present in some fields of cotton in Maricopa, Graham, Pinal and Yuma Counties; some controls necessary. (Ariz. Coop. Sur.).

ADDITIONAL NOTES

VERMONT - EYE-SPOTTED BUD MOTH (Spilonota ocellana) and GREEN FRUITWORM (Lithophane antennata) common on untreated trees in orchards. EUROPEAN RED MITE (Panonychus ulmi) extensive with some bronzing where controls not applied. TARNISHED PLANT BUG (Lygus lineolaris) now active. PLUM CURCULIO (Conotrachelus nenuphar) activity expected at petal fall with first warm weather; most orchards in full bloom. CODLING MOTH (Carpocapsa pomonella) pupation started. No RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) activity observed or reported. CUTWORMS damaged young vegetable seedlings of all kinds. Adult SEED-CORN MAGGOT (Hylemya ciliarura) noted May 18-19. GYPSY MOTH (Porthetria dispar) hatching in Burlington area. TENT CATERPILLAR injury increasing. Immediate controls recommended for BIRCH LEAF MINER (Fenusa pusilla). Controls also urged for BORERS on lilac, dogwood, rhododendron, and azaleas. MEADOW SPITTLEBUG (Philaenus spumarius) hatched on trefoil and other legumes. FACE FLY (Musca autumnalis) ranged 3-7 per animal in Burlington area on May 17. HOUSE FLY (M. domestica) beginning to buildup rapidly under unsanitary conditions. SILVERFISH (Lepisma saccharina), CLOVER MITE (Bryobia praetiosa) and CARPENTER ANTS (Camponotus spp.) caused comments. (MacCollom).

NEW YORK - Adults of PLUM CURCULIO first collected in western area on May 15. Weather continued favorable on May 16 and 17 with marked increase and number collected. Some females collected on May 16 held in laboratory deposited eggs on May 17. RED-BANDED LEAF ROLLER egg masses hatching May 16 in Niagara County and on May 17 in Monroe County. EUROPEAN RED MITE first observed hatching on May 17 in Orleans County. FLEA BEETLES very abundant on transplanted tomatoes in Niagara County. BIRCH LEAF MINER adults active May 14 at Ithaca, but no mines found. NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) active on Long Island. AZALEA WHITEFLY (Pealius azaleae) has been developing on azaleas in Huntington and Oyster Bay areas of Long Island since May 10. JUNIPER WEBWORM (Dichomeris marginella) larvae in second stage and feeding on juniper in Huntington area. PALES WEEVIL (Hylobius pales) adults more numerous on Scotch pine stumps in Ithaca area than previous week. (N. Y. Wkly. Rpt.). Record of AZALEA WHITEFLY first ARS record of species in State.

Weather of the week ending May 20 (continued from page 540)

rose no higher than the 60's or 70's. For instance, on Thursday, the maximum temperatures at Kirksville and Cape Girardeau, Missouri, were 58° and 91°, respectively. On Friday, Roanoke, Virginia, registered 63°, while the maximum at Charleston, South Carolina, reached 93°. In the southwestern deserts, the afternoon temperatures reached 100° or higher on several days. The front moved southward, setting off thunderstorms, some accompanied by hail, along the Gulf. Sunday morning, a deepening storm, centered in southern Canada, brought cold polar air into the North Central States. Temperatures plunged to below freezing over the northern tier of States from the Rockies to the Great Lakes. The thermometer at Drummond, Montana, fell to 20°, and Kendall, Wyoming, registered 17°. Light snow fell in northern Minnesota. Upslope winds brought cold rains to southern Wyoming, western Nebraska and western Kansas. A mixture of snow and rain fell at Cheyenne, Wyoming. The cold blast held midday temperatures in the 40's in parts of Minnesota, Wisconsin and Upper Michigan. Duluth, Minnesota, registered 44°. In contrast, Red Bluff and Needles, California, registered 98° and 103°, respectively.

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Heavy, isolated infestations present on loblolly pine in Cullman and Tallapoosa Counties. (McQueen). OKLAHOMA - First generation completed in Stillwater area, Payne County. (Okla. Coop. Sur.). MARYLAND - Small larvae noted in tips of pines at Rison, Charles County. (U. Md., Ent. Dept.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Infested 3 trees on 2 properties near previously infested area in Portland; infested trees destroyed. No known infestations in State at present time. (Foster).

SPRUCE BUDWORM (Choristoneura fumiferana) - MINNESOTA - Mining needles of balsam fir at Ely, St. Louis County, May 7. (Minn. Ins. Rpt.).

PINE TUSsock MOTH (Dasychira plagiata) - MINNESOTA - Development mostly second and third instars on jack pine at Brainerd, Crow Wing County, and at Willow River, Pine County; occasional fourth instar noted. Spray project on 6,500 acres of jack pine in Brainerd and Willow River areas planned for about May 25. (Minn. Ins. Rpt.).

LARCH CASEBEARER (Coleophora laricella) - MINNESOTA - Low populations observed in Aitkin and Crow Wing Counties; no apparent damage. (Minn. Ins. Rpt.).

WISCONSIN - Pupation well underway in southern Grant County and populations appear to have decreased. Feeding on new needles noted in Door County May 3. (Wis. Ins. Sur.).

WHITE-PINE WEEVIL (Pissodes strobi) - PENNSYLVANIA - Warm temperatures during late March resulted in weevil emergence on April 2 in Bedford County; 160 plantation acres of white pine treated in area. (Pa. For. Pest Rpt., May 1).

BALSAM TWIG APHID (Mindarus abietinus) - PENNSYLVANIA - Infesting balsam fir in Berks County, May 9. Det. by J. O. Pepper. (Nichols).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - KANSAS - Crawlers reported infesting Colorado blue spruce in CEIR 13(20):527, determined as this species by L. M. Russell. (Peters).

PINE APHIDS (Cinara spp.) - WISCONSIN - Alates present in Trempealeau County. Populations of one species reported to have destroyed planting of new pine in Lafayette County. (Wis. Ins. Sur.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - COLORADO - Hatching in Larimer County. Control of crawlers recommended. (Hantsbarger). OHIO - No eggs found on infested Norway spruce in Coshocton County; hatching appears complete. (Ellis, Walker). NEW YORK - Extensive in a Christmas-tree growing area in Cayuga County; varied light to very heavy on Scotch pine on area of several hundred acres. No evidence of egg hatch by May 8. Lady beetles abundant on most heavily infested trees; Chilocorus stigma dominant species, with up to 10-12 adults per 2 to 3-foot high tree; few or none present on lightly infested trees. (N. Y. Wkly. Rpt., May 13).

PINE TORTOISE SCALE (Toumeyella numismaticum) - MINNESOTA - Very heavy along State Highway 23 between Askov, Pine County, and Duluth, St. Louis County; causing some mortality to jack pine. (Minn. Ins. Rpt.).

PINE SPITTLEBUG (Aphrophora parallela) - MINNESOTA - Nymphs developing in spittle masses on jack pine in Crow Wing and Pine Counties; very low populations observed. (Minn. Ins. Rpt.). OHIO - Nymphs observed on Scotch pine in Coshocton County. (Ellis, Walker). ALABAMA - Light on 6-year-old loblolly pines in Cullman County. (McQueen).

CONIFER SAWFLIES - CONNECTICUT - Larvae of unspecified species prevalent on pines in some parts of State. (Savos). VIRGINIA - Neodiprion sp. larvae locally medium on Virginia pine in Fairfax, Fairfax County. First larvae noted this spring. (Hall). ALABAMA - Larvae of Neodiprion lecontei feeding on shortleaf pine in Conecuh County. (McQueen). OKLAHOMA - Undetermined species reported as heavy in Talihina area in CEIR 13(20):525, determined as Neodiprion taedae linearis. (Okla. Coop. Rpt.). First ARS record for State. INDIANA - Third and fourth instars of Neodiprion sertifer noted in Porter County May 13. (Giese). OHIO - N. sertifer larvae appear three-fourths grown on Scotch pine in Coshocton County; first and second instars abundant on Scotch and red pine in Wayne County. (Cutright, Ellis, May 4).

FALL CANKERWORM (Alsophila pomataria) - ILLINOIS - Abundant and severely defoliating many oaks and elms in Cass-Brown County area. (Ill. Ins. Rpt.). INDIANA - Larvae numerous on silver maple and American elm in Lafayette area, Tippecanoe County. (Chandler). NEW YORK - First-stage larvae noted on pin oak in Huntington, Long Island, on May 6, and on linden in Middle Island and on birch at Westbury May 7. (N. Y. Wkly. Rpt.).

SPRING CANKERWORM (Palaecrita vernata) - NEBRASKA - Isolated infestations present on elm in northern and northeastern areas. (Bergman).

CANKERWORMS - NORTH DAKOTA - First-stage larvae noted on various trees and shrubs in Fargo area, Cass County. (N. D. Ins. Sur.). MINNESOTA - Feeding heavily on oak, elm, birch and many other trees and shrubs in Minneapolis-St. Paul area. At present, damage apparent as shot-holing of leaves, but as larvae increase in size, defoliation will become progressively more apparent. Controls should be applied now. With warm weather, larvae will progress quickly and consume much larger amounts of leaf tissue. (Minn. Ins. Rpt.). NEW JERSEY - Heavy on oak in many areas. (Ins.-Dis. Newsltr., May 14).

LINDEN LOOPER (Erannis tiliaria) - NEW YORK - Early instars present on various ornamentals in Hudson Valley May 9. (N. Y. Wkly. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - WISCONSIN - Tents of half-grown larvae abundant in certain areas, particularly in portion of Rock County. Few unsprayed apple trees affected in part of southwest area. (Wis. Ins. Sur.). MICHIGAN - Webs and feeding injury evident in Kalamazoo, Sanilac, Kalkaska, Crawford, Leelanau and Ottawa Counties. (Wells, Durren, Sowerby, Brown, Bloomer, Ball, Van Klopenberg). MARYLAND - Tents conspicuous on host plants over most of Eastern Shore. (U. Md., Ent. Dept.). RHODE ISLAND - As tents become more obvious, it is apparent that infestations, although localized, are definitely heavier in Providence and Kent Counties than in other parts of State. (Mathewson, Cartier, Buonaiuto).

A LOOPER (Phigalia titea) - PENNSYLVANIA - Thousands of adults reported flying in woods in Lackawanna County in late March; species feeds on oak. (Pa. For. Pest Rpt., May 1).

ELM SPANWORM (Ennomos subsignarius) - ARKANSAS - Heavy feeding occurred on pecan, willow and oak in lower White River area of State. (Ark. Ins. Sur.).

GYPSY MOTH (Porthetria dispar) - Three infestations found to date in Queens County, NEW YORK; 2 of single egg masses and one of 12 egg masses. Inspections of nurseries in MASSACHUSETTS revealed 8 infestations; 4 on perimeter of properties involved and 4 on cultivated nursery stock. (PPC, East. Reg., Apr. Rpt.).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - Two new sites of infestation found at Moody Beach, York County, MAINE, and 2 in Loudon, Merrimack County, NEW HAMPSHIRE. Surveys completed in RHODE ISLAND and CONNECTICUT with negative results. (PPC, East. Reg., Apr. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Widespread defoliation occurring across State. (Okla. Coop. Sur.). ARKANSAS - Eggs and young larvae appearing in most areas of State. (Ark. Ins. Sur.). RHODE ISLAND - Adults continue to move from hibernation to trees. (Hannah, Mathewson). VERMONT - Active and will soon be laying eggs on elms. (MacCollom, May 13).

ELM CALLIGRAPHA (Calligrapha scalaris) - OKLAHOMA - Destructive defoliation continues in Ponca City area, Kay County. (Okla. Coop. Sur.).

A LEAF BEETLE (Disonycha alternata) - NEVADA - Adults heavy and severely defoliating willow in southern Washoe County. (Bechtel).

A MAY BEETLE (Phyllophaga tristis) - VIRGINIA - Adults heavy on oaks at a location in Portsmouth. Det. by O. L. Cartwright. (Farrell, Apr. 23).

ELM LEAF APHID (Myzocallis ulmifolii) - MARYLAND - Building up on American elms at College Park, Prince Georges County. (U. Md., Ent. Dept.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - COLORADO - Eggs turning yellow; no crawlers yet observed. (Jenkins). UTAH - This and another coccid infesting ash trees at Tremonton, Box Elder County. (Knowlton).

GOLDEN OAK SCALE (Asterolecanium variolosum) - MARYLAND - Heavy on large white oaks at College Park, Prince Georges County; crawlers active. (U. Md., Ent. Dept.).

A LEAF-EATING GRASSHOPPER (Dendrotettix quercus) - WISCONSIN - Nymphs appearing in Wood County, but scarce as yet. Expected to become numerous on oak in localized areas this year in accordance with alternate-year cycle. (Wis. Ins. Sur.).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Adult activity decreased during cold period. (Mathewson). NEW YORK - Adults active on gray birch in Hudson Valley during warmer parts of day; eggs present on nearly every leaf. Occasional leaves contained larvae by May 11. (N. Y. Wkly. Rpt.). NEW JERSEY - Adults active and larvae appearing; controls should be applied in southern and central counties. (Ins.-Dis. Newsltr., May 14). MICHIGAN - Mines appearing in Lansing area, Ingham County. (Hoffman). OREGON - Has been active in Portland area for approximately 2 weeks; mines up to 0.25 inch in diameter now present. (Nicolaison).

LOCUST LEAF MINER (Xenochalepus dorsalis) - OHIO - Caused severe damage to locust trees in park near Chillicothe, Ross County; 50-80 percent skeletonizing of leaves. Adult populations heavy in Ross, Pike, Adams, Highland and Brown Counties. Several adults swept from red clover and alfalfa. (Walker, Lyon). MARYLAND - Adults heavy on black locust at Princess Anne, Somerset County. (U. Md., Ent. Dept.).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - MARYLAND - Galls conspicuous on maple on properties at Forest Heights, Prince Georges County, and at Baltimore. (U. Md., Ent. Dept.). VIRGINIA - Infesting maple at a location in Caroline County. (Rowell, Eagar). MINNESOTA - Common in Minneapolis-St. Paul area. (Minn. Ins. Rpt.).

AZALEA LEAF MINER (Gracilaria azaleella) - ALABAMA - Population and damage extremely heavy on azaleas in coldframe under lath in Mobile County nursery; 90 percent of all leaves affected. (Seibels).

LEAF ROLLER MOTHS - MISSOURI - Complex of Argyrotaenia velutinana and Archips argyropilus continues troublesome on ornamentals; practically all have pupated in southeast. (Wkly. Rpt., Fr. Grs., May 15). CALIFORNIA - Argyrotaenia citrina medium on pelargoniums in Malibu, Los Angeles County. Pelargoniums are important ornamentals in southern coastal area of State. (Cal. Coop. Rpt.).

BAGWORM (Thyridopteryx ephemeraeformis) - ARKANSAS - Egg hatch occurred in State week ending May 11. (Ark. Ins. Sur.).

A NYMPHALID (Asterocampa clyton) - OKLAHOMA - Causing some defoliation of hackberry trees in Payne and Sequoyah County area. (Okla. Coop. Sur.).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - OHIO - Severely damaged roots and foliage of Taxus spp. in Cuyahoga County; larvae abundant near roots. Population 60 percent larvae, 40 percent pupae. (Kile, Walker, May 10). DELAWARE - Full-grown larvae common on roots of Taxus spp. in area of New Castle County. (Burbutis).

PINE ROOT COLLAR WEEVIL (Hylobius radialis) - PENNSYLVANIA - Infesting some Scotch pine in Christmas-tree plantings in Centre County; several trees dead. (Udine).

PINE BARK WEEVILS - NEW YORK - Numerous and active on stumps of Scotch pine cut last fall in Cayuga County. Damage to lateral shoots of Scotch pine and Douglas-fir for Christmas trees reported in Schuyler and Allegany Counties. Pissodes approximatus most numerous on stumps; Hylobius pales also present. (N. Y. Wkly. Rpt., May 13).

A FLEA BEETLE (Altica torquata) - CALIFORNIA - Larvae heavy and damaging primula plants in Palmdale, Los Angeles County. (Cal. Coop. Rpt.).

APHIDS - NEW JERSEY - Unspecified species building up on roses. (Ins.-Dis. Newsltr., May 14). MARYLAND - Aphis spiraeicola heavy on spirea at Snow Hill, Worcester County; Macrosiphum rosae heavy on rose at University Park, Prince Georges County. (U. Md., Ent. Dept.). MISSISSIPPI - Unspecified species ranged medium to heavy on roses in Choctaw County. (Ouzts). WISCONSIN - Rhopalosiphum melliferum populations extremely abundant and causing noticeable injury to plantings of honeysuckle (Lonicera sp.) in Dane County. Many inquiries and reports concerning high populations of Lachnus salignus. (Wis. Ins. Sur.). MINNESOTA - Unspecified species very common on many trees and shrubs. (Minn. Ins. Rpt.). OKLAHOMA - Several species continue to infest variety of ornamentals over State. (Okla. Coop. Sur.). COLORADO - Macrosiphum atripes abundant on goldenrod in Yuma County. (Hantsbarger). NEW MEXICO - Unspecified species continue a problem in Dona Ana County rose gardens. Many other valuable plants also being attacked; however, controls now underway. (N. M. Coop. Rpt.). ARIZONA - Unspecified species heavy on oleander in Tucson area, Pima County. (Ariz. Coop. Sur.). UTAH - Rhopalosiphum berberidis severe on barberry at Logan, Cache County. (Knowlton). Aphis spp. curling foliage of snow ball bushes and undetermined species numerous on apical growth of roses at Brigham City, Box Elder County. (Knowlton, Collmar). CALIFORNIA - Acyrtosiphon solani adults heavy on Jerusalem-cherry plants in San Luis Obispo, San Luis Obispo County. (Cal. Coop. Rpt.).

POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) - KANSAS - Causing concern to homeowners in Marion County, central area. (Gates). NEBRASKA - Infestations present in Lancaster and Thayer Counties. (Bergman). VIRGINIA - Medium on Lombardy poplar at Matoaca, Chesterfield County. (Matheny).

SPRUCE APHID (Aphis abietina) - CALIFORNIA - This and Cinara sp. heavy and damaging new growth on Alberta spruce nursery stock in Coloma, San Mateo County. (Cal. Coop. Rpt.). New county record.

COCCIDS - PENNSYLVANIA - Chrysomphalus obscurus killing branches of dogwood in Berks County. (Menusan, May 8). MARYLAND - Unaspis euonymi crawlers appeared May 15 at College Park and May 16 at Takoma Park. (U. Md., Ent. Dept.). VIRGINIA - Eriococcus azaleae locally severe in Fairfax area, Fairfax County; females and eggs present. (Hall). INDIANA - Lecanium fletcheri heavy on Canaert junipers in Indianapolis area, Marion County. (Schuder). CALIFORNIA - Lecanium corni complex medium to heavy on California-holly (Photinia arbutifolia) at

Atwater, Merced County, and light on nursery stock in Perkins, Sacramento County. (Cal. Coop. Rpt.).

Coccids in Florida - Cerococcus sp. moderate on Hibiscus sp. at North Miami, Dade County (May 9). Florinia these severe on Camellia sp. at Wilson, Brevard County (May 10). Orthezia insignis severe on Leucophyllum frutescens at Miami, Dade County (May 8). Pseudaonidia clavigera moderate on Ligustrum sp. at St. Petersburg, Pinellas County (May 13). Saissetia hemisphaerica severe on Psychotria sulzneri at Ft. Lauderdale, Broward County (May 5). Saissetia oleae light on Nerium oleander at Port Orange, Volusia County (April 26), and severe on Psychotria sulzneri at Ft. Lauderdale (May 5). (Fla. Coop. Sur.).

THRIPS - MARYLAND - Heavy on opening rose buds at University Park, Prince Georges County. (U. Md., Ent. Dept.).

NORTHERN MOLE CRICKET (Gryllotalpa hexadactyla) - ALABAMA - Caused complete destruction of isolated flowerbeds in Covington County. Few reported in Dallas County. (Stephenson et al.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - OHIO - Emergence underway in Cincinnati, Hamilton County. Approximately 36 percent of population parasitized. (Cooley, Walker).

SPIDER MITES - KANSAS - Unspecified species heavy on evergreens in Riley County, northeast. (Gates). Tetranychus telarius moderate to heavy on evergreen and deciduous plants, including juniper and rose, in Franklin County; extremely early for buildup of this proportion. (Guldner, May 7). COLORADO - Tetranychus sp. causing considerable damage to juniper in Larimer County. Several ornamentals have been heavily infested with spider mites. (Hantsbarger). NEW MEXICO - An unspecified species causing severe damage to variety of juniper at Los Lunas, Valencia County. Controls now underway. (N. M. Coop. Rpt.). CALIFORNIA - Panonychus citri medium locally on pittosporum shrubs in San Luis Obispo, San Luis Obispo County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

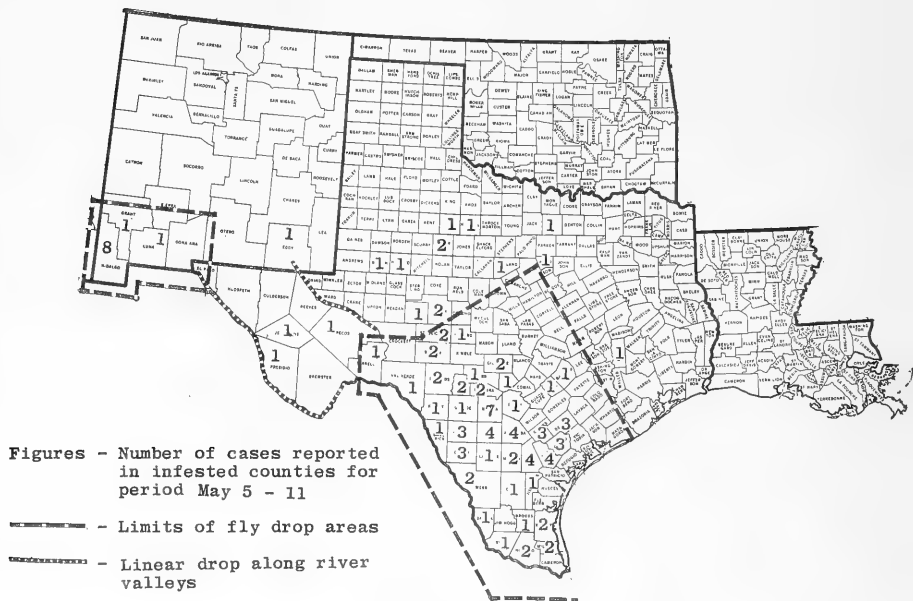
FACE FLY (Musca autumnalis) - VERMONT - Readily observed on warm days, but not yet serious. (MacCollom, May 13). WISCONSIN - Becoming troublesome on cattle in Dodge, Walworth and Columbia Counties. (Wis. Ins.Sur.). SOUTH CAROLINA - Populations averaged 50 per face in upper Oconee County. (Hair, Adkins, May 10).

HOUSE FLY (Musca domestica) - VERMONT - Populations low in most areas; breeding remains slow. (MacCollom, May 13).

HORN FLY (Haematobia irritans) - GEORGIA - Examination made of 300 Hereford cows in Spalding County. Ranged 0-250 (averaged 39) per treated animal; 2 untreated animals had 200 flies each. Examination of 150 treated dairy animals in same county revealed range of 0-25 (average 2.67) per animal; ranged 0-500 (averaged 187) per head on 24 untreated animals. (Roberts). MISSISSIPPI - Medium to heavy on cattle in Tallahatchie, Choctaw and Lowndes Counties. Controls applied. (Ouzts). TEXAS - Populations increased greatly in north central area following recent rains. (Turney). OKLAHOMA - Increasing in north central area; counts per head, by county, as follows: Payne - 300 on steers, 325 on cows, 1,000 on bulls; Logan - 250 on steers and cows, 750 on bulls. Counts of 400-600 per head on cows observed in Garvin County (south central). Activity evident in all other areas, with moderate counts reported from Okmulgee County. (Okla. Coop. Sur.). MISSOURI - Continues moderate to heavy on untreated cattle throughout State; 50-200 per animal in northwest. (Munson, Thomas, Wood). KANSAS - Ranged 0-150 per head on cattle in southeast and east central areas. (Peters). NEBRASKA - Ranged 50-500 per animal in sandhills area. (Bergman). OHIO - Light on cattle throughout south central area; 8-10 per animal over back and withers. (Lyon).

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period May 5 - 11, a total of 96 infestations, including 3 of unknown origin, were reported from TEXAS and 11 from NEW MEXICO. Texas specimens were reported from 52 counties, and infestations were reported from 4 counties in New Mexico. There were 8 new Texas counties reporting infestations for the first time this year -- Tom Green, Jeff Davis, Haskell, Eastland, Martin, Hood, Wise and Grimes. Counties reporting infestations outside normal release area being treated twice weekly with 100,000 flies each treatment, requiring total of 8,800,000 flies per week for this specialized "hot-spot" work. A total of 108,640,250 sterile flies was released during the period May 5 - 11. (Anim. Dis. Erad. Div.).



STABLE FLY (*Stomoxys calcitrans*) - OKLAHOMA - Populations continue low; averaged 2 per head on cattle in Stillwater area, Payne County. (Okla. Coop. Sur.). CALIFORNIA - Larvae and pupae heavy in horse corral in Tustin, Orange County. (Cal. Coop. Rpt.).

BLACK FLIES - RHODE ISLAND - Complaints normal for season throughout State. (Mathewson). WISCONSIN - Annoying in portions of Crawford and Calumet Counties. (Wis. Ins. Sur.). CALIFORNIA - Simulium aureum adults heavy on horses in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

MOSQUITOES - TEXAS - Undetermined species very annoying to residents in north central area, following recent rains. (Turney). NORTH DAKOTA - Aedes spencerii present in eastern and western areas. Fourth instars of Aedes fitchii, A. canadensis and A. campestris collected near Williston, Williams County; second and third instars of A. canadensis collected at Williston; A. fitchii and A. campestris collected in Cass County. Populations of these early species appear near normal in eastern sections, above normal in northwest. Adults of Culiseta inornata active for about 4 weeks. No positive collections of A. vexans or A. dorsalis made to May 17. (Noetzel). MINNESOTA - Total of 1,256 larval collections made in Metropolitan Mosquito Control district May 5-11. Culiseta inornata and Aedes vexans found in 40 percent of samples; A. cinereus and Aedes spp. too small to identify found in 20 percent; 11 other species of Aedes collected. C. inornata taken in small numbers in light trap, along with occasional Aedes spp. Extensive mosquito hatch occurred as result of heavy rains on May 10 and 12; emergence of this brood not expected until May 30. Spring species of Aedes well controlled in Metropolitan district; however, presently a nuisance in other areas and will continue for some time. (Minn. Ins. Rpt.). WISCONSIN - Woodland species biting in scattered areas of State; populations apparently normal. (Wis. Ins. Sur.). MARYLAND - Aedes grossbecki and A. sticticus adults taken May 17 at Denton, Caroline County; rarely collected in State. (U. Md., Ent. Dept.). RHODE ISLAND - Mosquito activity generally minimal. (Mathewson).

EYE GNATS (Hippelates spp.) - WISCONSIN - Annoying to cattle in Sauk County. (Wis. Ins. Sur.).

LAKE MIDGES - WISCONSIN - Unspecified species abundant along shores of Lake Winnebago; emergence began night of May 8. (Wis. Ins. Sur.).

FLIES - NEW MEXICO - Unspecified species pestiferous along Rio Grande from Las Cruces, Dona Ana County, to Los Lunas, Valencia County. (N. M. Coop. Rpt.).

CHIGGERS - WISCONSIN - Unspecified species appearing in Chippewa and Crawford Counties. (Wis. Ins. Sur.).

CAT FLEA (Ctenocephalides felis) - CALIFORNIA - Heavy in yards and houses in Sacramento, Sacramento County, and Woodland, Yolo County. (Cal. Coop. Rpt.).

AMERICAN DOG TICK (Dermacentor variabilis) - MINNESOTA - Numerous in most wooded areas. Troublesome to some suburban homeowners. (Minn. Ins. Rpt.). WISCONSIN - Reports indicate species common throughout most northern and central counties. Appearance in Vilas County unusually early in season there. (Wis. Ins. Sur.). MARYLAND - Found on children and dogs in Calvert and Cecil Counties. (U. Md., Ent. Dept.).

BROWN DOG TICK (Rhipicephalus sanguineus) - ARIZONA - Causing concern in Maricopa, Yuma and Pinal Counties. (Ariz. Coop. Sur.).

EAR TICK (Otobius megnini) - CALIFORNIA - Medium on rabbit in Tipton, Tulare County. (Cal. Coop. Rpt.).

HOUSEHOLD AND STRUCTURAL INSECTS

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEW YORK - A problem to householders in several areas. (N. Y. Wkly. Rpt., May 13). RHODE ISLAND - Complaints of home infestations continue from East Greenwich and nearby parts of Warwick, Kent County. (Hannah, Mathewson).

COCKROACHES - UTAH - Supella supellectilium abundant in several rooms of a home and in prefabricated apartments at Logan, Cache County. (Knowlton). WISCONSIN - Parcoblatta spp. and Blatta orientalis active about and inside buildings, respectively. (Wis. Ins. Sur.). MICHIGAN - Parcoblatta pennsylvanica reported from several counties. (Janes). DELAWARE - Blatta orientalis infesting home in New Castle County. (Connell).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Causing considerable annoyance to homeowners in Pinal County. (Ariz. Coop. Sur.). MICHIGAN - Invading houses in Ingham and Ottawa Counties. (Hoffman, Machiele). MARYLAND - Heavy numbers present in house at Bowie, Prince Georges County. (U. Md., Ent. Dept.). DELAWARE - Continues a problem in New Castle County homes. (Burbutis). NEW YORK - A nuisance in households in many areas. (N. Y. Wkly. Rpt., May 13). CONNECTICUT - Causing concern in Bristol, Stonington, Vernon, Wallingford and Meriden. (Savos). RHODE ISLAND - Complaints not as frequent as in past weeks. (Mathewson, Cartier, Hannah). VERMONT - Continues a problem in some areas. (MacCollom, May 13).

A BOSTRICHID (Stephanopachys substriatus) - CALIFORNIA - Larvae and adults heavy in redwood and redwood-bark paneling in residence in Placentia, Orange County. (Cal. Coop. Rpt.).

TERMITES - RHODE ISLAND - Winged forms continue to be of concern statewide, but perhaps less so than in past weeks. (Mathewson, Cartier, Hannah). CONNECTICUT - Unspecified species a problem in Manchester, New London, Windsor, Norwalk, Southbury and Wallingford. (Savos). MICHIGAN - Undetermined species a problem in a 3-year-old house in Berrien County; also reported from Ottawa County. (Tatter, Machiele). ALABAMA - Reticulitermes flavipes seriously damaged dwelling in northern Covington County; caused light to medium damage in remainder of county. (Stephenson).

PAVEMENT ANT (Tetramorium caespitum) - MARYLAND - Winged forms appeared about property at Towson, Baltimore County. (U. Md., Ent. Dept.). RHODE ISLAND - Complaints concerning alates continue statewide; frequency less than in previous weeks. (Mathewson, Cartier, Hannah).

CARPENTER ANTS - CONNECTICUT - A problem in Glastonbury, Meriden and Wallingford. (Savos). WISCONSIN - Camponotus pennsylvanicus most frequently reported species invading homes, although other ant species also becoming troublesome. (Wis. Ins. Sur.).

CARPENTER BEE (Xylocopa virginica) - CONNECTICUT - Active and damaging dwellings in some localities. (Savos). MARYLAND - Adults noted boring in redwood arbor at Kensington, Montgomery County. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Hippodamia convergens extremely active on cotton, beans, vetch and clover in central and northern areas; less active on turnips in Mobile County. Coccinella novemnotata extremely active on crimson clover, vetch and cotton in Mobile County. Few Coleomegilla maculata fuscilabris noted in home garden, vetch, oats and cotton in central and northern parts of State; more plentiful in Mobile County. (Seibels et al.). TEXAS - Lady beetles and other beneficial species holding aphid populations in check in vetch, alfalfa and cotton in scattered areas. (Texas Coop. Rpt.). NEW MEXICO - Unspecified species abundant in alfalfa and barley fields checked in State. (N. M. Coop. Rpt.). UTAH - H. convergens and other species numerous in alfalfa in Fielding-Tremonton area, Box Elder County. (Knowlton). WYOMING - Adults of several species per 100 sweeps averaged 12 in alfalfa and 5 in wheat fields in Goshen County. (Fullerton). IDAHO - Numerous species abundant in Hammett, Notus and Middleton areas. (Portman, Bechtolt). ILLINOIS - Adults and larvae of unspecified species increasing rapidly in pea aphid infested clover and alfalfa. (Ill. Ins. Rpt.).

KLAMATHWEED BEETLES (Chrysolina spp.) - OREGON - High numbers of full-grown larvae and pupae reported in local areas of Yamhill County. (Stewart).

GREEN LACEWINGS (Chrysopa spp.) - UTAH - Numerous in alfalfa in Fielding-Tremonton area, Box Elder County. (Knowlton). NEW MEXICO - Building up generally in alfalfa and small grains throughout State. (N. M. Coop. Rpt.). TEXAS - Aiding in holding aphid populations on vetch, alfalfa and cotton in check in scattered areas. (Texas Coop. Rpt.). ALABAMA - C. oculata active on pine, legumes and wheat throughout central area. (McQueen). ILLINOIS - C. oculata adults and larvae common in pea aphid infested alfalfa and clover in southern half of State. (Ill. Ins. Rpt.).

DAMSEL BUGS (Nabis spp.) - VIRGINIA - Observed feeding on larvae of Hypera postica in Montgomery County. (Pienkowski). WYOMING - Adults per 100 sweeps averaged 5 in alfalfa and 8 in wheat fields in Goshen County. (Fullerton). UTAH - N. ferus and N. alternatus numerous in alfalfa in Fielding-Tremonton area, Box Elder County. (Knowlton).

A BIG-EYED BUG (Geocoris punctipes) - ALABAMA - Active in vetch-oats mixture, pecans and caly peas in central area; very few noted in extreme northern part of State. (McQueen).

A FLOWER BUG (Orius insidiosus) - ALABAMA - Ranged 1-2 per sweep in Dallas County vetch. (McQueen).

AN ASSASSIN BUG (Sinea diadema) - ALABAMA - Most active on crimson clover and vetch in central and northern areas. (McQueen).

HONEY BEE (Apis mellifera) - RHODE ISLAND - First swarm reported May 10 in Cumberland, Providence County; others reported since that date. (Mathewson, d'Andrea). NORTH CAROLINA - Swarming heavy during April and early May due to good buildup during March. Freeze of April 30 materially decreased prospects for honey flow. (Stephen, May 10). NEW MEXICO - Those checked in excellent condition for time of year. Many in heavy honey flow at present time. (N. M. Coop. Rpt.).

ALKALI BEE (Nomia melanderi) - IDAHO - More than 99 percent of overwintering prepupae in old, established bed being destroyed at Homedale, Owyhee County; supposedly by fungus disease. (Waters).

MISCELLANEOUS INSECTS

ELM CASEBEARER (Coleophora limosipennella) - MICHIGAN - A nuisance around some homes in Ionia County. (Pryer, Janes).

A LEAF BEETLE (Gastrophysa cyanea) - CALIFORNIA - Adults heavy on sour dock plants in Madera, Madera County. (Cal. Coop. Rpt.). IDAHO - First-stage larvae noted May 14 at Parma, Canyon County. (Waters).

A POWDER-POST BEETLE (Lyctus brunneus) - CALIFORNIA - Adults heavy in bamboo wood in residence in Walnut Creek, Contra Costa County. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - Aerial treatments completed at Paris, Henry County, and U. S. Naval Air Station, Shelby County, TENNESSEE, during April. Delimiting survey completed at Clinton Airport, Anson County, NORTH CAROLINA. Small infestation found in railroad yards at Florence, SOUTH CAROLINA. Soil treatments applied in areas of Bibb, Calhoun, Houston, Toombs, Tattnall, and Pulaski Counties, GEORGIA. Larval surveys in ALABAMA negative except in Baldwin and Mobile Counties. Larvae found in 3 Mobile County nurseries where heavy adult migration from untreated properties observed in summer of 1962. Small infestation found in De Soto County, MISSISSIPPI, where no white-fringed beetles have been found for several years. Few larvae found in Blytheville area, ARKANSAS. (PPC, South. Reg., Apr. Rpt.).

JAPANESE BEETLE (Popillia japonica) - All known infested acreage in TENNESSEE now treated. Additional traps placed in ALABAMA and LOUISIANA. (PPC, South. Reg., Apr. Rpt.).

SMALL MILKWEED BUG (Lygaeus kalmii) - ALABAMA - Common on milkweeds throughout central and northern areas. (McQueen).

HACKBERRY-NIPPLE-GALL MAKER (Pachypsylla celtidismamma) - MICHIGAN - Adults annoying around homes in Ingham County. (Hoffman).

PERIODICAL CICADAS - INDIANA - Brood XXIII of 13-year race began emerging in Evansville, Vanderburgh County (southwest), evening of May 13. Males and females of at least 2 species collected. (Matthew).

A SPRINGTAIL (Entomobrya unostrigata) - CALIFORNIA - Adults creating nuisance in swimming pool in Riverside, Riverside County. (Cal. Coop. Rpt.).

ALLEGHENY MOUND ANT (Formica exsectoides) - VIRGINIA - Very abundant in section of Fauquier County in Blue Ridge Mountains. Mounds typically 2.5 feet high; 35-40 mounds found on top of high hill in forest. (Tarpley, Tudor).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Treatment completed in Fayetteville, NORTH CAROLINA. Small extensions to infested areas found in several counties of the CAROLINAS. Appraisal surveys on areas treated in 1962 in GEORGIA continue favorable. Found for the first time in Brantley and Telfair Counties, Georgia. Aerial treatment completed in Etowah County, ALABAMA; additional acreage treated on peripheral infestations in Clay, Lamar, Calhoun, Marion, Morgan and Coosa Counties. Results of appraisal survey in treatment area at Selma, Dallas County, exceeded expectations. Found for first time in Lafayette County, MISSISSIPPI. Aerial treatment of approximately 34,000 acres in Hinds County completed. Surveys in some areas treated once show no ants; second treatment may not be required. Several mounds found in Union County, ARKANSAS. Additional acres treated in Union and Ashley Counties. Treatment completed at Love Field, Dallas County, TEXAS, and on last known infestation in Bexar County. Treatment completed on City Prison Farm in Harris County. (PPC, South. Reg., Apr. Rpt.).

A WOOD BORING SAWFLY (Xiphydria maculata) - OHIO - Collected from firewood in Defiance County home; species not common in State. (Clymer, Triplehorn).

A GARDEN CENTIPEDE (Orthomorpha gracilis) - CALIFORNIA - Adults heavy in soil locally in Hollister, San Benito County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 13(19):475, 481 - CEREAL LEAF BEETLE (Oulema melanopa) - INDIANA - Record for Lagrange County in error, substitute Noble County.

CEIR 13(20):518 - SAN JOSE SCALE (Aspidiotus perniciosus) - ALABAMA - Host should read peach.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Protoparce quin.	Ostrinia sexta	Heliiothis nubil.	zebra	vires.
ARKANSAS									
Hope 5/9-15		4						7	
Warren 5/9-15		2						1	1
Kelso 5/9-15	1	2		13				10	
Fayetteville 5/9-15	4	13						9	
FLORIDA									
Gainesville 5/15	1	1				2		3	1
Northeast Gainesville 5/15					1				1
GEORGIA									
Tifton 5/9-15						4		20	1
ILLINOIS (County)									
Champaign 5/10-16	6	2							
INDIANA (Counties)									
La Porte 5/13	21	2							
Lawrence 5/11, 12	7			2					
Vanderburgh 5/7-13	5								
KANSAS									
Garden City 5/8, 19	7	1		4				3	
Manhattan 5/10, 11, 13-16	3	4		6				7	
Mound Valley 5/11, 14	2	2			24			9	
Wathena 5/10	5	1			18				
MARYLAND									
Centreville 5/9-14	1	1					17		
MISSISSIPPI									
*Stoneville 5/10-16	44	90	82	85	3	44		41	6
MISSOURI									
Portageville 5/9-15	5	3	2	11			12	2	
NEBRASKA									
Scotts Bluff Expt. Sta. 4/30-5/6	4	2	17						
Scotts Bluff Expt. Sta. 5/7-13	1	4	25						
North Platte 5/2-7	542		540	3				1	
NORTH DAKOTA									
Fargo 5/11-17	5	2							
OHIO									
Wooster 5/13-16	32								
SOUTH CAROLINA									
Clemson 4/20-26	6		6					4	
Clemson 4/27-5/3	5	1	2						
Clemson 5/4-10	6	2	5	2				2	
Clemson 5/11-17	7	2	5	1				3	
Charleston 5/6-12	6	14	3			1		3	2
Charleston 5/13-19	13	19	4	6		2		6	

* Two traps Stoneville.

(Continued on page 568)

LIGHT TRAP COLLECTIONS (Con't.)

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Protoparce quin.	Ostrinia nubil.	Heliothis zea vires.
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TENNESSEE (Counties)

Maury 5/7-13	120	46					
Robertson 5/7-13	75	21		4		1	
Cumberland 5/7-13	37	5		1			
Greene 5/7-13	9					1	
Johnson 5/7-13	7	4					

TEXAS

*Brownsville 5/10-16	39	83	76	16	15	69	964	43
Waco 5/11-17	3	47	18	23			64	

WISCONSIN

Platteville 5/5-13	185		7					
Mazomanie 5/13-14	38	1						
Middleton 5/9-15	39	11	2					
Madison 5/9-15	44	2						
Nenno 5/7-13	40							

Additional light trap collections

KANSAS (Garden City, 5/8, 10) Chorizagrotis auxiliaris - 1,147.

NEBRASKA (Scotts Bluff Expt. Sta., 5/7-13) C. auxiliaris - 460; North Platte (5/2-7) - C. auxiliaris 3,890.

TEXAS (*Brownsville, 5/10-16) Trichoplusia ni - 2,779; Loxostege similalis - 1,372; Feltia subterranea - 1,486.

* Six traps Brownsville.

Weather of the week ending May 20 (continued from page 556)

Precipitation totals for the week were generally less than 0.50 inch over the western third of the Nation, over the North Central and Northeastern States, and over the South Central and Southeastern States. A narrow belt of heavier rainfall, with amounts generally exceeding 2.00 inches, extended across the midsection from eastern Nebraska to southern Ohio.

Temperatures averaged slightly below normal from Montana eastward over the northern interior to the middle Atlantic coast. Over most other parts of the Nation, temperatures averaged above normal. The largest departures, generally exceeding +6°, were over an area from central Texas northeastward to southwestern Missouri. Temperatures at Oklahoma City, Oklahoma, averaged 10° above normal. (Summary supplied by U. S. Weather Bureau).

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

PIGMY MANGOLD BEETLE (Atomaria linearis Stephens)

Economic Importance: This cryptophagid beetle is recorded as a pest of sugar beets in Europe. In some instances, damage has been reported as severe. Re-planting of the crop, two or three times, has occurred in Czechoslovakia in certain seasons, and the pest is sometimes very troublesome in Germany and Holland, particularly where crop rotation is not followed. In England, mangolds suffer the greatest damage. The beetle attacks the young seedling plant just below the soil level, producing an injury somewhat similar to that attributed to springtails, except that the latter is above the soil level. Injury is also caused to the roots, and a certain amount of feeding takes place upon the epidermis of the leaves. The most serious damage, however, is that caused to the seedling plants.

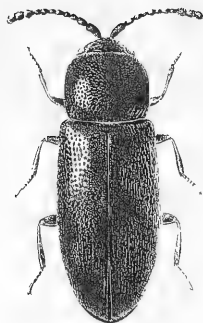
Atomaria linearis has been intercepted on three occasions at U. S. ports of entry; twice at New York, New York, and once at District of Columbia Inspection House.

Distribution: Europe. It has also been reported to be present in north Africa, but Aguilar (1) questions the validity of these records.

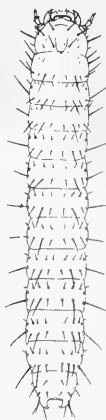
Hosts: Beets (sugar and garden), mangel and mangold are the principal hosts. Other plant hosts favoring reproduction of this insect include spinach, radish, marjoram, Polygonum aviculare, lambsquarters goosefoot (Chenopodium album) and chickweed (Stellaria media). Adults may occasionally feed on germinating seeds of many other plants.

Life History and Habits: Adults hibernate in the soil and can descend to 6 inches or more. The sexually developed forms hibernate beneath vegetable debris, generally in places where they have developed. They begin activity with warm weather, often in March. Toward the end of April, they can be found around the germinating seed or on very young plants. Dispersal takes place by flight from crop to crop, or from hibernation quarters to crops. Adults disappear from beet crops by the end of the summer. They may survive as long as 178 days. Mating reaches a peak in May. Females deposit eggs singly in the soil, each laying from 20 to 50 eggs. Incubation lasts 4-6 days in the laboratory. Larval development takes 5-6 weeks. The larvae live in the root systems of certain plants at a depth of around 16 inches. Pupation lasts from 13 to 16 days. The new adults appear in June, with dispersal occurring in July and August. There are two population peaks; one at the end of spring (hibernating adults) and the other at the end of summer (adults of new generation).

Description: ADULT - Length 1-2 mm. Color variable, from deep red to black. Body flattened, elongate, parallel-sided. Thorax rather long and broad, finely punctured, base marginated; base of pronotum lightly marked. Head finely punctate; eyes relatively small; antennae brown, the three apical segments dilated forming a straight club. Elytra densely punctate and covered with fine tawny pubescence. Legs reddish brown. LARVA - Measures 0.5 mm. at hatching and reaches 3 mm. at last instar. Head capsule and last segment almost colorless. Epicranial suture short but visible; mandible with bifid teeth; labial palp two-jointed; antenna three-jointed. Ninth abdominal segment is produced on each side into horn-like processes which curve inward and up. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies).



Adult of Atomaria linearis Stephens



Larva of Atomaria linearis Stephens

Major references: 1. Aguilar, J. d'. 1962. In A. S. Balachowsky's Entomologie Appliquée a l'Agriculture, I:330-335. 2. Newton, H. C. F. 1932. Ann. Appl. Biol. 19(1):87-97. 3. Petherbridge, F. R. and Stirrup, H. H. 1935. Gt. Brit. Ministry of Agr. and Fisheries Bul. 93:16-17. 4. Smith, K. M. 1948. A Textbook of Agricultural Entomology. pp. 94-95, Cambridge, England.

Figures: Adult from Balachowsky and Larva from Newton.

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Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE



AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and Industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRASSHOPPERS hatching in Utah, North Dakota, Minnesota, Illinois and Ohio. (p. 573). PEA APHID very heavy on alfalfa in Mesa and Montrose Counties, Colorado, and increasing slowly in Fremont County, Wyoming; variable in other areas of country, with predator populations increasing. (pp. 573-574). SPOTTED ALFALFA APHID appearing in several areas of Kansas, and various species of PLANT BUGS active on forage crops and pastures rather generally. (p. 574). LESSER CLOVER LEAF WEEVIL severely infesting many red clover fields in southern Illinois. (p. 575). GARDEN WEBWORM infestations becoming common in Oklahoma alfalfa, and MEADOW SPITTLEBUG infestations light to heavy throughout southwest Ohio. (p. 576).

Various FLEA BEETLES damaging truck crops over wide areas of country. (p. 580). COLORADO POTATO BEETLE very active in some early planted potato fields in Nebraska; heavy in Tallahatchie County, Mississippi; common to abundant in areas of Maryland and Delaware; and adults noted in Rhode Island. (pp. 580-581). CABBAGE MAGGOT more apparent on cabbage and radish in Cook County, Illinois, than for some time in past. (p. 581).

THRIPS continue as major pest of cotton; controls applied. (p. 583).

Cooperative EUROPEAN PINE SHOOT MOTH survey in Spokane Valley of Washington negative. PINE SPITTLEBUG moderate to heavy on roadside stands of pine in 3 Maryland counties, and activity reported in Ohio. Adults of BALSAM GALL MIDGE numerous in area of Langlade County, Wisconsin, where pest has seriously affected balsam Christmas-tree production for several years. CANKERWORMS caused heavy defoliation in areas north of Minneapolis-St. Paul in Minnesota and building up in southeast North Dakota. Also heavy in areas of New Jersey, Rhode Island, Iowa and Wisconsin. (p. 584).

HORN FLY most important pest of cattle in Iowa; ranged 5-150 on livestock in north central and northwest Kansas; increasing rapidly in southern Illinois; averaged 100 per dairy animal in area of Washington County, Ohio; and 253 per untreated animal in Spalding County, Georgia. (p. 587). AMERICAN DOG TICK considerably more abundant than normal on scattered farmsteads in eastern North Dakota, and species more active and arousing many comments in northern Wisconsin. (p. 589).

JAPANESE BEETLE adult trapped at airport in New Hanover County, North Carolina, on May 15; first adult of season. (p. 590).

DETECTION

New county records reported were ALFALFA WEEVIL in Ross and Fayette Counties, Ohio, and VETCH BRUCHID in Williamson County, Illinois. (p. 575).

CORRECTIONS

See page 590.

(Continued on following page)

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 588).

Estimated Losses and Production Costs Attributed to Insects and Related Arthropods in North Dakota in 1962. Wheat - p. 592, barley - p. 593, sugar beets - p. 594, hay (all) - p. 595, flax - p. 596, potatoes - p. 597, cattle (all) - p. 598.

Reports in this issue are for week ending May 24, unless otherwise indicated.

WEATHER OF THE WEEK ENDING MAY 27

At the beginning of the week, a cold front, pushing eastward to the Atlantic, triggered numerous thunderstorms, some accompanied by heavy rain, hail and strong winds. The front stalled in the vicinity of the Southeastern States, causing heavy, local showers.

The secondary front, extending from a low centered over the Great Lakes, pushed across the Midwest and, by Tuesday afternoon, extended through the Ohio Valley to northern Texas. It brought a few thundershowers to the Texas Panhandle. Meanwhile, light snow fell over portions of northern Minnesota and Upper Michigan. A mass of cold air, centered over Nebraska and South Dakota Wednesday morning, tumbled temperatures to below freezing across the Middle States as far south as the 40th parallel. Many places set new record-low temperatures for so late in the season. Meanwhile, southern Texas basked in tropical air, with temperatures in the 80's. Heavy thunderstorm activity occurred in the frontal zone between the tropical air and the cold air to the north. Some stations received drenching rains. As the high pressure dome drifted eastward, it brought unseasonably low temperatures to the Northeastern States from New England to West Virginia, and westward to Michigan. The flow of warm, gulf air around the western side of the high produced clouds over the central Plains, with patches of drizzle and light, intermittent rain over the southern Plains and lower Mississippi Valley. By the weekend, the Southeast had recovered from the record-breaking low temperatures as the high pressure system had moved out to the Atlantic. Cloudy weather, with intermittent light rain, accompanied a cold front that had stalled over Montana, the Dakotas and Minnesota. Another stationary front extended from Oklahoma to Georgia, with clear skies prevailing south of the front. Clouds covered the area to the north, with only the Great Lakes States and the northeast enjoying clear skies. The warm, gulf air, overriding the cooler surface air, triggered thunderstorms from Kansas to the Carolinas and a few tornadoes in Kansas and Oklahoma. Hail as large as baseballs fell northeast of Oklahoma City, Oklahoma. Weekly precipitation totals were light, generally less than 0.50 inch, over the Ohio, upper Mississippi and Missouri River Valleys and over most of the western third of the Nation. They exceeded 0.50 inch over the southern prairies and most of the States that border on the Gulf of Mexico and the Atlantic Ocean. A few localities received precipitation in excess of 2.00 inches.

Temperatures west of the Continental Divide averaged above normal. At Winnemucca, Nevada, and Boise, Idaho, the weekly temperatures averaged 9° above normal. Temperatures were also fairly above normal from the lower Rio Grande Valley eastward along the gulf to Florida. Below normal temperatures prevailed elsewhere, being much below normal over the Ohio River Valley and lower Missouri River Valley. Temperatures were -12° at Grand Island, Nebraska, and Columbia, Missouri. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - UTAH - Counts 35-100 per square yard on range about 4 miles northwest of Gunnison, Sanpete County. Numerous locally in Washington County. Conspicuous numbers infesting intermediate wheatgrass and some range in several areas of Kane County. Hatching occurring in Davis, Juab, Washington, Sevier and Garfield Counties, largely with moderate numbers observed to May 23. (Knowlton). NEW MEXICO - Light, spotted populations of first to third instars on rangeland in many areas of Lea and Quay Counties. Concentrations of 0-6 per square yard in area between Tucumcari and Logan in Quay County. Light hatch also noted in several areas of Bernalillo, Sandoval, Rio Arriba and Valencia Counties. Recent rains in northeast may increase hatch. (N. M. Coop. Rpt.). OKLAHOMA - Nymphal surveys continue; counts per square yard by county with dominant species as follows: Blaine, 1-6, Melanoplus occidentalis; Dewey, 2-8, Amphitornus coloradus; Ellis, 7-9, Ageneotettix deorum; Harper, 3-15, A. deorum; Harmon, 8, M. occidentalis; Major, up to 8, unspecified; Woods, 2-7, A. deorum; and Woodward, 2-15, A. deorum. Drought conditions exist in some areas; highest counts observed in areas where some rainfall had occurred. (Okla. Coop. Sur.). KANSAS - First and second instars of Melanoplus spp. noted in several wheat and alfalfa fields in north central and northwestern areas. Generally less than one per sweep. (Peters). SOUTH DAKOTA - Hatching started. Nymphs of M. confusus averaged 5 per square yard on rangeland in northwestern Haakon County on May 14. In Elk Mountain area of Custer County on May 16, first and second instars of A. deorum and Trachyrhachys kiowa averaged 2 per square yard on rangeland. (Zimmerman, Burge). NORTH DAKOTA - Egg development and nymphal survey conducted in southwest. Eggs of M. sanguinipes and M. bivittatus ranged from coagulated to segmented; M. femurrubrum clear to coagulated; Camnula pellucida eye spot and segmented. Few first instars of M. sanguinipes and M. bivittatus observed. First instars of M. sanguinipes observed in rangeland areas of Slope, Billings, Golden Valley and McKenzie Counties. (Brandvik). MINNESOTA - Egg development in west central district showed M. bivittatus eye spot to fully segmented (majority fully segmented); light hatch of species observed in ditch bands in Yellow Medicine County. M. femurrubrum and M. differentialis eggs coagulated to eye spot. In south central and southeast, M. bivittatus eggs coagulated to eye spot. Light hatch of Melanoplus spp. observed in Wabasha County. (Minn. Ins. Rpt.). ILLINOIS - Nymphs of Melanoplus spp. varied 0-20 per 100 sweeps in grass and 0-70 per 100 sweeps in clover and alfalfa in east-southeast and southeast districts. (Ill. Ins. Rpt.). OHIO - M. differentialis nymphs collected from many fence rows and grass roadsides throughout southwest; 4 per 25 sweeps in Highland County. (Triplehorn, Lyon). MARYLAND - Small nymphs of Melanoplus spp. very numerous in field of alfalfa at Annapolis, Anne Arundel County. (U. Md., Ent. Dept.).

PEA APHID (Acyrtosiphon pisum) - NEW JERSEY - Fairly high in alfalfa in southern counties; predators building up. (Ins.-Dis. Newsltr., May 21). MARYLAND - Populations variable; ranged from a few to over 200 per sweep on alfalfa in Montgomery and Washington Counties. (U. Md., Ent. Dept.). ILLINOIS - Heavy rains along with beginning of hay harvest has greatly reduced populations in southern area; counts averaged 1,450 per 100 sweeps in east-southeast and southeast districts. (Ill. Ins. Rpt.). WISCONSIN - Counts on alfalfa little changed; ranged 1-13 per sweep. Parasitism increased slightly. (Wis. Ins. Sur.). MINNESOTA - Ranged 5-300 per 100 sweeps in southwest, west central, south central, southeast and central districts. (Minn. Ins. Rpt.). NORTH DAKOTA - Counts 1-5 per sweep on alfalfa in Emmons and McIntosh Counties; 1-3 lady beetles per 10 sweeps in same area. (N. D. Ins. Sur.). SOUTH DAKOTA - Averaged 1-10 per 100 sweeps on alfalfa in northeast. (Hintz). KANSAS - Ranged 10-250 per sweep on alfalfa in north central and northwestern areas; many parasitized. (Peters). OKLAHOMA - Populations continue low in alfalfa throughout State, with counts generally less than 50 per 100 sweeps noted in fields checked in west central, southwest, central, north central and east central areas. Damage to vetch reported in localized area of Coal County. (Okla. Coop. Sur.). COLORADO - Very heavy on alfalfa in Mesa and Montrose Counties; 1,000-10,000 per 100 sweeps. Light to moderate in Larimer, Weld,

Adams and Garfield Counties; 200-500 per 100 sweeps. (Bulla, Jenkins). WYOMING - Increasing slowly in alfalfa in Fremont County; averaged 180 per 100 sweeps. (Fullerton). IDAHO - Very light, 0-4 per sweep, in red clover and alfalfa in Parma area. (Waters). NEVADA - Generally very light on alfalfa, with highest counts 4-7 per sweep in Moapa Valley, Clark County, and Lathrop Wells, Nye County. (Bechtel, Lauderdale, Zoller). ARIZONA - Averaged 25 per sweep on alfalfa in Graham County. (Ariz. Coop. Sur.). NEW MEXICO - This species and *Therioaphis maculata* appear reduced to noneconomic levels by lady beetles on alfalfa in northern Dona Ana County. Heavy numbers on common variety of alfalfa in Carlsbad area, Eddy County; several growers treating. (N. M. Coop. Rpt.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - KANSAS - Building up on alfalfa in Finney County, southwest. (Gates, May 17). Found in northern Phillips County and in Norton and Decatur Counties; 5-20 per 100 sweeps with about 25 percent winged. Not found in surrounding counties. (Peters). OKLAHOMA - Generally light in southwest, central and southeast areas; highest counts reported in Stephens and Comanche Counties (30-100 per 10 sweeps). Counts observed in fields checked generally fewer than 15 per 10 sweeps. (Okla. Coop. Sur.). NEVADA - Highest counts averaged 1-2 per sweep in Moapa Valley, Clark County. Generally light, with highest counts 5-10 per sweep in drier areas of fields in Lathrop Wells area of Nye County. Predator populations high. (Bechtel, Lauderdale, Zoller). UTAH - Rare to scarce in Washington County, and rare in Kane County alfalfa. (Knowlton).

CLOVER APHID (*Anuraphis bakeri*) - MARYLAND - Heavy on stems and in bracts of red clover at Barstow, Calvert County. (U. Md., Ent. Dept.).

PLANT BUGS - ALABAMA - *Lygus lineolaris* very active in clover, vetch and gardens in Etowah, Calhoun, Clay and Chambers Counties. (McQueen). MARYLAND - Species of *Adelphocoris*, *Lygus* and *Leptopterna* abundant on alfalfa at Annapolis, Anne Arundel County; adults and nymphs present. (U. Md., Ent. Dept.). OHIO - *Leptopterna dolabratus*, nymphs and adults, observed in timothy-red clover fields in Ross, Brown and Highland Counties; and *Lygus lineolaris* adults 20-25 per 50 sweeps in Marion and Delaware County alfalfa-red clover fields. (Davidson, Lyon). ILLINOIS - Counts of plant bugs per 100 sweeps as follows: *Leptopterna dolabratus* adults averaged 136 and nymphs 298 in grass in east-southeast district, and adults averaged 111 and nymphs 6 in southeast district. *Adelphocoris lineolatus* adults averaged 29 in southeast district. *A. rapidus* adults averaged 41 in southeast and ranged 10-80 in east-southeast district; nymphs of same species averaged 40 in east-southeast district and 8 in southeast district. *Lygus lineolaris* adults varied 0-40 in east-southeast and averaged 85 in southeast in clover and alfalfa; nymphs of same species averaged 63 and 98, respectively. (Ill. Ins. Rpt.). NEBRASKA - Counts per 10 sweeps in legumes were as follows: Nymphs of *L. lineolaris* 10-50 in central and eastern areas, with adults of same species 5-25; *A. lineolatus* nymphs 5-20 in east and southeast; and *A. rapidus* nymphs 5-15 in east and southeast. (Bergman). KANSAS - *L. lineolaris*, *A. lineolatus* and *A. rapidus* ranged 50-1,400 per 100 sweeps on alfalfa in north central and northwestern areas. (Peters). COLORADO - *Lygus* spp. populations on alfalfa ranged low to high in Adams, Mesa and Weld Counties; 20-150 per 100 sweeps. (Bulla, Jenkins). WYOMING - *Lygus* sp. adults averaged 17 and *A. lineolatus* adults 16 per 100 sweeps in Fremont County alfalfa. (Fullerton). IDAHO - Nymphs of *Lygus* spp. becoming abundant, ranging up to 6 per sweep, in some fields of red clover near Parma. (Waters). NEVADA - *Spanogonicus albofasciatus* infestations variable, but averaged 4-6 per sweep in several fields in Moapa Valley, Clark County, and Lathrop Wells, Nye County. (Bechtel, Lauderdale, Zoller). ARIZONA - *Lygus* spp. averaged 2 per sweep in Yuma County and 25 per 100 sweeps in Graham County; counts in Maricopa County about 1-2 per sweep. (Ariz. Coop. Sur.). NEW MEXICO - *Lygus* spp. generally light in Dona Ana County alfalfa; 1-3 per 25 sweeps. Heavier, averaging 12-15 per 25 sweeps, in Eddy County alfalfa. (N. M. Coop. Rpt.).

A LEAFHOPPER (Cuerna costalis) - FLORIDA - Collected on hybrid peanuts at Gainesville, Alachua County, on May 15. (Johnson).

ALFALFA WEEVIL (Hypera postica) - NEW JERSEY - In field near Elmer, Salem County, larvae increased from 10-12 per sweep May 9 to 75-100 on May 17 in untreated plots; counts only 1-3 per sweep in plots fall treated in same field. (Ins.-Dis. Newsltr.). MARYLAND - Larvae causing heavy damage to untreated alfalfa in all sections. Pupation well advanced and few first-generation adults swept from alfalfa at Annapolis, Anne Arundel County. (U. Md., Ent. Dept.). OHIO - Larvae abundant on alfalfa in Ross and Fayette Counties. Feeding damage moderate in Ross County and severe in Washington and Monroe Counties. Ross and Fayette new county records. (Lyon, Treece). ARKANSAS - Additional specimen collected in Mississippi County, northeast; only 2 specimens have been found as result of rather extensive sweepings of alfalfa in county. (Ark. Ins. Sur.). COLORADO - Larvae light to moderate on alfalfa; 10-50 per 100 sweeps in Adams, Mesa and Weld Counties. (Bulla, Jenkins). WYOMING - Adults averaged 8 per 100 sweeps in alfalfa in Fremont County. No larvae found. (Fullerton). UTAH - Counts per 25 sweeps 5-30 adults and 25-90 larvae in untreated alfalfa in Manti-Ephraim area, Sanpete County, and 5-18 adults and 15-60 larvae in fields in Mona-Nephi area, Juab County. (Knowlton). NEVADA - Larvae averaged over 100 per sweep in some alfalfa which received adult controls in Lovelock, Pershing County. In other treated fields, good to excellent results obtained. (Perraro, Sebbas).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - OHIO - Adults common in red clover in Marion, Morrow and Delaware Counties; 15 per 50 sweeps near Waldo, Marion County. (Triplehorn, Lyon). ILLINOIS - Severely infesting many red clover fields in southern area. Most stems infested. In some fields, less than 5 percent of heads will develop. (Ill. Ins. Rpt.). ALABAMA - More numerous in north than in central and southern areas. (McQueen). IDAHO - First larva (first stage) of season noted on May 20 near Parma. Remains difficult to find. (Waters).

CLOVER LEAF WEEVIL (Hypera punctata) - IOWA - Reported in most clover and many alfalfa fields in Crawford County; infestations moderate in Poweshiek County; 12 larvae per plant noted in a Monroe County red clover field. (Iowa Ins. Inf., May 20). MISSISSIPPI - This species and H. nigrirostris light to heavy in delta and northern areas; controls applied. (Ouzts).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - OHIO - Light to moderate adult populations on sweetclover throughout central, south central and southwest areas; damage ranged moderate to heavy. (Lyon). NORTH DAKOTA - Adults generally present in southeast quarter of State. (N. D. Ins. Sur.). NEBRASKA - Adults ranged 2-15 per 10 sweeps on Butler, Seward and Saunders County sweet-clover. (Bergman). UTAH - Conspicuously cutting sweetclover leaves in areas of Sanpete County. (Knowlton).

CLOVER SEED WEEVIL (Miccotrogus picrostris) - WASHINGTON - First adults of season swept from vegetation at Pullman, Whitman County, on May 24. (Yunus).

VETCH BRUCHID (Bruchus brachialis) - ALABAMA - Counts 2-4 per sweep in maturing vetch in Calhoun, Clay, Etowah and Chambers Counties. (McQueen). ILLINOIS - Recorded in Williamson County for first time. Det. by Dr. Sanderson. (Ill. Ins. Rpt.).

A WHITE-FRINGED BEETLE (Graphognathus sp.) - GEORGIA - Infesting peanuts in Houston County; 5 percent of plants affected. (Johnson, Allmond).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ILLINOIS - Adults averaged 28 per 100 feet of row in soybeans 2-5 inches in height in southeast district. (Ill. Ins. Rpt.).

CORN EARWORM (Heliothis zea) - NEW MEXICO - Larvae appearing on alfalfa in Dona Ana County. (N. M. Coop. Rpt.). OKLAHOMA - Light to moderate infestations present in most alfalfa checked; counts per 10 sweeps 0-4 in southwest, 0-7 in central, 0-1 in north central and one in southeast. Larvae of all sizes present. Light on corn in Choctaw County, southeast. (Okla. Coop. Sur.). MISSISSIPPI - Light to medium on corn in Calhoun and Tallahatchie Counties. (Ouzts). GEORGIA - Heavy on corn throughout southern area. (Johnson, Morgan).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Larvae averaged 2-4 per 25 sweeps in alfalfa in Dona Ana County. (N. M. Coop. Rpt.). ARIZONA - Increasing over State. (Ariz. Coop. Sur.). MARYLAND - Larvae moderate on alfalfa at Annapolis, Anne Arundel County. (U. Md., Ent. Dept.).

GARDEN WEBWORM (Loxostege similalis) - OKLAHOMA - Infestations becoming common in alfalfa throughout southwest, central and north central areas. Generally only light counts per 10 sweeps present; 0-3 in southwest, 1-4 in central and 1-3 in north central. (Okla. Coop. Sur.).

VARIEGATED CUTWORM (Peridroma saucia) - KANSAS - Small larvae 0-10 per 100 sweeps on alfalfa in north central and northwestern areas. (Peters). MISSOURI - Continues to damage cut alfalfa in areas throughout State; most larvae nearly full grown in extreme southeastern area. (Munson, Thomas, Wood). ILLINOIS - Larvae varied 0-3 per square foot in clover and alfalfa in southeast district. (Ill. Ins. Rpt.).

THRIPS - NEVADA - Very heavy on alfalfa in Moapa Valley, Clark County, and several fields in Lathrop Wells, Nye County. (Bechtel, Lauderdale, Zoller). ILLINOIS - More abundant than usual. Populations averaged 670 per 100 sweeps in wheat in east-southeast district. (Ill. Ins. Rpt.). MARYLAND - Windy, dry weather apparently caused buildups on corn and in heads of small grains in Calvert, Charles and St. Marys Counties. (U. Md., Ent. Dept.). GEORGIA - Light to moderate on peanuts in southwest and south central areas. (Johnson).

SPIDER MITES - VIRGINIA - Heavily infesting red clover locally at Fisherville, Shenandoah County; practically all plants injured, with 50 percent dead. (Rowell, Grove). Severely infesting 30 percent of plants in field of red clover at Abingdon, Washington County. (Rowell, Shryock). Also infesting red clover in Buckingham County. (Rowell, Ellis).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Light in Dane, Rock, Green, Walworth, Jefferson and Columbia Counties; more prevalent in southwest, and reports of treatment of alfalfa received from Grant County. (Wis. Ins. Sur.). ILLINOIS - Adults varied 0-100 per 100 sweeps in clover and alfalfa in east-southeast district; first adults of season. (Ill. Ins. Rpt.). OHIO - Light to heavy infestations found in many fields throughout southwest. New adults found in Fayette, Clinton and Highland Counties. Most nymphs observed in last stage. (Davidson, Lyon). MARYLAND - Moderate populations occurring on alfalfa in Montgomery and Washington Counties. (U. Md., Ent. Dept.).

WHEATGRASS PLANT BUGS - IDAHO - Nymphs and adults of Irbisia sp. generally present throughout 900 acres of intermediate wheatgrass in Long Tom area, Elmore County. Populations light, but damage appearing. Damage has been severe in area past 2 years. (Edwards). NEW MEXICO - Labops hesperius has caused extensive damage recently to reseeded crested wheatgrass in area north of Cuba in Santa Fe National Forest. (N. M. Coop. Rpt.).

FALSE CHINCH BUGS (Nysius ericae and sp.) - UTAH - Numerous on mustards, small grains, alfalfa and range lands at New Harmony, St. George, Santa Clara and Washington in Washington County, and at Manti, Ephraim and Gunnison, Sanpete County. Also on planted pastures and range at Kanab and Johnson Canyon, Kane County. Populations unusually high in many parts of State this season. (Knowlton).

BROWN STINK BUG (Euschistus servus) - MISSOURI - Observed feeding in heads of wheat in central area; ranged 0-2 per square yard. (Daugherty).

CHINCH BUGS - MISSISSIPPI - Light to medium in Forrest and Oktibbeha Counties; controls applied. (Ouzts).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light to moderate on most young grain sorghum (terminals) checked in southwest and central areas, up to 50 per terminal. Light on corn in Choctaw County, southeast. (Okla. Coop. Sur.).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - Cool temperatures, especially at night, delayed insect development. Mortality of adults and larvae in treated area (approximately 25,000 acres) upwards of 95 percent. Egg laying largely completed. High percentage of larvae still in early instars. Pupation could begin by May 30 if favorable weather prevails. (Ring, Lovitt).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Heavy on sweet corn in Caroline, Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

SEED-CORN BEETLE (Agonoderus lecontei) - NEBRASKA - Adults caused heavy damage to newly planted seed of milo in Hitchcock County. (Bergman).

A BILLBUG (Sphenophorus callosus) - FLORIDA - Lightly infesting sweet corn at Two Egg, Jackson County, on May 15. (Tipton).

A WEEVIL (Compsus auricephalus) - OKLAHOMA - Averaged 3 per 10 sweeps in alfalfa in Rocky area of Washita County, west central. Occasional specimen observed on sorghum in Chickasha area. (Okla. Coop. Sur.).

WIREWORMS - MISSOURI - Damage by Melanotus spp. observed in few untreated fields of corn in central area. Most fields checked will need replanting. (Munson, Thomas, Wood). MICHIGAN - Undetermined species causing injury in Missaukee County, young corn damaged in Lenawee County and field of oats nearly ruined in Elk Township of Sanilac County. (Bosserman, Comstock, Sowerby).

SOUTHERN ARMYWORM (Prodenia eridania) - GEORGIA - Heavy on corn in Mitchell County; 40 percent of plants attacked. (Morgan, May 17).

FALL ARMYWORM (Laphygma frugiperda) - FLORIDA - Infesting sweet corn at Pahokee, Palm Beach County, on May 16 and at Pensacola, Escambia County, on May 22. (Smith, Faircloth, Boyd).

CUTWORMS - IOWA - Most important pests of field crops. (Iowa Ins. Inf., May 20). UTAH - Moderately numerous on meadow area of range in Sink Valley, Kane County. (Knowlton).

BRONZED CUTWORM (Nephelodes emmedonia) - OHIO - Severely damaged 40-acre bluegrass pasture near Galloway, Franklin County. (Blair, Partyka).

A WEBWORM (Crambus sp.) - MARYLAND - Caused conspicuous injury to sprouting corn in 2 fields in Carroll County; especially heavy in corn following timothy sod. (U. Md., Ent. Dept.).

WHEAT STEM MAGGOT (Meromyza americana) - MISSOURI - Reported to have damaged heads of wheat in central area. (Brown). NEBRASKA - Less than one percent infestation present in wheat in Butler, Lancaster, Saunders and Seward Counties. (Bergman).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Infestation in wheat in north central and northwestern areas quite variable; 0-50 percent of stems infested. (Peters).

A MUSCID FLY (Hylemya cerealis) - COLORADO - Adults 10-50 per 100 sweeps on wheat in Weld County. (Jenkins).

BROWN WHEAT MITE (Petrobia latens) - SOUTH DAKOTA - Recorded from Stanley County winter wheat; damage noticed. (Kantack, Jensen).

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) - MINNESOTA - Moved to newly emerged flax. Counts high in most fields, ranging 300-1,000 per 100 sweeps in southwest and west central districts. (Minn. Ins. Rpt.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - MARYLAND - First entries in apples found May 20 at Hancock, Washington County. (U. Md., Ent. Dept.). OHIO - First adults of season May 17-22 in Wayne County. (Forsythe). MICHIGAN - Five emerged in Van Buren County May 17 and 2 in Kalamazoo County May 20. None in Kent County cages on May 23. (Carpenter, Gilmore). INDIANA - Larval entries in fruit noted at Vincennes, Knox County. (Cleveland, May 21). COLORADO - Reached high of 60 per 5 traps in Mesa County; few trapped in Austin area, Delta County. None trapped in Garfield and Montrose Counties. (Bulla). UTAH - In flight in Logan area, Cache County, May 18-19. (Davis, Knowlton). OREGON - First emergence May 18 in Jackson County. (Berry).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - WISCONSIN - Larvae began leaving overwintering nests about May 10 in Door County. Winter mortality high, but controls will be needed in certain orchards. (Wis. Ins. Sur.).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CONNECTICUT - Abundant around Bethel and other areas. (Savos).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MICHIGAN - Few adults emerged in Berrien County May 19; exceptionally early date for State. (Carpenter).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MISSOURI - Most larvae left terminals, indicating end of present generation. (Wkly. Rpt. Fr. Grs., May 22). ALABAMA - Very active in peach twigs in Lee, Chilton and Coosa Counties. (McQueen).

WESTERN TENT CATERPILLAR (Malacosoma pluviale) - OREGON - Numerous in localized area of northern Washington County; 12-15 tents in 15-foot apple trees. Larvae approaching maturity. (Goeden).

CLIMBING CUTWORMS - MICHIGAN - Larvae of undetermined species severely damaged young peach trees in Oceana County, suspected of damaging fruit trees in Washtenaw County, and found in blueberry planting in Berrien County. Caused slight fruit tree injury in Leelanau County. (Dold, Proctor, Dibble, Ball).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Second and third-stage nymphs present at Storrs. (Savos). WASHINGTON - Adults and last instars occurring on pears at East Wenatchee, Douglas County. (Brannon). OREGON - First-generation adults emerged and depositing eggs in Hood River and Jackson Counties. (Pifer, Berry).

ROSY APPLE APHID (Anuraphis rosea) - COLORADO - Numerous in some orchards in Delta County. (Bulla). OHIO - First active colony noted on apple trees in Wayne County; infestations light. (Cutright).

APPLE APHID (Aphis pomi) - CONNECTICUT - Rapidly increasing in Woodstock area; will need controls. (Savos).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Colonies appearing in peach trees in Mesa County; migration to summer host plants beginning. (Bulla).

HALL SCALE (Nilotaspis halli) - CALIFORNIA - New infestation reported May 3 from cattle ranch in Stillson Canyon 6 miles east of Chico now surveyed. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - Severe on peach at De Land, Volusia County. (Roberts, May 17).

PLUM CURCULIO (Conotrachelus nenuphar) - MARYLAND - Untreated check plots with moderate numbers of infested apples at Hancock, Washington County. (U. Md., Ent. Dept.). NEW JERSEY - Fewer jarred from peach trees than previous period. Activity in blueberries very light to May 20 and confined to early fields. (Ins.-Dis. Newsltr., May 21). CONNECTICUT - First adult of season observed on plum at Mt. Carmel. Activity at low level due to cool temperatures; egg-laying scars noted on apples, peaches and plums at New Haven; few stings reported from Southington area. (Savos). RHODE ISLAND - First adults of season shook from untreated apple tree in Kingston, Washington County, May 21. (Mathewson).

A CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - OREGON - Emerged May 23 at The Dalles. (Thienes).

PERIODICAL CICADAS - INDIANA - Adults emerged May 19 in Vincennes area, Knox County; heavy emergence anticipated. (Cleveland). MISSOURI - First singing adults noted in vicinity of Van Buren on May 11. Apparently emergence will occur over entire State; growers urged to protect young trees and nursery stock. (Wkly. Rpt. Fr. Grs., May 22).

PEAR RUST MITE (Epitrimerus pyri) - OREGON - This species and Tetranychus telarius populations of serious proportions in untreated pear orchards in Jackson County. (Berry).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Well into second generation; scattering throughout trees. Eggs and new nymphs easily found at Storrs. Rapidly increasing problem; populations high around Woodstock, Southington and Storrs and eggs plentiful. (Savos). MARYLAND - Second generation now hatching on apple at Hancock, Washington County. (U. Md., Ent. Dept.). WASHINGTON - First summer eggs common on apples at Orondo, Douglas County. (Brannon).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - MARYLAND - Larvae infesting pecan trees at Hebron, Wicomico County. (U. Md., Ent. Dept.).

A PINK CITRUS RUST MITE (Aculus pelekassi) - FLORIDA - Light on Citrus sinensis at Mascotte, Lake County, May 15; and at Arcadia (Fort Winder), De Soto County, May 17. (Henderson, Brown, Lamb).

A LEAF ROLLER MOTH (Platynota stultana) - FLORIDA - Severe on Citrus mitis at West Hollywood, Broward County. (McLean, May 17).

AN ARMORED SCALE (Unaspis citri) - FLORIDA - Moderate to severe on Citrus paradisi at Merritt Island, Brevard County. (Levan, May 17).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Emergence of several adults prompted application of insecticide to prevent larval infestations in Livermore, Alameda County. Over 175 properties with over 1,000 host plants treated. Inspection of 500 properties revealed no additional emergence and no eggs. (Cal. Coop. Rpt.).

GRAPE FLEA BEETLE (Altica chalybea) - ALABAMA - Larvae and adults feeding heavily on grapes in southwest. (Seibels, Wallace).

GRAPE ROOTWORM (Fidia viticida) - ALABAMA - Feeding on grapes in Mobile County. (Seibels, Wallace).

GRAPEVINE APHID (Aphis illinoisensis) - ALABAMA - Heavy in Mobile County; light in Lee County. (Seibels, Wallace, Barwood).

LEAF ROLLER MOTHS - NEW JERSEY - Damaging blueberries by webbing leaves and small berries. (Ins.-Dis. Newsltr., May 21).

STRAWBERRY WEEVIL (Anthonomus signatus) - ALABAMA - Feeding on loganberries in Mobile County. (Seibels, Wallace).

WESTERN RASPBERRY FRUITWORM (Byturus bakeri) - OREGON - Adults numerous on blossoms and buds of thimbleberry in northern Washington County. No damage to commercial caneberry fields reported. (Goeden).

CURRANT BORER (Ramosia tipuliformis) - WASHINGTON - First adult recovered in one-acre planting of red currants at Prosser, Benton County. (Cone).

LEAF ROLLERS - OREGON - Appearing in increasing numbers in Willamette Valley caneberry plantings; species probably Archips rosaceanus and Argyrotaenia citrana. (Stephenson).

TRUCK CROP INSECTS

FLEA BEETLES - DELAWARE - Phyllotreta cruciferae numerous on cabbage in New Castle County (5-7 per plant); common on horseradish in Kent County (3-4 per plant) and abundant on turnips in Kent County (8-12 per plant). Epitrix cucumeris very common to abundant in most tomatoes in New Castle and Kent Counties; abundant on some potatoes in New Castle County and present on cucumbers locally. (Burbutis). MARYLAND - E. hirtipennis adults very destructive to garden potatoes and tomatoes in southern sections. (U. Md., Ent. Dept.). OHIO - E. cucumeris caused sievelike appearance to potato leaves in most gardens in southern area. Counts of 4-5 adults per leaf in one Brown County potato garden. (Lyon). Unspecified species caused light to moderate damage to radishes in Columbus and Pickaway Counties. (Lyon). ALABAMA - E. cucumeris, Phyllotreta striolata and undetermined species medium to heavy on turnips in Mobile County. (Seibels, Wallace). NEBRASKA - Epitrix spp. averaged 24 per 100 sweeps in early potato fields in Buffalo, Red Willow and Webster County areas. (Andersen). WYOMING - P. striolata adults causing light damage to some sugar beet fields in Fremont County. Counts average 28 per 100 sweeps in each of 5 fields. (Fullerton). IDAHO - P. pusilla adults severely damaged young sugar beet plants in Power County; controls underway. (Schow). UTAH - Psylliodes punctulata damaged young sugar beets in Gunnison-Centerfield area, Sanpete County, and some fields in Sevier Valley, Sevier County. (Knowlton). NEVADA - Unspecified species caused severe damage to sugar beets; 250-acre field total loss in Lovelock, Pershing County. (Ferraro).

THRIPS - MARYLAND - Heavy on asparagus, cucumber, onions and squash in Calvert and St. Marys Counties. (U. Md., Ent. Dept.).

SPIDER MITES - NEW MEXICO - Problem on squash and cucumbers in gardens in Las Cruces area, Dona Ana County. (N. M. Coop. Rpt.). ARIZONA - Injuring some watermelons and cantaloups in Maricopa County. (Ariz. Coop. Sur.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MISSISSIPPI - Heavy on potatoes in Tallahatchie County; controls applied. (Ouzts). ALABAMA - Medium to heavy on potatoes in central and northern Counties. (McQueen). MARYLAND - Adults, larvae and eggs common on potatoes in several gardens in Calvert, Prince Georges and St. Marys Counties. (U. Md., Ent. Dept.). DELAWARE - Adults and newly laid eggs very abundant on tomatoes locally in western Kent County. (Burbutis). RHODE ISLAND - First adults noted in Kingston, Washington County,

and Middletown, Newport County, May 17. Low abundance in vivid contrast to situation same time and place in 1962. Long, deep soil freeze may account for difference. (Peabody, Sheehan, Mathewson). NEBRASKA - Very active in some early planted potato fields. Large numbers in Buffalo, Red Willow and Webster County areas. Adults average 6 per 10 plants with eggs commonly found. (Andersen).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - DELAWARE - First egg masses on potatoes in Kent County May 20. (Burbutis). MARYLAND - Adult activity increased at Centreville, Queen Annes County; increase deposition of eggs expected on wheat, potatoes and early corn expected week of May 26. (U. Md., Ent. Dept.).

TOMATO FRUITWORM (*Heliothis zea*) - SOUTH CAROLINA - Caused heavy damage in several untreated gardens. (Nettles).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Adults present on *Lycium* sp. in Adams and Weld Counties; ranged 10-30 per 100 sweeps. None found on early potatoes. (Jenkins). NEBRASKA - Averaged 2 per 100 sweeps in location in Scotts Bluff County on *Lycium halimifolium*. (Hagen).

POTATO LEAFHOPPER (*Empoasca fabae*) - DELAWARE - First adults of season present in central Kent County. (Burbutis).

IMPORTED CABBAGEWORM (*Pieris rapae*) - DELAWARE - First larvae of season present to fairly common on cabbage in New Castle and Kent Counties. (Burbutis). NORTH DAKOTA - Adults in flight in Cass County and in other areas in southeast. (Noetzel).

CABBAGE LOOPER (*Trichoplusia ni*) - ALABAMA - Feeding on turnips, cabbages and collards in Lee, Tallapoosa and Elmore Counties. (McQueen). OKLAHOMA - Increasing in Bixby area; larvae averaged 8 per cabbage plant with 10 eggs per plant present. (Okla. Coop. Sur.). ARIZONA - Appearing in some cantaloup fields in Yuma County. (Ariz. Coop. Sur.).

CABBAGE WEBWORM (*Hellula rogatalis*) - ALABAMA - Destroyed entire turnip patch in Mobile County. (Seibels, Wallace).

CABBAGE APHID (*Brevicoryne brassicae*) - DELAWARE - Present to very abundant in commercial cabbage locally in New Castle County. (Burbutis).

CABBAGE MAGGOT (*Hylemya brassicae*) - ILLINOIS - More apparent on cabbage and radish in Cook County vegetable-growing area than for some time in past. (Ill. Ins. Rpt.).

PEA APHID (*Acyrtosiphon pisum*) - DELAWARE - Noticeably increased on peas; counts ranged 2 per sweep in New Castle County, 4 per sweep in Kent County and 4-7 per sweep in Sussex County. (Burbutis). WISCONSIN - Few appearing on peas; highest counts 2 per 10 sweeps. (Wis. Ins. Sur.).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - ALABAMA - Light on beans in Mobile County. (Seibels, Wallace). GEORGIA - Moderate to heavy on beans in southern area. (Johnson). MARYLAND - First adults of season noted May 23 on garden snap beans near Hughesville, Charles County. (U. Md., Ent. Dept.).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MARYLAND - Adults caused heavy foliage injury to garden beans in southern sections. (U. Md., Ent. Dept.). ALABAMA - Heavy on southern peas in Mobile and Lee Counties. (Seibels et al.).

BEEF LEAFHOPPER (*Circulifer tenellus*) - WYOMING - Two adults found feeding on kochia weed next to beetfield. None found in fields. Several patches of kochia showed symptoms of curly top infection. Only slight infection of curly top in past in Fremont County. (Fullerton). UTAH - Seven pale forms taken in 25 sweeps in Johnson Canyon, Kane County, on *Erysimum repandum*; 2 in 25 sweeps on Russian

thistle at St. George, Washington County. (Knowlton). CALIFORNIA - Spring survey of winter annuals completed May 3; 13,040 acres of range and brushland treated in San Joaquin Valley. Survey in San Joaquin Valley revealed light populations. Counts also low in southern area of State. (Cal. Coop. Rpt.).

SPINACH LEAF MINER (Pegomya hyoscyami) - WYOMING - Larvae appearing in large numbers in few beet fields in Fremont County. Populations not presently widespread. (Fullerton).

PLANT BUGS - IDAHO - Becoming abundant in carrot seed fields near Parma; mostly Lygus hesperus. Less than 0.5 percent of first-order umbels showing color and, on these, Lygus spp. average 15 per 10 umbels (ranged 0-4 per umbel). (Scott).

ASPARAGUS BEETLE (Crioceris asparagi) - RHODE ISLAND - Adults and eggs noted in Greenville, Providence County, and Greenwich, Kent County. (Hannah, King, Mathewson). DELAWARE - Eggs and young larvae present locally in New Castle County. (Burbutis).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Nymphs abundant in strawberry plantings in Grant County. (Wis. Ins. Sur.).

A WEEVIL (Dyslobus granicollis) - WASHINGTON - Adults damaged raspberry buds in Pierce County. Det. by W. Baker. (Dodge, Brannon).

RASPBERRY SAWFLY (Monophadnoides geniculatus) - WISCONSIN - Larvae becoming noticeable in planting in Green Lake County. (Wis. Ins. Sur.).

TOBACCO INSECTS

PALE-STRIPED FLEA BEETLE (Systema blanda) - VIRGINIA - Causing considerable damage to newly set tobacco plants locally near Petersburg, Dinwiddie County. (Amos, Wrens).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults ranged 2-9 per plant on newly set tobacco in Calvert and St. Marys Counties. (U. Md., Ent. Dept.).

FLEA BEETLES - SOUTH CAROLINA - Causing quite noticeable injury at Florence. (Nettles, May 15).

A WHITE-FRINGED BEETLE (Graphognathus sp.) - GEORGIA - Light on tobacco in Evans County. (Ga. Dept. Ent., May 1).

HORNWORMS (Protoparce spp.) - MARYLAND - Occasional egg found on newly set tobacco in St. Marys County. (U. Md., Ent. Dept.).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Moderate to heavy on tobacco throughout southern area. (Girareau, Johnson).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to moderate on tobacco in southern area. (Johnson). SOUTH CAROLINA - Caused heavy damage on May 13 in Pee Dee area. (Lewis, Allen).

VARIEGATED CUTWORM (Peridroma saucia) - MISSOURI - Caused considerable injury to tobacco seedlings in tobacco beds in central and northwestern areas. (Munson, Thomas, Wood).

THRIPS - MARYLAND - Undetermined species moderate on newly set tobacco in Calvert and St. Marys Counties. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Feeding on terminal buds of cotton in many Coastal Plain area fields. (Cott. Ltr., May 21). LOUISIANA - Dry weather retarding movement from hibernation in Tallulah area; counts per acre ranged 0-400. Few egg punctures observed. (Smith et al.).

A WEEVIL (Probably Compsus auricephalus) - TENNESSEE - Damaging foliage of cotton severely in localized areas of Obion and Lake Counties; counts averaged 3 per hill. First known record of species attacking cotton in State. (Locke).

BOLLWORMS (Heliothis spp., et al.) - GEORGIA - Counts made in 15 fields. Eggs ranged 0-6 (averaged 3) and larvae 0-5 (averaged 2) per 100 terminals. (Johnson). ALABAMA - Larvae feeding on 3 to 6-inch cotton in central and northern areas. (McQueen).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Light on cotton in Colquitt County. (Johnson).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - MISSISSIPPI - Larvae causing some damage by feeding on cotton leaves in delta counties. (Pfrimmer et al.).

CUTWORMS - SOUTH CAROLINA - Continue a problem to cotton in Coastal Plain area. (Cott. Ltr., May 21).

A FLEAHOPPER (Spanogonicus albofasciatus) - NEVADA - Adults and early instars present in all seedling cotton in Moapa Valley, Clark County. (Bechtel, Zoller).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - ALABAMA - Considerable numbers on 6-leaf cotton in Limestone County. (Ezell et al.).

APHIDS - SOUTH CAROLINA - Abundant in most cotton fields. (Cott. Ltr., May 21). OKLAHOMA - Aphis gossypii light to medium (10-15 per plant, 4 to 6-leaf stage) reported from Major County. (Okla. Coop. Sur.).

THRIPS - SOUTH CAROLINA - Abundant in most fields. (Cott. Ltr., May 21). GEORGIA - Light to moderate on cotton in northeast and southern areas. (Johnson). MISSISSIPPI - Light to heavy on cotton in northern area; controls applied. (Ouzts). TENNESSEE - Present on cotton over western area; some controls needed in spots. (Locke). LOUISIANA - Migration to cotton heavy in Tallulah area; damage remains severe where controls not applied. (Smith et al.). OKLAHOMA - Frankliniella spp. counts light on cotton in Jackson, Grady, Jefferson and Washita Counties; 2-5 per plant (4 to 6-leaf stage). Heavy infestations reported from Bryan County. (Okla. Coop. Sur.). ARIZONA - Counts continue 1-4 per plant in Graham County and many fields in Maricopa, Pinal and Yuma Counties have one per plant. (Ariz. Coop. Sur.). NEVADA - Frankliniella spp. caused heavy damage to seedling cotton, with several fields still heavily infested, in Moapa Valley, Clark County. (Bechtel, Zoller).

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - ARIZONA - Continues to cause severe injury to cotton in some Yuma County cotton fields; controls may be required. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - WASHINGTON - Cooperative survey of Spokane Valley completed May 17; none found during examination of 21,910 pines at residences, business properties, parks and nurseries. Over 400 infested trees removed and destroyed in area during 1961 eradication program. No infested trees found in area in 1962. (McComb, USFS). MICHIGAN - Causing injury in Ottawa and Leelanau Counties. (Machiele, Ball).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ARKANSAS - Adults emerging in southern area. (Ark. Ins. Sur.). ALABAMA - Heavy on pines in Escambia County. (Thomas, Lemons).

WHITE-PINE WEEVIL (Pissodes strobi) - MICHIGAN - Injury moderate in Ottawa County; infestation light in Kalkaska County. (Machiele, Brown).

EASTERN SPRUCE GALL APHID (Chermes abietis) - RHODE ISLAND - New galls evident on spruce in Kingstern area, Washington County, and in Greenwood, Kent County. (Mathewson, Hannah).

WHITE-PINE APHID (Cinara strobi) - IOWA - Infesting white pine at Rippey; large numbers of lady beetles on trees. (Iowa Ins. Inf., May 20).

PINE SPITTLEBUG (Aphrophora parallela) - MARYLAND - Moderate to heavy on roadside stands of Virginia pine in sections of Anne Arundel, Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.). OHIO - Late instars noted on white pine in Vinton County and on Scotch pine in Coshocton County. (Cooley, Ellis, Walker).

BALSAM GALL MIDGE (Cecidomyia balsamicola) - WISCONSIN - Adults numerous in Langlade County, May 16, about 2 miles south of Antigo where pest has seriously affected balsam Christmas-tree production for several years. Observations indicate need for timely controls. (Wis. Ins. Sur.).

PINE SAWFLIES - MICHIGAN - Heavy larval infestations of Neodiprion sertifer reported in Barry and Ottawa Counties. (Steeby, Machiele, Mars). MARYLAND - Neodiprion pratti pratti stripping Virginia pines at Potomac, Montgomery County. (U. Md., Ent. Dept.).

CANKERWORMS - NORTH DAKOTA - Larval populations building up on elm and other trees and shrubs in southeast. (N. D. Ins. Sur.). MINNESOTA - Caused heavy defoliation in areas north of Minneapolis-St. Paul area, from Anoka to Mahtomedi; very few areas in these municipalities where pests not serious. Some total defoliation, especially of oaks, will occur in areas where no controls applied. Larvae consuming foliage very rapidly. (Minn. Ins. Rpt.). IOWA - Controls applied at Bedford and Wapello. At Pella, 15-25 percent of leaf surface destroyed by unspecified species May 12; larvae leaving elms to pupate at Oskaloosa. At Ottumwa, loss of leaf surface ranged 10-100 percent. (Iowa Ins. Inf., May 20). WISCONSIN - Larvae, particularly Alsophila pomataria, abundant on oaks and other hosts in area of Columbia County. (Wis. Ins. Sur.). RHODE ISLAND - Mixed infestations present in residential sections of Cranston, Providence County, and in Warwick, Kent County, where populations high for several years. Most recent infestation reported from woodland section in Smithfield, Providence County. (Mathewson, Cartier). NEW JERSEY - Paleacrita vernata and Alsophila pomataria heavy on oak, elm, linden, beech and maple in central and northern counties. (Ins.-Dis. Newsltr., May 21).

FALL WEBWORM (Hyphantria cunea) - ARKANSAS - Second and third-stage larvae infesting willow in Cleveland County, week ending May 18. At present time, larvae full grown with some leaving nests in southern area of State. (Ark. Ins. Sur.). ALABAMA - Infestations noted on sweetgum in Lee County and in central part of State. Increase noted on persimmon and small pecan trees, with few isolated trees defoliated. (Barwood, Seibels, Wallace).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - IOWA - Present on wild plum in eastern area. (Iowa Ins. Inf., May 20). MICHIGAN - Reports from Lower Peninsula counties of Wayne, Clare, Barry and Calhoun indicate very extensive and heavy infestations this season. (Kidd, MacQueen, Holton, Steeby). WISCONSIN - Larvae nearly full grown and out of nests in several southern areas of State. Development one stage more advanced in Rock County than in Columbia County. (Wis. Ins. Sur.). RHODE ISLAND - Population especially high along one mile of Route 116 in Cumberland, Providence County. (King, Mathewson, Cartier).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Heavy infestations of 60-75 percent observed in Jefferson County and 40 percent in Garvin County. Infestations about 10 days earlier than in 1962 in Lincoln County area; 25-percent infestations noted in Frederick area. Activity also reported from other areas, with controls underway in south central area. (Okla. Coop. Sur.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - KANSAS - Larvae feeding on Chinese elm in Finney County; 4-5 observed on some leaves. Skeletonizing prominent on under portion of leaves. (DePew). OHIO - Eggs and adults present on elms in several southern counties. (Gibson, Lyon). ARIZONA - Observed in Pinal and Gila Counties. (Ariz. Coop. Sur.). OKLAHOMA - Widespread damage continues over State. (Okla. Coop. Sur.).

COTTONWOOD LEAF BEETLES (Chrysomela scripta complex) - ALABAMA - Feeding extensively in cottonwood trees in Wilcox County. (McQueen).

NORWAY-MAPLE APHID (Periphyllus lyropictus) - WASHINGTON - Colonies developing on unfolding leaves and blossom clusters of Norway maple in Pullman area, Whitman County. Hippodamia convergens adults and eggs also numerous on trees. (Johansen).

AN ASH APHID (Prociphilus fraxinifolii) - UTAH - Curling leaves of ash trees at Cedar City, Iron County, and at Manti, Sanpete County. (Knowlton).

PERIODICAL CICADAS - MISSOURI - Emergence underway in extreme southern counties; will continue next 2-3 weeks over most of State. Brood III of 17-year race should appear mainly in northern and west central counties. Brood XXIII of 13-year race should appear over most of State except northwestern and west central counties. (Munson, Thomas, Wood). ARKANSAS - Adult activity heavy in Lonoke, Pulaski and Saline Counties, central area. Males only active in Mississippi County, northeast. (Ark. Ins. Sur.).

OYSTERSHELL SCALE (Aspidiotus perniciosus) - UTAH - Seriousness of infestation on several hundred ash trees about Manti, Sanpete County, reduced by controls applied during 1962. (Knowlton). COLORADO - Egg development continues; no crawlers observed in Larimer County. (Jenkins). NEBRASKA - Crawlers present in Lincoln area, Lancaster County. (Bergman).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEW MEXICO - Causing considerable damage to American elms in Albuquerque, Bernalillo County. (N. M. Coop. Rpt.). NEBRASKA - Heavy on elms in localized area of Lincoln, Lancaster County. (Bergman).

BIRCH LEAF MINER (Fenusa pusilla) - NEW JERSEY - Mines present on birch in southern and central counties; adults flying and laying eggs in northern counties. (Ins.-Dis. Newsltr., May 21). CONNECTICUT - Eggs hatched; larvae mining leaves. (Savos).

LOCUST LEAF MINER (Xenochalepus dorsalis) - MARYLAND - Adults common and laying eggs on black locust in sections of Anne Arundel and Prince Georges Counties. (U. Md., Ent. Dept.).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - OHIO - Galls abundant on silver maple in Montgomery, Franklin, Seneca, Richland, Greene and Clark Counties. (Holdsworth, Blair, Neiswander).

BAGWORM (Thyridopteryx ephemeraeformis) - MISSOURI - Hatched in southern areas; hatching in northern areas. (Munson). OKLAHOMA - Hatching in Oklahoma City. (Okla. Coop. Sur.).

IRIS BORER (Macronoctua onusta) - MICHIGAN - Moderate infestation observed in Wayne County; heavy foliage damage evident in certain varieties. (Dollhopf).

STALK BORER (Papaipema nebris) - DELAWARE - First larvae of season noted in snapdragons in area of New Castle County. (Bray).

MIMOSA WEBWORM (Homadaula albizziae) - MISSISSIPPI - Light on mimosa in Oktibbeha County. (Ouzts).

ZEBRA CATERPILLAR (Ceramica picta) - ALABAMA - Heavy on amaryllis in Mobile County. (Seibels).

AN OLETHREUTID MOTH (Epinotia subviridis) - CALIFORNIA - Medium locally on juniper nursery stock in Oakland, Alameda County. (Cal. Coop. Rpt.).

WEEVILS (Brachyrhinus spp.) - MICHIGAN - Larvae, probably B. sulcatus, damaging Taxus spp. in nursery and ornamental plantings in Kent and Ottawa Counties. Reported from Kent County in 1962; Ottawa County is a new county record. (Sayler, Cushman).

SAN JOSE SCALE (Aspidiotus perniciosus) - MARYLAND - Heavy on pyracantha at Mayo, Anne Arundel County. (U. Md., Ent. Dept.).

EUONYMUS SCALE (Unaspis euonymi) - OKLAHOMA - Heavy populations damaging new growth in Stillwater, Cushing, Guthrie and Oklahoma City areas. Crawlers just beginning to feed. (Okla. Coop. Sur.).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - MARYLAND - Heavy on dogwood at University Park and on silver maple at College Park, Prince Georges County. (U. Md., Ent. Dept.). ALABAMA - Isolated, heavy infestation noted on wild cherry in Lee County. (Barwood).

MAGNOLIA SCALE (Neolecanium cornuparvum) - ALABAMA - Medium on Japanese magnolia in Mobile County. (Seibels, Knight).

Coccids in Florida - Aspidiotus hederæ moderate to severe on Cycas revoluta at New Smyrna Beach, Volusia County. (Pott, May 15). Ceroplastes ceriferus light to moderate on Podocarpus maki at New Smyrna Beach (Pott, May 16). C. floridensis moderate on Pyracantha coccinea at New Smyrna Beach (Pott, May 14). Eucalymnatus tessellatus light to moderate on Chrysalidocarpus lutescens at New Smyrna Beach. (Pott, May 13) and light on Ilex latifolia at Glen St. Mary, Baker County. (Collins, May 17). Phenacaspis cockerelli moderate on Streitizia sp. at Merritt Island, Brevard County, (Levan) and light on S. reginae at Winter Park, Orange County (Crews, May 17). Protopyulvinaria pyriformis severe on Hedera sp. at De Leon Springs (Roberts) and light to moderate on Gardenia grandiflora at New Smyrna Beach, Volusia County, (Potts, May 14). Pseudaulacaspis pentagona severe on Ulmus sp. and Allamanda sp. at De Leon Springs (May 16) and at De Land, Volusia County (Roberts, May 17). Toumeyella numismaticum severe on Pinus sp. at Wauchula, Hardee County. (Lamb, Denmark, April 30).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - ALABAMA - Noted in considerable numbers on shrubs in Lee County. (McQueen).

EUROPEAN EARWIG (Forficula auricularia) - UTAH - Damaged some flower-garden transplants at Brigham City and Salt Lake City. (Knowlton).

LEAFCUTTING BEES (Megachile spp.) - NEVADA - Causing considerable damage by partially defoliating rose and lilac bushes in Las Vegas County. (Nev. Coop. Rpt.).

SPIDER MITES - ARKANSAS - Unspecified species heavy on pines in Garland and Hot Spring Counties, southwest. Generally heavy on ornamentals in northwest. (Ark. Ins. Sur.). ARIZONA - Very heavy on arborvitae and related hosts in central portion of State. (Ariz. Coop. Sur.). NORTH DAKOTA - Tetranychus telarius moderate on various evergreens in a La Moure County nursery. (N. D. Ins. Rpt.). CALIFORNIA - Nymphs and adults, probably Oligonychus subnudus, heavy on Monterey pines in Newport Beach, Orange County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - RHODE ISLAND - Complaints of heavy mosquito biting reported in wooded area of Coventry, Kent County. (Cartier). Young larvae of undetermined species abundant in pond in Mooresfield, Washington County. (Cartier, Mathewson). WISCONSIN - Unidentified species troublesome throughout wooded portions of State and in southern counties. (Wis. Ins. Sur.). MINNESOTA - Of 2,056 larval collections in Metropolitan Mosquito Control District, May 12-18, 37 percent were Aedes vexans and 22 percent Culiseta inornata. A vexans mostly in third instar, but no major emergence expected until after June 1, barring unusually warm weather. (Minn. Ins. Rpt.). MISSISSIPPI - Psorophora spp. light on livestock in delta area. (Ouzts). UTAH - Mosquitoes biting people in areas of Cache and Box Elder Counties; annoying horses and beef cattle at Redmond, Sevier County. Apparently Aedes dorsalis extremely annoying in areas of Sanpete County. (Knowlton).

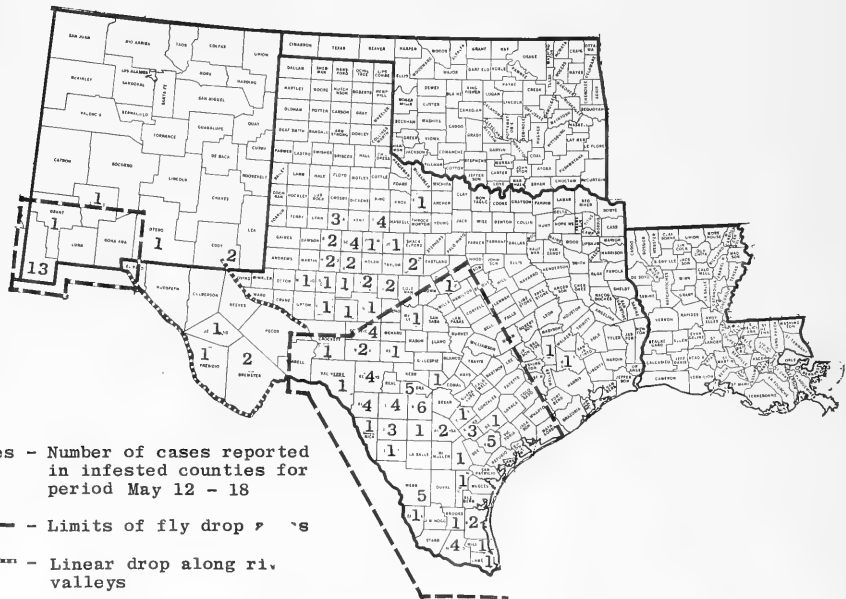
FACE FLY (Musca autumnalis) - VIRGINIA - Averaged 3 per head on herds in Russell County. Troublesome since early spring throughout County. (Tarpley, Altizer). GEORGIA - On cattle, averaged 5 per animal in White County and 14 per animal in Rabun County. (Roberts, May 16). MICHIGAN - Light on cattle in Ottawa and Sanilac Counties. (Machiele, Sowerby). WISCONSIN - Of concern in Walworth, Portage, Marquette, Dodge and Grant Counties. (Wis. Ins. Sur.). IOWA - Ranged 0-5 (averaged less than 2) per animal. Heavy rains possibly disintegrated cattle droppings sufficiently to slow buildup temporarily. (Iowa Ins. Inf., May 20). MISSOURI - Females depositing eggs in abnormally cool weather (65°). Counts averaged less than one fly per animal. Spring population peak expected about second week of June. (Wingo).

HORN FLY (Haematobia irritans) - GEORGIA - Averaged 2 per treated animal in Spalding County and 253 per untreated animal. (Roberts, May 17). MISSISSIPPI - Medium to heavy on livestock in Pike County. Control applied. (Ouzts). OHIO - Averaged 100 per dairy animal at Marietta, Washington County. (Treece). ILLINOIS - Increasing rapidly in southern area. Two herds in southeast district averaged 60 and 500 flies per animal, respectively. (Ill. Ins. Rpt.). IOWA - Most important cattle pest; ranged 5-100 (averaged 10-15) per animal. (Iowa Ins. Inf., May 20). KANSAS - Ranged 5-150 per animal on livestock in north central and northwest areas. (Peters). OKLAHOMA - Populations continue at same level in Stillwater area. Counts of 150-200 per head in Kingfisher County, 100 per head on cows and 1,000 per head on bulls in Jefferson County and 225 per head on cows in Pushmataha County. (Okla. Coop. Sur.).

STABLE FLY (Stomoxys calcitrans) - OHIO - Abundant on dairy cows in Highland County area. (Sanders). ILLINOIS - Variable from herd to herd, but beginning to build up. (Ill. Ins. Rpt.). IOWA - Scarce; occasional fly noted on legs and undersides of cattle on pasture. (Iowa Ins. Inf., May 20). MISSISSIPPI - Light on livestock in delta area. (Ouzts). OKLAHOMA - Counts of 5 per head on cattle in Pushmataha County area. (Okla. Coop. Sur.).

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period May 12-18, a total of 111 infestations, including one of unknown origin reported from TEXAS and 21 from NEW MEXICO. Texas specimens were reported from 55 counties and New Mexico specimens from 7 counties. There were 14 new counties in Texas reporting screw-worms for the first time this year -- Borden, Baylor, Coke, Comanche, Garza, Callahan, Mitchell, Scurry, Midland, Runnels, Montgomery, Glasscock, Jones and Reagan. Screw-worm was reported for the first time from Socorro County, New Mexico. There was a total of 45 infestations outside the fly drop area. A total of 123,364,650 sterile flies was released over areas of Texas and New Mexico during the period May 12-18. (Anim. Dis. Erad. Div.).



Figures - Number of cases reported in infested counties for period May 12 - 18

----- - Limits of fly drop areas

- . - . - Linear drop along river valleys

TABANIDS - OKLAHOMA - *Chrysops* sp. in numbers and annoying to humans in areas around Stillwater. (Okla. Coop. Sur.). UTAH - Tabanids annoying cattle and horses in Washington-St. George area of Washington County. (Knowlton).

BLACK FLIES (*Simulium* spp.) - MICHIGAN - Annoying in several counties. (Brown, Cushman, Sowerby).

SNUIPE FLIES (Symphoromyia spp.) - UTAH - Biting man at Upper Sink Valley and Alton, Kane County. (Knowlton).

SHEEP BOT FLY (Oestrus ovis) - OHIO - Infestation found in several sheep in different flocks in Highland County. Sneezing and mucous discharge were observed symptoms. (Sanders).

AMERICAN DOG TICK (Dermacentor variabilis) - RHODE ISLAND - As high as 70 per drag in Jamestown, Newport County. (Hyland). WISCONSIN - Reports and observations in northern part of State indicate species more active and arousing many comments. Higher than usual incidence in Jackson County. (Wis. Ins. Sur.). NORTH DAKOTA - Considerably more abundant than normal on scattered farmsteads in eastern area. Some engorged females collected from dogs in Fargo area. (N. D. Ins. Sur.).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - NEBRASKA - High populations in brush areas along North Platte River Valley. (Hagen).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Heavy on livestock in eastern part of State. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

CARPENTER ANTS (Camponotus spp.) - OHIO - C. pennsylvanicus winged and wingless forms heavy in residences in Wayne and Franklin Counties. (Gibson, Rings). IDAHO - Considerable numbers of C. pennsylvanicus emerging in Moscow-Potlatch areas, Latah County. (Manis). WASHINGTON - Camponotus spp. of concern to residents in Kelso, Cowlitz County; Montesano, Grays Harbor County; and in Whitman County. (Brannon).

A LYGAEID BUG (Lygaeus lateralis) - NEW MEXICO - Adults appearing in large numbers on and in buildings in Las Cruces area, Dona Ana County; of considerable nuisance. (N. M. Coop. Rpt.).

EUROPEAN EARWIG (Forficula auricularia) - UTAH - Troublesome about homes at Orderville, Kane County. (Knowlton).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - RHODE ISLAND - Alates reported throughout State. (Cartier, Mathewson).

SILVERFISH (Lepisma saccharina) - UTAH - Troublesome in several stores and many homes in St. George-Hurricane areas, Kane County. (Knowlton).

BENEFICIAL INSECTS

LADY BEETLES - ILLINOIS - Adults of several species varied 10-180 (averaged 46) and larvae varied 10-120 (averaged 33) per 100 sweeps on clover and alfalfa in east-southeast and adults 0-60 (averaged 17) and larvae 0-20 (averaged 5) per 100 sweeps in southeast district. (Ill. Ins. Rpt.). MICHIGAN - Various species active in Livingston and Grand Traverse Counties. (Tester, Glidden). ALABAMA - Hippodamia convergens active in cotton, vetch and clover in central and northern areas, and present in Mobile County. Coccinella novemnotata active in cotton and vetch in Marshall, Etowah and Clay Counties. Coleomegilla maculata fuscilabris medium to heavy in turnips in Mobile County. (Seibels, Wallace, McQueen, et al.). KANSAS - Primarily H. convergens, plentiful in most alfalfa in north central and northwest; as high as 10 larvae and adults per sweep. (Peters). COLORADO - Hippodamia spp. larvae and adults ranged 200-500 per 100 sweeps in Montrose County alfalfa. Ranged 10-100 per 100 sweeps in Adams, Weld and Larimer Counties. (Bulla, Jenkins). WYOMING - Averaged 21 H. convergens adults per 100 sweeps in alfalfa in Fremont County; larvae just appearing. (Fullerton). UTAH - Three species of lady beetles attacking Acyrtosiphon pisum in alfalfa in

Santa Clara, St. George and Washington areas, Washington County. (Knowlton). ARIZONA - H. convergens increasing in some areas. (Ariz. Coop. Sur.). NEVADA - Adults and larvae of several undetermined species averaged up to 6 per sweep in alfalfa in Moapa Valley, Clark County, and Lathrop Wells, Nye County. (Bechtel, Lauderdale, Zoller).

DAMSEL BUGS - KANSAS - Plentiful in most alfalfa in north central and northwest. (Peters). WYOMING - Averaged 8 Nabis sp. adults per 100 sweeps in Fremont County alfalfa. (Fullerton). UTAH - Nabis alternatus aiding in control of Acyrtosiphon pisum in alfalfa in Santa Clara, St. George and Washington areas, Washington County. (Knowlton). ILLINOIS - Nabis spp. ranged 0-60 (averaged 15) per 100 sweeps in clover and alfalfa in east-southeast and southeast districts. (Ill. Ins. Rpt.).

LACEWINGS - KANSAS - Abundant in most alfalfa in north central and northwest. (Peters). ALABAMA - Chrysopa oculata active on clover, vetch, oats and wheat throughout central and northern areas. (McQueen). C. oculata very numerous on tomatoes in portions of a field in Mobile County. (Seibels). ILLINOIS - C. oculata adults varied 0-20 and larvae 0-10 per 100 sweeps in clover and alfalfa in east-southeast and southeast districts. (Ill. Ins. Rpt.). OHIO - Chrysopa spp. collected during survey of forage crops in Clinton County. (Lyon).

PUNCTUREVINE WEEVILS (Microlarinus spp.) - NEVADA - Larvae, pupae and adults of M. lareynii and M. lypriformis present in puncturevine in Moapa Valley, Clark County. (Bechtel, Zoller).

HONEY BEE (Apis mellifera) - RHODE ISLAND - Numerous swarms reported in Providence County. Weather did not favor bee flight during fruit tree blossom period. (Cartier, Mathewson).

PARASITIC WASPS - ARIZONA - Increasing in some areas of States. (Ariz. Coop. Sur.).

MISCELLANEOUS INSECTS

WHITE-FRINGED BEETLES (Graphognathus spp.) - VIRGINIA - Treatment for larvae completed on 3,000 acres, involving 6,000 properties, in city of Norfolk. All treatment completed on May 15. (Matheny).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - First adult of season trapped at airport in New Hanover County May 15. (Kelley). CALIFORNIA - Visual survey and trapping began first of May in Sacramento area, Sacramento and Yolo Counties. Major increase in trapping and visual inspection planned, with more intensive search for beetles in more distant areas including Placer, Yuba, Sutter and Butte Counties. Approximately 10,000 traps to be in field by mid-June. Foliage treatment began early in May and first application has been completed. (Cal. Coop. Rpt.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Treatment phases of program completed. Survey to be continued throughout year. New infestations will be subject to immediate treatment. To May 24, approximately 1,200 blocks treated and 15,000 properties inspected. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 13(18):458 - GRASSHOPPERS - NEBRASKA - Arphia pseudonietana should read Arphia conspersa.

CEIR 13(21):544 - POTATO LEAFHOPPER (Empoasca fabae) - OHIO - Should read: "Adults 2.3 per 50 sweeps in field of alfalfa near Waverly in Ross County. (Lyon)."

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Protoparce quin. sexta	Ostrin. nubil.	Heliothis zea vires.
FLORIDA							
Gainesville 5/20	1					1	1
ILLINOIS (County)							
Champaign 5/17-23	9	3		2			
KANSAS							
Garden City 5/13,15,17		6	5	1			
Hays 5/17,20		31	27				
Manhattan 5/17-23	5	3	1	22			2
Mound Valley 5/16,21	7	8		11			1
Wathena 5/15-16		4	2	3		1	
OHIO							
Wooster 5/17-21	20						
MARYLAND							
Centreville 5/15-21	11	15	22			49	
MINNESOTA							
Worthington 5/5-14	10	3					
Fergus Falls 5/6-20	42	28					
*Shakopee 5/6-17	8	4					
MISSISSIPPI							
*Stoneville 5/17-23	72	66	142	28		29	74 1
MISSOURI							
Portageville 5/16-22	6	6	10	15			1
NEBRASKA							
Bushnell 5/10-14	5	2	14				
Kearney 5/6-14	12	3	11				1
Lincoln 4/25-5/15	72	28		2	3		
North Platte 5/8-14	358	27	339				2
Ogallala 5/9-13	14		36				
Scotts Bluff Expt. Sta. 5/14-20		2	6				
SOUTH CAROLINA							
Clemson 5/18-24	2	4		38		1	
TEXAS							
Waco 5/18-24	6		18	32			44 2
*Brownsville 5/17-23	66	329	165	18	97 290		3,498 4
WISCONSIN							
Middleton 5/16-22	23	6	3				
Madison 5/16-22	85	4	7				
De Forest 5/14-20	23	2					
Nenno 5/14-20	29	3					

Additional light trap collections

TEXAS (*Brownsville, 5/17-23) Loxostege similalis - 11,607; Feltia subterranea - 2,248; Pectinophora gossypiella - 30. (Waco 5/18-24) P. gossypiella - 1.

* Two traps Shakopee and Stoneville; 6 traps Brownsville.

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING _____ (Commodity)	Wheat _____ (Commodity)	IN _____ (State or District)	North Dakota _____ (State or District)	DURING _____ (Year)	1962 _____ (Year)
A. Pest or pest complex _____	Grasshoppers, wheat stem sawfly, armyworms, aphids				
B. Number of _____ acres ^a produced (From CRS)	No.	5,519,000			
C. Average yield per _____ acre ^a (From CRS)	Units/	28.7 bu.			
D. Price ^b per unit (bu.) ^c (From CRS)	\$/	2.16			
E. _____ acres ^a needing control	No.	720,000			
F. _____ acres ^a treated	No.	178,000			
G. Reduction due to not treating where needed:					
H. Loss in yield, percent	%	1			
I. Loss in yield, units per _____ acre ^a , C x H	Units/	.29 bu.			
J. Loss in yield, \$ per _____ acre ^a , D x I	\$/	.63			
K. Loss in quality, \$ per _____ ^a	\$/				
L. Yield loss for all _____ acres ^a , (E-F) x I	Units	157,180 bu.			
M. Control cost, \$ per _____ acre ^a	\$/	.75			
N. Control cost for all _____ acres ^a , F x M	\$	133,500.00			
O. Yield loss for all _____ acres ^a , (E-F) x J	\$	341,460.00			
P. Quality loss for all _____ ^a , (E-F) x K	\$				
Q. Combined control cost and losses, N + O + P	\$	474,960.00			

Comment: _____ Approximately 8 percent of acreage planted abandoned.

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in () .

Submitted by _____ Richard D. Frye _____

Date _____ 2-1-63 _____

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING	Barley (Commodity)	IN	North Dakota (State or District)	DURING	1962 (Year)
A.	Pest or pest complex	<u>Grasshoppers, armyworms, aphids, thrips</u>			
B.	Number of <u>acres</u> ^a produced (From CRS)	No.	<u>2,839,000</u>		
C.	Average yield per <u>acre</u> ^a (From CRS)	Units/	<u>35 bu.</u>		
D.	Price ^b per unit (bu.) ^c (From CRS)	\$/	<u>.81</u>		
E.	<u>Acres</u> ^a needing control	No.	<u>840,000</u>		
F.	<u>Acres</u> ^a treated	No.	<u>193,000</u>		
G.	Reduction due to not treating where needed:				
H.	Loss in yield, percent	%	<u>1</u>		
I.	Loss in yield, units per <u>acre</u> ^a , C x H	Units/	<u>.35 bu.</u>		
J.	Loss in yield, \$ per <u>acre</u> ^a , D x I	\$/	<u>.28</u>		
K.	Loss in quality, \$ per <u>acre</u> ^a	\$/	<u></u>		
L.	Yield loss for all <u>acres</u> ^a , (E-F) x I	Units	<u>226,450 bu.</u>		
M.	Control cost, \$ per <u>acre</u> ^a	\$/	<u>.75</u>		
N.	Control cost for all <u>acres</u> ^a , F x M	\$	<u>144,750.00</u>		
O.	Yield loss for all <u>acres</u> ^a , (E-F) x J	\$	<u>181,160.00</u>		
P.	Quality loss for all <u>acres</u> ^a , (E-F) x K	\$	<u></u>		
Q.	Combined control cost and losses, N + O + P	\$	<u>325,910.00</u>		

Comment: Six percent barley abandoned, much of this apparently due to excessive moisture (excessive moisture, especially in the Red River Valley, no doubt affected all crop production during the 1962 season).

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Richard D. Frye

Date 2-1-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING	<u>Sugar beets</u> (Commodity)	IN	<u>North Dakota</u> (State or District)	DURING	<u>1962</u> (Year)
A.	Pest or pest complex		<u>Sugar-beet root maggot, grasshoppers, beet webworm</u>		
B.	Number of <u> </u> acres ^a produced (From CRS)		No.		<u>54,000</u>
C.	Average yield per <u> </u> acre ^a (From CRS)		Units/		<u>11 tons</u>
D.	Price ^b per unit (<u> </u> ton) ^c (From CRS)		\$/		<u>12.00</u>
E.	<u> </u> Acres ^a needing control		No.		<u>5,000</u>
F.	<u> </u> Acres ^a treated		No.		<u>5,000</u>
G.	Reduction due to not treating where needed:				
H.	Loss in yield, percent		%		<u>5/10 of 1 percent</u>
I.	Loss in yield, units per <u> </u> acre ^a , C x H		Units/		<u>.055 ton</u>
J.	Loss in yield, \$ per <u> </u> acre ^a , D x I		\$/		<u>.66</u>
K.	Loss in quality, \$ per <u> </u> ^a		\$/		<u> </u>
L.	Yield loss for all <u> </u> acres ^a , (E-F) x I		Units		<u>--</u>
M.	Control cost, \$ per <u> </u> acre ^a		\$/		<u>.75</u>
N.	Control cost for all <u> </u> acres ^a , F x M		\$		<u>3,750.00</u>
O.	Yield loss for all <u> </u> acres ^a , (E-F) x J		\$		<u>--</u>
P.	Quality loss for all <u> </u> ^a , (E-F) x K		\$		<u> </u>
Q.	Combined control cost and losses, N + O + P		;		<u>3,750.00</u>

Comment: Four percent acreage abandoned.

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Richard D. Frye

Date 2-1-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Hay (all) IN North Dakota DURING 1962
 (Commodity) (State or District) (Year)

A. Pest or pest complex	<u>Grasshoppers, aphids</u>	
B. Number of <u>acres</u> ^a produced (From CRS)	No.	<u>3,703.000</u>
C. Average yield per <u>acre</u> ^a (From CRS)	Units/	<u>1.42 tons</u>
D. Price ^b per unit (ton) ^c (From CRS)	\$/	<u>10.00</u>
E. <u>Acres</u> ^a needing control	No.	<u>605.000</u>
F. <u>Acres</u> ^a treated	No.	<u>40.000</u>
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	%	<u>2</u>
I. Loss in yield, units per <u>acre</u> ^a , C x H	Units/	<u>.03 ton</u>
J. Loss in yield, \$ per <u>acre</u> ^a , D x I	\$/	<u>.30</u>
K. Loss in quality, \$ per <u>acre</u> ^a	\$/	<u></u>
L. Yield loss for all <u>acres</u> ^a , (E-F) x I	Units	<u>16,950 tons</u>
M. Control cost, \$ per <u>acre</u> ^a	\$/	<u>.75</u>
N. Control cost for all <u>acres</u> ^a , F x M	\$	<u>30,000.00</u>
O. Yield loss for all <u>acres</u> ^a , (E-F) x J	\$	<u>169,500.00</u>
P. Quality loss for all <u>acres</u> ^a , (E-F) x K	\$	<u></u>
Q. Combined control cost and losses, N + O + P	\$	<u>199,500.00</u>

Comment: _____

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Richard D. Frye

Date 2-1-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Flax IN North Dakota DURING 1962
 (Commodity) (State or District) (Year)

		Grasshoppers	
A.	Pest or pest complex		
B.	Number of <u>acres</u> ^a produced (From CRS)	No.	1,576,000
C.	Average yield per <u>acre</u> ^a (From CRS)	Units/	12 bu.
D.	Price ^b per unit (bu.) ^c (From CRS)	\$/	2.80
E.	<u>Acres</u> ^a needing control	No.	90,000
F.	<u>Acres</u> ^a treated	No.	20,000
G.	Reduction due to not treating where needed:		
H.	Loss in yield, percent	%	1
I.	Loss in yield, units per <u>acre</u> ^a , C x H	Units/	.12 bu.
J.	Loss in yield, \$ per <u>acre</u> ^a , D x I	\$/	.34
K.	Loss in quality, \$ per <u>acre</u> ^a	\$/	
L.	Yield loss for all <u>acres</u> ^a , (E-F) x I	Units	8,400 bu.
M.	Control cost, \$ per <u>acre</u> ^a	\$/	.75
N.	Control cost for all <u>acres</u> ^a , F x M	\$	15,000.00
O.	Yield loss for all <u>acres</u> ^a , (E-F) x J	\$	23,800.00
P.	Quality loss for all <u>acres</u> ^a , (E-F) x K	\$	
Q.	Combined control cost and losses, N + O + P	\$	38,800.00

Comment: 4.8 percent acreage abandoned.

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Richard D. Frye

Date 2-1-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Potatoes IN North Dakota DURING 1962
(Commodity) (State or District) (Year)

A. Pest or pest complex	<u>Colorado potato beetle, potato flea beetle</u>		
B. Number of <u>acres</u> ^a produced (From CRS)		No.	<u>114,000</u>
C. Average yield per <u>acre</u> ^a (From CRS)		Units/	<u>130 cwt.</u>
D. Price ^b per unit (cwt.) ^c (From CRS)		\$/	<u>1.05</u>
E. <u>Acres</u> ^a needing control		No.	<u>12,500</u>
F. <u>Acres</u> ^a treated		No.	<u>10,000</u>
G. Reduction due to not treating where needed:			
H. Loss in yield, percent		%	<u>5/10 of 1 percent</u>
I. Loss in yield, units per <u>acre</u> ^a , C x H		Units/	<u>.65 cwt.</u>
J. Loss in yield, \$ per <u>acre</u> ^a , D x I		\$/	<u>.68</u>
K. Loss in quality, \$ per <u>acre</u> ^a		\$/	<u></u>
L. Yield loss for all <u>acres</u> ^a , (E-F) x I		Units	<u>1,625 cwt.</u>
M. Control cost, \$ per <u>acre</u> ^a		\$/	<u>.75</u>
N. Control cost for all <u>acres</u> ^a , F x M		\$	<u>7,500.00</u>
O. Yield loss for all <u>acres</u> ^a , (E-F) x J		\$	<u>1,700.00</u>
P. Quality loss for all <u>acres</u> ^a , (E-F) x K		\$	<u></u>
Q. Combined control cost and losses, N + O + P		\$	<u>9,200.00</u>

Comment: Five percent acreage abandoned

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Richard D. Frye

Date 2-1-63

ESTIMATED LOSSES AND PRODUCTION COSTS ATTRIBUTED TO INSECTS AND RELATED ARTHROPODS

ATTACKING Cattle (all) IN North Dakota DURING 1962
 (Commodity) (State or District) (Year)

A. Pest or pest complex	<u>Flies, mosquitoes, lice, cattle grubs</u>	
B. Number of <u>head</u> ^a produced (From CRS)	<u>No.</u>	<u>1,763,415</u>
C. Average yield per <u> </u> ^a (From CRS)	<u>Units/</u>	
D. Price ^b per unit (<u> </u>) ^c (From CRS)	<u>\$/</u>	
E. <u> </u> ^a needing control	<u>No.</u>	
F. <u>Head</u> ^a treated	<u>No.</u>	<u>955,000</u>
G. Reduction due to not treating where needed:		
H. Loss in yield, percent	<u>%</u>	
I. Loss in yield, units per <u> </u> ^a , C x H	<u>Units/</u>	
J. Loss in yield, \$ per <u> </u> ^a , D x I	<u>\$/</u>	
K. Loss in quality, \$ per <u> </u> ^a	<u>\$/</u>	
L. Yield loss for all <u> </u> ^a , (E-F) x I	<u>Units</u>	
M. Control cost, \$ per <u> </u> ^a	<u>\$/</u>	
N. Control cost for all <u>head</u> ^a , F x M	<u>\$</u>	<u>267,000</u>
O. Yield loss for all <u>head</u> ^a , (E-F) x J	<u>\$</u>	<u>4,600,000+</u>
P. Quality loss for all <u> </u> ^a , (E-F) x K	<u>\$</u>	
Q. Combined control cost and losses, N + O + P	<u>\$</u>	<u>4,867,000+</u>

Comment: Only figures available at present. Savings as a result of
control placed at \$8,500,000.00.

- a. Acres, head of cattle or other producing units used by Crop Reporting Service.
- b. Season average price per unit as given by CRS (describe basis).
- c. Bushels, boxes, tons or other marketing units used by CRS; show which in ().

Submitted by Richard D. Frye

Date 2-1-63

UNITED STATES DEPARTMENT OF AGRICULTURE

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ENTOMOLOGICAL

ECONOMIC INSECT
REPORT

Edited by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE



AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

ALFALFA WEEVIL control problems reported in Nevada, and fall treatments not giving control in parts of Virginia. Damage to second cutting of alfalfa occurring in latter State. (pp. 601-602). PEA APHID populations variable; reported heavy in areas of Colorado and Wyoming and increasing in Wisconsin. (pp. 602-603). MEADOW SPITTLEBUG spring survey in New Jersey showed higher populations than any time since 1954. (p. 603). VARIEGATED CUTWORM damaging alfalfa in northeast Kansas, and SPIDER MITES troublesome on red clover in areas of Virginia. (p. 604). First generation of EUROPEAN CORN BORER expected to be low in New Jersey; adults appearing in Wisconsin. (pp. 604-605). CORN EARWORM activity on corn apparently increasing; damage reported in several Southern States. (p. 605). BOLL WEEVIL activity continues generally low; reported in North Carolina. (p. 614).

Serious outbreak of CONIFER SAWFLIES occurring on Scotch pine in Columbiana County area of Ohio, and TENT CATERPILLARS causing severe defoliation of many trees in Big Horn Basin area of Wyoming. (p. 617). MOSQUITOES building up; annoying in several States. BITING MIDGES more serious than in number of years northwest of Salt Lake City in Utah. (p. 622). JAPANESE BEETLE adults active in Delaware and Rhode Island; early records for both States. (p. 624).

DETECTION

New State records reported were ALFALFA WEEVIL (Hypera postica) in New Hampshire (p. 601); SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) in South Carolina (first ARS record) (p. 618); a BOSTRICHID (Xylobiops basilaris) in Delaware (p. 619); an ARMORED SCALE (Melanaspis aliena) in Florida (p. 620); an ORCHID MEALYBUG (Pseudococcus importatus) in California (p. 620); a GROUND MEALYBUG (Rhizoecus cacticans) in Florida (p. 620); a NOCTUID (Heliothis phloxiphaga form luteitinctus) in Delaware (p. 624); and the MIRIDS (Platytyllus fraternus and Lopidea confluens) in Delaware (p. 624).

CORRECTIONS and ADDITIONAL NOTES

See pages 621 and 627, respectively.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 621).

Analysis of Insect and Mite Infestations Found in Produce from the United States Examined in Ports in Great Britain in 1962. (p. 628).

Reports in this issue are for week ending May 31, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

JUNE 1963

The Weather Bureau's 30-day outlook for June calls for temperatures to average above seasonal normals in the northeast quarter of the Nation as well as the northern Plains and West Gulf region. Below normal averages are predicted west of the Continental Divide, except for near to above normal in northern and southern border areas. In regions not specified, near normal temperatures are indicated. Rainfall is expected to exceed normal over the central Plains, middle Mississippi Valley, central Plateau and Florida peninsula. Subnormal amounts are anticipated for the North and Middle Atlantic States, the northern Plains, the west Gulf coast, and the Far Southwest. Elsewhere, precipitation should total not far from normal.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D.C. Price \$4.80 a year, \$2.40 a half year.

WEATHER OF THE WEEK ENDING JUNE 3

The week began with a large scale low in the vicinity of the Great Lakes and a cold front trailing from Ohio to Texas. Thunderstorms, some accompanied by hail, occurred ahead of and near the front. Another thunderstorm area was centered in the Deep South. Scattered storms broke out in the Rockies. As the system moved slowly eastward, vigorous storm activity occurred over the Ohio Valley, with gusts reaching 66 m.p.h. at Newcastle, Indiana. Large hailstones fell west of Indianapolis, Indiana. Huntington, West Virginia, received a 3-inch downpour. By Wednesday evening, a weak cold front from New York to Mississippi pushed eastward. Showers and thunderstorms, some heavy, occurred along the Atlantic coast from Maine to Florida. Tornadoes were seen in the latter State. A few scattered storms developed along the central Rockies and the central Great Plains from Wyoming to New Mexico. Hail as large as golf balls pelted Guadalupe Pass, Texas. Funnel clouds were sighted near Lander, Wyoming, and Hill City and Goodland, Kansas. A tornado occurred at Lubbock, Texas. Fair weather predominated over the Nation on Memorial Day. There were a few spots of inclement weather: Some scattered showers in Maine, New York and Florida; and a few widely scattered thunderheads building up from California to the central Rockies. The fair weather continued on Friday, with a few exceptions. Scattered thunderstorms occurred over the western Plains and along the Pacific coast which was being invaded by Pacific air. Much of the Nation was seasonally warm. By Saturday morning, a broad belt of clouds covered the Rockies, most of the Great Plains and the upper Mississippi Valley. Showers and a few heavy thunderstorms were scattered throughout the region. A gully washer drenched Correctionville, Iowa, with over 7 inches Saturday night and early Sunday. A tropical disturbance from the western Bahamas drifted northward bringing moisture-laden air over the middle Atlantic coast. Soaking rains fell along the Atlantic Seaboard from North Carolina to New Jersey. Temperature over the North Central and some Northeastern States averaged below normal during the first few days, but warmed to above normal toward the end of the week. For the week as a whole, the temperatures averaged slightly below normal over the Appalachian Mountains and along the Atlantic coast from Georgia to Connecticut; also over the Southern Plateau immediately east of the Rockies. Temperatures at Norfolk, Virginia, averaged 6° below normal. Over most other parts of the Nation, the temperatures averaged above normal. Some of the largest temperature departures were +6° at Green Bay, Wisconsin, and +7° at Bismarck, North Dakota, and Havre and Helena, Montana.

Precipitation was unevenly distributed. No rain of importance fell over the lower Rio Grande Valley, southern Arizona and the San Joaquin Valley. Rainfall was mostly light over much of the Nation. There were numerous scattered locations, however, which received more than 2 inches. Several Iowa communities and some eastern counties of Virginia were doused with about 7 inches. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - UTAH - Hatching in large area north, east and south of Monticello, San Juan County, lighter than same time in 1962. However, many hundreds of acres of wheat, alfalfa and planted grasses will need protection. Threatening orchards, alfalfa and lawns at Moab, Grand County. (Knowlton). Hatch very heavy in areas south and west of Kanosh, and generally heavy in most of east Millard County. (Knowlton, Rickenbach). Hatch heavy in area of New Harmony, Washington County, and moderately severe in parts of McCornick area of Millard County. Nymphs, largely 1-2 stages, with third stage common in few areas. (Knowlton). OREGON - Camula pellucida emergence heavy in southern Harney County beginning May 22. (Jackson, Goeden). WYOMING - Nymphs of several species numerous in alfalfa south of Basin, Big Horn County; averaged 100-125 per 100 sweeps. (Fullerton). COLORADO - First to fifth instars in Dolores County; 2 areas classed with a 2 rating, 3-7 per square yard. (Chinn, Alexander). TEXAS - Light hatch of several species underway in south plains and panhandle areas. Considerable dehydration of egg pods noted in upper panhandle area. Nymphal counts averaged 1-2 per square yard in short grass. Overwintering species more prevalent this spring than in past. (Tex. Coop. Rpt.; Russell et al.). OKLAHOMA - Nymphal counts per square yard on rangeland May 20-24, by county, as follows: Cotton, 2; Beckham, 10-15; Greer, 1-7; Harmon, 3-12; Jackson, 3-7; Jefferson, 4; Kiowa, 3-9; Roger Mills, 9. Dominant species Melanoplus packardii, Ageneotettix deorum and Aulocara eliotti. Cropland checks showed 15 nymphs per square yard in Greer County and 10-15 per square yard in Beckham County. (Okla. Coop. Sur.). KANSAS - Counts low in central area; less than one Melanoplus spp. per square yard. (Peters). NORTH DAKOTA - Hatching of M. bivittatus occurred in McLean County week of May 20. First instars observed in marginal areas of small grains and in roadside areas. (Wilson). WISCONSIN - Eggs of M. femurrubrum ranged from coagulated to eye spot in development in La Crosse County; eggs of M. differentialis ranged from eye spot to segmented in same county. M. bivittatus first-stage nymphs numbered about 10 per square yard in some Adams and Waushara County alfalfa; hatching continuing and populations will probably increase rapidly in these fields. (Wis. Ins. Sur.). IOWA - Hatching of unspecified species in Marshall County May 21; 1-2 per square yard. (Iowa Ins. Inf.). ALABAMA - M. differentialis, longhorn grasshoppers and tree crickets quite common in grass-clover pastures in Clay County. (Barwood). Unidentified grasshopper nymphs 50 per square yard in corn and gardens in isolated areas of Monroe County. (Lemons).

ALFALFA WEEVIL (Hypera postica) - NEW HAMPSHIRE - Adult collected May 21 at Kingston town line, Rockingham County, by A. H. Mason in alfalfa. This is the first record for the State. (Mason). RHODE ISLAND - Eggs found in occasional stalk in alfalfa in Kingston area, Washington County. (Mathewson). CONNECTICUT - Eggs found at Wallingford, Guilford and Oxford. (Savos). NEW YORK - Larval populations increasing in Ulster County alfalfa; adults very scarce midday May 24. Little loss expected, hay harvest underway. (N. Y. Wkly. Rpt., May 27). NEW JERSEY - Larvae ranged 4-16 per sweep on alfalfa in Gloucester, Salem and Cumberland Counties. (Ins.-Dis. Newsltr., May 28). PENNSYLVANIA - Much untreated (first cutting) alfalfa destroyed in Fulton County; overwintering adults, eggs, larvae and few pupae noted in Indiana County. (Udine, May 24). Found in Venango County for the first time on alfalfa May 14. (Adams). All stages present in Cumberland County May 21; newly emerged adults noted in Franklin County May 22. (Pepper). VIRGINIA - Fall applications of a specific chlorinated hydrocarbon to alfalfa gave no apparent control in Rappahannock County; fields treated damaged as much as those untreated. Damage justified controls in 80-90 percent of fields inspected. Most alfalfa just cut. (Lyne, May 20). Larvae light to severe on second-cutting alfalfa throughout Campbell County. Fall treatments with specific chlorinated hydrocarbon giving no control. (Ellis, May 24). Heavily infesting field of second-cutting alfalfa in Bedford, Bedford County. (Rowell, Boone). Larvae averaged 11.1 per square foot pan counts in 8 fields and ranged from 44.5 in a soil bank field May 18-19 in Montgomery County. On May 23, larvae averaged 10.3 per square foot pan counts in 7 fields. Included in this was 46.6

larvae per square foot in a single soil bank field and an average of 4.2 larvae in 6 cropped fields. (Pienkowsky). GEORGIA - Light feeding damage on second-growth alfalfa in Newton County. (Johnson). NEVADA - Larval populations and damage varied light to heavy in Alamo-Hiko areas, Lincoln County, with heaviest damage in Hiko area. Larvae 40-60 per sweep in fields with heaviest damage, but pupation well along and many cocoons present. Larvae varied 4-35 per sweep in Panaca, Lincoln County. (Bechtel). Damage heavy in many areas of Churchill, Douglas, Lyon and Washoe Counties where adult controls apparently not effective or improperly timed. (Coop. Rpt.). UTAH - Damage becoming more conspicuous each day in untreated alfalfa in central and northern areas. (Knowlton). IDAHO - Third instars predominant stage in alfalfa in southwest; numbers continue low. (Waters, Bechtolt). WYOMING - Adults averaged 25-35 per 100 sweeps in alfalfa in Big Horn Basin. Larvae just beginning to appear. (Fullerton). NEBRASKA - Larvae ranged 0-60 per 100 sweeps in Dundy, Garden, Keith, Lincoln, Morrill and Scotts Bluff Counties. None found in Dawson County. Infestations noneconomic. (Manglitz). COLORADO - Larval damage noticeable in some alfalfa where no controls used. Larval counts of 1,000 per 100 sweeps being made in Mesa County. Ranged 10-200 per 100 sweeps in Otero and Pueblo Counties. In Adams, Larimer and Weld Counties, some alfalfa shows considerable loss; larvae 150-500 per 100 sweeps. (Bulla, Hantsbarger, Jenkins, Schweissing). NEW MEXICO - Larvae, probably this species, found damaging alfalfa near San Pedro, Santa Fe County; averaged about 7 per 100 sweeps. (N. M. Coop. Rpt.).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - MARYLAND - Moderate numbers of adults and larvae infesting red clover at Snow Hill, Worcester County. (U. Md., Ent. Dept.). OHIO - Moderate to heavy populations in many central area red clover fields. Adults averaged 5-10 per 50 sweeps in red clover in Morrow, Marion, Crawford and Delaware Counties. Many stems showed larval feeding damage. (Lyon). ALABAMA - Twenty per 50 sweeps in grass-clover pasture in Monroe County. (Lemons).

A WEEVIL (*Sitona scissifrons*) - SOUTH DAKOTA - Generally present throughout eastern part of State; averaged 5 per 10 sweeps in alfalfa examined. (Hintz).

A WHITE-FRINGED BEETLE (*Graphognathus* sp.) - ALABAMA - Destroyed 5-acre stand of peanuts in Coffee County. (Stephenson).

PEA APHID (*Acyrtosiphon pisum*) - ARIZONA - Present in alfalfa near cutting stage in Graham County. (Ariz. Coop. Sur.). NEVADA - Light in Lyon County. (Martinelli). Very light near Moapa, Clark County, and varied 3-80 per sweep in Alamo, Hiko and Panaca areas, Lincoln County. (Bechtel). WASHINGTON - Unusually scarce on alfalfa at Walla Walla, Walla Walla County. (Landis). IDAHO - Beginning to build up in alfalfa generally in Gooding area. (Koester). WYOMING - Averaged 350 per 100 sweeps in alfalfa in Big Horn Basin except in northern part of Big Horn County where counts ranged 2,000-3,000 per 100 sweeps. (Fullerton). UTAH - Rarely numerous in alfalfa. Predators generally numerous in alfalfa this season. (Knowlton). COLORADO - Variable throughout State. In Arkansas Valley, counts 200-400 per 100 sweeps. On Western Slope, counts high, 2,000-5,000 per 100 sweeps in Mesa County and 1,000-10,000 per 100 sweeps in Montrose County. High predator populations present in fields in Montrose County. (Bulla, Schweissing). OKLAHOMA - Light to moderate, 100-750 per 10 sweeps, in most fields checked in Tulsa, Muskogee and Sequoyah County areas, east central. Light, 35-40 per 10 sweeps, in Tillman County, southwest. (Okla. Coop. Sur.). ARKANSAS - Counts 75-100 per 100 sweeps in alfalfa in Washington County, northwest. (Ark. Ins. Sur.). KANSAS - Counts in alfalfa in central area ranged 2-5 per sweep. (Peters). SOUTH DAKOTA - Generally increased, probably due to cool, wet weather; counts ranged 200-750 per 100 sweeps throughout eastern half of State. (Hintz). IOWA - Averaged 2-5 per sweep in alfalfa and red clover. (Iowa. Ins. Inf., May 27). WISCONSIN - Populations showed 4-fold increase. Parasitism more evident and disease will probably be a greater factor. Winged forms somewhat more common. Average counts per sweep in alfalfa 60 in Adams County, 44 in Dane County, 40 in La Crosse and Green Counties, 26 in Walworth County, 19 in

Rock County and 10 in Wood County. (Wis. Ins. Sur.). OHIO - Counts 150-200 per 50 sweeps in red clover-alfalfa fields in Sandusky, Wood and Lucas Counties. Lady beetles, heavy rainfall and beginning of hay harvest reduced populations in many northwest counties. (Lyon). PENNSYLVANIA - Plentiful on alfalfa in southwestern area; many parasites and predators present there and in south central area. (Udine, Pepper, May 24). NEW JERSEY - Ranged 4-40 per sweep on alfalfa in Gloucester, Salem and Cumberland Counties. (Ins.-Dis. Newsltr., May 28). RHODE ISLAND - Easily swept from alfalfa in Kingston, Washington County, but no evidence of increase within last 2 weeks. (Mathewson).

CLOVER APHID (Anuraphis bakeri) - IDAHO - Building up in red clover south of Parma; averaged 2-plus per head. (Waters).

SPOTTED ALFALFA APHID (Therioaphis maculata) - SOUTH DAKOTA - Collected in Hand County alfalfa; 3 per 50 sweeps. Counts in Davison County 20 per 100 sweeps. (Hintz). NEBRASKA - Averaged 10 per 10 sweeps in Howard County (Calkins) and ranged 1-6 per 10 sweeps in Lancaster County (Bergman). KANSAS - None found in central area. (Peters). OKLAHOMA - Generally light on alfalfa throughout State, with counts 100-150 per 10 sweeps in Tillman and Washita Counties (southwest) and higher counts of 350-400 per 10 sweeps in Fort Smith area. Lighter counts, 25-50 per 10 sweeps, present in other east central area fields checked. (Okla. Coop. Sur.). NEVADA - Only occasional specimens found in fields near Moapa, Clark County, and south of Alamo, Lincoln County. None found at Hiko or Panaca, Lincoln County. (Bechtel).

MEADOW SPITTLEBUG (Philaenus spumarius) - NEW JERSEY - Spring survey of nymphal populations conducted April 23-30. Total of 40 fields surveyed in Sussex, Warren, Morris, Hunterdon, Somerset, Burlington and Salem Counties, compared with 29 fields in same counties in 1962. Average population higher in 1963 than in any year since 1954. Population substantially higher than in 1962; average number of nymphs per 5 dandelion plants per field was 29.0, compared with 21.7 in 1962. Considerably higher populations detected in Sussex, Warren, Morris, Hunterdon and Salem Counties; a sharp decrease found in Somerset County; and population in Burlington County about one-half that of 1962. (Ins.-Dis. Newsltr., De Blois; May 28). OHIO - Light to moderate on forage plants in Wood County. (Katterheinrich). IOWA - Ranged 1-5 per 10 stems in alfalfa and red clover from Tama County through Linn County on May 24; about one-third grown. (Iowa Ins. Inf.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increasing over State. (Ariz. Coop. Sur.). ALABAMA - Counts 20 per 200 sweeps in grass-clover pasture in Clay County. (Barwood).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Adults averaged 8-40 per 100 sweeps in Santa Fe and Rio Arriba County alfalfa. Nymphs extremely numerous in Chaves County alfalfa; adults averaged as high as 150-plus per 100 sweeps. (N. M. Coop. Rpt.). ARIZONA - Counts in alfalfa 40-100 nymphs and adults per 100 sweeps in Graham and Greenlee Counties. In Yuma County, counts 10-15 per 100 sweeps. (Ariz. Coop. Sur.). NEVADA - Medium to heavy populations of nymphs and adults present in most alfalfa in State. (Coop. Rpt.). UTAH - L. elisus and spp. numerous in alfalfa left for first seed crop. Nymphs, up to last instar, more numerous than adults in some fields. (Knowlton). COLORADO - Counts on alfalfa in Prowers, Bent, Otero, Crowley and Pueblo Counties ranged 100-200 per 100 sweeps. (Schweissing). WYOMING - Adults averaged 32 per 100 sweeps in alfalfa in Big Horn Basin. (Fullerton).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Buildup apparently extremely heavy on grains and pastures throughout State. (McQueen). ARKANSAS - Adults and nymphs present in alfalfa in northwest; 60-70 per 100 sweeps. (Ark. Ins. Sur.). PENNSYLVANIA - Fairly abundant on alfalfa in southwest. (Udine, May 24). NEW YORK - Numerous on alfalfa in Columbia County. (N. Y. Wkly. Rpt., May 24).

PLANT BUGS - PENNSYLVANIA - Undetermined species fairly abundant on alfalfa in south central area. (Pepper, May 24). NEBRASKA - Lygus lineolaris, Adelphocoris lineolatus and A. rapidus ranged 10-13 per sweep in Howard County (Calkins); nymphs and adults ranged 5-20 per sweep in southeast (Bergman). WISCONSIN - Overall increase observed in most alfalfa due in part to appearance of L. lineolaris nymphs. Wing pads present on about half of A. lineolatus and A. rapidus nymphs. (Wis. Ins. Sur.). IOWA - A. rapidus nymphs 2-3 per sweep in alfalfa and red clover. (Iowa Ins. Inf., May 27).

ALFALFA CATERPILLAR (Colias eurytheme) - NEW MEXICO - Larvae averaged 2-7 per 100 sweeps in alfalfa checked in De Baca, Santa Fe and Dona Ana Counties. (N. M. Coop. Rpt.). OKLAHOMA - This species and Plathypena scabra light, 1-3 per 10 sweeps, in alfalfa in east central and southwest areas. (Okla. Coop. Sur.).

ALFALFA LOOPER (Autographa californica) - IDAHO - Low numbers of early instars in alfalfa in Middleton area. (Bechtolt).

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Light populations appearing in alfalfa in east central area; counts 0-2 per 10 sweeps. (Okla. Coop. Sur.).

GARDEN WEBWORM (Loxostege similalis) - OKLAHOMA - Infestations common in alfalfa in eastern area; ranged 1-3 per 10 sweeps in Sequoyah County area to 6 per 10 sweeps in Muskogee area. Most larvae small and only light webbing evident at present. (Okla. Coop. Sur.).

VARIEGATED CUTWORM (Peridroma saucia) - MISSOURI - Larvae becoming full grown in southern and central areas. Some damage to alfalfa still being reported in extreme northern areas. (Munson, Thomas, Wood). KANSAS - Damaging early second-cutting alfalfa in Wyandotte County, northeast. Populations heavy enough to keep new growth cut off. Only trace counts noted in alfalfa in central area. (Peters).

A CLOVER SEED CHALCID (Bruchophagus sp., probably platyptera) - IDAHO - Adults average one per sweep in red clover near Parma. Average nearer 10 per linear foot of row in crimson clover test plots at Parma Branch Experiment Station. (Waters).

SEED-CORN MAGGOT (Hylemya platura*) - OHIO - Heavy infestations on emerging soybean plants near Oak Harbor, Ottawa County; maggots 3-4 per bean on some plants. Maggots also found on decaying alfalfa roots in same field from 1962 crop. (Ruff).

SPIDER MITES - VIRGINIA - Severely infesting red clover throughout Campbell County; killed entire top growth in most localities. (Ellis, May 24). Severely infesting red clover at Heathsville, Northumberland County. (Tarpley, Poole, May 22). Heavily infesting red clover locally in Augusta County (Fenne, Morse, May 23) and several farms in Madison County (Rowell, Owings, May 27; and Rowell, McLearn, May 24). NORTH CAROLINA - Tetranychus telarius heavily infested 3-acre soybean field near Tabor City, Columbus County. (Robertson, May 24). NEVADA - Light, spotted infestations of Tetranychus sp. on lower leaves of alfalfa near Moapa, Clark County. (Bechtel).

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEW JERSEY - Spring survival survey conducted April 8-22. Mortality of overwintering larvae higher than any year since 1954. First-generation population expected to be low. Mortality averaged 84.2 percent in the 8 counties where samples taken. Percentage of mortality caused by bird feeding 52.8 compared with 69.4 in 1962, but mortality caused by insect parasitism 29.8 compared with 16.3 in 1962. Mechanical and pathogenic causes of death slightly higher than in 1962; 15.1 compared with 14.3 (mechanical)

* Hennig, W. 1938. Arb. Phys. Angew. Ent. Berlin - Dahlem 5(3):281.

and 2.3 compared with 0.0 (fungi). (Ins.-Dis. Newsltr., De Blois; May 28). DELAWARE - Light trap catches in Sussex County remain low; 4 moths May 20-27. (Burbutis). IOWA - Pupation 94 percent and 2 percent emerged at Ankeny on May 23. (Iowa Ins. Inf.). WISCONSIN - Adults being caught in blacklight traps in southern area. (Wis. Ins. Sur.). NEBRASKA - Population averaged 1,101 per acre with pupation 73 percent in Cuming County May 23-24; Hall County population averaged 2,397 per acre, with pupation 56 percent May 20-22. (Hill, Kindler). First adult found in Lancaster County May 29. (Hill).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - MISSISSIPPI - Light on corn in Copiah, Leflore and Washington Counties; controls applied. (Ouzts).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - ALABAMA - Destroyed 10-acre field of corn in Mobile County; being replanted in soybeans. (Knight, Lockhart). Light on young peanuts in Coffee County. (Stephenson).

CORN EARWORM (*Heliothis zea*) - TEXAS - Moderate, local populations causing some damage to milo heads in Karnes County. (Tex. Coop. Rpt.; Smith). OKLAHOMA - Infestations common in all alfalfa checked, with counts ranging 1-3 per 10 sweeps throughout Sequoyah, Muskogee and Tulsa County area. Light to heavy infestations observed in corn, with highest counts in Ft. Gibson area of Muskogee County (48 larvae per 100 stalks in early bloom stage). Lighter counts, 12 per 100 stalks, noted in Bixby area. (Okla. Coop. Sur.). MISSISSIPPI - Light to medium on corn in Copiah County; controls applied. (Ouzts). ALABAMA - Causing extensive damage locally to corn in Mobile and Lee Counties. (Knight, Lockhart, McQueen). Few larvae of this species and/or *H. virescens* in grass-clover pasture in Monroe County. (Lemons). GEORGIA - Heavy in whorls of corn in middle and southern areas. (Johnson). DELAWARE - First adult of season collected in blacklight trap in Sussex County on May 22. (Burbutis).

ARMYWORM (*Pseudaletia unipuncta*) - MARYLAND - Larvae, about half grown, in barley fields in Caroline and Queen Annes Counties. (U. Md., Ent. Dept.). MISSOURI - Light to moderate infestations observed in down spots in wheat in northeast; larvae 1-6 per square yard in infested fields. (Munson, Thomas, Wood). WISCONSIN - Second and third stage-larvae found in western Dane County. (Wis. Ins. Sur.).

FALL ARMYWORM (*Laphygma frugiperda*) - ARKANSAS - Fourth-stage larvae found in whorls of corn in Lincoln County, southeast. (Ark. Ins. Sur.).

WHEAT HEAD ARMYWORM (*Faronta diffusa*) - NEW MEXICO - Occasional larva collected in Quay and Curry County wheat fields. (N. M. Coop. Rpt.).

BLACK CUTWORM (*Agrotis ipsilon*) - MARYLAND - Larvae, one-half to three-quarters grown, causing moderate to heavy injury to young field corn in Kent and Queen Annes Counties. Considerable replanting will be necessary. (U. Md., Ent. Dept.).

CLAY-BACKED CUTWORM (*Agrotis gladiaria*) - PENNSYLVANIA - Attacking corn in Juniata County; severe in fields of plowed sod. (Udine, May 24).

CUTWORMS (unidentified) - PENNSYLVANIA - Caused some damage to 15-acre field of corn in Cumberland County. (Pepper, May 21). OHIO - Completely destroyed 29-acre field of corn in Pickaway County; approximately 10 percent of corn stand left. Locally damaging to corn, in association with wireworms, seed-corn maggot and sod webworms in Mercer County. Replanting necessary in both counties. (Hamrick, Debrose, Blair). MISSOURI - Reducing stands in a few bottom land fields of corn in northeast. Stand reduced approximately 25 percent in one field. (Munson, Thomas, Wood).

WIREWORMS - IDAHO - Reports increasing concerning damage to crops in southwestern area. Severely infesting and causing damage to cornfield in Nampa area. (Scott, Bechtolt). WISCONSIN - Infestations in grain fields worst in many years in Wood County. Large numbers also reported from Dodge County. (Wis. Ins. Sur.). OHIO - Destroyed 50 percent of an 18-acre cornfield in

Pickaway County. (Hamrick, Debrose, Blair). GEORGIA - Reduced stands of corn by 10 percent in several fields in Pierce and Ware Counties. (Park, Boland, Johnson). NORTH CAROLINA - *Conoderus vespertinus* reduced stand of corn 10 percent in 2-acre field in Northampton County; found in some kernels which had been injured sufficiently to prevent germination; others found attacking kernels of plants already few inches high but causing no damage to plant. Larvae unusually abundant in this field. *C. vespertinus* abundant in 2 peanut fields in Hertford County; apparently not causing economic damage at present. Also reduced stand of peanuts about 10 percent in Northampton County. (Mount, May 24).

SUGARCANE BEETLE (*Euethoea rugiceps*) - NORTH CAROLINA - Damaged about one third of stand of 40-acre field of corn in Orange County; field replanted. First observed on May 18. Field had been in orchardgrass for past 7 or 8 years. (Mount).

BILLBUGS - PENNSYLVANIA - Unidentified species caused some damage to corn in Cumberland County. (Pepper, May 21). MISSOURI - *Sphenophorus* sp., probably *maidis*, adults moderate in small creek bottom field of corn in central area. Very little leaf feeding evident. Most adults mating when collected. (Munson, Thomas, Wood).

A CORN ROOTWORM (*Diabrotica* sp., probably *virgifera*) - NEBRASKA - Larvae found for first time this season in soil samples. (Lawson).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - MARYLAND - Light to moderate on field and sweet corn in Queen Annes County. (U. Md., Ent. Dept.). NEW YORK - Populations expected to be low all season. (N. Y. Wkly. Rpt., May 27).

GREENBUG (*Schizaphis graminum*) - OHIO - Several fields of wheat infested near Greenville, Darke County; infestation 100 percent in one field, but little economic damage found. (Flake). SOUTH DAKOTA - Averaged 5 per 10 sweeps in small grain in central and east central areas of State. (Novotny, Hintz). WISCONSIN - Increasing, counts per 100 sweeps in oats by counties as follows: Dane - 38, La Crosse - 15, Green - 10, Adams - 5, Trempealeau - 4.5, Buffalo - 4, Walworth - 3, Wood - 1, Monroe - 1. (Wis. Ins. Sur.).

ENGLISH GRAIN APHID (*Macrosiphum avenae*) - NEVADA - Light, spotted infestations on rye in Panaca, Lincoln County. (Bechtel). WISCONSIN - Increasing, counts per 100 sweeps in oats by county as follows: Dane - 59, Rock - 23, Walworth - 19, Green - 11, Monroe - 3.5, Trempealeau - 4.5, Adams - 3, La Crosse - 2.5, Buffalo - 2, Wood - 2. (Wis. Ins. Sur.).

CORN LEAF APHID (*Rhopalosiphum maidis*) - TEXAS - Light to moderate infestations appearing on grain sorghum in Denton County. (Turney). OKLAHOMA - Light to moderate in terminals of corn plants checked in east central area. (Okla. Coop. Sur.).

FALSE CHINCH BUG (*Nysius ericae*) - COLORADO - Feeding on dryland barley in San Miguel County. (Hantsbarger).

CHINCH BUGS - MISSISSIPPI - Heavy on acre of rice in delta area and heavy on corn in Forrest County; controls applied. (Ouzts). NEW JERSEY - Activity increasing throughout State. (Ins.-Dis. Newsltr., May 28).

HESSIAN FLY (*Phytophaga destructor*) - KANSAS - Stem breakage beginning in Montgomery and Labette Counties, southeast. Infestation ranged 0-25 percent, mostly zero. (Somsen). Infestation in central area ranged 0-20 percent; most fields zero. (Peters).

THRIPS (undetermined) - NEW YORK - Present on early corn in Nassau County. (N. Y. Wkly. Rpt., May 27). MARYLAND - Causing conspicuous streaking of field corn in Anne Arundel and Queen Annes Counties. (U. Md., Ent. Dept.). GEORGIA - Light to heavy on peanuts in southern area. (Johnson). TEXAS - Occurring on 4 to 6-inch

grain sorghum in Denton County; causing considerable concern to farmers. (Turney). ARIZONA - Populations at peak in Bermuda grass seed fields; some fields being treated. (Ariz. Coop. Sur.). NEVADA - Heavy populations in alfalfa in Alamo, Hiko and Panaca areas, Lincoln County, and near Moapa, Clark County. (Bechtel).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Caused very serious damage to 60-acre field of corn near Grand Bay, Mobile County; field replanted. Stand about 50 percent at present. Nature of damage: Ants eat out germinating seed and gouge out stalk at soil surface when plants 2-4 inches high. Feeding observed on stalks. (Knight, Seibels).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - COLORADO - Causing considerable yellowing of seedling corn in Larimer County. (Jenkins).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Causing concern on some dryfarm wheat lands, very light in others, in large area near Monticello, San Juan County. Threat of damage most serious in Dodge Point area. (Knowlton). NEVADA - Medium, spotted infestations in drier areas of several alfalfa fields in Panaca, Lincoln County. Heavy populations and damage to rye cover crop and seedling alfalfa in same area. (Bechtel).

A BLACK GRASS BUG (Irbisia brachycerus) - COLORADO - Population causing damage to wheat and crested wheatgrass in Dolores and La Plata Counties. (Alexander, Lorenz and Hantsbarger). UTAH - Seriously discoloring planted grasses and moderately damaging wheat in areas south and southeast of Monticello, San Juan County. Lighter in northeast. A green undetermined mirid, largely nymphs, also damaging in many fields. (Knowlton).

A GRASS BUG (Thyrillus pacificus) - WASHINGTON - Damaging margins of wheat fields near Wenatchee, Chelan County. (Burts). CALIFORNIA - Nymphs and adults heavy on intermediate wheatgrass in Adin area, Modoc County; some 500 acres being severely damaged. (Cal. Coop. Rpt.).

ASIATIC GARDEN BEETLE (Maladera castanea) - NORTH CAROLINA - Larvae found in bluegrass pasture in Jackson County. Det. by D. A. Mount. (Mount).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - Larvae found in bluegrass pasture in Jackson County. (Mount). Larvae reported numerous in Pelham Community, Caswell County, on May 23. (Mulder).

A MARCH FLY (Philia orbata) - CALIFORNIA - Adults heavy in few lawns in Riverside, Riverside County. (Cal. Coop. Rpt.).

BRONZED CUTWORM (Nephelodes emmedonia) - NEBRASKA - Causing minor damage to lawns in Lincoln, Lancaster County. (Bergman). IOWA - Damaged 40 acres of a 160-acre pasture in Crawford County. (Iowa Ins. Inf., May 27).

SOD WEBWORMS - ILLINOIS - Moths becoming abundant in lawns in central area. (Ill. Ins. Rpt.).

WESTERN HARVESTER ANT (Pogonomyrmex occidentalis) - UTAH - Nests active and numerous throughout much of State on range, farms and about homes. (Knowlton).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - VERMONT - Pupating, but no emergence noted. (MacCollom, May 27). MASSACHUSETTS - Early ovipositing began first of June. (Wheeler). NEW YORK - First flight occurred May 19 in eastern area; cool temperature prevented much activity since. First entries into fruit expected about June 5. (N. Y. Wkly. Rpt.). INDIANA - Peak activity occurred May 6-10 in Vincennes area, Knox County. (Hamilton, May 28). MISSOURI - Some fresh entries

still found in southeastern area on untreated trees although adult activity at standstill. First new entries in west central area noted May 29; adults active in packing sheds 7-10 days earlier. (Wkly. Rpt. Fr. Grs., May 29). WISCONSIN - Two adults caught at Gays Mills on night of May 27, and 3 at Madison night of May 26. (Wis. Ins. Sur.). IDAHO - First adults of season noted in Moscow area, Latah County, May 29. (Portman). COLORADO - Control by first-cover treatment completed in Delta and Montrose Counties. Second cover completed in Mesa County. (Bulla).

FRUIT-TREE LEAF ROLLER (*Archips argyrospilus*) - CONNECTICUT - Abundance unusually high this year. (Savos). NEW YORK - Numerous in some orchards in Columbia County. (N. Y. Wkly. Rpt., May 27). NEW JERSEY - Causing severe damage in untreated orchard in Bergen County May 23. Controlled in commercial orchards. (Ins.-Dis. Newsltr., May 28). WISCONSIN - Larvae feeding on apple foliage in Door County. (Wis. Ins. Sur.). MISSOURI - Adults numerous in central area; just pupating in northwestern area. (Wkly. Rpt. Fr. Grs., May 29). IDAHO - Untreated plum trees 100 percent infested in orchard at Moscow; predominantly first to third instars. (Helms, Porter).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - VERMONT - None observed or reported. (MacCollom, May 27). NEW YORK - Few in Columbia County; feeding generally very light in Orleans County; and egg masses very difficult to find in Monroe County, but hatching progressed to about 30 percent in ridge zone. (N. Y. Wkly. Rpt., May 27). PENNSYLVANIA - Light infestation; eggs present on sour cherry in Erie County. (Adams, May 23). MISSOURI - Next brood expected in central area about first week of June. (Wkly. Rpt. Fr. Grs., May 29).

GREEN FRUITWORM (*Lithophane antennata*) - CONNECTICUT - Abundance unusually high this year. (Savos). NEW YORK - Caused some damage to apple foliage in Nassau County week ending May 20. (N. Y. Wkly. Rpt.). NEW JERSEY - Plentiful in Bergen County on May 23. (Ins.-Dis. Newsltr.). MARYLAND - Larvae caused moderate damage to apples in orchard at Hancock, Washington County. (U. Md., Ent. Dept.).

TENT CATERPILLARS - VERMONT - Problem on young trees in some areas. (MacCollom, May 27). NEW JERSEY - Some heavy migrations occurred on blueberries; defoliation severe in areas near wild cherry hedgerows; controls effective. (Ins.-Dis. Newsltr., May 28). CONNECTICUT - *Malacosoma americanum* now migrating and troublesome. (Savos). OHIO - Webs filled with larvae of *M. americanum* frequently observed in Hancock and Wood Counties in abandoned apple trees. Late instars noted in Wayne County on apple trees. (Lyon). IDAHO - Ten percent of trees infested by *M. disstria* in untreated plum orchard in Moscow; larvae third instar. Also abundant on apple trees in Sandpoint area. (McPherson).

EYE-SPOTTED BUD MOTH (*Spilonota ocellana*) - WISCONSIN - Larvae forming nests in terminal leaves and fruiting clusters of apples in Door County. (Wis. Ins. Sur.).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - ALABAMA - Very active in peach twigs in Lee County. (McQueen). MARYLAND - Larvae killing shoots of young peach trees in Charles County. (U. Md., Ent. Dept., May 24). DELAWARE - Nearly full-grown larvae in untreated twigs and fruit of peach in Kent County. (MacCreary). MASSACHUSETTS - Early ovipositing began first of June. (Crop Pest Cont. Mess.). INDIANA - No overwintering adults collected at bait traps in Knox County since May 8. (Hamilton). MISSOURI - Apparently between broods in southeastern area; larvae present in peach terminals in west central area. (Wkly. Rpt. Fr. Grs., May 29).

PEACH TREE BORER (*Sanninoidea exitiosa*) - NEW YORK - Killing many more peach trees in Levittown area, Nassau County. (N. Y. Wkly. Rpt., May 27). ALABAMA - Damaging some peach trees previously injured by winter cold in Chilton County. (Helms).

SPRING CANKERWORM (Paleacrita vernata) - OHIO - Moderate to heavy in untreated apple orchard in Wayne County; 8 of 12 trees 25 percent defoliated, with 1-2 larvae per leaf in many situations. (Forsythe, Cutright, Lyon).

GYPSY MOTH (Porthetria dispar) - VERMONT - Problem on some young trees. (MacCollom, May 27).

LINDEN LOOPER (Erannia tiliaria) - CONNECTICUT - This species and unspecified cankerworms nearly full grown in central area; larval damage expected to increase sharply. (Savos).

PERIODICAL CICADAS - INDIANA - Daily emergence increased near Vincennes and Freelandville, Knox County, since night of May 24. No egg laying noted yet; expected May 29-31. First controls recommended by May 29. (Hamilton). MISSOURI - Active but apparently not ovipositing yet in southeastern area. (Wkly. Rpt. Fr. Grs., May 29).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - This species and other Lygus spp. building up to extremely high numbers on fruit and nut trees throughout State. (McQueen).

APPLE LEAFHOPPER (Empoasca maligna) - NEW YORK - Nymphs moderate to heavy in untreated orchard in Clinton County. (N. Y. Wkly. Rpt., May 27).

PEAR PSYLLA (Psylla pyricola) - OREGON - First-generation adults observed in Willamette Valley. (Stephenson).

APPLE APHID (Aphis pomi) - CONNECTICUT - Slowly increasing on tender terminals. (Savos). MISSOURI - Building up somewhat on apple trees near Kansas City. (Wkly. Rpt. Fr. Grs., May 29).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - COLORADO - Counts high on apple trees in Montrose County; 20-30 per leaf where no controls used. (Bulla).

BLACK CHERRY APHID (Myzus cerasi) - OHIO - Light on sweet cherry near Jefferson, Wayne County. Ranged 40-50 per leaf, with few leaves infested. (Forsythe, Cutright, Lyon). COLORADO - High numbers present on cherry trees in Larimer County. (Hantsbarger). UTAH - Curling leaves of some home orchard sweet cherries at Logan, Providence and Brigham City in northern area. (Knowlton). OREGON - Rapid buildup occurring on terminal growth throughout periphery of sweet cherries in Willamette Valley. (Stephenson).

SAN JOSE SCALE (Aspidiotus perniciosus) - TEXAS - Severe on peach and apple trees in Clay County; causing death of some trees. (Turney).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - PENNSYLVANIA - Medium to heavy on apple trees in Pike County; crawlers noted. (Simons).

A CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - OREGON - Emerged in Willamette Valley on May 31. (Rasmussen).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - CONNECTICUT - Eggs hatched; larval feeding becoming noticeable. Activity about 10 days late. (Savos).

PLUM CURCULIO (Conotrachelus nenuphar) - CONNECTICUT - Very active around Glastonbury, Naantic, Woodstock and New Haven. Activity unusual in some spots in that no activity observed on untreated trees where pest normally heavy other years; appearance much later than usual also. (Savos). RHODE ISLAND - Difficult to find in untreated apple in Washington County. (Mathewson). NEW YORK - Cutting, both feeding and oviposition, noted on sweet cherries at Lagrangeville, Dutchess County, May 15. May 15-17 favorable for activity in western area; adults moved to host trees. Few eggs deposited on sweet cherries on May 17.

Since then, wind and low temperature unfavorable, with virtually no increase in oviposition to May 27. Much activity predicted week of May 27-June 1. Damage appearing on cherry and plums in Nassau County. (N. Y. Wkly. Rpt., May 27). MARYLAND - Caused heavy injury to apple and peach locally in Prince Georges County. (U. Md., Ent. Dept.). ALABAMA - Caused moderate damage to untreated plums and peaches in Chilton County. (Helms). WISCONSIN - Adults feeding on apple foliage in Door County. (Wis. Ins. Sur.).

EUROPEAN RED MITE (Panonychus ulmi) - CONNECTICUT - Heavy in some areas. (Savos). NEW YORK - Few young forms noted in Niagara County. Few hatched in Orleans County; cold weather retarding development. Readily found in some orchards in Wayne County where control coverage poor. (N. Y. Wkly. Rpt., May 27). NEW JERSEY - Summer eggs hatching in southern counties; mixed populations of various stages predicted in untreated orchards. (Ins.-Dis. Newsltr., May 28). IDAHO - Eggs and young average slightly over one per leaf in mature prune orchard at Parma Branch Experiment Station. (Waters).

PEAR BLISTER MITE (Eriophyes pyri) - IDAHO - Scattered infestations on pear and apple trees in numerous areas of State. (Smith, Gittins).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - IDAHO - Scattered infestations on pear and apple trees in numerous areas of State. (Smith, Gittins).

PECAN CASEBEARERS (Acrobasis spp.) - NORTH CAROLINA - A. juglandis infested pecan twigs at homes in Sampson and Wayne Counties. (Mount). GEORGIA - A. caryae light on pecans in southern area. (Johnson). OKLAHOMA - A. caryae light to heavy in southern counties. (Okla. Coop. Sur.).

PECAN CARPENTERWORM (Cossula magnifica) - ALABAMA - Causing some damage and considerable concern among widely scattered pecan growers in Mobile County. (McQueen).

A LEAF ROLLER (Archips rosana) - OREGON - Damage to filberts in Willamette Valley prevalent. (Stephenson).

FALL WEBWORM (Hyphantria cunea) - GEORGIA - Light to moderate on pecan trees throughout State. (Johnson). ALABAMA - Rapidly increased in Mobile County; some pecan trees completely defoliated and other trees such as persimmon, pear, plum and wild gall-berry bushes under attack. (McQueen). OREGON - First adults of season observed on May 29. (Goeden).

PECAN PHYLLOXERA (Phylloxera devastatrix) - ALABAMA - Very heavy on 10 percent of trees; all trees attacked in Mobile County orchard. (Battiste, Seibels).

BLACK-MARGINED APHID (Monellia costalis) - ARIZONA - Heavy on pecans in Graham County. (Ariz. Coop. Sur.).

A FILBERT APHID (Myzocallis coryli) - OREGON - Populations in Willamette Valley filbert orchards quite low; considerably fewer than at same time in 1962. (Stephenson).

LEAF MINERS - ALABAMA - Unidentified and unusual species located on pecans in Mobile County. (Robinson, Seibels).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Few, scattered occurrences of adults in Santa Ana, Orange County; this may indicate an earlier emergence this season. (Cal. Coop. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - MEXICO - In the States of Chiapas, Sinaloa, Sonora, Baja California, Yucatan, Campeche, Hidalgo, Veracruz,

Tamaulipas, Tabasco, Guerrero, Mexico, Puebla, Jalisco and Colima, District Federal and the Territory of Quintana Roo, 6,813 trap inspections were made of 3,426 traps during April with negative results. In March, 1,148 traps were inspected 2,296 times with negative results in the States of Yucatan, Hidalgo, Veracruz, Tabasco, Guerrero, Campeche and Tamaulipas and the Territory of Quintana Roo. (PPC, Mex. Reg.).

A SCARAB (Hoplia oregona) - CALIFORNIA - Adults heavy on orange tree blossoms in Oroville, Butte County; this species normally infests rose blooms more than other hosts. (Cal. Coop. Rpt.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - First inspection in Kerman, Fresno County, completed May 15. Total of 1,751 yard hosts inspected and although no sign of live infestation found, insecticide applied to all previously infested properties outside Kerman city limits as precautionary measure. Redusting of 190 properties at Livermore, Alameda County, necessary; rains removed previously applied treatments. No infestations reported currently. Unwanted grapevines removed by Alameda County personnel whenever possible. (Cal. Coop. Rpt.).

CHERRY FRUITWORM (Grapholitha packardii) and CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Entries noted on blueberries; flight and egg laying nearing peak activity and should remain so until June 10. Immediate controls recommended. (Ins.-Dis. Newsltr. May 28).

A BLUEBERRY TIP BORER (Hendecaneura shawiana) - OHIO - Emerging in Wayne County. (Still).

BLUEBERRY BUD MITE (Aceria vaccinii) - NORTH CAROLINA - Damage evident on blueberry twigs at Bladen County. (Neunzig).

TRUCK CROP INSECTS

FLEA BEETLES - MASSACHUSETTS - High temperatures increased activity. (Wheeler). VERMONT - Observed on tomatoes in Burlington area. (MacCollom). NEW YORK - Caused some riddling of unprotected tomato and cabbage plants in Suffolk County; present on potatoes in Suffolk County; troublesome in upland plant beds of tomato and cabbage plants in Orange County; many beds of cabbage and brussels sprouts showing injury in Orleans County. (N.Y. Wkly. Rpt., May 27). NEVADA - Adults caused light to moderate damage to several hundred acres of seedling sugar beets in Haulapi Valley, Washoe County, before fields treated. Heavy adult infestations continue on mustard and Chenopodium sp. in same area. (Gardella, Lauderdale).

WIREWORMS - IDAHO - Unidentified species causing increasing concern to growers in southwestern area. Apparently soil insecticides applied some years ago no longer effecting desired controls. Injury reduced sugar beet stand in Parma area with stand reduction up to 40 percent in 2-acre portion of field. (Scott, Bechtolt).

CUTWORMS - ALABAMA - Damaged 40-acre field of potatoes in Mobile County about 25 percent; feeding on mature potatoes prior to harvest. (Bolton, Seibels). MISSOURI - Tomato growers report considerable trouble in southeastern area. (Wkly. Rpt. Fr. Grs., May 29). NEW YORK - Caused damage to some lettuce in the Oswego-Onondaga-Cayuga County area. (N.Y. Wkly. Rpt., May 27).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - This and other Lygus spp. extremely heavy on potatoes, turnips and lettuce; ranged up to 50 per 10 sweeps. High buildup apparently occurring throughout State on vegetables. (McQueen).

BEEF LEAFHOPPER (*Circulifer tenellus*) - CALIFORNIA - Checks at overwintering sites indicate adults beginning to move onto summer hosts in San Joaquin Valley. Populations generally spotty. Numbered 3-5 per square foot in beet fields in vicinity of Shandon, San Luis Obispo County. Beets in 6 to 8-leaf stage and damage could occur from this population. Ranged 7-44 per 100 sweeps in Kern County on winter host plants still remaining green. Beet fields in Tehachapi Valley showed less than 5 percent curly top. (Cal. Coop. Rpt.). UTAH - Ranged 4-7 per 50 sweeps on *Cleome lutea* 10 miles south of Moab in San Juan County. (Knowlton). WYOMING - Survey in Washakie County indicated that control program on host weeds appeared effective; only 3 overwintering forms and 3 migrating forms found. (Fullerton). COLORADO - Counts average 1 per square foot in Mesa County; 0.3-1.2 per square foot in Montrose County. (Bulla).

SPINACH LEAF MINER (*Pegomya hyoscyami*) - MASSACHUSETTS - Eggs and mines very numerous on spinach and beets. (Wheeler). NEW YORK - Caused much injury to home garden spinach and beets in Nassau County. (N.Y. Wkly. Rpt., May 27). UTAH - Causing some damage to leaves of sugar beet, spinach and table beets in Davis and Salt Lake Counties. (Knowlton)

A MUSCID FLY (*Pegomya* sp.) - WYOMING - Beginning to appear in numbers on sugar beet leaves in Washakie and Big Horn Counties. (Fullerton).

WESTERN BLACK FLEA BEETLE (*Phyllotreta pusilla*) - IDAHO - Damaging many acres of sugar beets in western Bonneville County. These beets just emerged and primary leaves severely injured. (Kohl, Portman).

BEEF WEBWORM (*Loxostege sticticalis*) - COLORADO - Adults collected by light traps in Arkansas Valley and observed in Larimer County. No eggs or larvae observed on beets to date. (Schweissing, Thatcher).

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - MASSACHUSETTS - Adults moved into edges of fields in large numbers and causing severe damage to emerging plants; controls recommended. (Crop Pest Cont. Mess.). RHODE ISLAND - Adults feeding, pairing and ovipositing on potato in rosette stage in Washington County; appearance lighter than in 1962. (Mathewson, Sheehan, Kerr). NEW YORK - Some egg masses noted on potatoes in Suffolk County; adults present but not heavy. (N.Y. Wkly. Rpt., May 27). MARYLAND - Egg masses light on tomatoes at Snow Hill, Worcester County. (U. Md., Ent. Dept.). NORTH CAROLINA - Caused severe damage to untreated garden plantings in Columbus County. (Read). MISSISSIPPI - Medium on potatoes in Prentiss County; controls applied. (Ouzts). IDAHO - Adults observed and egg laying commenced on young potato plants in some fields throughout Canyon County. (Thornton).

POTATO FLEA BEETLE (*Epitrix cucumeris*) - ALABAMA - Numerous on potatoes in Mobile County. (Seibels, May 24). NORTH DAKOTA - Adults feeding extensively on potatoes and radishes in Gardner area. (N. D. Ins. Sur.). RHODE ISLAND - Adults appearing on potatoes in Kingston area, Washington County. (Sheehan).

TOMATO FRUITWORM (*Heliothis zea*) - MISSISSIPPI - Heavy on tomatoes in Pearl River County; controls applied. (Ouzts). ARKANSAS - Early season surveys and laboratory rearing in tomato-growing area of Bradley County show the following: First eggs - April 9; pupae - May 14; adults - May 28. Adults now numerous in silking sweet corn planted as trap crop to protect tomatoes. (Boyer). MISSOURI - Limited attack on strawberries in Cape Girardeau area, Cape Girardeau County. (Wkly. Rpt. Fr. Grs., May 29).

STALK BORER (*Papaipema nebris*) - KANSAS - Damaged large planting of tomatoes in Chase County. (Gates).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Increasing on *Lycium* sp., with 40-100 per 100 sweeps in Otero and Weld Counties. Eggs being found on *Lycium* sp. in Otero County. Range 0-4 adults per 100 sweeps on potatoes in Otero and Weld Counties. (Schweissing, Jenkins). Not found on tomatoes in Bent, Otero and Pueblo Counties. (Schweissing).

POTATO APHID (*Macrosiphum euphorbiae*) - MARYLAND - Light on garden potatoes and tomatoes in Calvert, Prince Georges and St. Marys Counties. (U. Md., Ent. Dept., May 24). Light to moderate on tomatoes and potatoes in Anne Arundel and Worcester Counties. (U. Md., Ent. Dept.). DELAWARE - Present but generally scarce on potatoes in New Castle County; present to fairly common on tomatoes in New Castle and Kent Counties. (Burbutis, May 24).

CABBAGE LOOPER (*Trichoplusia ni*) - ALABAMA - Feeding on crucifers in Lee County. (McQueen). OKLAHOMA - Feeding on vegetables in several areas of State; counts 32 per cabbage plant in Bixby area. (Okla. Coop. Sur.). MISSISSIPPI - Heavy on cabbage in Copiah County; controls applied. (Ouzts).

DIAMONDBACK MOTH (*Plutella maculipennis*) - ALABAMA - Most serious pest to cabbage in Mobile County presently. (Seibels, Bolton).

CABBAGE MAGGOT (*Hylemya brassicae*) - PENNSYLVANIA - Heavier than usual on cabbage in Erie area, Erie County; adults and larvae noted. (Adams, May 23). RHODE ISLAND - Infested radishes locally in Kent County. (Cartier).

CABBAGE APHID (*Brevicoryne brassicae*) - PENNSYLVANIA - Five percent of cabbage infested in Erie area, Erie County. (Adams, May 23). NORTH CAROLINA - Very abundant locally on cabbage in Wake County. (Robertson).

PEA APHID (*Acyrtosiphon pisum*) - WISCONSIN - Populations show 4-fold increase since previous week. Parasitism more evident and disease will probably be a greater factor. Winged forms somewhat more common and colonies present in some fields of peas. (Wis. Ins. Sur.).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - NORTH CAROLINA - Caused severe damage to garden beans in Columbus County. (Read). ALABAMA - Medium on beans in Mobile County; larvae and egg clusters noted. (Seibels, Bolton).

SQUASH VINE BORER (*Melittia cucurbitae*) - TEXAS - Heavy and damaging squash plants in Jefferson County. (Crocker).

STRAWBERRY SPIDER MITE (*Tetranychus atlanticus*) - ARIZONA - Rather heavy in some melon fields in Yuma area. (Ariz. Coop. Sur.).

ONION MAGGOT (*Hylemya antiqua*) - NEW YORK - Some controls applied in Orange County to onions. (N. Y. Wkly. Rpt., May 27). COLORADO - This and other *Hylemya* spp. present on and in onions in Adams County in egg, larval and adult forms. Losses this season less than in previous years. Under favorable conditions, populations could increase and cause considerable loss. (Jenkins, Simpson).

ONION THRIPS (*Thrips tabaci*) - NEVADA - Heavy on onions in home gardens in areas of Washoe County. (Lauderdale). COLORADO - Ranged 10-15 per plant in fields not treated recently in Arkansas Valley. (Schweissing).

SPOTTED ASPARAGUS BEETLE (*Crioceris duodecimpunctata*) - NEBRASKA - Common on asparagus in North Platte River Valley. (Hagen, May 24).

ASPARAGUS BEETLE (*Crioceris asparagi*) - VERMONT - Prevalent. (MacCollom, May 27). MASSACHUSETTS - Active and laying eggs; high temperatures increased activity. (Wheeler).

RHUBARB CURCULIO (*Lixus concavus*) - PENNSYLVANIA - Egg punctures fairly abundant on rhubarb in Cumberland County. (Pepper, May 21).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - CALIFORNIA - Medium on rhubarb plantings in Pico, Rivera and Hollydale areas, Los Angeles County. Infestations spotty but damage severe in 0.125 to 0.25-acre patches in rhubarb fields. (A. S. Deal).

RASPBERRY CANE BORER (Oberea bimaculata) - IDAHO - Heavy in raspberry planting in Nampa; considerable damage occurring. (Bechtolt).

OMNIVOROUS LEAF TIER (Cnephasia longana) - OREGON - Infestation becoming much more prevalent in Willamette Valley strawberries. (Stephenson).

STRAWBERRY SAWFLIES - MINNESOTA - Unspecified species caused damage in Minneapolis-St. Paul area. (Minn. Ins. Rpt.). IOWA - Larvae of unspecified species damaging second year and older strawberry beds in Story, Linn, Cedar and probably other counties. Severe damage reported in Marshall County in spring. (Iowa Ins. Inf., May 27). INDIANA - Empria ignota present in Hancock County May 20. (Allen).

TOBACCO INSECTS

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Light to moderate on tobacco in southern area. (Johnson).

CUTWORMS - MARYLAND - Undetermined species caused moderate damage to tobacco plants in bed at Davidsonville, Anne Arundel County. (U. Md., Ent. Dept.).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to moderate on tobacco in southern area. (Johnson).

TOBACCO WIREWORM (Conoderus vespertinus) - NORTH CAROLINA - Injured 50-70 percent of tobacco plants in 3 fields in Northampton and Hertford Counties. (Mount).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Averaged 3 per plant on newly set tobacco at Parole, Anne Arundel County. (U. Md., Ent. Dept.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - MARYLAND - Larvae caused moderate damage to tobacco plants in bed at Davidsonville, Anne Arundel County. (U. Md., Ent. Dept.).

GARDEN SPRINGTAIL (Bourletiella hortensis) - MARYLAND - Caused light to moderate damage to tobacco in beds in Anne Arundel County on May 23, and Calvert County May 28. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Only two reports of activity received; one from Sampson County and one from Halifax County. Several adults found feeding on buds of young cotton plants. (Cott. News Ltr., May 27). SOUTH CAROLINA - Appearing on time in Coastal Plain counties. Few reported feeding on buds of cotton in scattered Piedmont counties. (Cott. Ltr., May 29). GEORGIA - Square counts made in 10 fields in south central and southwestern areas. Punctured squares ranged 2-9 and averaged 5 percent. (Johnson). ALABAMA - None reported. (McQueen). LOUISIANA - Emergence from hibernation continues light in Tallulah area. (Smith et al.). TEXAS - During survey of May 20-29, overwintered weevils found on young cotton in Haskell, Jones, Stonewall, Fisher and Dickens Counties. (Newton).

A SCARABAEID (Euphoria kerni) - TEXAS - Moderate populations causing some damage to cotton in Fayette County; controls unsatisfactory. (Bippert).

TOBACCO WIREWORM (Conoderus vespertinus) - NORTH CAROLINA - Larvae abundant in field of emerging cotton in Northampton County; some injury to small stems observed, but most of plants not affected. (Mount).

FLEA BEETLES - TENNESSEE - Causing some damage to slow-growing cotton in southern part of western area. (Locke). SOUTH CAROLINA - Abundant in many Piedmont fields. (Cott. Ltr., May 29).

BOLLWORM (*Heliothis zea*) - TEXAS - Populations increasing in lower Rio Grande Valley and central area; as many as 3-4 eggs per terminal common in Brazos Valley areas of Robertson and Brazos Counties. (Tex. Coop. Rpt.).

TOBACCO BUDWORM (*Heliothis virescens*) - TEXAS - Present in lower Rio Grande Valley in rather low numbers. (Tex. Coop. Rpt.).

BOLLWORMS (*Heliothis* spp., et al.) - GEORGIA - Eggs ranged 1-14 and averaged 7 per 100 terminals; larvae ranged 1-4 and averaged 2 per 100 terminals. (Johnson). ALABAMA - Feeding on young cotton in Dallas County. (Wiseman).

PINK BOLLWORM (*Pectinophora gossypiella*) - TEXAS - Beginning to appear in number of counties in coastal bend and upper coastal areas; up to 1,450 larvae per acre present in some fields in Matagorda County. (Vestal). ARIZONA - Total of 36 moths emerged from cages in Graham County where bolls placed 6 inches in soil, and 45 moths from 2-inch cover. (Ariz. Coop. Sur.).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Counts increasing in most parts of State; 10-15 per 100 sweeps in some fields of both planted and stub cotton. (Ariz. Coop. Sur.).

COTTON FLEAHOPPER (*Psallus seriatus*) - ALABAMA - Unusually numerous on cotton in Autauga, Macon, Colbert, Lawrence and Limestone Counties. (Canerday). TEXAS - One of the major problems in central area at present. (Tex. Coop. Rpt.). ARIZONA - Appearing in Graham County. (Ariz. Coop. Sur.).

BLACK FLEAHOPPERS - ARIZONA - Counts in Maricopa County cotton 50-70 per 100 sweeps; also present in Yuma, Mohave and Pinal Counties. (Ariz. Coop. Sur.).

APHIDS - SOUTH CAROLINA - Major problem along with thrips. Both found causing much damage to seedling cotton in unprotected fields. (Cott. Ltr., May 29). TENNESSEE - Present in most fields in western area, but generally light. Predators holding populations in check. (Locke).

THRIPS - ARIZONA - Continue to injure plants in some fields in all parts of State. (Ariz. Coop. Sur.). TEXAS - Causing damage to justify treatment in several central counties and in some fields in northwest. (Tex. Coop. Rpt.). OKLAHOMA - *Frankliniella* spp. counts moderate, 5-8 per plant, in Kiowa County (southwest) and in Braggs area of Muskogee County. Only light counts observed in other areas of Muskogee and Sequoyah Counties, 2-4 per plant. (Okla. Coop. Sur.). LOUISIANA - Continues to damage late-planted cotton in Tallulah area; controls discontinued in most older fields. (Smith et al.). TENNESSEE - Infestations generally light in western area, but some isolated infestations need control where flea beetles also a problem. (Locke). MISSISSIPPI - Light to heavy on cotton in Choctaw, Copiah and Prentiss Counties, and in delta area; controls applied. (Ouzts). ALABAMA - Medium to heavy on most young cotton in 2 to 4-leaf stage, especially replanted cotton, in central and northern areas. (Canerday). GEORGIA - Moderate to heavy infestations on cotton in northwest and northeast areas. Moderate to heavy on smaller cotton in southern area. (Johnson). SOUTH CAROLINA - Major problems along with aphids. Both found causing much damage to seedling cotton in unprotected fields. (Cott. Ltr., May 29).

SPIDER MITES (*Tetranychus* spp.) - NEVADA - Spotted, heavy infestations in many cotton fields in Pahump Valley, Nye County. Several fields treated. (Bechtel, Christensen, Zoller). ALABAMA - Isolated, medium infestation of *T. atlanticus* on cotton on large farm in Lawrence County; control started. (Canerday).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Landowners continued to locate and control active brood trees; 304 spots located by aerial detection. Ground checking not complete, but reports indicate approximately one-third of spots contained active brood trees. Spots remained small (1-50 trees), but broods appeared vigorous in infested trees. Brood trees were found in Hardin, Harris (east of Lake Houston), Liberty, Polk, Tyler and Trinity Counties. Although infestation spread has been slow to develop, ground operations reveal sufficient number of active brood trees throughout epidemic area to provide source of rapid population buildup under favorable conditions. (Tex. For. Pest Comm., Apr. Rpt.). VIRGINIA - Mortality of overwintering brood high (up to 80 percent) in many local areas or in individual trees, but a sufficient brood remains to serve as nucleus of recurring epidemic again in 1963. (Va. For. Pest Rpt., Apr.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - TEXAS - Damage reported from Angelina, Houston, Montgomery, Polk, San Jacinto, Shelby, Trinity and Walker Counties. Total of 6,710 trees treated on National Forests and private lands. Tree mortality has been increasing. (Tex. For. Pest Comm., Apr. Rpt.).

ENGRAVER BEETLES (Ips spp.) - TEXAS - Scattered infestations of I. avulsus, I. grandicollis and I. calligraphus in groups of 10-15 trees reported from Angelina County. If current dry weather persists, damage could become severe on drier sites. Scattered trees attacked by Ips spp. located throughout Dendroctonus frontalis epidemic area. No control action reported. (Tex. For. Pest Comm., Apr. Rpt.). VIRGINIA - Infestations will be advanced by extensive fire damage in pine. (Va. For. Pest Rpt., Apr.).

PALES WEEVIL (Hylobius pales) - NORTH CAROLINA - This and possibly other species heavily injured several thousand acres of one-year-old loblolly pine plantings in Columbus County. Some 2 and 3-year-old stands also injured. (H. J. Green). INDIANA - Damage to Christmas trees reported from Brown County. (Schuder).

WHITE-PINE WEEVIL (Pissodes strobi) - VERMONT - Terminals of susceptible spruce and pine attacked beginning to wilt. (MacCollom, May 27). RHODE ISLAND - Adults noted on leaders of white pine in Kingston and Peace Dale, Washington County. (Mathewson, Hyland).

PINE TUSSOCK MOTH (Dasychira plagiata) - MINNESOTA - Control project started May 27 in Willow River area, Pine County. (Minn. Ins. Rpt.). WISCONSIN - Larvae in second and third stages May 16 in Douglas County; third stage predominates. First parasite of season, Meteorus sp., observed in field on that date. (Wis. Ins. Sur.).

SPRUCE NEEDLE MINER (Taniiva albolineana) - NORTH DAKOTA - Larvae causing moderate to heavy damage to blue spruce in Cass County area. (N. D. Ins. Sur.).

PINE BARK APHID (Pineus strobi) - MARYLAND - Heavy on white pine at College Park, Prince Georges County. (U. Md., Ent. Dept.).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - PENNSYLVANIA - Heavy hatch underway on Douglas-fir in Dauphin County. (Sleesman).

A SPRUCE APHID (Cinara curvipes) - CALIFORNIA - Nymphs and adults heavy on spruce and fir trees in Julian, San Diego County. (Cal. Coop. Rpt.).

AN ASH APHID (Prociphilus fraxinifoliae) - IDAHO - Generally infesting green ash trees at Moscow, Latah County, and at Orofino, Clearwater County. (Fitzsimmons, Portman).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NORTH DAKOTA - Crawlers becoming active in southern part of State. (N. D. Ins. Sur.). OHIO - Infesting white pine in Wood County; one crawler observed under parent scale. Hatch believed complete. (Walker, Lyon). NEW YORK - Still in egg stage in Farmingdale area, Long Island, May 20; hatching occurred May 23. (N. Y. Wkly. Rpt.). MASSACHUSETTS - Crawlers in control-susceptible stage. (Crop Pest Cont. Mess., May 27). NEW JERSEY - Crawlers active on red, Scotch, Austrian, white and mugho pines. (Ins.-Dis. Newsltr., May 28). PENNSYLVANIA - Crawlers active on Scotch, Austrian and red pines in Dauphin County. (Sleesman). MARYLAND - Light on white pine at College Park, Prince Georges County. (U. Md., Ent. Dept.). ALABAMA - Very light on Scotch pine in Mobile County; being attacked by Chilocorus stigma. (Seibels).

AN ASH PLANT BUG (Neoborus sp.) - NEVADA - Spotted, heavy infestations on velvet ash (Fraxinus velutina) near Moapa, Clark County. (Bechtel).

A LEAFHOPPER (Paracoelidea tuberculata) - PENNSYLVANIA - Quite numerous on Scotch pine at Smethport, McKean County, May 22. Det. by J. O. Pepper. (Adams).

SCOTCH SAWFLIES - OHIO - Neodiprion sertifer larvae observed on 10 to 12-foot Scotch pines near Dalton, Wayne County, May 23. (Streb, Rings). Extremely heavy on Scotch pines at Wooster; 10-20 larval clusters per tree, with 30-50 larvae per cluster; trees 10-95 percent defoliated. (Lyon). Also infesting Austrian, red and mugho pines, as well as Scotch pine, in Wayne County. (Cutright). Most serious sawfly outbreak ever noted in State occurring on Scotch pine in Columbiana County area; 2 unspecified species involved. Controls underway on Christmas-tree plantings in area. (Cooley, Walker). MISSOURI - Light population of Monoctenus melliceps noted feeding on eastern redcedar in central area. (Munson, Thomas, Wood).

ERIOPHYID MITES - IDAHO - Aceria fraxinivorus infesting ash trees in Boise, Ada County. (Hilfiker). RHODE ISLAND - New vein galls, involving Eriophyes sp., appearing on ash trees in Kingston, Washington County, and North Providence, Providence County. (Mathewson).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - RHODE ISLAND - Population heavy along 1-mile stretch of roadside in Bristol, Bristol County. Greatest number of complaints concerning larval movement received from northern portion of State. (Mathewson, Cartier, Buonauro, King). PENNSYLVANIA - Several webs per wild cherry tree noted in Monroe County; several trees defoliated. (Jeffery, May 16). INDIANA - Larvae nearly full grown. Species has been very abundant throughout State. Defoliation particularly heavy in southwest corner of State. (Schuder). WISCONSIN - Larvae full grown or nearly so in Rock County and migration underway. Many chokecherries entirely stripped of foliage. (Wis. Ins. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - NEW JERSEY - Heavily damaged oaks near State Highway 49 in Gouldtown area, near Bridgeton, Cumberland County. (Ins.-Dis. Newsltr., May 28). IDAHO - Abundant on birch in Sandpoint area, Bonner County. (McPherson).

TENT CATERPILLARS (Malacosoma spp.) - WYOMING - Heavy populations in Big Horn Basin causing severe defoliation of many trees in area. (Fullerton). UTAH - Causing moderate damage to cottonwood trees at Moab, Grand County. Extremely less severe than in 1962. (Knowlton).

CANKERWORMS - MINNESOTA - Heavy defoliation continues in suburban areas north of Minneapolis-St. Paul area. Damage more evident as late instars become dominant. (Minn. Ins. Rpt.). PENNSYLVANIA - Causing light defoliation of deciduous trees in southeastern Schuylkill County. (Jeffery). CONNECTICUT - Continue troublesome in State. (Savos).

GYPSY MOTH (Porthetria dispar) - PENNSYLVANIA - Treatment completed May 16. Total of 10,042 acres in 6 areas where egg clusters or males were found in 1962 treated. (Jeffery).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEW MEXICO - Damaging foliage of elm and poplar shade trees in several areas of State. (N. M. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEVADA - Adults, eggs and first and second-stage larvae present in Caliente, Lincoln County, with trees in certain sections of town heavily infested. Infestations much heavier than in 1962. (Bechtel). Adults, eggs and first-stage larvae present in Hawthorne, Mineral County, and in Churchill, Douglas, Lyon and southern Washoe Counties. (Bechtel, Martinelli). OKLAHOMA - Defoliation continues around State. Second-generation larvae active in Oklahoma City area. (Okla. Coop. Sur.). TEXAS - Larvae causing light, localized damage to elms in Motley County. (Tex. Coop. Rpt.).

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) - DELAWARE - Adults and eggs present and larvae abundant on willows in area of Kent County; larvae causing heavy feeding injury. (Burbutis, May 24).

BRONZE BIRCH BORER (Agrilus anxius) - PENNSYLVANIA - Tops of birches dying at Bellefonte, Centre County. (Udine). INDIANA - Many ornamental birch trees dying from attack by this borer; condition probably aggravated by dry fall in 1962. (Schuder).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - SOUTH CAROLINA - Abundant on elm tree near Presbyterian Church in Clemson, Pickens County. Det. by R. C. Fox. Previously recorded in Florence County. Dutch elm disease not known to occur in State. (McAlister, Epps). First ARS records.

A BUPRESTID BEETLE (Agrilus sp.) - NORTH DAKOTA - Larvae feeding on burr oak in Grandin area, Cass County. Damage extensive. (N. D. Ins. Sur.).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEVADA - Heavy on elms in Panaca, Lincoln County. (Bechtel). NEW MEXICO - Light to moderately heavy on elms in Rio Arriba and Santa Fe Counties. (N. M. Coop. Rpt.).

AN OAK KERMES SCALE (Kermes pubescens) - MARYLAND - Caused heavy leaf injury to white oak at Ruxton, Baltimore County. (U. Md., Ent. Dept.).

GALL MIDGES (Itonida spp.) - INDIANA - Heavily infested pin oaks in Evansville area, Vanderburgh County; foliage badly distorted. (Schuder).

BIRCH LEAF MINER (Fenusa pusilla) - VERMONT - Adults active; early laid eggs hatching with small mines visible. (MacCollom, May 27). MASSACHUSETTS - Development delayed; controls still effective. (Crop Pest Cont. Mess., May 27). RHODE ISLAND - Mines becoming apparent statewide; adults still noted about foliage. (Mathewson, Cartier, Buonaiuto). NEW JERSEY - Adults still present on birch in central and northern counties; egg laying continues. (Ins.-Dis. Newsltr., May 28). WISCONSIN - Mines appearing on birch in Brown, Winnebago and Shawano Counties. (Wis. Ins. Sur.).

ELM LEAF MINER (Fenusa ulmi) - WISCONSIN - Mines becoming noticeable on elm leaves in Dane County. Populations appear lower than in previous years. (Wis. Ins. Sur.).

LOCUST LEAF MINER (Xenochalepus dorsalis) - PENNSYLVANIA - Adults numerous about trees and houses in central part of State. (Udine).

MAPLE PETIOLE BORER (Caulocampus acericaulis) - PENNSYLVANIA - Caused considerable leaf drop to maples in Franklin County. (Pepper, May 15).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - NORTH DAKOTA - Damage to foliage of soft maple appearing in Fargo area, Cass County. (N. D. Ins. Sur.). INDIANA - Galls causing frequent inquiries from many areas. (Schuder). MARYLAND - Galls conspicuous on maples at Huntingtown, Calvert County, and at Baltimore. (U. Md., Ent. Dept.). PENNSYLVANIA - Severe on maple in Huntingdon

County; up to 40 galls per leaf. (Udine, May 23). RHODE ISLAND - New galls apparent and inciting concern in West Warwick, Kent County, and Woonsocket, Providence County. (Mathewson, Cartier). VERMONT - Present on silver maple in all areas. (MacCollom, May 27).

BAGWORM (Thyridopteryx ephemeraeformis) - DELAWARE - First eggs hatched May 27 in New Castle County. (Bray). OKLAHOMA - First activity of season reported in Pushmataha County. (Okla. Coop. Sur.). ALABAMA - Few specimens, probably this species, noted on spruce pine in Calhoun County. (Barwood).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ALABAMA - Medium and widespread on nursery stock, especially boxwoods, in Mobile County. Other related species also involved. Feeding on all types of weeds, as well as ornamentals. Some difficulty in control being experienced with usual program. (Seibels).

STALK BORER (Papaipema nebris) - ALABAMA - Caused considerable damage to garden dahlias and goldenrod in Lee County. (Grimes et al.).

CATALPA SPHINX (Ceratonia catalpae) - ALABAMA - First generation medium on catalpa in Tallapoosa County. (Barwood).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - COLORADO - Defoliating lilac in Larimer County. (Jenkins).

LILAC LEAF MINER (Gracilaria syringella) - COLORADO - Blotches noticeable on lilac in Boulder and Larimer Counties. (Hantsbarger, Jenkins).

MIMOSA WEBWORM (Homadaula albizziae) - DELAWARE - First adults of season emerged in New Castle County May 27. (Bray).

HOLLYHOCK WEEVIL (Apion longirostre) - MARYLAND - Adults caused heavy injury to hollyhock buds at University Park, Prince Georges County. (U. Md., Ent. Dept.).

IRIS WEEVIL (Mononychus vulpeculus) - DELAWARE - Adults abundant and feeding on iris in area of Kent County. (Hickman).

ROSE CHAFER (Macrodactylus subspinosus) - RHODE ISLAND - First adult of season reported in Lincoln, Providence County. (D'Andrea).

A BOSTRICHID (Xylobiops basilaris) - DELAWARE - Found boring in mimosa at Newark, New Castle County, May 16, 1963. Collected by D. F. Bray. Det. by T. J. Spilman. This is a new host record and a new State record. (Burbutis).

APHIDS - NEVADA - Periphyllus negundinis light to heavy on boxelder in Panaca, Lincoln County. (Bechtel). UTAH - Rhopalosiphum berberidis severe on ornamental barberry at Ogden and Brigham. Aphis spiraeicola becoming heavy on some spirea at Logan, Salt Lake City and Tooele. Anuraphis viburnicola severely curling leaves in communities of Sevier, Washington, Kane and Millard Counties. (Knowlton). NORTH DAKOTA - Anuraphis viburniphila active on snowball bushes over State. (N. D. Ins. Sur.). WISCONSIN - R. berberidis colonies building up on Japanese barberry in Dane County. (Wis. Ins. Sur.). MARYLAND - Pemphigus populitransversus moderate on Carolina poplar at Cockeysville, Baltimore County. (U. Md., Ent. Dept.). FLORIDA - Aphis spiraeicola moderate on Pyracantha sp. at St. Petersburg, Pinellas County (May 2), and on loquat at Daytona Beach, Volusia County (May 2). Melanocallis kahawaluokalani severe on crapemyrtle at Orange Park, Clay County (May 15). Myzus persicae moderate on pansy at De Bary, Volusia County (May 8). (Fla. Coop. Sur.).

APHIDS (undetermined) - NEW YORK - Infesting redcedar at Ithaca, Oneida County. (N. Y. Wkly. Rpt., May 27). CONNECTICUT - Various species becoming more apparent

on deciduous trees over State. (Mathewson, King). MARYLAND - Infesting flowering crab apple trees at Carrollton and spearmint at University Park, Prince Georges County. (U. Md., Ent. Dept.). ALABAMA - Heavy on red maple in Lee County. (Grimes et al.). TEXAS - Moderate, widespread populations on roses causing concern to homeowners. (Kimbrough). OKLAHOMA - Several species continue to infest a variety of ornamentals throughout State. (Okla. Coop. Sur.). NEW MEXICO - Damaging globe willows near Los Alamos, Los Alamos County. (N. M. Coop. Rpt.). UTAH - Heavy on columbine at Blanding and Monticello, San Juan County. (Knowlton). IDAHO - Numerous species built up rapidly in Moscow area, Latah County, on wide variety of plants; controls recommended in many instances. (Gittins). MINNESOTA - Numerous reports of heavy populations on honeysuckle in Minneapolis-St. Paul area. (Minn. Ins. Rpt.).

A WHITEFLY (*Dialeurodes kirkaldyi*) - FLORIDA - Has been found at Key West, Stock Island, Marathon (Key Vaca), Monroe County, and at Coral Gables, Dade County, on *Morinda citrifolia* and several varieties of jasmine by J. H. Knowles and J. N. Todd. Original determination made by L. M. Russell. Miss Russell has prepared a complete paper on this record which will appear in the Florida Entomologist at a later date. (Fla. Coop. Sur.). See CEIR 13(19):498, for first report.

FULGORID PLANTHOPPERS - ALABAMA - Several species, with approximately 90 percent being *Metcalfa pruinosa*, appearing in considerable numbers on azaleas and camellias and other nursery stock in Mobile and Lee Counties. Nymphs feeding on tender, new growth and adults causing egg-laying scars. Current new growth from grafts being damaged most. (Seibels et al.).

OYSTERSHELL SCALE (*Lepidosaphes ulmi*) - COLORADO - Eggs hatching and crawlers active on lilac in Adams and Larimer Counties. (Hantsbarger, Jenkins). INDIANA - Crawlers of brown race settled on red twig dogwood at Lafayette May 27. (Schuder). PENNSYLVANIA - Heavy on few small sweet birch trees in Pike County and medium on maple tree in Bucks County. (Simons). RHODE ISLAND - Especially heavy on willow in Pawtucket, Providence County. Not yet hatched. (Cartier).

EUONYMUS SCALE (*Unaspis euonymi*) - INDIANA - Crawlers began emerging May 29 in West Lafayette, Tippecanoe County. (Schuder).

FLETCHER SCALE (*Lecanium fletcheri*) - PENNSYLVANIA - Increase in populations on *Taxus* spp. and *arborvitae* noted compared with 1962. (Negley).

AN ARMORED SCALE (*Melanaspis aliena*) - FLORIDA - Collected on cattleya orchid at Ft. Lauderdale, Broward County, February 5, 1958, by C. F. Dowling and J. M. Soowal, and on orchids at Estero, Lee County, January 12, 1961, by W. T. Walsh. This is a new State record. Det. by R. F. Wilkey. (Fla. Coop. Sur.).

AN ORCHID MEALYBUG (*Pseudococcus importatus*) - CALIFORNIA - Local infestation found on cattleya and oncidium during April in an orchid garden in Arcadia, Los Angeles County. Eradicative treatment is underway. This is a new State record. (Cal. Coop. Rpt.).

A GROUND MEALYBUG (*Rhizococcus cacticans*) - FLORIDA - Collected at Gotha, Orange County, on a *Neoregelia* sp. by R. J. Griffith, August 1, 1961. Det. by R. F. Wilkey. This is a new State record. (Fla. Coop. Sur.).

Coccids in Florida - *Coccus acuminatus* light at 2 locations and severe at another on *Jasminum* sp. at Key West, Monroe County (May 21, 22). *Coccus hesperidum* light to moderate on *Brassia actinophylla* at Samsula, Volusia County (May 21). *Diaspis boisduvalii* light to moderate on *Arecastrum romanoffianum* and light on *Cattleya* sp. at Titusville, Brevard County (May 20). *Fiorinia theae* severe on *Ilex* sp. at Apopka, Orange County (May 21). *Parlatoria pergandii* severe on *Jasminum* sp. at Key West (May 21). *Phenacaspis cockerelli* severe on *Magnolia grandiflora* at Oviedo, Seminole County (May 22). *Pseudoaulacaspis clavigera* moderate on *Camellia sasanqua* at St. Petersburg, Pinellas County (May 20). *Pseudaulacaspis pentagona* moderate on *Diospyros kaki* at New Smyrna Beach (May 14) and light on

Allamanda cathartica at Samsula (May 21), Volusia County; Prunus sp. at Kissimmee, Osceola County (May 21); Pelargonium hortorum at New Smyrna Beach (May 22). Pseudococcus citri light on Casuarina cunninghamiana at Samsula (May 21) and light to moderate on Melaleuca leucadendron at Edgewater (May 22), Volusia County. (Fla. Coop. Sur.).

SNOWY TREE CRICKETS (Oecanthus spp.) - ALABAMA - Appearing on camellias with formation of flower buds and on other shrubs and trees in Mobile and Lee Counties. (Seibels et al.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - ALABAMA - Medium to heavy on isolated hollies in Lee County. (Barwood). NEW JERSEY - Adults active in central counties on holly. (Ins.-Dis. Newsltr., May 28). NEW YORK - All stages noted on Long Island. (N. Y. Wkly. Rpt., May 27).

SPIDER MITES - NEBRASKA - Unspecified species damaging Christmas-tree planting in Lancaster County. (Bergman). NORTH DAKOTA - Tetranychus telarius active on spruce in Gardner area, Cass County. (N. D. Ins. Sur.). WISCONSIN - Tetranychus spp. causing concern in various areas of State by causing browning of various evergreens. (Wis. Ins. Sur.). MARYLAND - T. telarius heavy on hollyhock at University Park, Prince Georges County. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - WISCONSIN - Adults bothering cattle in Wood County; larvae, probably H. bovis, prevalent on cattle in Dodge County. (Wis. Ins. Sur.).

BLACK FLIES - VERMONT - Troublesome on pastured cattle and to picnickers, fishermen and others in some areas. Particularly heavy in mountain areas. (MacCollom, May 27). MARYLAND - Simulium spp. adults annoying humans in Allegany, Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

HORN FLY (Haematobia irritans) - ALABAMA - Medium to heavy on beef cattle in Coosa County. (Helms). MISSISSIPPI - Light to heavy on livestock in delta area; controls applied. (Ouzts). OKLAHOMA - Counts of 300-400 per head observed on cattle in Muskogee County. Moderate to heavy counts reported in Garvin, Latimer, Okmulgee, Greer, Haskell, Okfuskee, Murray and Mayes Counties. Counts up somewhat from those reported May 19-25 in Stillwater area, Payne County. (Okla. Coop. Sur.). MISSOURI - Moderate on untreated cattle in northeast area; ranged 100 to over 400 per animal. (Munson, Thomas, Wood). IOWA - Ranged 10-15 per animal on cattle. (Iowa Ins. Inf., May 27). VERMONT - Ranged 25-50 per animal in Burlington area. (MacCollom).

STABLE FLY (Stomoxys calcitrans) - WISCONSIN - Populations increased in Dodge County; eggs hatching in large numbers in area. (Wis. Ins. Sur.). IOWA - Ranged 1-3 per animal on cattle. (Iowa Ins. Inf., May 27). MISSISSIPPI - Ranged light to medium on livestock in delta area; controls applied. (Ouzts).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During period May 19 - 25, total of 89 infestations, including one of unknown origin, reported from TEXAS and 38 from NEW MEXICO. Texas specimens were reported from 52 counties, New Mexico specimens from 8 counties. Screw-worm was reported for the first time from 5 new counties in Texas and 3 new counties in New Mexico, as follows: Texas - Kent, King, Jack, Lubbock, Lampasas; New Mexico - Catron, Dona Ana, Lincoln. Confirmed cases in primary drop area continue to remain on a level, while cases outside drop area are slowly increasing. "Hot spotting" of all new cases continues at rate of 100,000 flies per week per "hot spot" for at least 3 weeks on those outside drop area, and 26,000 per week on those inside drop area. A total of 108,405,850 sterile screw-worm flies was released during the period May 19 - 25. (Anim. Dis. Erad. Div.).

FACE FLY (Musca autumnalis) - VERMONT - Ranged 10-25 per animal in Burlington area. (MacCollom). WISCONSIN - Numbers increasing in Dodge County; first noted this season in Wood County. (Wis. Ins. Sur.). IOWA - Ranged 1-3 per animal on cattle. (Iowa Ins. Inf., May 27). MISSOURI - Populations very low throughout central, north central and northeast areas; averaged less than one per face on all herds checked. (Wingo).

HOUSE FLY (Musca domestica) - VERMONT - Populations building up rapidly. (MacCollom).

MOSQUITOES - VERMONT - Annoying to picnickers, fishermen and others in some areas. (MacCollom, May 27). RHODE ISLAND - Adults becoming more evident in rural areas; Aedes spp. appear to predominate in Kingston area, Washington County. (Mathewson). OHIO - Following specimens collected in Toledo area, Lucas County: One adult Anopheles quadrimaculatus May 13; 4 females and 1 male Culiseta inornata May 22; first-stage larvae of Culex territans May 27; adults of Aedes vexans and Aedes spencerii May 28. (Brockway). IOWA - Unspecified species abundant in some areas, absent in others. (Iowa Ins. Inf., May 27). WISCONSIN - Permanent water and woodland species becoming more prevalent in central and northern counties. Observations near Black River Falls, Jackson County, showed populations to be lower than at same time in 1962. Larvae of Aedes spp. scarce in pools in Dane County. (Wis. Ins. Sur.). UTAH - Unspecified species have been moderately troublesome at Moab, Grand County, and in many sections of Cache County. Some annoyance noted in Bountiful-Farmington area, Davis County. Very numerous in Delta-Sutherland area, Millard County; many Aedes dorsalis. Unspecified species very numerous and troublesome in Sanpete County from Manti to Moroni. (Knowlton). More extensive controls necessary in Salt Lake City area than at same time in 1962. (Collett). NEW MEXICO - Aedes vexans abundant in and around cropland in Rio Arriba County. Culex tarsalis very annoying to humans and domestic animals in Valencia and Bernalillo Counties. (N. M. Coop. Rpt.).

WOOL MAGGOTS - UTAH - Severely infesting several sheep at North Creek, Beaver County. (Knowlton, Esplin).

BITING MIDGES - UTAH - Troublesome to humans at Alkali Ridge south of Blanding, San Juan County. More serious than in a number of years northwest of Salt Lake City. Troublesome in areas of Tooele, Box Elder, Davis and Salt Lake Counties, as well as in Delta-Desert area and south of Nephi. (Collett, Knowlton). NORTH CAROLINA - Causing concern to several homeowners in Iredell County; coming from large cooling vat near homes. (Ashton).

SWALLOW BUG (Oeciacus vicarius) - PENNSYLVANIA - Very abundant in bedroom in Waynesburg, Greene County; child bitten. (Udine, May 22).

A CHIGGER (Eutrombicula alfreddugesi) - OKLAHOMA - Common and annoying to humans in Stillwater area, Payne County (north central), and in east central area of State. (Okla. Coop. Sur.).

TICKS - CONNECTICUT - Unspecified species becoming of more concern to homeowners, being especially troublesome on dogs. (Savos). MARYLAND - Dermacentor variabilis found on humans at Huntingtown, Calvert County, May 21. (U. Md., Ent. Dept.). OHIO - D. variabilis collected from eyebrow, neck and head of child at Toledo, Lucas County; small dog present in household. (Blair, Brockway). Single specimen of Ornithodoros kelleyi collected in residence in Fredericktown, Knox County. This is a parasite of bats and does not attack humans. (Rings, Johnston). OKLAHOMA - Heavy populations of Amblyomma americanum persist on cattle and wildlife in eastern part of State. Also causing considerable annoyance to vacationers in these areas. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

COCKROACHES - PENNSYLVANIA - Blatta orientalis heavy in bakery in Scranton, Lackawanna County. (Roberts). IDAHO - Blatta orientalis infestations reported from Roswell, Canyon County. (Hall). OHIO - Many adults of Parcoblatta pennsylvanica present in home in Putnam County. (Kapp, Triplehorn). IOWA - Large number of reports concerning Parcoblatta spp. as problems received from Clayton, Greene, Wapello, Polk and Woodbury Counties. (Iowa Ins. Inf., May 27).

SILVERFISH (Lepisma saccharina) - VERMONT - Infestations in homes caused concern. (MacCollom, May 27).

CLOVER MITE (Bryobia praetiosa) - VERMONT - Infested homes. (MacCollom, May 27). PENNSYLVANIA - Continues to cause some concern in homes in western part of State. (Udine). IDAHO - Scattered infestations in and around homes reported from numerous areas. (Portman, Gittins). ARIZONA - Troublesome to homeowners in higher elevation counties. (Ariz. Coop. Sur.). CONNECTICUT - Troublesome to homeowners in Somers and Taftville. (Savos).

PAVEMENT ANT (Tetramorium caespitum) - MARYLAND - Winged forms emerged in and around homes in Prince Georges County and at Baltimore. (U. Md., Ent. Dept.).

CARPENTER ANTS (Camponotus spp.) - VERMONT - Infested homes. (MacCollom, May 27). CONNECTICUT - Troublesome to homeowners in Stratford. (Savos). RHODE ISLAND - Especially destructive colony reported in Pawtucket, Providence County. (Cartier).

CARPENTER BEES - NEW JERSEY - Unspecified species causing some concern to homeowners. (Ins.-Dis. Newsltr., May 28). PENNSYLVANIA - Inquiries concerning Xylocopa virginica in homes numerous generally over State. (Udine). CALIFORNIA - X. tabaniformis orpifex medium in timbers of a garage in Hollister, San Benito County. (Cal. Coop. Rpt.).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MARYLAND - Reticulitermes sp. winged forms found in home at Denton, Caroline County, May 22. (U. Md., Ent. Dept.). RHODE ISLAND - R. flavipes swarming apparently ended; no specimens or complaints received. (Mathewson, Cartier).

STORED-PRODUCT INSECTS

BLACK CARPET BEETLE (Attagenus piceus) - NORTH CAROLINA - Moderate in grain and burlap bags in a feed mill in Watauga County, May 15. (Johnson).

GRAIN MITE (Acarus siro) - IDAHO - Extremely abundant in potato cellar at Rexford, Madison County. Population quantitatively recorded as one inch thick on cellar floor. (Jacobs).

BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Hippodamia convergens and Coleomegilla maculata fuscilabris active in cotton in Macon County; each averaged one per 10 linear feet. (Grimes). ARKANSAS - Numerous in alfalfa in northwest area; Hippodamia convergens ranged 75-80 per 100 sweeps. (Ark. Ins. Sur.). OHIO - Coleomegilla maculata larvae and adults heavy in alfalfa and red clover in many northwestern counties. Averaged 30 larvae and 2 adults per 50 sweeps in Wood County, 24 adults and 5 larvae per 50 sweeps in Huron County. (Lyon). SOUTH DAKOTA - Adult and larval populations of unspecified species continue to increase with increase in aphid abundance; ranged 1-7 per 10 sweeps in forage and cereal crops. (Hintz). WYOMING - Adults of several species averaged 35 per 100 sweeps in alfalfa in Big Horn Basin. (Fullerton). COLORADO - Hippodamia sp. numerous in Montrose County, with 100-500 per 100 sweeps; ranged 50-100 per 100 sweeps in Larimer and Weld Counties. (Bulla, Jenkins). NEW MEXICO - Unspecified species very

abundant in many grain and alfalfa fields checked statewide. Adults ranged 3-8 and larvae 1-4 per sweep in several alfalfa fields near Artesia, Eddy County. (N. M. Coop. Rpt.).

MELYRID BEETLES (Collops spp.) - NEW MEXICO - Abundant in grain and alfalfa fields statewide. (N. M. Coop. Rpt.).

GREEN LACEWINGS - NEW MEXICO - Abundant in grain and alfalfa fields statewide. (N. M. Coop. Rpt.). ARKANSAS - Chrysopa spp. numerous in alfalfa in northwest. (Ark. Ins. Sur.). ALABAMA - Chrysopa oculata active on camellias and azaleas in Mobile County; feeding on fulgorid planthopper nymphs. (Seibels). MARYLAND - Single male of Meleoma emuncta, first specimen in several years, collected on wing at Smithsburg, Washington County, May 25. (U. Md., Ent. Dept.).

DAMSEL BUGS (Nabis spp.) - NEW MEXICO - Abundant in grain and alfalfa fields statewide. (N. M. Coop. Rpt.). ARKANSAS - Numerous in northwest area alfalfa (Ark. Ins. Sur.).

A BIG-EYED BUG (Geocoris punctipes) - ARKANSAS - Numerous in alfalfa in northwest area. (Ark. Ins. Sur.).

ALKALI BEE (Nomia melanderi) - NEVADA - Adults emerged from artificial beds during week of May 19-25 in Pahrum Valley, Nye County. (Bechtel, Hafen, Zoller).

ANDRENID BEES (Andrena spp.) - RHODE ISLAND - Numbers noted about blueberry blossoms in Washington County. (Mathewson).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Single adult noted skeletonizing leaf of Polygonum cuspidatum in Kingston, Washington County, May 30. Probably earliest record for State. (Mathewson). DELAWARE - First adult of season collected May 27 in New Castle County. This is very early emergence date. (Bray). OHIO - Additional areas placed under regulation include Townships of Harrison, St. Albans and Union in Licking County, Eaton and Grafton in Lorain County, and Sandusky and Springfield in Richland County. Counties having regulated areas for the first time include Clermont, Crawford, Knox, Scioto and Warren. (Lyon). MINNESOTA - Traps being placed in southeast counties. (Minn. Ins. Rpt.). CALIFORNIA - Traps in service in 5-county area increased to 5,075. All traps should be in place by approximately June 5. Full compliment of traps proposed for many inner areas are in place; visual inspection in inner areas inaugurated. No specimens yet found; however, numerous calls received and checked, but most specimens proving to be Hoplia spp., which appear quite numerous this spring. Treatment started in West Sacramento May 13, and will be started in Sacramento during period June 1-7. Night dusting of trees in Sacramento planned to begin June 5. (Cal. Coop. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ARKANSAS - New infestation found in Harrisburg, Poinsett County. Larvae destroyed 40-60 percent of host plants (strawberries). (Ark. Ins. Sur.). FLORIDA - Collected in the following new Townships: Blountstown on blackberries by J. R. Brown (May 10) and on dogfennel by R. W. Herman (May 13), Calhoun County; Chipley, Washington County, on dogfennel by D. C. Whitehead (date unknown); Bonifay, Holmes County, on dogfennel by D. C. Whitehead (May 21). Det. by W. Breidenbach. (Fla. Coop. Sur.).

A NOCTUID (Heliothis phloxiphaga form luteitinctus) - DELAWARE - Adult collected in blacklight trap at Wilmington, New Castle County, August 14, 1962, is a new State record. Det. by E. L. Todd. (Stockbridge, Palmer).

MIRIDS - DELAWARE - An adult of Platytylellus fraternus and an adult of Lopidea confluens collected in blacklight trap at Dover, Kent County, June 19, 1962, are both new State records. Det. by J. L. Herring. (Stockbridge, Palmer).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Single, light infestation located south of Florin Road on Chandler Way. Intensive survey in surrounding blocks failed to disclose further infestation. Block by block inspections in generally suspected district replaced with inspections on quarter-mile grid pattern in 2-mile strip surrounding area. Barring infestations of some intensity, pattern will be enlarged to half-mile grid and continued for additional 5 miles. With this grid system, it will be possible to more systematically inspect central Sacramento County. (Cal. Coop. Rpt.).

SEED-CORN MAGGOT (Hylemya platura*) - MARYLAND - Numerous adults infected with fungus disease found on roses at Burtonsville, Montgomery County. (U. Md., Ent. Dept.).

EUROPEAN EARWIG (Forficula auricularia) - RHODE ISLAND - Active May 30 in Kingston, Washington County (Kerr), and currently appearing in Newport County (Peabody).

SPRINGTAILS - ARIZONA - Unspecified species appearing in large numbers in some yards at Casa Grande, Pinal County. (Ariz. Coop. Sur.).

CORRECTIONS

CEIR 13(11): 213 (DETECTION) and 216; 13(12):252 - References to SWEETCLOVER WEEVIL (Sitona cylindricollis) in Oklahoma in error; species should be CLOVER LEAF WEEVIL (Hypera punctata). Sweetclover weevil not yet recorded in Oklahoma.

CEIR 13(13):290 - HAWAIIAN INSECT NOTES - SOUTHERN GREEN STINK BUG (Nezara viridula) should read: ... at Nonaka's farm, Wailua, Kauai, ... A FRUIT FLY (Tetraeuresta obscuriventris) should read A FLOWER FEEDER; last line of paragraph should be changed to read "... of this flower feeder was reported..." Specimens of a FRUIT FLY (Tephritis sp.) should be changed to read a GALL-FORMING FLY. A FLESH FLY (Helicobia sp.) - Last sentence should be changed to read: This appears to be the first record of this fly exhibiting parasitic activities in the State.

CEIR 13(18):471 - HONEY BEE (Apis mellifera) should read Apis mellifera.

CEIR 13(22):572 - WEATHER OF THE WEEK ENDING MAY 27 - Second paragraph, line 16 should read "... By the weekend, the Northeast had recovered ...".

CEIR 13(22):580 - FLEA BEETLES - NEVADA - Should read: "... 75-acre field total loss ...".

CEIR 13(22):589 - CARPENTER ANTS (Camponotus spp.) - IDAHO - C. pennsylvanicus should read Camponotus sp.

* Hennig, W. 1938. Arb. Phys. Angew. Ent. Berlin - Dahlem 5(3):281.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Protoparce quin.	Ostrin. sexta	Heliothis nubil. zea	viros.
ARKANSAS								
Hope 5/23-29	2			1				2
Kelso 5/23-29		1		13				5
Fayetteville 5/23-29	5	41		1				1
GEORGIA								
Tifton 5/16-22						3	14	11
Tifton 5/23-29							6	18
ILLINOIS (County)								
Champaign 5/24-30	19	5		1				
INDIANA (Counties)								
La Porte 5/14-29	71							
Lawrence 5/13-29	33	4		1	2			
Vanderburgh 5/14-28	22	9		15	2		1	1
KANSAS								
Garden City 5/20,24,27	10	19		3				
Hays 5/22,24,27	8	5		13				3
Manhattan 5/24-31	47	8		32	51		1	1
Mound Valley 5/23, 25	8	26		5	14			
Wathena 5/19-22, 24-26	14	3			6		2	
MARYLAND								
Centreville 5/22-28	3	7			4		21	
MINNESOTA								
Worthington 5/5-14	10	3						
Fergus Falls 5/6-20	42	28						
*Shakopee 5/6-17	8	4						
MISSISSIPPI								
*Stoneville 5/24-30	67	25	266	60		19	85	8
MISSOURI								
Portageville 5/23-29	14	2	20	26			4	1
NEBRASKA								
Bushnell 5/10-16	5	2	17					
Ogallala 5/13-20	13	6	12					
Kearney 5/15-17	2	1	2			2		
North Platte 5/15-21	40	16	56			1		
Lincoln 5/16-23	38	7						
Scotts Bluff Expt. Sta. 5/21-27	2	1	5					
NORTH DAKOTA								
Fargo 5/25-31	19	4	4					
OHIO								
Wooster 5/24-30	27	3						
Ripley 5/27	1							

(Continued on page 627).

* Two traps Shakopee, Stoneville.

Light Trap Collections (Continued)

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Protoparce quin.	Ostrin. sexta	Heliothis nubil.	zeae vires.
SOUTH CAROLINA								
Clemson 5/25-31	1	4		67		1	6	1
Charleston 5/20-26	1	5		2		8	1	
Charleston 5/27-6/2	2	2		5			1	1
SOUTH DAKOTA (County)								
Brookings 5/23	37							
TENNESSEE (Counties)								
Maury 5/14-20	31	26		6	2	15		2
Robertson 5/14-20	87	26		1		2		1
Cumberland 5/14-20	41	33		24				
Blount 5/14-20	43	21						1
Johnson 5/14-20	12	68		13				5
TEXAS								
Waco 5/25-31	33	63		26	127		106	8
*Brownsville 5/24-29	12	1,072		22	15	144	220	3,043
WISCONSIN								
Mazomanie 5/15-27	199	2		3			2	
Mazomanie 5/21-27	21	4					2	
Middleton 5/23-28	40	3		2				
Madison 5/23-28	375	21		11				
Nenno 5/21-27	35	5						

Additional light trap collections

TEXAS (*Brownsville, 5/24-29) Pectinophora gossypiella - 33; Laphygma frugiperda - 595.

* Six traps Brownsville.

ADDITIONAL NOTES

VERMONT - First and second instars and adults of ALFALFA WEEVIL (Hypera postica) found from Rockingham south in Connecticut River Valley. No appreciable damage yet; apparently first cuttings will be made before extensive injury. (MacCollom).

OREGON - GRASSHOPPERS, principally Melanoplus sp., emergence and development very slow through week of May 25 in northeastern counties. Only scattered first instars observed. MORMON CRICKET (Anabrus simplex) populations in Sherman and Gilliam Counties reported April 13 now decimated by inclement weather of April. Now under one per square yard with only occasional cricket advanced to third instar. Infested districts of Union and Wallowa Counties report similar populations of under one per square yard. (Jackson).

Analysis of Insect and Mite Infestations Found in Produce from
the United States Examined in Ports in Great Britain in 1962 1/

This analysis is arranged in three sections. The origin of shipments from the United States is indicated as follows: W - All West Coast ports; S - all Gulf ports and East ports up to and including Norfolk, Virginia; N - all ports from Norfolk, Virginia, northwards, and including ports of the Lake States.

The information is based on inspections made in the ships during discharge or immediately afterwards on quays or in transit sheds so that there is no risk of recording insects which have invaded the goods after arrival. Insects are either identified by the inspectors or, in case of doubt, by experts in the Ministry of Agriculture, Fisheries and Food, or in the Department of Agriculture and Fisheries for Scotland, or at the British Museum of Natural History.

Attention is directed to the greater amount of infestation found in the Southern shipments, as would be expected from the warmer climate, and in particular to the incidence of infestation on rice bran, rice and flour. Several of the infestations on the latter were traced to residual infestation in ships, or were due to infestation picked up between mill and port.

U.S.A. (W)	Wheat	Barley	Corn	Rice	Flour	Beans	Peas	Soybeans	Pea-beans	Sunflower seed	Prunes	Raisins	Currants	Sultanas	Dried fruit	Peaches	Almonds	Pepper	Grass seed	Vegetable seed	Total occurrences
Light	-	-	-	-	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Moderate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heavy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total infested	-	-	-	-	1	-	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Clear	5	1	1	6	22	12	39	1	1	1	55	35	1	4	31	1	5	1	13	5	
Total number	5	1	1	6	23	12	41	1	1	1	55	36	1	4	31	1	5	1	13	5	
No. of shipments treated on arrival	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<u>Bruchus</u> sp.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Bruchus pisorum</u>	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Enicmus minutus</u>	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
<u>Sitophilus oryzae</u>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Stegobium paniceum</u>	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Tribolium castaneum</u>	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Nemapogon granella</u>	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Total species and species groups	-	-	-	2	-	4	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-

1/ Submitted by J. A. Freeman, Chief Entomologist, Ministry of Agriculture, Fisheries and Food, Infestation Control Laboratory, Block B, Hook Rise, Tolworth, Surrey, England.

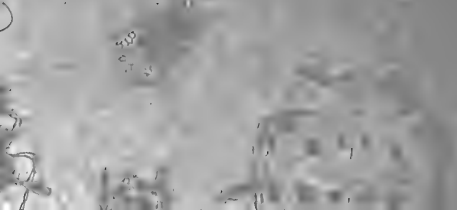
U.S.A. (S)

	Wheat	Corn	Rice	Sorghum	Millet	Milo	Flour	Rice bran	Soybeans	Soybean meal	Oat flour	Beans	Pea-beans	Cottonseed meal	Pecan nuts	Meatmeal	Feathermeal	Fishmeal	Grain screenings	Grass seed	Vegetable seed	Total occurrences
Light	-	5	13	-	-	7	13	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Moderate	1	-	4	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Heavy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total infested	1	5	17	-	-	7	13	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clear	15	78	44	6	1	21	48	18	2	1	1	3	2	4	1	1	2	1	1	1	1	1
Total number	16	83	61	6	1	28	61	40	2	1	1	3	2	4	1	1	2	1	1	1	1	1
No. of shipments treated on arrival	1	1	4	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<u>Ahasverus advena</u>	-	-	1	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
<u>Coninomus constrictus</u>	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Cryptolestes ferrugineus</u>	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<u>Dermestes ater</u>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Gibbium psylloides</u>	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<u>Lasioderma serricorne</u>	-	-	3	-	-	-	2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	11
<u>Oryzaephilus surinamensis</u>	-	-	1	-	-	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
<u>Palorus ratzeburgi</u>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Rhyzopertha dominica</u>	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Sitophilus oryzae</u>	1	1	2	-	-	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10
<u>Sitophilus zea-mais</u>	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Tribolium castaneum</u>	-	-	3	-	-	1	7	12	-	-	-	-	-	-	-	-	-	-	-	-	-	23
<u>Trogoderma granarium</u>	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Typhaea sterocorea</u>	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<u>Ephestia cautella*</u>	1	3	13	-	-	-	1	10	-	-	-	-	-	-	-	-	-	-	-	-	-	28
<u>Corcyra cephalonica</u>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Endrosis sarcitrella</u>	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Plodia interpunctella</u>	-	2	2	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	5
<u>Sitotroga cerealella</u>	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
<u>Bracon hebetor</u>	-	-	1	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<u>Camponotus herculeanus</u>	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Blattella germanica</u>	-	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
<u>Periplaneta americana</u>	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
<u>Caloglyphus berlessei</u>	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Total species and species groups	4	7	12	-	-	4	11	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Reported by British as Cadra cautella.

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PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRASSHOPPER hatch increasing rather generally; some heavy nymphal populations reported in Oregon, Nevada, Utah and Wisconsin. (pp. 633-634). EUROPEAN CORN BORER adults very active in eastern Nebraska and in Wisconsin, and appearing in North Dakota; egg masses present in Michigan and Massachusetts; hatching in west-southwest Illinois and in Maryland. (p. 634). Larval feeding of CEREAL LEAF BEETLE very pronounced on oats, wheat and some grasses in Michigan; beginning to pupate in Michigan and Indiana. Ohio found infested by cereal leaf beetle for first time (Williams County) and several new counties reported in Indiana and Michigan (Branch County). Eggs of WESTERN CORN ROOTWORM hatching in Kansas. (p. 635). ALFALFA WEEVIL damage continues in several States, and Mississippi reported infested for first time. (pp. 637-638). PEA APHID increasing on alfalfa in some States, but light in others where predators are active and cutting of the crop has occurred. (pp. 638-639).

FOREST TENT CATERPILLAR currently more numerous on fruit and shade trees than in past several years in Bonner and Boundary Counties, Idaho, and WESTERN TENT CATERPILLAR spotted, but severe, on various fruit and shade trees as well as ornamentals in localized areas of Washington. (pp. 641, 653). CHERRY FRUIT FLY adults emerging in Ohio and New York, and BLACK CHERRY FRUIT FLY adults emerging in Michigan. (p. 643). Several pests increased in Florida citrus groves. (pp. 644-645).

COLORADO POTATO BEETLE continues to increase on potatoes; several States report damage. (p. 646). PEA APHID continues to increase on peas in Wisconsin, and POTATO LEAFHOPPER very high in commercial lima beans in Rock County, same State. (p. 647).

BOLL WEEVIL continues relatively light in cotton, but increasing numbers reported in South Carolina and Texas. (pp. 649-650). COTTON FLEAHOPPER major problem of cotton in central Texas, and LYGUS BUGS very common in cotton fields in several Arizona counties. (p. 651).

EUROPEAN PINE SAWFLY larvae continue to cause considerable injury in several Lower Peninsula counties of Michigan, and some defoliation reported in Mercer and Monroe Counties, Pennsylvania. CANKERWORMS continue damaging in several States including North Dakota, Minnesota, Wisconsin, Michigan, Pennsylvania, New York and Rhode Island. (p. 653).

HORN FLY, FACE FLY, HORSE FLIES and DEER FLIES all becoming more active and, in some instances, annoying to man and/or animals. (pp. 656-657). MOSQUITOES very annoying in Lower Peninsula of Michigan; extremely heavy along coastal area in Mobile County, Alabama; required considerable control in parts of Utah; abundant in some areas of Iowa; and reported increasing in several States. (p. 658).

DETECTION

New State records reported were CEREAL LEAF BEETLE (*Oulema melanopa*) in Ohio (p. 635); ALFALFA WEEVIL (*Hypera postica*) in Mississippi (p. 637); LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) in Mississippi (first ARS record) (p. 638); A COCCID (*Fissuraspis ulmi*) in Florida (p. 656); and A LONG-HORNED BEETLE (*Megacheuma brevipennis*) in Oregon (p. 660). Some important new county

(Continued on following page)

records reported were CEREAL LEAF BEETLE in Branch County, Michigan, and in Miami, Cass, Pulaski, Jasper, Steuben and Lagrange Counties, Indiana (p. 635); VETCH BRUCHID (*Bruchus brachialis*) in Brown County, Illinois (p. 638); BLACK PECAN APHID (*Melanocallis caryaefoliae*) in Sacramento County, California (p. 644); and ELM LEAF BEETLE (*Galerucella xanthomelaena*) in Shelby County, Iowa (p. 654). Two other detection notes of interest were AN EARWIG (*Labia minor*) in Latah County, Idaho (new locale record and possible new State record) (p. 660), and A GERMANDER LEAF CRINKLE MITE (*Aculus teucrii*) in Stark County, Ohio (third recorded infestation of species in State) (p. 656).

CORRECTIONS

See page 662.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 657).

Reports in this issue are for week ending June 7, unless otherwise indicated.

WEATHER OF THE WEEK ENDING JUNE 10

The tropical storm, which at the beginning of the week was centered over southeastern Virginia, brought soaking rains to coastal areas to the north. Meanwhile, showers and thunderstorms occurred from the central Rocky Mountains across the Plains and upper Mississippi Valley to Upper Michigan. A Low centered over Wyoming produced cold rains through Montana and Idaho.

On Tuesday, abundant sunshine and southerly winds over the midsection of the country pushed the afternoon temperatures to 90° as far north as Minneapolis, Minnesota. Presidio, Texas, sweltered as the temperature climbed to 106°. Showers and thunderstorms were scattered through this warm humid air. The heavy showers in Ohio Tuesday afternoon and evening caused numerous flash floods, especially along U. S. Highway 40 between Zanesville and Cambridge. Over 7 inches of rain fell at Cambridge in the afternoon and evening.

The warm humid air spread eastward, and by Thursday covered most of the Nation from the Plains to the Atlantic. Thunderstorms developed in a spotty fashion in this broad area. At Cincinnati, Ohio, the wind reached 70 m.p.h. in gusts as half-inch hail pelted down. Cool air prevailed over the Far West from the Pacific to the Rockies. Another batch of cool air pushed from Canada into the northern tier of States.

Hot, humid weather continued over the weekend over the midsection and Southeast. Afternoon temperatures climbed far into the 90's for several days and overnight temperatures dropped only to the 60's or 70's. The exceptions were the Northern Border States where overnight temperatures fell below 60°. The scattered showers and thunderstorms brought only partial relief from the heat and humidity.

By Sunday evening and early Monday morning, the cool air mass from Canada was pushing slowly southward across the Northern Border States. South of the front, hot, humid air from the Gulf and tropical Atlantic continued in control. The western half of the Nation was mostly cloudy and cool.

(Continued on page 651)

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - OREGON - Camnula pellucida emerging in extremely high numbers from exposed egg beds in northern Harney County. High seasonal stream runoffs flooding meadow hay land and severely hampering surveys. Limited surveys indicate that 2,000 acres of wildlife refuge land and 200 acres of private hay lands are infested. At least 2,000 acres of private hay lands heavily infested in Alvord area, southern Harney County, with 'hoppers advanced to third stage. Extremely wet conditions in latter area also hampering surveys and delaying egg hatch. (Jackson, Goeden). IDAHO - Grasshoppers appearing in areas carrying very low adult populations last summer. Ranged 2-18 per square yard over several thousand acres in Saylor Creek area south of Glens Ferry. Populations relatively low, ranging from less than 1 to 32 per square yard, in Notch Butte area in Jerome and Lincoln Counties, but hatch not complete. Areas along Clearwater River show 5-7 per square yard, with most 'hoppers in first and third stages. Reported moving into grain fields in Camas County in sufficient numbers that controls planned for some fields. Principal species in Notch Butte and Saylor Creek areas are Oedaleonotus enigma, Melanoplus sanguinipes and various banded wing species. Few adult Psoloecia delicatula present both places. Unidentified grasshoppers, probably C. pellucida, now hatching generally in Nez Perce area. First, and possibly second instars, being noted in clover and wheat and along roadsides north and east of Nez Perce. (Dailey). NEVADA - Early instars of various species reported heavy on lower west slopes of Santa Rosa Mountains and in areas adjacent to cultivated crops in Orovada area, Humboldt County. (Lauderdale). WYOMING - Preliminary observations in Fort Laramie, Guernsey and Lingle areas of Platte and Goshen Counties indicate that hatching still incomplete in some areas, while others show 30 grasshoppers per square foot. (Spackman). UTAH - Heavy nymphal populations encountered in North Farmington, Davis County; largely 2-3 instars. (Knowlton). NEW MEXICO - Appearing in alfalfa in Bernalillo, Valencia and Sandoval Counties; nymphs averaged 15-40 per 100 sweeps in several fields checked. (N. M. Coop. Rpt.). TEXAS - Nymphs of Aeoloplides turnbulli, Allocara elliotti, Cordillacris crenulata crenulata, Ageneotettix deorum deorum and Melanoplus spp. averaged 1-4 per square yard on short grass range; hatching slow; nymphs in "shinnery" areas averaged 4-5 per square yard in panhandle and south plains areas. (Tex. Coop. Rpt.; Russell et al.). Light to moderate populations on corn and cotton in De Witt and Karnes Counties, around field margins. (Tex. Coop. Rpt.; Smith). SOUTH DAKOTA - Hatch continuing but numbers low in both rangeland and cropland to June 6. Counts in rangeland in Elk Mountain area of western Custer County vary 10-30 nymphs per square yard; Ageneotettix deorum, Melanoplus sanguinipes and M. confusus involved, mostly first, second and third instars. Elsewhere on rangeland, nymphs per square yard vary from less than one to up to 5. In central area, margins of cultivated fields show populations of up to 20 per square yard in some areas; alfalfa and soil bank fields have up to 5 nymphs per square yard; M. bivittatus and M. sanguinipes (first to third instar). (Burge). NORTH DAKOTA - Nymphal survey conducted in Burke, McHenry, Bottineau, Renville and Pierce Counties. Populations ranged 1-40 per square yard. Heaviest counts taken in roadside margins. C. pellucida, M. bivittatus and M. sanguinipes species involved. Heavy roadside vegetation keeping 'hoppers from moving into small grains. Habitats included small grains, soil bank and roadside margins. (Wilson). MINNESOTA - Third instars of M. packardii found in Dakota County. Hatch of M. differentialis and M. femurrubrum observed in same county in light sandy areas; 6-20 newly hatched nymphs per square yard in one soil bank field. (Minn. Ins. Rpt.). WISCONSIN - First to third instars of M. bivittatus, up to 80 per square yard, in some alfalfa in small area of Adams and Waushara Counties; feeding damage becoming evident. First M. femurrubrum and M. differentialis nymphs of season noted in thinner alfalfa in Marquette and Adams Counties; about 5 days later than in 1962. (Wis. Ins. Sur.). MISSOURI - Hatching of Melanoplus spp. resumed after period of cool, wet weather. Populations ranged 15-40 per square yard in northern hatching areas. Nymphs light, 0-8 per square yard, in soybeans and pastures in some instances. (Daugherty). ILLINOIS - Main hatch of Melanoplus spp. starting in grass pastures, roadsides, etc., in west and west-southwest districts. Populations,

mostly first instar, varied 30-230 (average 80) per 100 sweeps in west, 0-10 (average 3.3) in central and 10-800 (average 365) in west-southwest. Longhorn grasshoppers averaged 35, 87 and 260 per 100 sweeps in grass in west, central and west-southwest districts, respectively. (Ill. Ins. Rpt.). ALABAMA - Melanoplus femurrubrum light to medium on isolated soybeans in Randolph County. (Barwood, Davis).

MORMON CRICKET (Anabrus simplex) - OREGON - Small, migratory bands observed crossing highway in northeastern Morrow County. (Moose).

EUROPEAN CORN BORER (Ostrinia nubilalis) - MARYLAND - First larval infestations of season found June 6 in garden sweet corn in Wicomico County. (U. Md., Ent. Dept.). NEW JERSEY - Few moths collected in light traps in Burlington and Middlesex Counties; no egg masses observed on corn or potatoes in central area. (Ins.-Dis. Newsltr., June 4). MASSACHUSETTS - Large numbers of eggs laid June 5 in Springfield area; hatching expected June 10-11. Moth emergence and egg laying expected to increase rapidly. (Wheeler). NEW YORK - Male moth found on weeds at Hurley, May 29, but none had emerged May 31 in field cage containing 20 larvae and pupae. (N. Y. Wkly. Rpt.). OHIO - Adult emergence began at Wooster, Wayne County, on June 2; several moths collected in Wooster light trap during past few days. Pupae observed in Van Wert County corn fields. (Guthrie, Wells). MICHIGAN - First-laid eggs found in Wayne County June 2; 5 days earlier than previously found during 15 years of survey work. (Janes). ILLINOIS - Eggs started hatching in west-southwest district; moths laying eggs in northwest and northeast districts. Egg masses per 100 plants as follows: West district, fresh 4-8, average 5.3; developing 0-4, average 1.3; blackhead and hatch 0. West-southwest district, fresh 4-8, average 4.8; developing 4-12, average 6.4; blackhead 0-4, average 1.6; and hatch 0-4, average 2.4, first-instars per 100 plants 0-76, average 21.6; 10-20 developing egg masses per 100 stalks, average 13, observed in east district. (Ill. Ins. Rpt.). IOWA - Emergence 26 percent at Ankeny on May 31, with 3 egg masses per 100 plants on 8-12 inch corn. (Iowa Ins. Inf.). MINNESOTA - Pupation and moth emergence found in southeast and south central districts. In some fields, high percentage had emerged. No pupation found in west central district. (Minn. Ins. Rpt.). NORTH DAKOTA - Pupation 50 percent in Sargent County; few moths appeared in blacklight trap in Fargo. (N. D. Ins. Sur.). SOUTH DAKOTA - Pupation 85-90 percent completed in south-eastern area. (Hintz). NEBRASKA - Adult emergence 100 percent in infested fields surveyed in central and eastern areas. Very high numbers of adults active in a Madison County corn stubble field. (Bergman). KANSAS - Populations low in north central counties; mostly adults and pupae. Eggs not yet found. Very little corn over 24 inches extended leaf height. (Burkhardt). WISCONSIN - Moth flight for first generation has been largest for several years. (Wis. Ins. Sur.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - First-generation larvae in Desha County, southeast, 10 percent in fifth stage, 70 percent in fourth stage and 20 percent in third stage. Fourth and fifth stages now in stalks, while third stage just entering stalks. (Ark. Ins. Sur.).

STALK BORER (Papaipema nebris) - MISSOURI - Reports of infestations in marginal rows of corn and other crops continue. Larvae in central and northern areas very small to half grown. (Munson, Thomas, Wood). MINNESOTA - White heads appearing in rye and winter wheat in southeast and south central districts. Margins of fields being attacked. (Minn. Ins. Rpt.).

SUGARCANE BORER (Diatraea saccharalis) - TEXAS - Infesting 8-34 percent of corn stalks in areas of Brazoria County. (Randolph).

ARMYWORM (Pseudaletia unipuncta) - NORTH CAROLINA - Locally damaging small grains in Halifax County. (Peedin). MARYLAND - Few moderate infestations reported in small grains in Queen Annes and Worcester Counties. (U. Md., Ent. Dept.). OHIO - Larvae observed in 3 fields of corn near London, Madison County. (Moore, Holdsworth). INDIANA - Crop-damaging populations occur in localized

areas in southern counties, with damage as far north as White County, west central area. Counts range to highs of 7 larvae per linear foot of drill row, but average less. Diseased larvae on wheat heads in southwestern counties. (Matthew). ILLINOIS - Several reports of damage to wheat, and of treatments being applied, received from east-southeast district. (Ill. Ins. Rpt.). MISSOURI - Very low larval populations continue to be found in northern areas; observed in down spots in wheat and barley. Majority of larvae full grown and high percentage parasitized. (Munson, Thomas, Wood). WISCONSIN - Larvae occasionally swept from oats in Iowa, Rock and Dane Counties. (Wis. Ins. Sur.).

BLACK CUTWORM (*Agrotis ipsilon*) - IOWA - Damaged corn on sodfield in Jones County; 1-2 larvae per hill, with 60-70 percent of hills damaged in low areas. (Iowa Ins. Inf., June 3). NEBRASKA - Causing minor damage to corn in some eastern and central areas. (Bergman).

CORN EARWORM (*Heliothis zea*) - TEXAS - Moderate, local populations causing damage on corn in Hunt County. (Tex. Coop. Rpt.; Currie). Moderate to heavy, local infestations feeding on tassels of corn in McLennan County. (Tex. Coop. Rpt.; Jackson). OKLAHOMA - Light on alfalfa in southwest, 2 per 10 sweeps; light on corn in Tulsa County. (Okla. Coop. Sur.). ALABAMA - Causing considerable damage to early corn in home gardens in Lee County. (McQueen).

CORN ROOT WEBWORM (*Crambus caliginosellus*) - NORTH CAROLINA - Injured 70-80 percent of corn plants in 7-acre field in Caswell County; partially responsible for replanting of 6-acre cornfield on Montgomery-Randolph County line. (Aldridge, Mount). VIRGINIA - Larvae moderately severe in 5-acre field of field corn in Pittsylvania County. (Dominick, May 31).

CEREAL LEAF BEETLE (*Oulema melanopa*) - OHIO - Two adults and 4 larvae collected in 4 different oat fields near Nettle Lake in Williams County, northwest. Found in sections 10, 11, 14 and 15 of Williams County near Michigan State line. This is a new State record. (Moore, Jones). First collection made June 3. (Porter). INDIANA - Infestations have now spread to include 15 counties and 72 townships. Counties recently added include Miami, Cass, Pulaski, Jasper, Steuben and Lagrange. (Ind. Cons. Dept., Ent. Div.; PPC). Few pupae recovered from soil. (Paschke, Wilson). See CEIR 13(18):456, 13(19):481 and 13(21):566 for previous county records in Indiana. MICHIGAN - Aerial treatment program completed June 5; re-treatment of some 6,000 acres brought total acreage treated in Berrien and Cass Counties to about 39,000. Injury by larval feeding very pronounced on oats, wheat and some grasses. Recent warm weather contributed to increased activity, including larval feeding. Over 50 percent of larvae in fourth or final stage; few pupae observed June 3. An estimated 75 percent of overwintering adults, exclusive of those killed by treatment program, have died. Few eggs still being deposited on oats which appears to be "catch crop" under light infestation conditions. (Cath, Castro). Branch County found infested for first time; 9 sections in 6 townships. In Hillsdale County, 16 sections of 5 townships harbor very light populations; 1 adult per 200 sweeps in oats. Numbers apparently quite low in other Michigan counties near area of primary infestation in Berrien and Cass Counties. (Ring, Turner, Castro; May 31).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - WISCONSIN - Common in most alfalfa and small grain fields. (Wis. Ins. Sur.). ILLINOIS - Adults feeding on 0-9 (average 3.5) percent of plants in field corn in west district, 0-20 (average 5.3) percent in central and 12-36 (average 20) percent in west-southwest district. From 0-12 beetles found per 100 plants. (Ill. Ins. Rpt.). KANSAS - Adults average 3 per 5 corn plants in several fields in Republic County, north central. (Burkhardt).

WESTERN CORN ROOTWORM (*Diabrotica virgifera*) - KANSAS - Over 50 percent of eggs hatched in Riley County, northeast. Larval growth ranges from first to few third stage. (Burkhardt).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ILLINOIS - Adults vary 30-150 (average 90) per 100 plants in field corn in west-southwest district. (Ill. Ins. Rpt.). MARYLAND - Light to moderate on field and sweet corn in four Eastern Shore counties. (U. Md., Ent. Dept.).

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - UTAH - Light to damaging on corn in lower areas of Washington County. (Knowlton).

A SCARAB (Pleurophorus caesus) - IDAHO - Adults numerous in popcorn seed fields in Canyon County. (Scott).

BILLBUGS (Sphenophorus spp.) - MICHIGAN - Adults damaging young corn in Ingham, Washtenaw and Lenawee Counties. (Johnson, Smith).

WIREWORMS - KANSAS - Populations of one per plant causing corn to die in spots in Riley County, northeast, and Shawnee County, east central. No replanting necessary to June 7. (Burkhardt). WISCONSIN - Reports from Calumet, Marathon, Wood and Monroe Counties indicate more than normal damage; 50 percent of field in Lincoln County severely damaged and some replanting occurred in Dodge County. (Wis. Ins. Sur.). ILLINOIS - Damaging 0-3 (average 0.5) percent of corn plants in west district, 1-9 (average 5.5) percent in central district, and 0-1 (average 0.2) percent in west-southwest district. Reports of damage also received from northwest district. (Ill. Ins. Rpt.). OHIO - Partial damage occurred in field corn near Circleville, Pickaway County (Blair, Hamrick); 25 percent damage occurred to stand of sweet corn in Washington County, a field in continuous corn for number of years (Stacy). NORTH CAROLINA - Melanotus communis severely damaged 3 acres of corn in Rutherford County. (J. Wilson).

GREENBUG (Schizaphis graminum) - COLORADO - Trace numbers on spring grain in Larimer and Weld Counties; reproduction of alates started. (Branson, Jenkins). MINNESOTA - Ranged 0-140 per 100 sweeps in small grains in southeast and south central districts; most counts low, 0-10 per 100 sweeps. Predator counts in many fields high. (Minn. Ins. Rpt.). WISCONSIN - Up to 10 per sweep. (Wis. Ins. Sur.). ILLINOIS - Varied 80-150 per 100 sweeps in oats in central and west districts. (Ill. Ins. Rpt.). OHIO - Found in Hamilton, Preble and Butler Counties. Stem mothers and brood abundant in Preble County on oat plants. (Flake, Hooven).

ENGLISH GRAIN APHID (Macrosiphum avenae) - ILLINOIS - Up to 10 per sweep in wheat and oats in central and western districts. (Ill. Ins. Rpt.). WISCONSIN - Up to 10 per sweep in grains. (Wis. Ins. Sur.). MINNESOTA - Low, 0-40 per 100 sweeps, in southeast and south central districts. (Minn. Ins. Rpt.). WASHINGTON - Apteræ and alatae lightly infesting wheat in early milk stage at Walla Walla, Walla Walla County. (Landis).

CORN LEAF APHID (Rhopalosiphum maidis) - UTAH - Very light on wheat and barley examined in San Juan and Grand Counties. (Knowlton). Populations high and damaging number of barley fields in Layton, Clinton and West Point areas of Davis County. (Knowlton, Stokes). OKLAHOMA - Light in corn and sorghum fields in central and southwest, less than 20 per terminal in sorghum. (Okla. Coop. Sur.).

CORN ROOT APHID (Anuraphis maidiradicis) - NEBRASKA - Populations sufficient to cause stunting of young corn plants in Madison County. (Roselle).

CHINCH BUG (Blissus leucopterus) - TEXAS - Heavy in corn and grain sorghum in areas of Refugio, Victoria, Jackson and Calhoun Counties. (Tex. Coop. Rpt.).

A WHEATGRASS BUG (Labops hesperius) - COLORADO - Present on crested wheatgrass in Routt County. (Hantsbarger).

SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) - MINNESOTA - Counts on small grains ranged 0-500 per 100 sweeps in southeast, west central and south central districts; very low percentage of leafhoppers carrying aster yellows virus. Aster yellows not expected to be a problem this year. (Minn. Ins. Rpt.).

CORN BLOTCH LEAF MINER (*Agromyza parvicornis*) - MASSACHUSETTS - Adults abundant and adult feeding and egg-laying injury very noticeable in some fields. First (lowest) leaves on many plants practically white and one nearly mature maggot found in mine. (Wheeler).

SEED-CORN MAGGOT (*Hylemya platura**) - OHIO - Damage occurred to soybeans near Findlay, Hancock County. (Kroetz, Holdsworth). MICHIGAN - Injury necessitated replanting corn fields in Mason and Sanilac Counties; also damaged melons in Berrien County. (Raven, Sowerby, Tatter).

WHEAT STEM MAGGOT (*Hylemya cerealis*) - COLORADO - Damage evident in some wheat fields in Weld County. (Jenkins).

A BARLEY THRIPS (*Limothrips denticornis*) - NORTH DAKOTA - Five adults and nymphs per stem observed in field of rye in northern Cass County. (N. D. Ins. Sur.).

THRIPS - ARIZONA - Continue a problem on Bermuda grass; controls applied. (Ariz. Coop. Sur.). MISSOURI - Heavy infestations causing silvering in several fields of late-planted corn in west central and southwest areas. (Munson, Thomas, Wood). ILLINOIS - Common on corn in west-southwest district. (Ill. Ins. Rpt.). MARYLAND - Light to heavy on alfalfa, barley, corn and soybeans in all sections. (U. Md., Ent. Dept.).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - COLORADO - Colonies yellowing lower leaves of corn in some fields in Weld and Larimer Counties. (Jenkins).

ALFALFA WEEVIL (*Hypera postica*) - WASHINGTON - Light infestation of late instars on field of alfalfa at Clarkston, Asotin County. First observed commercial damage in State. (Bond, Telford). NEVADA - Larval damage continues heavy in untreated alfalfa and in many fields which received adult control in Churchill, Douglas, Lyon, Pershing and Washoe Counties. Larval treatments being applied to many fields and pupation has begun in several areas. (Coop. Rpt.). UTAH - Alfalfa now being cut shows light to moderately severe damage in northern and central areas; some larval treatments being applied. Adults generally present; often numerous. (Knowlton, May 31). Damage becoming conspicuous in several areas of Cache County. (Knowlton, June 4). WYOMING - Adults 0-45 and larvae 0-800 per 50 sweeps in alfalfa in 11 fields surveyed in Bear Creek-Shell-Basin area of Big Horn County. (Fronk). COLORADO - Larvae causing considerable damage to alfalfa in Larimer and Weld Counties; many fields being cut, but controls may be necessary after hay is removed. Larval counts in Larimer, Weld and Garfield Counties ranged 200-3,000 per 100 sweeps. (Jenkins, Bulla). Larval survey in eastern area May 21-22 indicated populations per 100 sweeps by county at 1.2 in Prowers, 7.5 in Bent, 21 in Otero, 27 in Morgan, 100 in Washington and 2.1 in Yuma. (Manglitz). KANSAS - Survey on May 21 gave following results: Finney County - 3 fields examined, one infested with 7 larvae per 100 sweeps; Kearny County - one field examined, no weevils in 100 sweeps; Hamilton County - 3 fields examined, one infested with 3 larvae per 200 sweeps. (Manglitz). MISSISSIPPI - Adults collected during April on Mississippi State University campus, Oktibbeha County, by Melvin Burton. This is the first report from the State. (Brazzel). Reported light to heavy in several northern counties May 20-24 on alfalfa and crimson clover. (Ouzts). GEORGIA - Two larvae per sweep on untreated alfalfa in Paulding County. (Johnson). VIRGINIA - Very light to light infestations on second-cutting alfalfa in Appomattox and Cumberland Counties. (Tarpley). MARYLAND - Larvae and numerous first-generation adults causing

* Hennig, W. 1938. Arb. Phys. Angew. Ent. Berlin - Dahlem 5(3):281.

noticeable injury to second-growth alfalfa in eastern and central sections. (U. Md., Ent. Dept.). PENNSYLVANIA - Considerable damage evident in alfalfa generally; improperly sprayed fields with varying effectiveness. (Udine). First year of economic damage in northeast; larvae pupating. (Gesell). Many small larvae still present in northwest. (Adams). NEW YORK - Building up very rapidly in localized spots of one-quarter acre or less throughout Ulster County, larger numbers in Gardiner-Walkkill area. First cocoons found May 31. Harvest rapidly getting underway. (N. Y. Wkly. Rpt., June 3).

CLOVER HEAD WEEVIL (Hypera meles) - OHIO - Four adults per 50 sweeps collected from field of alfalfa in Fulton County. (Lyon).

CLOVER LEAF WEEVIL (Hypera punctata) - UTAH - Damage has been light and spotted in northern and central areas this year. (Knowlton).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ALABAMA - Light to medium on clover in Clay, Tallapoosa and Chamber Counties. (Barwood, Davis). MISSISSIPPI - Report in CEIR 13(22):575 (combined with clover leaf weevil) is first ARS record for species in State. (PPC).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - IDAHO - Counts ranged 1-7 per sweep, with higher counts recorded along field margins of white clover in Bonners Ferry area. Presently, fields about 10 percent of full bloom. (Ingle, Portman).

VETCH BRUCHID (Bruchus brachialis) - ILLINOIS - Collected in Brown County for first time. (Ill. Ins. Rpt.).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - Larvae averaged 12 per square yard in 2 lawns in Watauga County. (Johnson).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ILLINOIS - Adults varied 0-80 (average 25) per 100 feet of row in soybeans in central and west-southwest districts. One field in west-southwest district had an estimated 15 percent of leaf area destroyed. (Ill. Ins. Rpt.). MARYLAND - Adults causing conspicuous foliage injury to young soybeans on Eastern Shore. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - SOUTH CAROLINA - Damaging soybeans in Chesterfield, Lee and Allendale Counties. (Nettles et al., June 4). NORTH CAROLINA - Light in field of soybeans in Pender County and infesting field in Carteret County. (White, McKee). MARYLAND - Adults causing moderate injury to soybeans near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

PEA APHID (Acyrtosiphon pisum) - WASHINGTON - At Walla Walla, Walla Walla County, infestations late on alfalfa but rapidly increasing; average of 10 alfalfa fields, 245 per 10 sweeps. (Landis). UTAH - Moderately numerous in some alfalfa fields at Moab, Grand County. Infestations being held down by large populations of four species of lady beetles, Geocoris sp., Nabis alternatus and Nabis spp., Orius tristicolor and O. insidiosus, lacewings and syrphid fly larvae. (Knowlton, May 31). ARIZONA - Increasing on alfalfa in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Moderate to heavy in northern Bernallillo County alfalfa. Generally light in most alfalfa in northern Dona Ana County, probably due to heavy populations of lady beetles, Nabis spp. and lacewings. (N. M. Coop. Rpt.). OKLAHOMA - Light throughout State. (Okla. Coop. Sur.). ARKANSAS - Numbers in alfalfa similar to previous week in northwest; approximately 100 per 100 sweeps, with few fields having slightly higher numbers. (Ark. Ins. Sur.). COLORADO - Populations variable, 5,000-10,000 per 100 sweeps in Delta and Montrose Counties and 100-500 per 100 sweeps in Larimer and Weld Counties. Parasites very effective in controlling infestations in northeastern area. (Bulla, Jenkins). WYOMING - Averaged 300 per 100 sweeps in alfalfa in Hot Springs County and 200 per 100 sweeps in Albany County. (Fullerton).

SOUTH DAKOTA - Found on alfalfa throughout southeast; variable, up to 1,000 per 100 sweeps. Uncut alfalfa yellowed. (Hintz). **NORTH DAKOTA** - Building up in some areas; 200 per 100 sweeps on alfalfa in Havana area, Sargent County. Predators, lady beetles, Nabis spp. and lacewings, increased in most alfalfa and sweetclover in southeast. (N. D. Ins. Sur.). **MINNESOTA** - Populations increased sharply in alfalfa; ranged 80-3,000 per 100 sweeps in southeast and south central districts and averaged 110 per 100 sweeps in west central district. No damage observed; growing conditions generally good. Predator buildup evident. (Minn. Ins. Rpt.). **WISCONSIN** - Populations continue to increase on alfalfa; counts averaged 8-150 per sweep. Unusually high on regrowth alfalfa. (Wis. Ins. Sur.). **IOWA** - Ranged 5-100 per 10 sweeps in eastern area; lady beetles averaged 2 per 10 sweeps and *Chrysopa oculata* 2-3 per 10 sweeps. (Iowa Ins. Inf., June 3). **ILLINOIS** - Quite variable in clover and alfalfa (0.8-400 per sweep) in west, central and west-southwest districts. (Ill. Ins. Rpt.). **MICHIGAN** - Damaging populations on alfalfa and clover in such counties as Wayne, Eaton and Sanilac. (Janes, Johnson, Sowerby). **PENNSYLVANIA** - Decreasing considerably in southwest on alfalfa. (Udine). **MARYLAND** - Populations ranged 35-53 per sweep on second-growth alfalfa in Queen Annes County. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - **SOUTH DAKOTA** - Generally found throughout southeastern quarter of State; ranged from 4 apterous forms per 100 sweeps in Hutchinson and Turner Counties to 320 per 100 sweeps in Gregory County alfalfa. Eighty of 320 aphids in Gregory County alate. (Hintz). **NEBRASKA** - Counts 5-10 per 10 sweeps in Cuming, Madison, Platte and Stanton Counties. (Bergman). **KANSAS** - One per sweep in Comanche County, south central; none found in Finney and Hamilton Counties, southwest. (Peters). **OKLAHOMA** - Light in south central and southwest sections, 10-40 per 10 sweeps. (Okla. Coop. Sur.).

SWEETCLOVER APHID (*Therioaphis riehmi*) - **SOUTH DAKOTA** - Counts 25 per 10 sweeps in Yankton County sweetclover. (Hintz).

POTATO LEAFHOPPER (*Empoasca fabae*) - **MARYLAND** - First adults of season swept from alfalfa June 4 at Carmichael, Queen Annes County. (U. Md., Ent. Dept.). **ILLINOIS** - Populations very low, 60-180 adults and 0 nymphs per 100 sweeps in west district and 0-100 adults and 0-20 nymphs per 100 sweeps in central district. (Ill. Ins. Rpt.). **WISCONSIN** - Populations decreased considerably in alfalfa. (Wis. Ins. Sur.). **SOUTH DAKOTA** - Counts 2 per 10 sweeps in McCook County alfalfa. (Hintz).

CLOVER LEAFHOPPER (*Aceratagallia sanguinolenta*) - **UTAH** - Numerous in alfalfa at Moab, Grand County. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - **ARIZONA** - Decreased greatly in Yuma County alfalfa. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (*Philaenus spumarius*) - **MARYLAND** - First adults of season swept June 4 from alfalfa at Centreville, Queen Annes County. (U. Md., Ent. Dept.). **PENNSYLVANIA** - Abundant locally in Westmoreland County on alfalfa, clover, barley and oats. (Udine). **OHIO** - Moderate to heavy populations of adults and late instars collected from yellow sweetclover in Union and Logan Counties; 10-15 per 10 plants frequently found in Union County along roadsides. Lighter infestations occurred in forage fields. (Lyon). **MICHIGAN** - Nymphs and resultant spittle masses more numerous in many southern areas than during other recent years. (Janes, Tatter, Machele, Gardner, Juachartz, Comstock, Raven). **WISCONSIN** - Infestations extremely variable, although general infestation appears light. Portions of Grant, Richland and Dane Counties have fields with average of 2 spittle masses per stem. (Wis. Ins. Sur.). **IOWA** - Moderate to heavy infestations reported from Lucas County; observed in Linn, Cedar, Jones and Story Counties May 28-31. One field of alfalfa in Jones County had 8-10 spittle masses per 10 stems, but alfalfa 12-15 inches tall. Much too late to treat. (Iowa Ins. Inf.).

PLANT BUGS (Lygus lineolaris, Adelphocoris lineolatus, A. rapidus) - NEBRASKA - Very high nymphal populations range 20-50 per sweep in alfalfa in Madison and Cuming Counties. (Bergman). SOUTH DAKOTA - Observed throughout southeast; counts generally 3-15 per 10 sweeps, although field of alfalfa in Charles Mix County had 53 per 10 sweeps. (Hintz). WISCONSIN - Remain prevalent in alfalfa; averaged 3-20 per sweep in most southern fields. Adults of A. lineolatus and A. rapidus becoming more common. (Wis. Ins. Sur.). ILLINOIS - Adults of A. lineolatus varied 20-80 (average 50) per 100 sweeps in clover-alfalfa mixtures in west district and 0-30 (average 15) per 100 sweeps in central district. Nymphs averaged 60 per 100 sweeps in west and 0 in central districts. A. rapidus averaged 30 and 10 per 100 sweeps, respectively, in west and central districts in clover and alfalfa, while nymphs averaged 10 and 0, respectively. L. lineolaris averaged 330 adults and 280 nymphs per 100 sweeps in clover and alfalfa in west district and 270 adults and 80 nymphs in central district. (Ill. Ins. Rpt.). OHIO - A. rapidus moderate to heavy in northwest; 20-30 per 50 sweeps in Williams County alfalfa. Both nymphs and adults of L. lineolaris easily collected in many northwest area alfalfa and red clover fields; counts 8-10 per 50 sweeps. Nymphs of A. lineolatus abundant in many northwestern area forage fields. (Lyon). MARYLAND - Adults of L. lineolaris common in alfalfa and red clover in Queen Annes County. (U. Md., Ent. Dept.). ARKANSAS - L. lineolaris continues to develop in alfalfa; nymphs somewhat lower in proportion to adults than in previous week, but total number comparable to a week ago. (Ark. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Ranged 120-500 adults and nymphs per 100 sweeps on alfalfa in Yuma County. (Ariz. Coop. Sur.). NEVADA - Treatments to be applied to alfalfa seed fields in Orovalda, Humboldt County, as soon as weather conditions permit. (Lauderdale). UTAH - Populations high in Millard and Juab County alfalfa intended for seed production. Nymphs often conspicuous; controls being applied. (Knowlton, May 31). L. elisus largely, and some L. hesperus, nymphs becoming adult, even in northern localities. (Knowlton, June 4). WYOMING - Adults averaged 38 per 100 sweeps in Hot Springs County and 12 per 100 sweeps in Albany County alfalfa. (Fullerton).

MEADOW PLANT BUG (Leptopterna dolabratus) - ILLINOIS - Varied 0-200 (average 73) per 100 sweeps in grassy roadsides, etc., in west, 40-230 (average 130) in central and 0-50 (average 13) in west-southwest district. (Ill. Ins. Rpt.). OHIO - Nymphs 4-5 per 50 sweeps in field of timothy in Williams County. (Lyon).

SUPERB PLANT BUG (Adelphocoris superbus) - UTAH - Adults and nymphs in alfalfa at Moab, Grand County. (Knowlton).

GARDEN FLEAHOPPER (Halticus bracteatus) - ILLINOIS - Adults averaged 200 per 100 sweeps in field of mixed clover-alfalfa in Fulton County. (Ill. Ins. Rpt.).

PLANT BUGS (undetermined) - ILLINOIS - Varied 400-760 (average 580) per 100 sweeps in grass in central district and 0-100 (average 50) in west-southwest district. (Ill. Ins. Rpt.).

SAY STINK BUG (Chlorochroa sayi) - UTAH - Large nymphs moderately numerous on range plants on desert about Moab, Grand County. (Knowlton, May 31). Adult flights noted at Vernal on May 27. Nymphs appearing on range plants in south central area. (Thornley, Knowlton; June 4).

ALFALFA CATERPILLAR (Colias eurytheme) - UTAH - Generally light to scarce in southwestern and south central areas. (Knowlton, May 31). NEW MEXICO - Larvae generally light in alfalfa checked in Bernalillo, Valencia, Sierra and Dona Ana Counties. (N. M. Coop. Rpt.). COLORADO - Trace numbers of larvae in alfalfa in Weld County; 10 per 100 sweeps. (Jenkins). ARKANSAS - Numbers low in alfalfa in northwest; 4-6 per 100 sweeps. (Ark. Ins. Sur.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - UTAH - Damage to alfalfa well below normal this season. (Knowlton). IDAHO - Adults appearing in small numbers in Parma area. (Scott, Waters).

GARDEN WEBWORM (Loxostege similalis) - OKLAHOMA - Medium in southwest and south central sections; 4-7 per 10 sweeps. (Okla. Coop. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - SOUTH DAKOTA - Larvae collected in alfalfa from Charles Mix, McCook and Yankton Counties; ranged from less than one to 3 per 10 sweeps. (Hintz). OKLAHOMA - Light, 0-6 per 10 sweeps, in all areas reporting. (Okla. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARKANSAS - Numbers low in northwest area alfalfa; 3-5 per 100 sweeps. (Ark. Ins. Sur.).

A CLOVER SEED CHALCID (Bruchophagus platyptera) - IDAHO - Populations increasing slowly in Parma area; adults averaged 3 per 2 sweeps in red clover. (Waters).

GARDEN SYMPHYLAN (Scutigera immaculata) - IOWA - Damaging soybeans in Jones County; all sizes present May 31. (Iowa Ins. Inf.).

SPIDER MITES - ARIZONA - Continue a problem in alfalfa in Yuma area and showing up in Bermuda grass fields; controls applied. (Ariz. Coop. Sur.). MARYLAND - Threatening populations of Tetranychus sp. appearing on red clover in Carroll and Queen Annes Counties. (U. Md., Ent. Dept.). FLORIDA - T. cinnabarinus severe on black valentine beans at Groveland, Lake County. (Brown, Henderson; May 20).

FRUIT INSECTS

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Eggs deposited by overwintering brood hatching rapidly. (Wheeler). CONNECTICUT - Large numbers of eggs, but few adults, noted at Niantic. (Savos). NEW YORK - First summer eggs found in Clinton County May 28. (N. Y. Wkly. Rpt.). MICHIGAN - No buildup to date, although adults and nymphs common in untreated orchards in fruit-growing areas. (Carpenter, Tatter, Mullett; May 31).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CONNECTICUT - Steadily increasing in Litchfield; heavy on scattered trees around Woodstock; controls needed. (Savos). PENNSYLVANIA - Appearing, but populations low in south central area on apples. (Pepper). MISSOURI - Buildup expected if weather stays hot and dry; abundant on weeds in and around orchards in west central area. (Wkly. Rpt. Fr. Grs., June 5). COLORADO - Very low numbers on fruit trees and cover crops in Mesa County. (Bulla).

A SPIDER MITE (Tetranychus mcdanieli) - UTAH - Appearing earlier than usual on apple and peach trees in Bountiful and Cache Valley areas. (Davis).

A FRUIT-TREE MITE (Bryobia rubrioculus) - UTAH - Generally below normal in Washington and Kane Counties on apple and peach orchards. (Knowlton, May 31).

TENT CATERPILLARS (Malacosoma spp.) - WASHINGTON - Full-grown larvae spinning up. Few first instars also present. Attacking apples and other fruit trees. Infestations spotted, but severe in localized areas. Tachinid eggs common on larvae, Friday Harbor, San Juan County. Species mostly M. pluviale, with few M. disstria present. (Baker). IDAHO - M. disstria currently more numerous on fruit and shade trees than in past several years in Bonner and Boundary Counties. (Ingle, McPherson).

PERIODICAL CICADAS - INDIANA - Still emerging, but peak occurred May 24-31. Adults just beginning to oviposit. First eggs laid at Vincennes May 30 and at Freelandville June 3. Movement from wooded areas surrounding orchards into orchards and among trees in orchards increasing. Severe injury from oviposition anticipated; controls urged. (Hamilton, June 4).

CODLING MOTH (*Carpocapsa pomonella*) - CONNECTICUT - Continues unreported in State. (Savos). NEW JERSEY - Entries noted in Burlington County May 28. (Ins.-Dis. Newsltr., June 4). PENNSYLVANIA - First larval entries noted in apples in south central area. (Pepper). NEW YORK - First emergence in cages at Geneva, Ontario County, May 27. First appeared in Monroe County May 28. Cage at Webster with 208 larvae yielded following: May 28 - 12; May 29 - 8; May 30 - 4; May 31 - 4; June 1 - 10; and June 2 - 12. Eggs observed in Monroe County June 2. (N. Y. Wkly. Rpt.). MICHIGAN - One adult emerged in cage in Kent County May 26; several emerged in Van Buren County cages. (Gilmore, Carpenter; May 31). Emergence continues in sizeable numbers in Van Buren, Allegan and Kent Counties. (Carpenter, Howitt, Gilmore, Klackie; June 7). INDIANA - Emergence continues, but populations low enough to permit up to 14 days between treatments in Vincennes area, Knox County. (Hamilton, June 4). MISSOURI - Most orchards show exceptionally good control this year; few new "stings" noted in Kansas City area. (Wkly. Rpt. Fr. Grs., June 5). WISCONSIN - Total of 33 caught in blacklight traps at Gays Mills May 29-June 3; six adults caught at trap in Middleton June 1-3; and 30 adults collected in trap at Madison May 30-June 3. (Wis. Ins. Sur.).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - CONNECTICUT - Larvae ready to pupate recovered in untreated trees around Litchfield. (Savos). RHODE ISLAND - Egg masses found on apple at Exeter, Washington County. (Mathewson). NEW YORK - Eggs about 80 percent hatched in orchard north of Wolcott, Wayne County, May 29. This high percentage may reflect abnormal deposition by prebloom treatments. No hatched eggs found on orchard on Lake Ontario on May 27 when trees in full bloom. (N. Y. Wkly. Rpt., June 3). MICHIGAN - No special problems caused by first brood although a few larvae up to 0.5 inch found in southwestern area. (Carpenter, May 31). MISSOURI - Few larvae reported in Kansas City area; next brood expected soon. Controls excellent to date. (Wkly. Rpt. Fr. Grs., June 5).

APPLE APHID (*Aphis pomi*) - RHODE ISLAND - Alates settling in numbers on tips of apple branches in Smithfield, Providence County; little reproduction yet. (Mathewson). CONNECTICUT - Continues low but more infested terminals can be found. Buildup expected. (Savos). NEW YORK - Alates noted in young apple orchard in Clinton County May 27. Some orchards appear to have early season buildup on terminal growth and in vicinity of fruit clusters. (N. Y. Wkly. Rpt., June 3). MICHIGAN - Building up on apples in southwestern area. (Carpenter, May 31).

ROSY APPLE APHID (*Anuraphis rosea*) - UTAH - Severe on apple at Moab, Grand County. (Knowlton, May 31). COLORADO - Colonies numerous on apple in Delta County and found in some orchards in Garfield County. (Bulla). RHODE ISLAND - Few seen in State. (Mathewson).

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) - COLORADO - Numerous in orchards in Delta County; controls recommended. (Bulla).

PEAR PSYLLA (*Psylla pyricola*) - MICHIGAN - Egg laying by second-brood adults underway since June 1 in Berrien County. (Tatter). RHODE ISLAND - Concentration of nymphs and adults noted on pear in neglected orchard at Exeter, Washington County. (Mathewson).

PEAR RUST MITE (*Epitrimerus pyri*) - CALIFORNIA - Spring development on young pear fruit well started by May 22 in Placerville, El Dorado County. (Cal. Coop. Rpt.).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - ALABAMA - Continues active in peach twigs in Lee County. (McQueen). ARKANSAS - Quite variable; ranged light to heavy statewide. (Ark. Ins. Sur.). MISSOURI - Although none reported, larvae expected in twigs in southeastern area by week of June 10; now full grown in central area. (Wkly. Rpt. Fr. Grs., June 5). INDIANA - Continues between broods in Vincennes area, Knox County. (Hamilton, June 4). OHIO - First-brood, twig-infesting larvae numerous on many untreated peach trees in Washington County. (Stacy). CONNECTICUT - No adults or larvae noted. (Savos).

LESSER PEACH TREE BORER (*Synanthedon pictipes*) - MICHIGAN - First emergence noted in Grand Traverse County. (Mullett, May 31). Adults continue emergency as far north as Charlevoix County. Peach and cherry trees winter injured expected to be hardest hit. (Carpenter, Tatter, and Howitt). OHIO - Caused severe injury to 3 peach trees locally near Fayette, Fulton County; 25-30 "strikes" per tree on trunk and lower limbs. (Lyon).

PEACH TWIG BORER (*Anarsia lineatella*) - UTAH - Injury moderately severe in eastern Box Elder County. (Knowlton, Allred).

PLUM CURCULIO (*Conotrachelus nenuphar*) - MICHIGAN - Injury exceedingly low for this date in State; slight activity noted on stone fruits in southwestern counties May 25-26 when temperatures warmed somewhat. (Carpenter, Tatter, Mullett; May 31). First real injury of season just appearing following several days of hot weather. (Seamans, Mullett, Carpenter). NEW YORK - Feeding and cutting on plums noted in Westchester County. (N.Y. Wkly. Rpt., June 3). RHODE ISLAND - Adults still found; control good in most orchards statewide. Abundant "stinging" noted in neglected orchards in Exeter, Washington County. (Mathewson). CONNECTICUT - Activity continuing around Woodstock, New Haven, Danbury and Storrs; some growers may have trouble with stragglers. (Savos). FLORIDA - Heavy on cultivated, untreated plum at Archer, Alachua County. (Adkins, May 28).

GREEN PEACH APHID (*Myzus persicae*) - COLORADO - Continues present on peach trees in Mesa County; heavy where no controls used. Consists mainly of alates leaving trees for summer host plants. (Bulla). UTAH - Caused severe curling of peach growth in Moab, Grand County. (Knowlton, May 31). CONNECTICUT - Curling and discoloring peach leaves in Litchfield, Granby, Cheshire and Southington. No infestations appear serious and no controls contemplated. (Savos).

AN APHID (*Anuraphis helichrysi*) - NEW MEXICO - Heavy and damaging plum foliage in Las Cruces area, Dona Ana County. (N. M. Coop. Rpt.). UTAH - This and other species severe on plums at Moab, Grand County. (Knowlton, May 31).

TERRAPIN SCALE (*Lecanium nigrofasciatum*) - MARYLAND - Caused heavy damage to 10 peach trees in Baltimore. (U. Md., Ent. Dept.).

HICKORY PLANT BUG (*Neolygus caryae*) - CONNECTICUT - Heavy on peach trees near wooded areas in Bethel and very heavy on hickory nearby. Some controls taken. (Savos).

CHERRY FRUIT FLY (*Rhagoletis cingulata*) - OHIO - Adults emerging at Wooster, Wayne County, June 1. (Still). NEW YORK - First appeared in 3 seeded cages May 30. Cage in Webster, Monroe County, indicated following emergence: May 30 - 4; May 31 - 0; June 1 - 0; and June 2 - 2. (N.Y. Wkly. Rpt., June 3).

BLACK CHERRY FRUIT FLY (*Rhagoletis fausta*) - MICHIGAN - Adults started emerging in cages on June 4. Notices of control application by June 13 sent as far north as Charlevoix, Otsego, Oscoda and Alcona Counties. (Lovitt).

A CHERRY CURCULIO (*Tachypterellus consors cerasi*) - COLORADO - Numerous in cherry orchard west of Fort Collins, Larimer County. (Hantsbarger, Jenkins).

ROSE CHAFER (*Macroductylus subspinosus*) - MICHIGAN - First adults of season noted on cherries in Manistee and Benzie Counties June 4. (Gardner).

BLACK CHERRY APHID (*Myzus cerasi*) - MICHIGAN - Building up on cherries in southwestern area. (Carpenter, May 31). OHIO - Light to moderate on many cherry trees in northwestern area. Lady beetle larvae very effective in holding pest in check. (Brockway, Lyon). COLORADO - Colonies numerous on cherry trees in Larimer County. (Hantsbarger, Jenkins). UTAH - Curling leaves more commonly than during recent years in Wasatch Front orchards. Partly due to reduced controls as frost destroyed much of the sweet cherry crop. (Davis, Knowlton).

CANKERWORMS (Alsophila pometaria and Paleacrita vernata) - MICHIGAN - Causing problem on cherries in many areas. (Hearl, Mullett, Hoffman, Raven, Butcher).

BLACK PECAN APHID (Melanocallis caryaefoliae) - CALIFORNIA - Light on pecan; taken for first time in Sacramento County at Citrus Heights. This species with very limited distribution in State. (Cal. Coop. Rpt.).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - ALABAMA - Heavy on pecans in orchard in Montgomery County; larvae in cases. Larvae feeding without cases in Mobile County. (McCabe, Bagby, Siebels, Wallace).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - Infested 18 percent of pecan clusters in orchard in Montgomery County. (McCabe, Bagby).

PALE TUSSOCK MOTH (Halisidota tessellaris) - ALABAMA - Quite numerous on pecans in Mobile County. (Wallace, Seibels).

AN ARCTIID MOTH (Ecpantheria deflorata) - ALABAMA - Larvae of probably this species collected from pecans; quite common in Winston and Mobile Counties. (McQueen).

LEAF BLOTCH MINERS - ALABAMA - Undetermined species feeding rather freely on pecan leaves in Mobile County. (Seibels, Wallace).

CCCCIDS - CALIFORNIA - Larvae and adults of Phenacoccus gossypii and Saissetia hemisphaerica medium on lime at Hueneme, Ventura County. (Cal. Coop. Rpt.). ARIZONA - Unspecified species heavy on citrus in Maricopa County. (Ariz. Coop. Sur.). FLORIDA - Aonidiella citrina severe on over 11,000 sweet orange trees at Fort Lonesome, Hillsborough County. (Simmons, Custead).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Feeding on new growth in Yuma County. (Ariz. Coop. Sur.).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Continues a problem in some citrus orchards in Yuma County. (Ariz. Coop. Sur.).

Citrus Insect Situation in Florida - End of May - Populations in Freeze-damaged Groves - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 45 percent of groves; 32 percent economic. Population increased to normal level and will continue upward. Highest districts Bartow and ridge. CITRUS RED MITE (Panonychus citri) infested 39 percent of groves; 15 percent economic. Populations will continue increase, but still below normal for May. TEXAS CITRUS MITE (Eutetranychus banksi) infested 23 percent of groves; 3 percent economic; now increasing. APHIDS reached very high level in early May then declined. PURPLE SCALE (Lepidosaphes beckii), GLOVER SCALE (L. gloverii) and CHAFF SCALE (Parlatoria pergandii) present in about 30 percent of groves; nearly all infestations light. BLACK SCALE (Saissetia oleae) crawlers appearing in scattered groves. Populations in Groves with Little or No Freeze Damage - CITRUS RUST MITE infested 18 percent of groves; 7 percent economic. Population recently started to increase from current low levels, especially in ridge and Bartow districts. CITRUS RED MITE infested 51 percent of groves; 27 percent economic. Population below average but with scattered, heavy infestations. Buildup will continue in all districts. TEXAS CITRUS MITE infested 51 percent of groves; 44 percent economic. Above-normal population will continue through June. Scattered, heavy infestations will occur in all districts. PURPLE SCALE infested 54 percent of groves; 28 percent economic. Statewide populations near normal. Most infestations light except in Indian River and ridge districts; little change expected. GLOVER SCALE infested 80 percent of groves; 33 percent economic. Population much above normal and will continue near current level. CHAFF SCALE infested 80 percent of groves; 40 percent economic. Further increase expected in June; population will be much above average level. BLACK SCALE infested 54 percent of groves; 28 percent economic. Population increased to

above normal level and will continue upward through July. Highest districts Indian River and ridge. YELLOW SCALE (Aonidiella citrina) present in 33 percent of groves, which is much above average, whereas FLORIDA RED SCALE (Chrysomphalus aonidum) is in 19 percent of groves and much below average. WHITEFLIES more numerous than usual. MEALYBUGS became numerous in 8 percent of groves, mostly on the east coast. Special Comment - In Groves Defoliated in December - APHIDS increased to unprecedented numbers and caused severe curling of terminals, then quickly disappeared. CITRUS RUST MITE increased to normal level. All other pests increased, but still at low level. In Undamaged Groves, increases were recorded for TEXAS CITRUS MITE, BLACK SCALE, CHAFF SCALE, GLOVER SCALE, YELLOW SCALE, BROWN SOFT SCALE (Coccus hesperidum), WHITEFLIES, MEALYBUGS and CITRUS RED MITE. The first six were above normal in population levels, whereas the latter two were below normal with important infestations only in scattered groves. APHIDS and CITRUS RUST MITE generally declined, but the latter showed strong increase in scattered groves late in May. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

GRAPE BERRY MOTH (Paralobesia viteana) - MICHIGAN - Newly hatched larvae feeding in southwestern area as bloom period nears. Egg hatch in relation to bloom more normal this year following extremely early hatch of 1962. (Carpenter).

LEAFHOPPERS - UTAH - Becoming numerous on grape and Virginia-creepers in Weber County. (Knowlton, Burningham).

CHERRY FRUITWORM (Grapholita packardii) and CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Larvae now entering fruit of blueberries in untreated areas; flights and oviposition will remain at peak until June 17. (Ins.-Dis. Newsltr., June 4).

A LEAF ROLLER MOTH (Sparganosis sp.) - NEW JERSEY - Larvae noted in cranberry bogs drawn very early. (Ins.-Dis. Newsltr., June 4).

SPIREA APHID (Aphis spiraecola) - UTAH - Curling currant apical growth severely in Moab, Grand County. (Knowlton, May 31).

TRUCK CROP INSECTS

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Increasing on sugar beets, potatoes and weeds in Walla Walla, Walla Walla County, and Yakima, Yakima County. (Landis). COLORADO - Trace numbers on early potatoes in Weld County. (Berry, Branson).

BANDED-WING WHITEFLY (Trialeurodes abutilonea) - ARIZONA - Present on squash and tomato plants in Safford area. (Ariz. Coop. Sur.).

CUTWORMS - WISCONSIN - Caused considerable injury in gardens in scattered areas of State. (Wis. Ins. Sur.).

FLEA BEETLES - CONNECTICUT - Moderate to heavy on vegetables. (Minnum). PENNSYLVANIA - Quite active on garden crops in Huntingdon County. (Udine). MICHIGAN - Various species causing severe injury to tomatoes, potatoes and beets in southern counties. (Smith, Tatter, Sowerby). ALABAMA - Epitrix parvula continues heavy on nearly all truck crops grown in Mobile County. (McQueen).

MITES - NEW MEXICO - Problem on cucumbers, beans, peppers, strawberries and raspberries in home gardens in Las Cruces area, Dona Ana County. (N. M. Coop. Rpt.). ARIZONA - Infestations continue, but little control practiced. (Ariz. Coop. Sur.).

THRIPS - MARYLAND - Light to heavy on asparagus, beans, cucumbers and watermelons in 4 Eastern Shore counties. (U. Md., Ent. Dept.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MASSACHUSETTS - Adults abundant in too many Connecticut Valley potato fields; plants along margins of some fields chewed off as leaves develop. Oviposition underway. Controls urged. (Wheeler). RHODE ISLAND - Present statewide, but especially abundant in Newport County; ovipositing abundantly. (Sheehan, Kerr, Mathewson). NEW YORK - Hatching expected soon; numbers at present fewer than normal in Suffolk County on potatoes. (N. Y. Wkly. Rpt., June 3). MARYLAND - Larvae caused heavy damage to several large acreages of potatoes and tomatoes in Dorchester and Wicomico Counties. (U. Md., Ent. Dept.). UTAH - Larvae appeared at Logan, Cache County, on potatoes scarcely 2 inches high. (Knowlton, June 4). Heavy on potato patch at Bountiful, Davis County. (Knowlton, Stokes).

POTATO FLEA BEETLE (Epitrix cucumeris) - PENNSYLVANIA - Scarce on potatoes in York County (Pepper); controls needed in Centre County (Udine). RHODE ISLAND - This and other species on tomatoes, potatoes and cucumbers in West Kingston, Washington County, and Washington, Kent County. Especially heavy on potatoes in Newport County. (Mathewson, Kerr, Sheehan, Peabody). IOWA - Damaging potatoes, tomatoes, radishes and other garden crops. (Iowa Ins. Inf., June 3).

STRIPED FLEA BEETLE (Phyllotreta striolata) - DELAWARE - Fairly common on young pepper plants in one area of Sussex County causing noticeable feeding injury. (Jackson).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Medium on tomato plantings in Niland, and heavy in Winterhaven, Imperial County. (Cal. Coop. Rpt.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Nymphs present on Lycium sp. in early potato-growing area of Weld County. (Berry, Branson). UTAH - Noted occasionally on potatoes in southern Utah County; nymphs scarce. (Knowlton).

POTATO APHID (Macrosiphum euphorbiae) - ALABAMA - Extremely heavy, 25-60 per leaf, on maturing potatoes in Lee County. (McQueen). MARYLAND - Ranged light to moderate on potatoes and tomatoes on lower Eastern Shore. (U. Md., Ent. Dept.). PENNSYLVANIA - Building up rapidly on replanted tomatoes in Adams County; re-planting due to frost. (Pepper).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Problem in some sugar beet fields in Weld County. (Collette, Hantsbarger).

SPINACH LEAF MINER (Pegomya hyoscyami) - WASHINGTON - Light on spinach at Friday Harbor, San Juan County; pest seldom observed in county. (Baker). COLORADO - Eggs range 10-20 per sugar beet in Weld County. (Jenkins). CONNECTICUT - Heavy in untreated plantings of beets and spinach and in many home gardens. (Minnum).

BEET WEBWORM (Loxostege sticticalis) - COLORADO - Adults active around borders of sugar beet fields in Larimer and Weld Counties. No eggs found. (Jenkins).

BLACK CUTWORM (Agrotis ipsilon) - OHIO - Larvae feeding on sugar beets near Dola, Hardin County. Many plants cut off at ground level; damage moderate. Most larvae appeared full grown. Adult numbers increasing at Wooster. (Holdsworth, Rings, Lyon).

BEET LEAFHOPPER (Circulifer tenellus) - IDAHO - Nymphal surveys indicated that rainy weather reduced populations below economic levels in desert areas. Controls scheduled in Rattlesnake Gulch near Mountain Home and in Saylor Creek area near Glenns Ferry will not be undertaken; populations at lowest level of last several years. (Gittins). UTAH - Long distance migration now reached northern area. In Sevier Valley, population in sugar beet fields averaged 0.7 per foot of row. (Dorst, June 4). COLORADO - Controls applied to most sugar beet acreage in Mesa County. (Bulla).

IMPORTED CABBAGEWORM (Pieris rapae) - MARYLAND - Larvae causing heavy damage to garden cabbage in Dorchester, Wicomico and Worcester Counties. (U. Md., Ent. Dept.).

CABBAGE LOOPER (*Trichoplusia ni*) - OKLAHOMA - Heavy on cabbage in Hughes County. (Okla. Coop. Sur.). NEW MEXICO - Occasional larva found in commercial lettuce fields in Valencia County. Most fields treated. (N. M. Coop. Rpt.). MARYLAND - Infesting tomatoes in Caroline County. (U. Md., Ent. Dept.).

DIAMONDBACK MOTH (*Plutella maculipennis*) - UTAH - Below normal in numbers on tansymustard and other wild mustards; common on farms this spring to date. Occasionally moderately numerous on white top in Utah County. (Knowlton, June 4). MARYLAND - Larvae destructive to cabbage and turnips in gardens near Salisbury, Wicomico County. (U. Md., Ent. Dept.).

CABBAGE MAGGOT (*Hylemya brassicae*) - WISCONSIN - Heavy incidence in home gardens; extent within State not known. (Wis. Ins. Sur.). MICHIGAN - Heavy on radishes in Clinton County. (Wells, May 31). RHODE ISLAND - Caused considerable damage in garden in West Kingston, Washington County. (Mathewson).

CABBAGE APHID (*Brevicoryne brassicae*) - WISCONSIN - Building up on some fields of cabbage in Kenosha County; colonies generally do not commence this early in season; cole crops will bear watching. (Wis. Ins. Sur.). MARYLAND - Light to moderate on cabbage in Carroll, Wicomico and Worcester Counties. (U. Md., Ent. Dept.).

HARLEQUIN BUG (*Murgantia histrionica*) - FLORIDA - Moderate on collards at Fat Deer Key, Monroe County. (Hibbard, May 30). ALABAMA - Few specimens taken from turnips and radishes in Lee County. (McQueen).

SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*) - NEW YORK - Plentiful in many lettuce fields in Chester area, Orange County. (N. Y. Wkly. Rpt., June 3). MASSACHUSETTS - All lettuce plantings need protection. (Wheeler).

PEA APHID (*Acyrtosiphon pisum*) - WISCONSIN - Continues to increase in peas. Counts per sweep ranged 1-2 on 8-19 inch peas in Iowa, Dane and Rock Counties and averaged 15 on 4-5 inch peas in Iowa County. Ranged 3-4 per linear foot on 2-4 inch peas in Dane and Rock Counties. (Wis. Ins. Sur.). PENNSYLVANIA - Averaged 3 per 10 sweeps on peas in Clinton County. (Gesell). WASHINGTON - Averaged under one per 10 sweeps on peas at Walla Walla, Walla Walla County. Spring migrations from alfalfa to peas late this year. Fields at lower elevations probably will not require treatment; no virus symptoms in any pea fields. (Landis).

SEED-CORN MAGGOT (*Hylemya platura**) - PENNSYLVANIA - Heavy on lima beans; replanting necessary in York County. (Pepper).

POTATO LEAFHOPPER (*Empoasca fabae*) - WISCONSIN - Very high in commercial lima beans in Rock County. Averaged 1 per plant near margin of field and 1 per 3 plants throughout field. (Wis. Ins. Sur.). MARYLAND - First adults of season collected June 6 from snap beans at Hebron, Wicomico County. (U. Md., Ent. Dept.). PENNSYLVANIA - Average 4 adults per potato plant in Clinton County (Gesell); none found in sweeping potatoes in York County (Pepper).

PEA WEEVIL (*Bruchus pisorum*) - WASHINGTON - Considerable egg deposition on peas at Walla Walla, Walla Walla County; adults fewer than 1 per 10 sweeps. (Landis). IDAHO - Adults moderate in 60 acres of Austrian winter peas just beginning to bloom in Nez Perce area. (Dailey).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - MASSACHUSETTS - Adults found June 6. (Wheeler). RHODE ISLAND - First adults of season found skeletonizing beans in Washington, Kent County, June 5. (Mathewson). MARYLAND - Adults caused noticeable

* Hennig, W. 1938. Arb. Phys. Angew. Ent. Berlin - Dahlem 5(3):281.

injury to snap beans in Carroll and Wicomico Counties. (U. Md., Ent. Dept.). ALABAMA - Medium on snap beans; larvae and egg clusters noted in Lee County. Heavy on most beans inspected in Mobile County. (Seibels et al.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults continue to cause conspicuous foliage injury to snap beans in eastern and central sections. (U. Md., Ent. Dept.). ALABAMA - Light on beans in Lee County; few adults feeding on Lespedeza cuneata. (McQueen).

LESSER CORNSTALK BORER (Elasmopalus lignosellus) - ALABAMA - Heavy on beans in southern Mobile County. (Bolton).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - MARYLAND - Adults ranged light to over 3 per plant on cucumbers, squash and watermelon from Caroline to Worcester Counties. (U. Md., Ent. Dept.). PENNSYLVANIA - Attacked and destroyed squash in one day in Huntingdon County. (Udine). RHODE ISLAND - Adults active on cucurbits in Peace Dale, Washington County. (Stessell, Mathewson). WISCONSIN - Unusually large numbers caught in blacklight trap at Madison. (Wis. Ins. Sur.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - SOUTH DAKOTA - Adults feeding on cucurbits in experimental plots at Brookings, Brookings County. (Howe).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - CALIFORNIA - Adults light on cantaloup vines with white horsenettle growing in the area in Holtville, Imperial County. (Cal. Coop. Rpt.).

SQUASH VINE BORER (Melittia cucurbitae) - GEORGIA - Adults noted flying about squash plants in Spalding County. (Dupree).

SQUASH BUG (Anasa tristis) - OKLAHOMA - Light on squash and pumpkin in Choctaw County. (Okla. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Causing some injury to watermelons in Casa Grande area. (Ariz. Coop. Sur.).

ASPARAGUS BEETLES (Crioceris spp.) - UTAH - C. asparagi and C. duodecimpunctata light in Weber-Davis County area. (Knowlton). WISCONSIN - C. asparagi relatively heavy on asparagus in southern areas. (Wis. Ins. Sur.). RHODE ISLAND - C. asparagi and C. duodecimpunctata common in commercial bed in East Greenwich, Kent County. (Mathewson). MARYLAND - C. asparagi larvae heavy on foliage of asparagus in Carroll County. Adults and eggs numerous on foliage and spears at Hebron, Wicomico County. (U. Md., Ent. Dept.).

ONION MAGGOT (Hylemya antiqua) - NEW YORK - Damage first observed May 30 in Orange County. (N. Y. Wkly. Rpt., June 3). WISCONSIN - Heavy incidence in home gardens; extent in State not known. (Wis. Ins. Sur.). COLORADO - Continues a problem in areas of Weld County. (Titensor).

ONION THRIPS (Thrips tabaci) - UTAH - Discoloring onions in some Washington County fields. (Knowlton, June 4). COLORADO - Ranged 1-15 per plant on onions in Weld County. (Jenkins).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - MARYLAND - Adults causing conspicuous foliage injury to sweetpotatoes in Wicomico and Worcester Counties. Treatments needed. (U. Md., Ent. Dept.).

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) - WASHINGTON - Severely damaged red raspberry plants on 2 farms in Clark County. (Shanks).

RED-NECKED CANE BORER (Agrius ruficollis) - RHODE ISLAND - Swept from blackberry in Kingston, Washington County. (Mathewson).

OMNIVOROUS LEAF TIER (Cnephasia longana) - OREGON - Larvae very numerous in terminals of this season's evergreen blackberry canes in local areas of Marion County. Larvae continue to cause concern in Willamette Valley strawberry plantings. (Stephenson).

A STRAWBERRY SAWFLY (probably Empria obscurata) - WISCONSIN - Nearly full-grown larvae causing noticeable injury to strawberry foliage in Dane and possibly Waushara County. (Wis. Ins. Sur.).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - MICHIGAN - Larvae, up to 0.5 inch long, common in Van Buren County plantings. (Earl). UTAH - Adults moderately numerous in Box Elder County strawberry patches; foliage injury moderate. (Knowlton, Allred).

A PLANT BUG - WISCONSIN - Caused severe injury to strawberry blossoms in Pepin County; probably Lygus lineolaris. (Wis. Ins. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MICHIGAN - Nymphs and spittle masses common in untreated strawberry plantings in Lenawee, Ottawa and Grand Traverse Counties. (Comstock, Machiele, Mullett). WASHINGTON - Spittlebugs, presumably this species, numerous on strawberries in Clark County. (Shanks).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - PENNSYLVANIA - Very heavy on 0.75-acre strawberry patch in York County; foliage injury very noticeable. (Pepper).

GARDEN SYMPHYLAN (Scutigera immaculata) - WASHINGTON - Damaged some year-old strawberry plants in Clark County. (Shanks).

TOBACCO INSECTS

TOBACCO WIREWORM (Conoderus vespertinus) - NORTH CAROLINA - Caused injury requiring resetting of 2 acres of tobacco in Randolph County; 11 larvae and 4 pupae, presumably this species, recovered by soil sifting on June 5. Single larva from field in Davie County determined this species. Wireworms did not appear to be a problem in that county. (Mount).

A WIREWORM (Melanotus communis) - NORTH CAROLINA - Larvae collected in tobacco field in Madison County; no indication of damage given. (Mount, Silver).

FLEA BEETLES - SOUTH CAROLINA - Continue active in a few counties. (Nettles et al.).

HORNWORMS (Protoperce spp.) - SOUTH CAROLINA - Noted in Berkeley and Dorchester Counties. (Nettles et al.).

TOBACCO BUDWORM (Heliothis virescens) - SOUTH CAROLINA - Continues light to medium in State. (Nettles et al.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Reported from several areas; 2 per 200 plants in Scotland County field, 1 per 100 plants in Columbus County field and 3 found in field of 8-leaf cotton in Robeson County. (Johnson, Thompson, Read, Lott). SOUTH CAROLINA - Emerging in numbers in nearly all counties below upper Piedmont area. Few seen in Clemson area. (Cott. Ltr., June 4). Total of 19 adults collected at trap plot in Florence to June 5 compared with 25 at same time in 1962. (Taft et al.). GEORGIA - Infestations much lighter than in recent years. (Morgan, Johnson). ALABAMA - One adult reported in Autauga County. (Canerday). TENNESSEE - No activity noted to June 7 in western area. (Locke).

MISSISSIPPI - Two live adults found in delta counties. Punctured squares found in several fields, but most were feeding punctures; eggs found in 2 squares from one field. (Pfrimmer et al.). LOUISIANA - Emergence from hibernation remained low in Tallulah area. Field populations low, but widely distributed over fields. (Smith et al.). TEXAS - Light in most weevil-infested areas of State, with numbers increasing following rains. (Tex. Coop. Rpt.).

FULLER ROSE BEETLE (Pantomorus godmani) - GEORGIA - Caused moderate defoliation of cotton in McDuffie County. (Johnson, May 31).

FLEA BEETLES - SOUTH CAROLINA - "Ragging" seedling cotton. (Cott. Ltr., June 4). TENNESSEE - Present in most fields of cotton in western area and causing some damage. (Locke).

THRIPS - SOUTH CAROLINA - "Ragging" seedling cotton. (Cott. Ltr., June 4). GEORGIA - Light to heavy infestations on cotton in northeast, northwest and northern areas. (Johnson). ALABAMA - Infestation of several species continues medium to heavy on most young cotton in 2 to 4-leaf stage, especially replanted cotton in central and northern areas. (Canerday et al.). TENNESSEE - Continue to cause some damage over western area, with damage more severe in fields where cotton very slow growing off. Controls being applied in latter instances. (Locke). MISSISSIPPI - Continue present in many fields in delta counties; scattered plants still showing severe injury in many fields. (Pfrimmer et al.). LOUISIANA - Continue to damage late-planted cotton in Tallulah area; controls discontinued in most older fields. (Smith et al.). OKLAHOMA - Frankliniella spp. light to medium on cotton in southwest and central areas, less than 6 per plant. (Okla. Coop. Sur.). TEXAS - Several species causing damage in northern and western areas. (Tex. Coop. Rpt.). NEW MEXICO - Light, spotted infestations in Dona Ana County cotton. (N. M. Coop. Rpt.). ARIZONA - Continue a problem in Safford area and numbers very high in cotton blooms in Stanfield area. (Ariz. Coop. Sur.).

BOLLWORMS (Heliothis spp., et al.) - SOUTH CAROLINA - Reported on cotton; both eggs and small larvae present. (Cott. Ltr., June 4). ALABAMA - Few larvae feeding on squares in Macon County. Considerable number of eggs noted in Macon, Autauga and Russell Counties. H. zea adults numerous around lights. (McQueen). TEXAS - H. zea found in most southern area fields; eggs and small larvae increasing in central area. H. virescens present in Rio Grande Valley; control has not been satisfactory. (Tex. Coop. Rpt.). ARIZONA - H. zea infestations great enough in some fields to need controls. (Ariz. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Infestations in Rio Grande Valley and upper coastal bend areas. Rather severe in small spots. (Tex. Coop. Rpt.).

CUTWORMS - SOUTH CAROLINA - Continue to damage very young seedlings. (Cott. Ltr., June 4). ALABAMA - Heavy and causing considerable damage to field of cotton in Elmore County; species probably Peridroma saucia. (Canerday).

COTTON LEAFWORM (Alabama argillacea) - TEXAS - Present in Rio Grande Valley and coastal bend counties. Populations light; no controls required. (Tex. Coop. Rpt.).

COTTON APHID (Aphis gossypii) - ALABAMA - Light on cotton in Lee, Macon and Russell Counties; controlled by lady beetles. (McQueen). TENNESSEE - Present in most fields of cotton in western area, but populations low. (Locke). TEXAS - Moderate to heavy in central, north and western areas. (Tex. Coop. Rpt.). NEW MEXICO - Light, spotted infestations in Dona Ana County cotton. (N. M. Coop. Rpt.).

ROOT APHIDS - SOUTH CAROLINA - Troublesome on cotton in some Coastal Plain counties where crop planted behind soybeans. (Cott. Ltr., June 4).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Light and isolated infestation on cotton in Lee, Macon and Russell Counties. (McQueen). MISSISSIPPI - Averaged 2.12 per 100 sweeps in 19 of 33 fields checked in delta counties. (Pfirmer et al.). LOUISIANA - Sweepings indicate low population in cotton in Tallulah area. (Smith et al.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Very common in cotton fields in Maricopa, Pinal, Pima and Yuma Counties and controls being applied in some stub fields. (Ariz. Coop. Sur.).

COTTON FLEAHOPPER (Psallus seriatus) - LOUISIANA - Present in all fields of cotton in Tallulah area. (Smith et al.). TEXAS - Major problem in early squaring cotton in central area. (Tex. Coop. Rpt.). ARIZONA - Counts 10-16 per 100 sweeps in Safford area cotton. (Ariz. Coop. Sur.).

BLACK FLEAHOPPERS - ARIZONA - Continue to range 12-18 per 100 sweeps. (Ariz. Coop. Sur.).

GRASSHOPPERS - TEXAS - Damaging marginal areas of cotton in De Witt and Karnes Counties. (Tex. Coop. Rpt.; Smith).

SPIDER MITES - ALABAMA - Tetranychus atlanticus medium to heavy on 2 cotton farms in Autauga County; controls started. (Canderday). TEXAS - Unspecified species increasing in lower Rio Grande Valley. (Deer). NEW MEXICO - Light, spotted infestations in Dona Ana County cotton. (N. M. Coop. Rpt.).

Weather of the week ending June 10 (continued from page 632)

Maximum temperatures during the week reached 90° or higher over the southwestern deserts, over the central Plains as far north as Grand Forks, North Dakota, in the Great Lakes region to Traverse City, Michigan, and in the East to central Pennsylvania. A few extremes were: Chicago, Illinois, 95°; St. Louis, Missouri, 95°; Kansas City, Missouri, 96°; Little Rock, Arkansas, 99°; Concordia, Kansas, 101°; Phoenix, Arizona, 101°; and on Wednesday, the mercury at Presidio, Texas, zoomed to a sizzling 108°.

At the other extreme, freezing temperatures occurred at a few locations in the higher Rocky Mountains. Snow accumulated to a foot or more in the northern mountains in Colorado.

Precipitation exceeded 1 inch along the northern edge of the Nation from the Rockies to the Atlantic. Most other areas received less than 1 inch except that there were numerous localities in the central and southern parts of the Nation that received several inches of rain from thunderstorms. No rain of importance fell in much of southeastern Missouri, Arkansas, northern Louisiana, eastern Oklahoma, and a strip from northeastern Texas to the lower Rio Grande Valley. Also, no rain fell in southern New Mexico, Arizona, and the Sacramento and San Joaquin River Valleys. (Summary supplied by U. S. Weather Bureau).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - PENNSYLVANIA - Many larvae in red pine apparently killed in Warren County by severe winter. In Northampton, a jack pine underplanting 70 percent attacked; trees vigorous saplings but adults increasing; 10 percent of larvae pupated by May 28. (Pa. For. Pest Rpt., June). RHODE ISLAND - Probably this species numerous on mugho pine and black pine in Middletown, Newport County. In Wakefield area of Washington County. (Cartier).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ALABAMA - Active on loblolly and shortleaf pines in central areas. (McQueen).

JACK-PINE BUDWORM (Choristoneura pinus) - MICHIGAN - Larvae in second stage June 1 near Mio, Oscoda County. (Millers).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - MICHIGAN - Heavy in Ottawa County. (Machiele, May 31).

SPRUCE NEEDLE MINER (Taniva albolineana) - OHIO - Caused moderate damage to spruce near Columbus, Franklin County. (Walker, Lyon).

A SPRUCE NEEDLE MINER - NEW YORK - Undetermined species reported in Tompkins, Niagara and several other locations in State. Larvae actively feeding on Norway spruce. (N. Y. Wkly. Rpt., June 3).

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) - IDAHO - Light in standing trees on Priest River Experimental Forest, Bonner County (elevation 3,500 feet). Single trees attacked. Low density of attack and selection of apparently unhealthy trees indicative of an endemic beetle population. (Furniss).

IPS BEETLES - IDAHO - Egg galleries of Ips sp., probably oregonis, fully developed in western white pine logs resulting from tree-clearing at Priest River Experimental Forest, Bonner County (elevation 2,400 feet). Brood survival good and larvae half grown. (Furniss).

WHITE-PINE WEEVIL (Pissodes strobi) - NEW YORK - Adults active in Arnot Forest. Larvae penetrated into leaders of white pines and feeding injury evident on many trees. (N. Y. Wkly. Rpt., June 3). MICHIGAN - Light in Kalkaska County; about 2 weeks later than usual. (Brown).

PALES WEEVIL (Hylobius pales) - PENNSYLVANIA - Caused 10 percent mortality to young Douglas-fir over 15 acres in Northampton County. (Pa. For. Pest Rpt., June).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - RHODE ISLAND - Hatched in nursery in South Kingstown, Washington County. (Cartier). NEW YORK - On ornamental Scotch pines at several locations on Cornell campus, Ithaca, May 27-31. (N. Y. Wkly. Rpt.). NEW JERSEY - Crawlers active on Scotch pine. (Ins.-Dis. Newsltr., June 4). NORTH DAKOTA - Crawler activity increased on pine and spruce foliage. (N. D. Ins. Sur.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - PENNSYLVANIA - Two percent of Scotch pine infested on 40 acres in Susquehanna County. (Gesell).

PINE BARK APHID (Pineus strobi) - NORTH CAROLINA - Occurring on white pine in Yancey County. (Dillingham, Robertson).

PINE SPITTLEBUG (Aphrophora parallela) - NEW YORK - Moderate on white and Scotch pines in Arnot Forest. (N. Y. Wkly. Rpt., June 3).

A THRIPS (Gnaphothrips piniphilus) - RHODE ISLAND - Found on Japanese red pine in South Kingstown, Washington County. (Cartier).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - MICHIGAN - Larvae continue to cause considerable injury in Lower Peninsula counties of Lenawee, Jackson, Ingham and Genesee. (Comstock, Sackrider, Wells, Lincoln; May 31). Injury more severe in Clinton and Calhoun Counties than in recent years; damage moderate in Sanilac County. (Flink, Sowerby). PENNSYLVANIA - Some defoliation to Scotch and red pines in Mercer and Monroe Counties. Populations generally light throughout State. Control applied in Monroe County. (Pa. For. Pest Rpt., June).

ALLEGHENY MOUND ANT (Formica exsectoides) - PENNSYLVANIA - Reported to have killed 90 percent of sapling white pine over 2-3 acres in Forest County. (Pa. For. Pest Rpt., June).

ERIOPHYID MITES - IDAHO - Unidentified species on new growth of Scotch pine in Parma area. Counts of 1-2 per needle of several tips examined. Most needles discolored and show growth distortion. (Scott).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - WISCONSIN - Mostly in last instar. Damage to chokecherries severe in areas of Dane, Rock and Columbia Counties. Disease destroyed over 50 percent of one infestation in Rock County. (Wis. Ins. Sur.). PENNSYLVANIA - Light again this year statewide; slight increases in scattered localities. (Pa. For. Pest Rpt., June). NORTH CAROLINA - Adults emerging May 20-25 in Wake County. (Greene).

FOREST TENT CATERPILLAR (Malacosoma disstria) - WASHINGTON - A few, in combination with M. pluviale, attacking willow, alder, wild roses and other hosts; spotted infestations localized but severe in some areas. (Baker). IDAHO - Populations currently more numerous on shade trees than in past several years in Bonner and Boundary Counties. (Ingle, McPherson). UTAH - Damaged foliage of few shade trees at Farmington, Davis County. (Knowlton, Stokes). RHODE ISLAND - Actively feeding in wooded section of Cumberland, Providence County. (Cartier).

WESTERN TENT CATERPILLAR (Malacosoma pluviale) - WASHINGTON - Full-grown larvae spinning up. Few first instars also present. Attacking willow, alder, wild roses and other hosts. Infestations spotted but severe in localized areas. (Baker).

CANKERWORMS - PENNSYLVANIA - Alsophila pometaria causing 25-50 percent defoliation of oak, hickory, elm, maple and beech in northern tier and southeastern counties. Infestations about same as last year. Paleacrita vernata very light. (Pa. For. Pest Rpt., June). MICHIGAN - Larvae of A. pometaria and P. vernata causing problems on ornamentals in many areas. (Hearl, Hullett, Hoffman, Raven, Butcher). WISCONSIN - Severe defoliation, mainly to oaks and elms, by P. vernata and A. pometaria in areas of Columbia and Dane Counties and at Menomonie in Dunn County. (Wis. Ins. Sur.).

CANKERWORMS (undetermined) - RHODE ISLAND - Abundant in parts of Middletown, Newport County. (Peabody). NEW YORK - Appeared to have peaked May 30 in Suffolk County. Some reports that they were not as severe as last year. (N. Y. Wkly. Rpt.). IOWA - Larvae one-half to one inch in length; average 1-2 per leaf. As leaves are gowing rapidly, defoliation observed in areas south of Highway 30 not expected. (Iowa Ins. Inf., June 3). MINNESOTA - Severe defoliation occurred in scattered locations in suburban areas north of Twin City area. (Minn. Ins. Rpt.). NORTH DAKOTA - Abundant on various trees and shrubs over entire State. Hosts include elm, ash, apple, plum, honeysuckle. Control being considered. (N. D. Ins. Sur.).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Relatively large adult numbers taken in Dona Ana County light traps. (N. M. Coop. Rpt.). ALABAMA - Infestation leveling off. More noticeable on persimmons than on pecans in Mobile County. (Seibels).

GREGARIOUS OAK LEAF MINER (Cameraria cincinnatiella) - ARKANSAS - Heavy locally in Columbia County. (Ark. Ins. Sur.).

HICKORY TUSSOCK MOTH (Halisidota caryae) - OHIO - Adults appeared May 30 in light traps; heavy flight occurred June 3. (Rings).

CATALPA SPHINX (Ceratomia catalpae) - ALABAMA - Medium on catalpas in Lee, Tallapoosa, Macon and Russell Counties. (Barwood et al.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Heavy in all areas checked. (Okla. Coop. Sur.).

LARGE ASPEN TORTRIX (Choristoneura conflictana) - WISCONSIN - Larvae feeding on aspen in northeastern Chippewa County. (Wis. Ins. Sur.).

A LEAF ROLLER (Argyrotoxa semipurpurana) - PENNSYLVANIA - Heavy on oaks in Lycoming, Cumberland and Adams Counties. (Pa. For. Pest Rpt., June).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - UTAH - Larvae caused some elm defoliation at Salt Lake City. (Knowlton). PENNSYLVANIA - Larvae very abundant on willows in Snyder County. (Udine). DELAWARE - Larvae feeding on elms locally in Sussex County, May 25. (MacCreary).

ELM LEAF BEETLE (Galerucella xanthomelaena) - RHODE ISLAND - Ovipositing in Kingston area, Washington County. Egg masses and adults low compared with extent of adult feeding. Lower population expected than first seemed likely. (Mathewson). MASSACHUSETTS - Eggs hatching at Amherst. (Wheeler). OHIO - Eggs hatched on elms at Columbus, Franklin County, May 29. (Davidson). INDIANA - Adults, eggs and larvae building up on Chinese elms at Lafayette. (Schuder). IOWA - Larvae and damage to trees in Shelby County. New county record. (Iowa Ins. Inf., June 3). ARKANSAS - Second-generation larvae in Fayetteville area. (Ark. Ins. Sur.). OKLAHOMA - Common throughout State. (Okla. Coop. Sur.). CALIFORNIA - Light adult populations on elms in Colusa, Colusa County. (Cal. Coop. Rpt.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - WISCONSIN - Emergence well underway and expected to peak week of June 7. Total of 14 positive cases of Dutch elm disease confirmed, but these believed carry-overs from last season. (Wis. Ins. Sur.).

ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) - PENNSYLVANIA - Partially defoliated oaks in Cumberland and Adams Counties. (Pa. For. Pest Rpt., June).

APHIDS - CALIFORNIA - Lachnus salignus heavy on willow nursery stock locally in Sacramento, Sacramento County. Myzocallis elegans present on elms in Sacramento, Sacramento County. Continued cool weather may result in heavy infestations which are nuisance on street trees due to honeydew drip. Aphis helianthi medium on mock orange, Philadelphus sp., in San Luis Obispo, San Luis Obispo County. Heavy adult populations of Prociphilus sp., possibly fraxinidipetalae, on Modesto ash trees in Chico, Butte County. Calaphis betulaeocolens and Euceraphis gillettei medium on birch trees in Atwater, Merced County. (Cal. Coop. Rpt.). UTAH - Periphyllus negundinis heavy in mouths of some canyons near Salt Lake City. (Knowlton). Periphyllus lyropictus causing sticky foliage on many Norway maples at Logan and vicinity, Cache County. (Knowlton). IOWA - Maple leaves from Jefferson, Greene County, slick and sticky with honeydew from Drepanaphis acerifoliae. (Iowa Ins. Inf., June 3). WISCONSIN - P. negundinis building up on boxelders and silver maple in Dane, Vernon and La Crosse Counties. Acyrtosiphon dirhodum colonies prevalent on roses and cotoneaster in Madison area. (Wis. Ins. Sur.). RHODE ISLAND - Prociphilus tessellatus abundant on roadside alder in Washington County. (Mathewson). PENNSYLVANIA - Chermes strobilobius discoloring European larch foliage in Perry County. (Pa. For. Pest Rpt., June). GEORGIA - Prociphilus tessellatus numerous on silver maple in northern area. (Coleman). FLORIDA - Aphis spiraeicola severe on Ixora sp. at Marathon, Monroe County, May 28. (Todd, Hibbard).

APHIDS (undetermined) - RHODE ISLAND - Built up on deciduous shade trees during warm weather. (Mathewson). MINNESOTA - Heavy on elm, birch, evergreens (particularly white spruce) and other trees. (Minn. Ins. Rpt.). IOWA - Causing great concern on trees. In Jasper County, some oaks losing leaves and maple leaves slick with honeydew. (Iowa Ins. Inf., June 3). UTAH - Numerous on white oak, birch, Norway maple and black walnut at Providence. (Hanson, Knowlton).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - OHIO - Heavy on soft maples near McGuffy, Hardin County. Eggs abundant. (Walker, Lyon). WISCONSIN - Severe in Walworth County; eggs present but not hatched. (Wis. Ins Sur.).

A PIT SCALE (Asterolecanium minus) - PENNSYLVANIA - Increasing on white and chestnut oaks in Mifflin and Union Counties. Numerous dead and dying tops evident. Also occurring on pin oak ornamentals in Harrisburg area. (Pa. For. Pest Rpt., June).

LOCUST LEAF MINER (Xenochalepus dorsalis) - ARKANSAS - Heavy locally in Hempstead County. (Ark. Ins. Sur.).

MAPLE PETIOLE BORER (Caulocampus acericaulis) - CONNECTICUT - Active and causing sugar maple leaves and stems to fall. (Savos).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - VIRGINIA - Medium infestation on silver maple locally in Fredericksburg, Spotsylvania County, May 23. (Rowell, Beck). MARYLAND - Heavy on leaves of silver maple at Damascus, Montgomery County, May 29. (U. Md., Ent. Dept.).

BAGWORM (Thyridopteryx ephemeraeformis) - KANSAS - Newly hatched larvae actively feeding on juniper, Riley County. (Charlton, May 31). ALABAMA - Feeding heavily on junipers in Coosa County. (Williams). VIRGINIA - Infesting arborvitae locally in Kenbridge, Lunenburg County, May 27. (Rowell, Harding). Recently hatched in Richmond area and first-stage larvae on many evergreens. (Tarpley). MARYLAND - First larvae of season, June 6, on maple in Talbot County. (U. Md., Ent. Dept.). PENNSYLVANIA - Small bags and feeding heavy in south central areas. (Pepper).

DOGWOOD BORER (Thamnosphesia scitula) - DELAWARE - Nearly full-grown larvae infesting dogwoods locally in New Castle County. (MacCreary).

CORN EARWORM (Heliothis zea) - ALABAMA - Destroying 50-60 percent of rose buds in rose gardens in Lee and Clay Counties. (McQueen).

SHOT-HOLE BORER (Scolytus rugulosus) - PENNSYLVANIA - Attacking black cherry trees locally in Sullivan County. Trees appeared healthy two years ago; possibly, 1962 drought predisposed trees to attack. (Pa. For. Pest Rpt., June).

ROSE CHAFER (Macrodactylus subspinosus) - DELAWARE - Heavy on roses locally in Sussex County. (Bray).

BALSAM TWIG APHID (Mindarus abietinus) - PENNSYLVANIA - Heavy and curling new growth of balsam fir Christmas trees in Berks County. (Pa. For. Pest Rpt., June). IOWA - Causing curled needles of white fir at Ames and Sac City. (Iowa Ins. Inf., June 3). WISCONSIN - Colonies on balsam fir in Washington County. (Wis. Ins. Sur.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Heavy on willow nursery stock locally in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

COCCIDS - OHIO - Chionaspis salicis-nigrae heavy on willows near McGuffy, Hardin County. (Walker, Lyon). CALIFORNIA - Aspidiotus perniciosus heavy on willow nursery stock in Sacramento, Sacramento County. Lecanium corni complex heavy on California holly and medium on birch in Atwater, Merced County. Pseudococcus obscurus heavy on Schizophragma hydrangeoides nursery stock in Chico, Butte

County. (Cal. Coop. Rpt.). WISCONSIN - Controls necessary for an undetermined species attacking elm, dogwood, hackberry and other trees. (Wis. Ins. Sur.). FLORIDA - Aonidiella taxus severe on Podocarpus maki at Dania, Broward County, May 31. Pseudaulacaspis pentagona severe on elm at Sanford, Seminole County, May 28. Toumeyella numismaticum severe on slash pine at Fairville, Orange County, May 29. T. parvicornis moderate to severe on Pinus sp. at Inverness, Citrus County, May 23. Fissuraspis ulmi collected on American elm at Daytona Beach, Volusia County, May 2. Apparently not an economic pest of elm. This is a new State record. (Fla. Coop. Sur.).

BOXWOOD PSYLLID (Psylla buxi) - NEW YORK - Damaging ornamentals in Nassau County. (N. Y. Wkly. Rpt., June 3). WASHINGTON - Adults and nymphs light on boxwood in cemetery, Friday Harbor, San Juan County. (Baker).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - All stages heavy and damaging acacia trees in Tiburon, Marin County, Riverside County, and Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - DELAWARE - First larval brood completed development in new growth; pupated by May 29. (Kelsey).

A GERMANDER LEAF CRINKLE MITE (Aculus teucarii) - OHIO - Light to moderate damage to germander plant at Canton, Stark County. This is third recorded infestation for State. (Reigelman).

SPIDER MITES - COLORADO - Causing considerable discoloration of blue spruce in Larimer County. (Felton). RHODE ISLAND - Building up on arborvitae and hemlock in nursery in Newport County. (Cartier). NORTH DAKOTA - Tetranychus telarius increasingly active on evergreens statewide. (N. D. Ins. Sur.).

INSECTS AFFECTING MAN AND ANIMALS

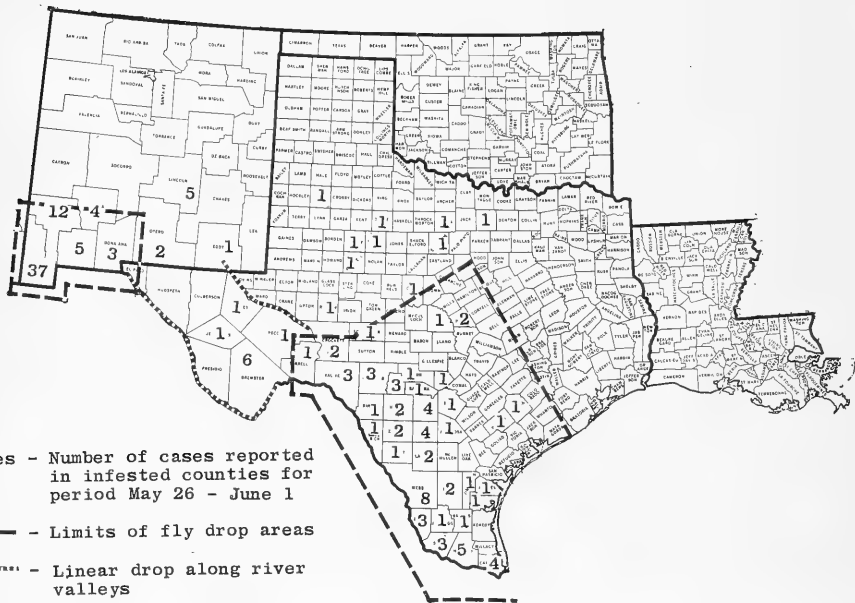
HORN FLY (Haematobia irritans) - GEORGIA - Infestations on 370 untreated beef cows in White and Rabun Counties ranged 10-500 and averaged 226 per animal. Infestations on 710 treated animals ranged 0-200 and averaged 17 per animal. (Roberts, May 29). MARYLAND - Up to 100 per head found on beef cattle on a farm in Talbot County. (U. Md., Ent. Dept.). INDIANA - Averaged 35-100 per animal in untreated herds in Tippecanoe County. (Dobson). ILLINOIS - Varied 0-250 (average about 60) per animal in east, central and west-southwest districts. (Ill. Ins. Rpt.). MISSOURI - Numerous on untreated animals throughout State; 100 to 500 plus per animal. (Wingo). OKLAHOMA - Light in Texas County, north-west; well under 100 per head in stockyards. Medium in Kingfisher, Mayes and Murray Counties. (Okla. Coop. Sur.). SOUTH DAKOTA - Causing discomfort to cattle throughout southeastern region; ranged 20-100 per side per animal. (Hintz). UTAH - Present on some cattle in Moab area, Grand County, and at Green River, Emery County. Annoying in areas of Juab and Utah Counties. (Knowlton).

FACE FLY (Musca autumnalis) - GEORGIA - Infestations on 240 untreated beef cows in White and Rabun Counties ranged 0-30 and averaged 10 per animal. Infestations on 200 treated beef cows ranged 0-35 and averaged 9.5 per animal. (Roberts). OHIO - Very light on cattle in northwest; expected to become heavier in next few weeks. (Lyon). INDIANA - Averaged 3-4 per animal in Tippecanoe County. (Dobson). ILLINOIS - Very low, 0-3 per face, on cattle in east, central and west-southwest districts. One herd had 12 per face in northwest. (Ill. Ins. Rpt.). NORTH DAKOTA - Reported troublesome on cattle in Kidder and Cass Counties. (N. D. Ins. Sur.).

HOUSE FLY (Musca domestica) - INDIANA - Becoming problem in barns with manure accumulations. (Dobson). OKLAHOMA - Medium around stockyards in Texas County. (Okla. Coop. Sur.). UTAH - Fairly common in some warmer communities in Washington, Grand, San Juan and Kane Counties. (Knowlton).

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During period May 26 - June 1, a total of 90 infestations, including one of unknown origin, was reported from TEXAS, and 69 from NEW MEXICO. Specimens were reported from 48 counties in Texas and 8 counties in New Mexico. Screw-worm was reported for the first time this year from Reeves, Stephens and Young Counties, Texas. A total of 122,476,050 sterile screw-worm flies was released during the period May 26 - June 1. (Anim. Dis. Erad. Div.).



CATTLE GRUBS (*Hypoderma* spp.) - MICHIGAN - "Heel flies" annoying cattle in Livingston and Shiawassee Counties. (Comstock, May 31).

TABANIDS - DELAWARE - Males and females of *Chrysops fuliginosus* emerging abundantly on marshes in coastal Kent County May 28. (E. Catts). MARYLAND - *Chrysops* sp. annoying humans in sections of Dorchester and Wicomico Counties. (U. Md., Ent. Dept.). INDIANA - *Chrysops* spp. a problem locally for humans; not enough to be problem on livestock. (Dobson). WISCONSIN - Horse and deer flies very annoying in Dane County. (Wis. Ins. Sur.). MISSOURI - *Tabanus equalis* emergence observed. (Wingo). COLORADO - *Chrysops* sp. active in Larimer County. (Berry). UTAH - *Tabanus* spp. and *Chrysops* spp. annoying in areas of Juab and Utah Counties. (Knowlton).

MOSQUITOES - ALABAMA - Several species extremely heavy along coastal area in Mobile County following scattered thundershowers 7-14 days earlier. Aedes sollicitans most common in south and southwest part of county, whereas Anopheles spp. appear to dominate in Dog River area. Private grounds in some areas operating fogging machines, whereas aerial treatment programs to begin soon. (Seibels). NORTH CAROLINA - Anopheles quadrimaculatus and A. punctipennis collected around several lakes in Northampton, Halifax, Warren and Vance Counties: fairly abundant considering earliness of season and recent cool weather. (Ashton). MARYLAND - Aedes sp. beginning to annoy residents at Snow Hill, Worcester County. (U. Md., Ent. Dept.). OHIO - Aedes vexans annoying in fields in Williams County; 8-10 adults per 50 sweeps. (Brockway, Lyon). IOWA - Abundant and biting viciously in some areas; controls underway. (Iowa. Ins. Inf., June 3). MICHIGAN - Unspecified species very annoying in Lower Peninsula, especially in low wooded areas containing swampy breeding sites. Abundant on cattle herd in Shiawassee County. (Wells, Davids, Bartlett, Machiele; May 31). Various species continue heavy in many Lower Peninsula counties. Large numbers causing great annoyance day and night in several counties. (Newman, Juchartz, Hearl, Raven, Brown, Sowerby, Wells, Comstock). WISCONSIN - Beginning to annoy cattle grazing at night; slowly building up. (Wis. Ins. Sur.). MINNESOTA - Nuisance level in Minneapolis-St. Paul very light compared with that outside Metropolitan Mosquito Control District; adults average 5-10 per night in light traps compared with 300-400 per night outside district. Rains during week ending June 7 produced scattered, moderate hatch. (Minn. Ins. Rpt.). NORTH DAKOTA - First Aedes vexans adults emerged in Cass County area. (Noetzel). UTAH - Mosquitoes, largely Aedes dorsalis, required twice as much spray for control during May in Weber County compared with May 1962. Some annoyance now in Bountiful-Centerville area fields and in Cache County. Recent rains indicate continuing increased control problem in many parts of State. (Fronk, Knowlton). Causing moderate to severe annoyance in several parts of Box Elder County. (Knowlton, Allred).

BITING MIDGES - CALIFORNIA - Leptoconops torrens heavy in extensive areas of Merced County and for first time in city of Merced. Appearance and biting began in mid-May. (H. Lopp, Merced Mosq. Abatement Dist.). DELAWARE - Culicoides obsoletus very abundant and annoying in eastern Kent County. (E. Catts, R. Lake).

BLACK FLIES - MICHIGAN - Unspecified adults less numerous than earlier. (Brown, Newman). OHIO - Specimen of Cnephia pecuarum removed from ear of a horse near Bowling Green, Wood County. (Jones).

CAT FLEA (Ctenocephalides felis) - CALIFORNIA - Medium on pet cat in El Sobrante, Contra Costa County; several house and yard infestations present in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

LONE STAR TICK (Amblyomma americanum) - ARKANSAS - Ticks, primarily this species, heavy in wooded hill areas of State. Infestations generally considered as heavy or heavier than in many years. (Ark. Ins. Sur.).

AMERICAN DOG TICK (Dermacentor variabilis) - MINNESOTA - Continues very active in all wooded and suburban areas of Minneapolis-St. Paul. (Minn. Ins. Rpt.).

HOUSEHOLD AND STRUCTURAL INSECTS

BLACK CARPET BEETLE (Attagenus piceus) - SOUTH DAKOTA - Infested home in Beresford, Lincoln County, and in Watertown, Codington County. (Spawn, Kantack). MARYLAND - Adults widespread in home in Greenbelt, Prince Georges County. (U. Md., Ent. Dept.).

LARDER BEETLE (Dermestes lardarius) - SOUTH DAKOTA - Present in home at Beresford, Lincoln County. (Spawn, Kantack).

CIGARETTE BEETLE (Lasioderma serricornis) - MISSOURI - Infested homes in central area. (Stone).

A CERAMBYCID (Xylotrechus undulatus) - WASHINGTON - Adults emerging from firewood in home in Friday Harbor, San Juan County; some mating noted. (Baker).

BROWN HOUSE MOTH (Hofmannophila pseudospretella) - CALIFORNIA - Medium in home in San Bruno, San Mateo County. (Cal. Coop. Rpt.).

WEBBING CLOTHES MOTH (Tineola bisselliella) - DELAWARE - Several new infestations reported during past 2 weeks. (MacCreary).

A CLOTHES MOTH (Acedes fuscipunctella) - CALIFORNIA - Medium in home in Hilmar, Merced County. (Cal. Coop. Rpt.).

PAVEMENT ANT (Tetramorium caespitum) - MARYLAND - Winged forms and workers annoying homeowners in all sections. (U. Md., Ent. Dept.).

CARPENTER ANTS (Camponotus spp.) - NEW YORK - Heavy flight of queens noted June 2 in Ithaca, Tompkins County. Adults numerous and numerous calls noted. (N. Y. Wkly. Rpt., June 3).

BENEFICIAL INSECTS

LADY BEETLES - NEW MEXICO - Adults and larvae moving from barley into alfalfa as barley dries and matures near Hatch, Dona Ana County; often averaged 8-12 larvae and adults per sweep. (N. M. Coop. Rpt.). COLORADO - Hippodamia sp. populations high in Montrose County; 600 per 100 sweeps. Moderately high in Larimer and Weld Counties; 300 per 100 sweeps. (Bulla, Jenkins). WISCONSIN - Unspecified larvae becoming more noticeable in alfalfa and small grains. (Wis. Ins. Sur.). ILLINOIS - Unspecified adults averaged 50 and larvae 103 per 100 sweeps in clover and alfalfa in west and central districts. (Ill. Ins. Rpt.). OHIO - Adalia bipunctata larvae heavy and feeding on Myzus cerasi in northwest area; few adults noted. (Brockway, Lyons). ARKANSAS - Lady beetles, primarily Hippodamia convergens, very active in alfalfa in northwest; range 60-100 per 100 sweeps. (Ark. Ins. Sur.). MISSISSIPPI - Hippodamia convergens most numerous beneficial insect in cotton in delta counties. Other species present. (Pfrimmer et al.). ALABAMA - H. convergens very active on cotton in Lee, Macon and Russell Counties. (Seibels et al.). Coleomegilla maculata fuscilabris moderately active on cotton in Macon, Lee and Russell Counties; very active on truck crops in Mobile County. (McQueen). NEW YORK - Unspecified species appeared in Clinton County May 28. (N. Y. Wkly. Rpt., June 3).

KLAMATHWEED BEETLES (Chrysolina spp.) - OREGON - Large numbers of adults emerged and actively feeding on Klamathweed in Washington County. (Goeden).

GOLDEN-EYE LACEWING (Chrysopa oculata) - ILLINOIS - Adults averaged 30 per 100 sweeps and larvae 12 per 100 sweeps in clover and alfalfa in west and central districts. (Ill. Ins. Rpt.). ALABAMA - Extremely active on potatoes in Lee County. (McQueen).

DAMSEL BUGS (Nabis spp.) - ILLINOIS - Varied 60-200 (average 130) per 100 sweeps in clover and alfalfa in west and central districts. (Ill. Ins. Rpt.). ARKANSAS - Continue active in alfalfa. (Ark. Ins. Sur.). MISSISSIPPI - Present in cotton in delta counties. (Pfrimmer et al.). ALABAMA - Numerous specimens noted in cotton in Lee, Russell and Macon Counties. (McQueen).

A BIG-EYED BUG (Geocoris punctipes) - ARKANSAS - Nymphs and adults present in alfalfa in northwest area. (Ark. Ins. Sur.). MISSISSIPPI - Present in cotton in delta counties. (Pfrimmer et al.). ALABAMA - Active in cotton in Lee, Macon and Russell Counties. (McQueen).

A FLOWER BUG (Orius insidiosus) - ARKANSAS - Increased in numbers in northwestern alfalfa. (Ark. Ins. Sur.). MISSISSIPPI - Present on cotton in delta counties. (Pfirmer et al.).

ASSASSIN BUGS - ALABAMA - Zelus bilobus and Apiomerus crassipes noted in many gardens. A. crassipes noted feeding on lady beetles in Mobile County. (Seibels).

TACHINA FLIES - WASHINGTON - Eggs noted on Malacosoma pluviale and M. disstria larvae at Friday Harbor, San Juan County. (Baker).

HONEY BEE (Apis mellifera) - MICHIGAN - Strong colonies reached swarming condition in Mason County. (Brunner, Davids, Olson). WISCONSIN - Feeding on honeydew on oaks prevalent; little activity noted on blossoming alfalfa. (Wis. Ins. Sur.).

PARASITIC BRACONIDS - NEW MEXICO - Abundant in alfalfa fields infested with Acyrtosiphon pisum in Bernalillo County. (N. M. Coop. Rpt.). COLORADO - Aphidius smithi released in alfalfa field near Palisade, Mesa County, April 9, 1963. First aphid mummies collected May 6; emergence noted May 11. Additional releases made and observations underway concerning establishment and benefits. (Merlino, Anderson).

A SPHECID WASP (Tachysphex terminatus) - UTAH - Contributed greatly in reducing 15,000-acre Mormon cricket outbreak in Bear Mountain area of Daggett County. (Thornley, Burnett).

ICHNEUMONIDS - MICHIGAN - Common in Kent County. (Brunner, Davids, Olson). NEW MEXICO - Abundant in alfalfa fields infested with Acyrtosiphon pisum in Bernalillo County. (N. M. Coop. Rpt.). UTAH - Adults of Megarhyssa sp. present on some borer-infested black walnut trees near Brigham City. (Knowlton, Allred).

PREDACEOUS MITES - ILLINOIS - Varied 0-100 (average 20) per 100 plants in corn fields in west and west-southwest districts. (Ill. Ins. Rpt.).

MISCELLANEOUS INSECTS

SAP BEETLES (Glischrochilus spp.) - INDIANA - Adults annoying at family outings in Lafayette area. Larvae abundant in old, rotten corn ears. (Gould).

A LONG-HORNED BEETLE (Megacheuma brevipennis) - OREGON - This rather rare Great Basin species was collected near Burns, Harney County, in 1962 -- the first record of the insect from the State. Determination and comments by J. A. Chemsak. (Goeden).

SPOTTED CUTWORM (Amathes c-nigrum) - OHIO - Light trap records at Wooster May 31-June 6 indicate considerable increase compared with preceding week. (Rings).

PERIODICAL CICADAS - IOWA - Adults emerging in Ledges State Park, Polk and Story Counties, May 25. Many shed skins and holes in ground in Lacey-Keosauqua State Park on May 26; also one adult seen. Abundant emergence on May 26 at Ottumwa. Emerged north of Lockridge May 26. (Iowa Ins. Inf.). ILLINOIS - Collected in Brown, Schuyler and Piatt Counties for first time; fairly numerous in some western and southern sections. (Ill. Ins. Rpt.).

AN EARWIG (Labia minor) - IDAHO - Single specimen collected at Moscow, Latah County, recently. This represents new record in this locale; may be new record for State. (Barr).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Ostrin. nubil.	Protoparce quin.	Heliothis sexta	zeae	vires.
ARKANSAS									
Hope 5/30-6/5		6							1
Warren 5/23-29									3
Kelso 5/30-6/5				1					5
Fayetteville 5/30-6/5	5	6	2						6
GEORGIA									
Tifton 5/30-6/5							3	3	1
ILLINOIS (County)									
Champaign 5/31-6/6	1				2				
KANSAS									
Garden City 5/31, 6/3	1	2		6					
Hays 5/31, 6/5	2	1							
Manhattan 6/1-6	14	14		7	40				1
Mound Valley 6/1, 4	12	6		25	17				
Wathena 5/29	2	1					8		
MARYLAND									
Centreville 5/29-6/4	2	7		15	6		<u>2</u>		
MICHIGAN									
Newman 6/2-5	20								
Gilmore 5/30-6/2	25								
Cushman 5/27-31	9			3					
MISSISSIPPI									
*Stoneville 5/31-6/6	11	5		77	53		13	34	3
NEBRASKA									
Kearney 5/20-24	3			2					1
Lincoln 5/24-6/2	31	31							
North Platte 5/22-26	24	31		29	2	2			
Ogallala 5/21-27	2	4		10					
NORTH DAKOTA									
Fargo 6/3-7		8		4		5			
Valley City 6/3-7		2		2		1			
Bowman 6/3-7		1		1					
OHIO									
Wooster 5/31-6/6	28	6				10			
Ripley 6/3		1							
SOUTH CAROLINA									
Charleston 6/3-9		1			7			4	3
TENNESSEE (Counties)									
Madison 5/28-6/3							11		
Maury 5/28-6/3	47	27		36			17	19	
Robertson 5/28-6/3	36	17		59			4	1	
Cumberland 5/28-6/3	58	23		43					
Greene 5/28-6/3	36	17		12			4	15	
Blount 5/28-6/3	25	11		4				12	
Johnson 5/28-6/3	8	30		2				2	

(Continued on page 662).

* Two traps Stoneville.

Light trap collections (continued)

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Ostrin. nubil.	Protoparce quin.	Heliothis sexta	zeae	vires.
TEXAS									
Waco 6/1-7	63			134					
*Brownsville 5/30-6/5	11	44	1	11		120	153	778	14 9
WISCONSIN									
*Mazomanie 5/28-6/4	96	8	2		53				
Platteville 5/25-29	177	3	2						
Middleton 5/29-6/5	67	11	16		25				
Madison 5/29-6/5	93	13	5		21				
De Forest 5/28-6/3	14	1							
Nenno 5/28-6/3	55	5							
Theresa 5/30-6/3	35								
Waldo 5/28-6/3	43								
Cedar Grove 5/28-6/3	41	1			2				
WYOMING									
Centennial 5/17-24		1							
Cheyenne 5/17-25		2	10						

* Six traps Brownsville; 2 traps Mazomanie.

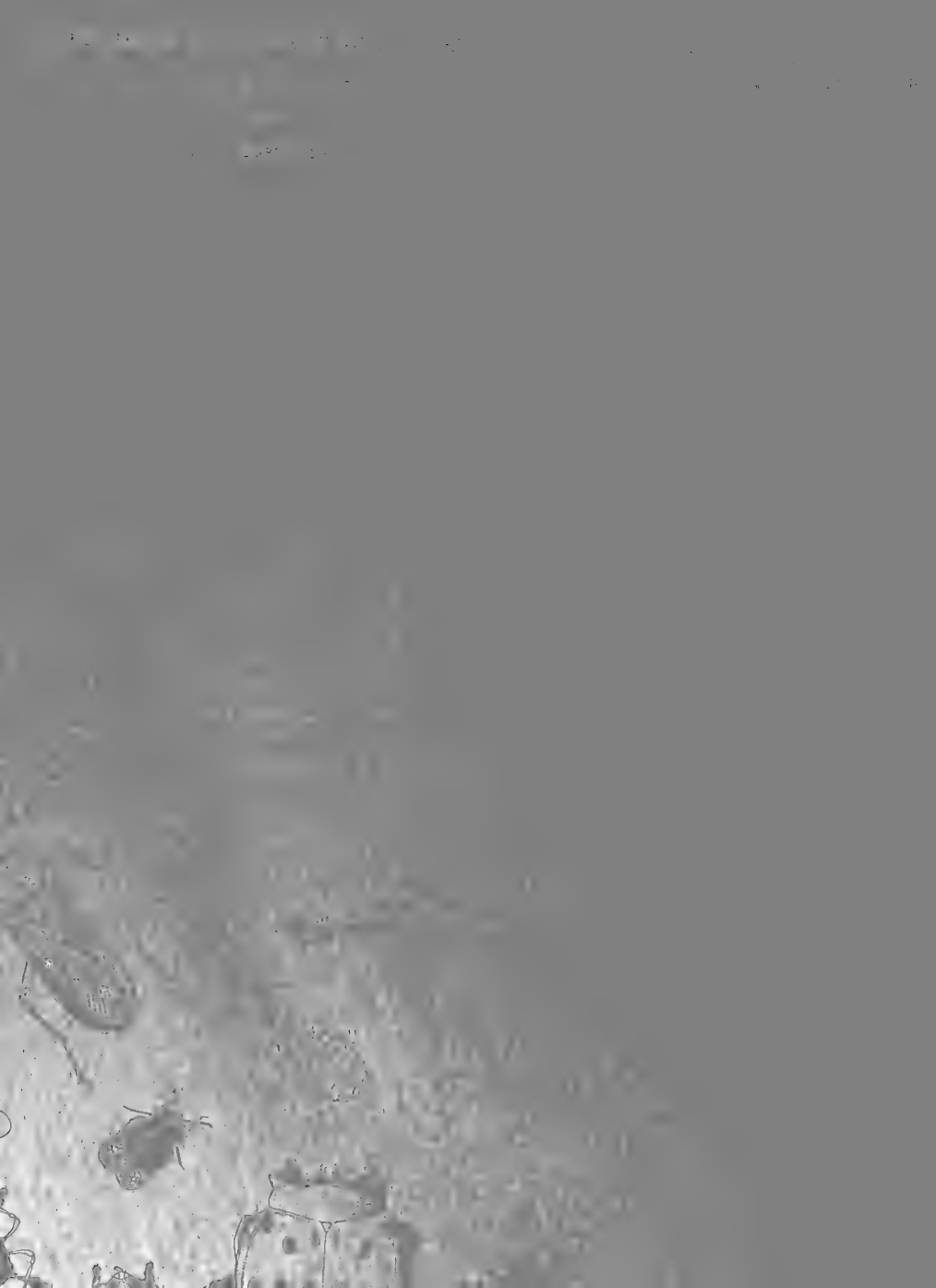
CORRECTIONS

CEIR 13(23):610 - PEAR BLISTER MITE - Delete note.

CEIR 13(23):616 - AN ASH APHID (*Prociphilus fraxinifoliae*) should read *Prociphilus fraxinifolii*.

CEIR 13(23):619 - A BOSTRICHID (*Xylobiops basilaris*) - Delete mimosa as new host record.

CEIR 13(23):599 (DETECTION) and 624 - MIRIDS - DELAWARE - *Lopidea confluens* should read *Lopidea confluenta*.



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ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE



AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Washington 25, D.C.

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Egg masses of EUROPEAN CORN BORER reported rather generally; hatching noted in most States. First generation appears to be ahead of corn in Midwest; only light damage expected. (pp. 666-667). ARMYWORM feeding moderate to heavy on wheat and corn in southwest Ohio, and infestations reported in several other States, with some controls applied. (p. 667). CEREAL LEAF BEETLE reported from additional areas of Michigan and Ohio; Kent and Ionia Counties, Michigan, and in Northwest, Bridgewater and Jefferson Townships of Williams County, Ohio. (pp. 667, 695). ALFALFA WEEVIL continues damaging. Controls needed in Summer Lake Refuge area of Oregon. Spread in 1963 to June 14 has been extensive in eastern half of country. (pp. 669-670). SPOTTED ALFALFA APHID generally light; buildup was heavy within 2 weeks of second cutting of alfalfa in Dona Ana County, New Mexico. (p. 671).

BOLLWORM most serious threat to cotton at present in Texas; populations occurring somewhat earlier than normal. TOBACCO BUDWORM moderate to heavy in central Texas and causing damage to terminals and fruit. (p. 681). SPIDER MITES major pest problem on cotton in Imperial County, California, on June 3; also numerous in Madera County, California. (p. 683).

CALIFORNIA FIVE-SPINED IPS and WESTERN PINE BEETLE damaging in California. (p. 683). ELM LEAF BEETLE moderate to heavy over most of Oklahoma, and damage reported in Kansas, New Mexico and Alabama. (p. 685). EUROPEAN ELM SCALE populations heavy on elms in areas of California, Kansas and New Mexico. (p. 686). BIRCH LEAF MINER causing severe injury on untreated birches in Vermont, and caused moderate to severe damage in most areas of Maine. (pp. 686, 696). BAGWORM beginning to feed as far north as New Jersey and Illinois. (p. 687). ROSE CHAFER active in Northeast and in Michigan. (pp. 688, 695).

MOSQUITOES becoming more of a nuisance in several States. HORN FLY and FACE FLY increasing. (pp. 692, 695, 696). BLACK FLIES annoying in parts of Maryland, Minnesota and Idaho (p. 692), and extremely heavy throughout Maine (pp. 692, 696).

A GIANT AFRICAN SNAIL (*Achatina fulica*) discovered on April 16, 1963, at Hakalau, Hawaii; second major infestation discovered on island. Eradication underway from time of find. First infestation successfully eradicated in 1958. (p. 698).

DETECTION

A PYRALID MOTH (*Dicymolomia julianalis*) reported for first time in Delaware. (p. 694). A WHITEFLY (*Dialeurodes kirkaldyi*) recorded for first time in Dade and Broward Counties, Florida. (p. 689). See CEIR 13(19):498 for first record of this species in the United States. CEREAL LEAF BEETLE (*Oulema melanopa*) found in Kent and Ionia Counties, Michigan; total of 13 counties now infested in State. (p. 695).

CORRECTIONS and ADDITIONAL NOTES

See pages 695 and 696, respectively.

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 690).

Hawaiian Insect Notes. (p. 698).

Reports in this issue are for week ending June 14, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-JUNE TO MID-JULY 1963

The Weather Bureau's 30-day outlook for the period mid-June to mid-July calls for temperatures to average below normal and rainfall above normal in northeastern and southwestern sections of the United States. Warmer than normal temperatures and subnormal rainfall are expected over the South and Northwest. In other areas, near normal weather should prevail.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D.C. Price \$4.80 a year, \$2.40 a half year.

WEATHER OF THE WEEK ENDING JUNE 17

Summer heat continued over the southeastern third of the United States, with afternoon temperatures climbing into the 90's as far north as Lower Michigan. A high pressure area centered over central Canada pushed cooler air into our North Central and Northeastern States. Some sharp temperature contrasts existed across the front between the opposing air masses. Traverse City, Michigan, registered 91° Monday afternoon while the mercury at Escanaba climbed no higher than 55°. Meanwhile, cooling rains spread onto the lower California coast, across Nevada and Utah, and into Idaho and Montana. Light snow fell at Ely, Nevada, and the thermometer dropped to 32°. Although cool air poured southward over the North Central and Northeastern States, afternoon and evening thundershowers resumed daily in the hot, humid air that remained in control to the south. The differing air masses gave rise to heavy thundershowers and a few tornadoes that spread from the Ohio Valley into Pennsylvania. Thursday afternoon was extremely hot from the sandy Southwest to the central Plains. Temperatures exceeded 100° in some Kansas localities and 90° as far north as Pierre, South Dakota. Overnight temperatures remained warm over much of the Country. They dipped to freezing or cooler at the higher elevations in the Rocky Mountains. Bryce Canyon, Utah, registered a frosty 28° on Friday morning. Flagstaff, Arizona, registered 29°. A cooler spot was Foxpark, Wyoming, where the weekly minimum was 19°.

In the East, the cool air gradually pushed southward bringing comfortable temperatures to the East Central States. By the weekend, the front extended from the Texas Panhandle to North Carolina. The Gulf States continued to swelter with afternoon temperatures approaching or, in some cases, exceeding 100°. Western locations experienced the return of extreme heat Sunday afternoon. Temperatures soared to 100° or higher over the southwestern deserts and in the interior valleys of California. One of the highest temperatures of the week, 110°, was registered at Yuma, Arizona, Sunday afternoon. Southeastern Washington and some parts of Oregon registered temperatures in the 90's. Pendleton scored a sizzling 96°. Temperatures for the week averaged above normal over the southeastern quarter of the Nation, over the High Plains, and in the Far Northwest. Below normal averages occurred over the southern Rockies and intermountain deserts of Utah, Arizona, and northwestern New Mexico; also over the northeastern quarter of the Nation. Departures ranged from +6° over parts of the Deep South and in southeastern Washington to -6° in New York, New England (except Maine), northwestern New Mexico, southwestern Utah and southeastern Nevada.

Rainfall during the week was extremely spotty. Some scattered areas from the northern Rockies to Missouri received more than 2 inches. A few counties in Kansas received nearly 5 inches. One of the largest weekly totals was 7.60 inches at Los Angeles, Texas. Numerous areas received less than 0.50 inch. These included some areas near the Gulf coast, most of New Mexico and Arizona, and parts of Oregon, Washington and the northern High Plains. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - OREGON - First hatching noted in upper Klamath Marsh, June 11. First reports also from Swan Lake, Sprague Lake and Ft. Klamath. (Vertrees). IDAHO - Nymphal survey June 4-5 along Boise River (south and middle forks in parts of Ada, Boise and Elmore Counties) indicates a wide and fairly uniform distribution; species Aulocara elliotti, Melanoplus sanguinipes, Oedaleonotus enigma and Schistocerca sp.; development ranged from egg to occasional fourth instar, with approximately 75 percent in first and second instars. Counts per square yard on north shore of Arrow Rock Reservoir and east along river to Alexander Flat ranged from 200 two miles east of Arrow Rock Dam to 20 in Alexander Flat vicinity. Counts 5-75 per square yard from Arrow Rock Dam south via Grouse-Woodtick Creeks to McDonald Ranch south of Grape Mountain. Average counts 75 per square yard in area of Fish and Game Ranch. (Nonini). UTAH - Grasshopper populations light to moderate at many field stops in Uintah and Duchesne Counties, and light in Manila-Antelope area of Daggett County. Spottedly numerous over large area of Nephi-Levan dryland wheat and adjacent retired acreages of Juab County. Pardalophora haldemani winged and more numerous than usual. An occasional Melanoplus spp. winged, but most 1-4 instar. A. elliotti nymphs numerous in many farm areas and on some range. Large hatch of grasshoppers noted in foothill limited areas of Davis and Salt Lake Counties. (Knowlton). COLORADO - Unidentified nymphs number 300 per square yard on cropland borders in Routt County. Growers in Dolores County applied controls. (Hantsbarger). NEW MEXICO - No grasshopper hatch noted in Colfax and Union Counties up to June 7. Light, spotted hatch noted in Quay County. (N. M. Coop. Rpt.). TEXAS - Moderate to heavy populations of several species widespread and causing damage to pastures in Anderson County. (Stephenson). Hatch remains light in panhandle and south plains counties; turf much improved since rains. (Tex. Coop. Rpt.; Russell et al.). KANSAS - Grasshoppers numerous in certain western areas. Counts in margins of wheat fields in Wallace County, west central, and Sherman County, northwest, averaged 5-10 nymphs per square yard. Development second instar to adult. Counts in other counties generally lower. Species primarily M. sanguinipes, M. femurrubrum and Hesperotettix speciosus. (Peters). MISSOURI - Light to moderate numbers of Melanoplus spp. found throughout alfalfa fields and pastures in southwest. High numbers of small nymphs still being reported from hatching areas. Marginal damage showing up in row crops in dry spots in southwest area. (Munson, Thomas, Wood).

NEBRASKA - Grasshopper counts in Pine Ridge Range area in northwest section of State ranged from noneconomic to 60 per square yard in pockets. Dominant species Ageneotettix deorum, first to fourth instar, 70 percent; Aulocara elliotti, first to fourth instar, 10 percent; Amphitornus coloradus, first to third instar, 5 percent; Trachyrhachys kiowa, first to third instar, 5 percent; and Phlibostroma quadrimaculatum, first to third instar, 2 percent. Remaining percentage comprised Arphia conspersa, A. sulphurea, Eritettix simplex, Psoloessa delicatula and Xanthippus corallipes latifasciatus. All overwintering species adult, with females gravid and some egg deposition indicated. Adult blister beetle and sarcophagid fly activity also present. Populations in Beaver Valley area, Sheridan County, 90 percent A. elliotti (third instar to adult) and ranged up to 300 per square yard. A. deorum, first to fourth instar, along the butte area were 30-60 per square yard. (Bell). M. bivittatus activity very evident in Boyd County. (Bergman). NORTH DAKOTA - Grasshoppers concentrated in lush vegetation in roadsides; however, a period of hot, dry weather could cause concern in some areas. (N. D. Ins. Sur.). Nymphal survey conducted in Morton, Oliver, Mercer, Grant, Stark, Hettinger, Adams, Bowman, Slope and Golden Valley Counties showed marginal counts of less than 1 to 30 (average 6) per square yard. Field counts ranged from less than 1 to 15 (average 2) per square yard. Field counts highest in soil bank land, sweetclover and alfalfa. Development ranged from first through fourth instar; 5 percent in fourth instar. Dominant species M. bivittatus, M. sanguinipes and M. packardii. Counts on rangeland

in Slope County ranged 6-12 (average 8) per square yard; Ageneotettix deorum and Aulocara eliotti in first and second instars and M. sanguinipes ranged from first through third instar. (Brandvik). In Burleigh, Kidder, Stutsman and Wells Counties, survey indicated 0-30 nymphs per square yard. Roadside margins in Burleigh County north of Sterling and south of McKenzie had 30 per square yard. M. bivittatus and M. sanguinipes dominant and ranged from first through third instar. In Robinson area of Kidder County, marginal infestations of 10 per square yard found; M. sanguinipes dominant. M. sanguinipes also averaged 10 per square yard in alfalfafield near Courtenay, Stutsman County; development first and second instars. In Hurdsville-Harvey area, Wells County, 15-30 nymphs counted in field margins; Camnula pellucida, A. deorum and M. bivittatus dominant; most in first instar. (Olson). MINNESOTA - Adults of M. confusus found in light, sandy soils of Anoka County. Hatching of M. femur-rubrum and M. differentialis started in Anoka and Sherburne Counties; first instars 10-30 per square yard in some fields. Light hatch occurred in west central district; tentatively identified as C. pellucida and M. bivittatus. Hay harvest started; egg hatch expected to accelerate. (Minn. Ins. Rpt.). WISCONSIN - Grasshoppers averaged as high as 20 per sweep in alfalfafield in Green County and nymphs becoming noticeable in most thin alfalfa in southern part of State. M. sanguinipes and M. bivittatus populations insignificant in Marinette and Oconto Counties; highest count 10 per square yard; development up to fourth instar in area. M. confusus adults present in central area. (Wis. Ins. Sur.). ILLINOIS - Melanoplus spp. nymphs varied 0-240 per 100 sweeps in grassy roadsides in west district and 0-3,000 per 100 sweeps in northwest district. Development mostly first instar, with an occasional second instar. (Ill. Ins. Rpt.). OHIO - Highest counts of M. differentialis were 55 first instars per 50 sweeps in a second-cutting field of alfalfa in Brown County, southern area. (Lyon). MISSISSIPPI - Various species medium to heavy on soybeans in Sharkey County, and heavy on pastures in Jefferson Davis and Forrest Counties. (Ouzts).

EUROPEAN CORN BORER (Ostrinia nubilalis) - ARKANSAS - First-generation larvae pupating in west central area. (Ark. Ins. Sur.). MISSOURI - Egg masses ranged 0-30 per 100 plants in central and northwest areas; leaf feeding damage observed on 0-40 percent of plants. Counts made only in most susceptible fields; those with plants over 30 inches extended height. (Munson, Thomas, Wood). IOWA - Moths 80 percent emerged at Ankeny June 6. First egg hatch also occurred June 6. Egg masses 20 per 100 plants on 23-inch corn (extended) on June 7. Moth flight heavy at Ames June 3 and 4. Egg masses 50 or more per 100 plants (6-20 inches) in Henry County on June 5, and 75 per 100 plants on 6-inch corn in Belmond area, Wright County, on June 10. (Iowa Ins. Inf.). MINNESOTA - Moth emergence occurred in west central and east central districts. Pupation 80 percent in west central district; larvae and pupae difficult to find in east central district. Corn 8-12 inches high in districts. (Minn. Ins. Rpt.). WISCONSIN - Egg masses average 2 per plant on corn examined in southern counties which had extended leaf length of 18 inches or more. Whorl feeding noted locally in Walworth County. Main first-generation flight over; sufficient food present for second generation. (Wis. Ins. Sur.). ILLINOIS - Egg masses per 100 plants averaged 108 in northwest, 106.3 in west, 27.5 in central, 10 in east and 43.3 in west-southwest. Percent of plants infested averaged 18.9 in northwest, 29.5 in west, 10 in east, 9.8 in central and 30 in west-southwest. Larvae per infested plant averaged 1.3 in northwest (first instar), 1.5 in central (78 percent first instar and 22 percent second instar), 1 in east (80 percent first instar and 20 percent second instar) and 0.3 in west-southwest (first instar). Average height of corn in inches 31.4 in northwest, 44.1 in west, 38.1 in central, 35.8 in east and 44.3 in west-southwest. Recent hot weather caused very rapid borer development; therefore, corn development behind that of borer which reduces possibility of severe damage this year. (Ill. Ins. Rpt.). INDIANA - First instars present in early corn in Vermillion County. About 20 percent of plants with shot-hole injury. (Gould). OHIO - Egg deposition occurred on June 8 in Wooster area. Many adults collected from blacklight traps in same area. (Guthrie). MARYLAND - Larvae beginning to infest more advanced field and sweet corn in Frederick and

Prince Georges Counties; moth catches very low in light trap at Centreville. Numbers should increase week of June 24. (U. Md., Ent. Dept.). DELAWARE - First young larvae found in early sweet corn in Sussex County; infestations ranged 8-30 percent. (Burbutis). PENNSYLVANIA - Adults observed flying in Lancaster County corn. (Pepper). NEW JERSEY - First egg masses found in Middlesex County on sweet corn; deposition fairly heavy over weekend (June 8). Egg masses also found in Burlington County. (Ins.-Dis. Newsltr., June 11). NEW YORK - Moths active in Hudson Valley. Egg masses present and hatching expected to begin by June 8. (N. Y. Wkly. Rpt., June 10). CONNECTICUT - Egg laying underway. (Savos).

ARMYWORM (*Pseudaletia unipuncta*) - MARYLAND - Heavily infesting 10 acres of barley at Walkersville, Frederick County. (U. Md., Ent. Dept.). OHIO - Moderate to heavy feeding damage occurred on wheat and corn in Madison, Greene, Pickaway, Fayette and Highland Counties, southwest area; controls applied. (Lyon, Ewart, Triplehorn, Jones, Grover, Blair, Treece, Herron, Hamrick). Also damaging in Hancock County, northwest area. (Blair, Kroetz). ILLINOIS - Infestations occurred in several areas; none extremely severe, but many required controls to prevent economic losses to wheat and corn. (Ill. Ins. Rpt.). WISCONSIN - Larvae 6 per foot along edge of wheat and rye fields in Walworth County. Some head clipping noted, but most injury restricted to marginal rows adjacent to tall grass. None found in lodged portions of fields and only insignificant numbers appeared in oats. Larval development ranged from third to fifth stage. (Wis. Ins. Sur.). MINNESOTA - Second and third instars light in oats in Carver County. (Minn. Ins. Rpt.). IOWA - Small larvae moving into corn from fencerows in many sections of State. (Iowa Ins. Inf., June 10). CALIFORNIA - Extremely heavy on cover crop in almond orchard in Escalon, San Joaquin County. (Cal. Coop. Rpt.).

CORN EARWORM (*Heliothis zea*) - TEXAS - Heavy, local populations causing serious damage to grain sorghum in Cameron County. (Tex. Coop. Rpt.; Day). Light, widespread populations causing damage to corn in Caldwell and Guadalupe Counties. (Tex. Coop. Rpt.; Massey). OKLAHOMA - Light on alfalfa in Tillman, Kiowa and Caddo Counties, southwest; 2-5 per 10 sweeps. In Payne County, north central, corn 25 percent infested. Heavier infestations reported from Hughes, Cotton and Garvin Counties. Counts in corn in southwest generally lower. Infestations in sorghum light (5-10 per 100 plants) in Kiowa, Tillman (southwest) and Wagoner (northeast) Counties. (Okla. Coop. Sur.). ARKANSAS - Adult collections increasing in light traps. (Ark. Ins. Sur.).

CUTWORMS - IOWA - *Agrotis ipsilon* and *Feltia subgothica* destroyed 1,000 to 2,000 acres of corn in Black Hawk, Clinton, Henry, Marion, Polk, Story and Washington Counties. (Iowa Ins. Inf., June 10). ALABAMA - Undetermined species causing light damage to field of peanuts in Coffee County. (Stephenson).

SOD WEBWORMS - NEW JERSEY - Activity of unspecified species increasing in lawns. (Ins.-Dis. Newsltr., June 11). MARYLAND - Larvae of *Crambus* sp. caused severe injury to young corn after sod in a Washington County field. (U. Md., Ent. Dept.). ILLINOIS - Moths of unspecified species abundant for past 10-14 days; egg laying underway in healthy, luxuriant bluegrass. (Ill. Ins. Rpt.).

CEREAL LEAF BEETLE (*Oulema melanopa*) - OHIO - Specimens collected from 9 different properties in Williams County, northwest area. Found in sections 10, 11, 14, 15, 21 and 29 of Northwest Township. Section 21 of Bridgewater Township and section 31 of Jefferson Township also infested. Larvae predominant stage found in oats; adults expected to emerge within next two weeks. Heavy rainfall temporarily limited survey in oat and wheat fields. (Shepherd, Cowden, Lyon).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - IOWA - Adults feeding on leaves of corn in most of State. (Iowa Ins. Inf., June 10). ILLINOIS - Adults feeding on 10-20 (average 14) percent of corn plants in northwest district and 0-30 (average 13) percent in west. Adults per 100 plants 0-20 (average 12) in northwest and 0-10 (average 5) in west. (Ill. Ins. Rpt.). OHIO - Many

gravid females observed in home gardens in southern area. (Lyon). OKLAHOMA - Light in southwest area alfalfa; 2-5 per 10 sweeps. (Okla. Coop. Sur.). ALABAMA - Considerable numbers on young corn in Clay County. (Harris, Barwood, Davis).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Light to moderate on field and sweet corn in Frederick and Montgomery Counties. (U. Md., Ent. Dept.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - MISSISSIPPI - Heavy on corn in Pearl River County; controls applied. (Ouzts).

BLUEGRASS BILLBUG (Sphenophorus parvulus) - OHIO - Adults caused moderate damage to young corn in northeast Medina County; about 1 per 10 plants. Corn planted with minimum tillage in land which had been in bluegrass for several years. (Rings, Triplett, Schurr).

WIREWORMS (Melanotus spp.) - MISSOURI - Damage to corn continues to show up in spots throughout State. (Munson, Thomas, Wood).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Development as of June 7 was 25 percent pupae and 75 percent prepupae. At same time in 1962 all were pupae and some adults. Flights of adults likely to be little later in 1963. First adult flight in 1961 reported on June 9. (N. Y. Wkly. Rpt., June 10).

CORN BLOTCH LEAF MINER (Agromyza parvicornis) - DELAWARE - First miners of season present on corn in western Kent County. (Burbutis). MISSOURI - Observed on corn in central, west central, southwest and northwest areas. (Munson, Thomas, Wood).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Infestations in sorghum and corn light to moderate; 10-40 per plant in Kiowa, Tillman (southwest), Wagoner (northeast) and Choctaw (southeast) Counties. Johnson grass along roadsides and fencerows heavily infested. (Okla. Coop. Sur.). NEVADA - Averaged 30 per sweep on barley in Douglas County. (Cooney, Parker).

CORN ROOT APHID (Anuraphis maidiradicis) - DELAWARE - Very numerous on corn roots in large commercial field in New Castle County. (Burbutis). MARYLAND - Conspicuously infesting corn fields in Montgomery and Washington Counties. (U. Md., Ent. Dept.).

GRAIN APHIDS - OREGON - Medium populations of Macrosiphum avenae noted on wheat and barley in Klamath Falls area. (Vertrees). COLORADO - Rhopalosiphum fitchii, M. avenae and Schizaphis graminum present in trace to high populations on spring grains in Montrose, Mesa, Larimer and Weld Counties. High populations in Montrose and Mesa Counties required controls. (Bulla, Jenkins). NORTH DAKOTA - Trace numbers of S. graminum found on barley near Ellendale, and on oats near Linton. (N. D. Ins. Sur.). MINNESOTA - Counts of S. graminum generally lower; an occasional field has 600 per 100 sweeps, but most ranged 0-60 in east central and central districts. (Minn. Ins. Rpt.). WISCONSIN - Populations of M. avenae and S. graminum little changed in southern and southwestern areas; counts 1-6 per sweep. Little, if any "red leaf" disease observed. Counts considerably higher in northeast in parts of Shawano, Oconto and Marinette Counties where S. graminum counts run as high as 40 per sweep. Sections of oat fields in these counties yellowed, stunted, and a report from Oconto County indicates some fields being plowed. (Wis. Ins. Sur.). PENNSYLVANIA - M. avenae fairly common on oats in Potter and Elk Counties. (Adams).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Light populations, 5 per 100 plants, reported on corn in Wagoner and Muskogee Counties, eastern area. (Okla. Coop. Sur.).

A GRASS BUG (Thyrillus pacificus) - OREGON - Damaging wheat in Klamath Falls area. Also concentrated on quackgrass, wild rye grass and other native grasses. (Vertrees).

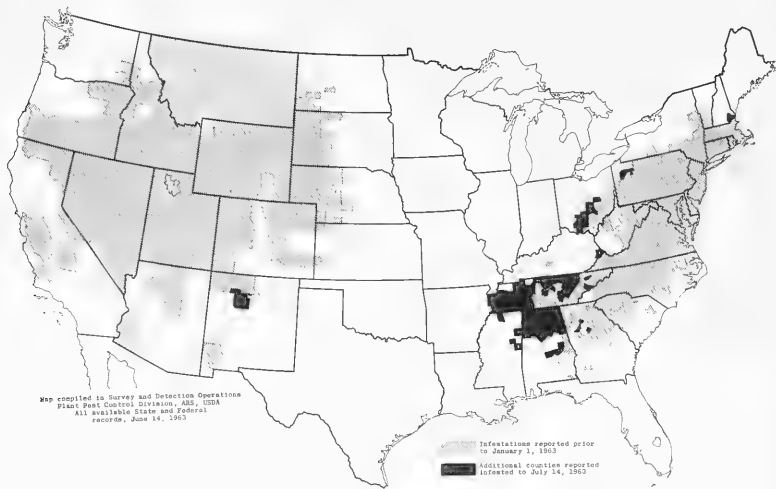
FALSE CHINCH BUG (*Nysius ericae*) - UTAH - Nymphs very numerous in fields and on range in Kanab area of Kane County and range areas of Levan and Mills in Juab County. (Knowlton).

HAIRY CHINCH BUG (*Blissus leucopterus hirtus*) - NEW JERSEY - Activity increasing. (Ins.-Dis. Newsltr., June 11).

THRIPS - CALIFORNIA - *Frankliniella occidentalis* and *Anaphothrips zea* (=longipennis) medium on milo in Westmorland. (Cal. Coop. Rpt.). **MISSOURI** - Feeding injury of unspecified species evident on small corn and grain sorghum in areas throughout most of State. (Munson, Thomas, Wood). **NORTH DAKOTA** - *Limothrips denticornis* beginning to move into barley in southeast. (Colberg).

MITES - OREGON - Damaging barley and oats in Klamath Falls area. Aerial controls necessary. Species probably *Petrobia latens*. (Vertrees).

ALFALFA WEEVIL (*Hypera postica*) - VERMONT - Found in East Rupert, Bennington County, and probably present in southern Rutland County; larvae averaged 1 per 10 sweeps. (MacCollom, June 10). **CONNECTICUT** - Larvae a problem in New Haven County. (Savos). **NEW YORK** - Population peaked in Hudson Valley; larvae averaged 110 per sweep, about one-half to two-thirds of 1962 peak. Present known infestation in State located mostly to the south and east of a line from Binghamton, Broome County, to Glens Falls, Warren County. (N. Y. Wkly. Rpt., June 10). **PENNSYLVANIA** - All stages present in some Franklin County alfalfa; treatment needed in some fields on second growth 2-6 inches high. (Pepper). All stages present in Greene County alfalfa; damage present in spring-treated fields and complete loss in untreated fields. (Udine). Light, but readily noticeable on alfalfa in Forest, McKean and Elk Counties; some damage evident in Elk County. (Adams). First record for Forest County. **DELAWARE** - Larvae, all stages, average 2-3 per sweep on untreated alfalfa in western Kent County; causing



Map compiled by Survey and Detection Operations
Plant Pest Control, Division, ARS, USDA
All available State and Federal
records, June 4, 1963

Distribution of Alfalfa Weevil

noticeable injury to second growth in one field. (Burbutis). MARYLAND - Larvae averaged 8-12 per sweep on second-growth alfalfa in Frederick County; treatments needed. (U. Md., Ent. Dept.). OHIO - Heavy damage to second-cutting alfalfa observed in some Washington County fields, southeast; newly emerged adults 1-6 per square foot in one field. Feeding damage effectively reduced in treated fields. (Gehres, Blair). Moderate to heavy damage to second-cutting alfalfa observed in several southeast counties; 60-80 larvae per 50 sweeps in alfalfa-field near Pomeroy, Meigs County. No adults found. (Lyon). Infestations observed at 9 different stops in Columbiana County, northeast area. No great economic damage found. (Myers, Blair). ARKANSAS - Specimens, tentatively determined as this species, averaged 6 per 100 sweeps in Crittenden County, east central area. (Ark. Ins. Sur.). COLORADO - Larvae low in Otero and Pueblo Counties; 0-20 per 100 sweeps. Fields of uncut alfalfa in Larimer and Weld Counties show losses of 10-25 percent in quality. (Jenkins, Schweissing). WYOMING - Larvae averaged 85 per 100 sweeps in alfalfa in Goshen County. (Fullerton). UTAH - Much alfalfa hay being cut shows moderate damage by this pest; however, adults still more abundant than normal in most alfalfa areas examined recently over much of State, including Daggett County, northern Kane County, northern Washington County and Monticello area in San Juan County, and areas north. (Knowlton). NEVADA - Larvae 20-150 per sweep in most alfalfa in Douglas and southern Washoe Counties, with heavy damage in many fields. Pupation underway. (Cooney, Parker). OREGON - Damaging alfalfa for first time in Summer Lake Refuge area. Controls will be needed. (Moser). IDAHO - Larvae causing injury to several fields in Bingham County. (Bishop).

CLOVER WEEVILS (*Hypera* spp.) - OHIO - *H. nigrirostris* heavy and *H. meles* light to moderate on red clover in Ross County, south central area. (Glass, Blair). *H. punctata* heavy in west central and southwestern counties; adults more plentiful on alfalfa than in any previous year remembered. (Blair).

CLOVER SEED WEEVIL (*Miccotrogus picirostris*) - IDAHO - Ranged up to 15 per sweep in field of white clover in Cottonwood area, Idaho County. (Portman).

A LEAF BEETLE (*Colaspis* sp.) - MISSOURI - Damage to soybeans planted after clover reported in a few fields in northeast. (Munson, Thomas, Wood).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - DELAWARE - First adults of season found present on soybeans in Sussex County; feeding injury light to moderate. (Burbutis). ALABAMA - This species and *Cerotoma trifurcata* feeding on kudzu in Clay County; numbers few. (Harris, Barwood, Davis).

PALE-STRIPED FLEA BEETLE (*Systema blanda*) - MARYLAND - Adults moderate on alfalfa at Jefferson, Frederick County. (U. Md., Ent. Dept.).

SPOTTED BLISTER BEETLE (*Epicauta maculata*) - UTAH - Very numerous in some alfalfa and on range in Mills area, Juab County. (Knowlton).

PEA APHID (*Acyrtosiphon pisum*) - IDAHO - Very low; ranged up to average of 20 per sweep in red clover and alfalfa checked in Parma and Wilder areas. (Waters). Common in alfalfa in Bingham County; ranged 5-25 per sweep. (Bishop). NEVADA - Averaged 100 per sweep in most alfalfa checked in Douglas and southern Washoe Counties. (Cooney, Parker). UTAH - Moderately numerous to light in Daggett, Uintah, Duchesne and Wasatch Counties. Moderately numerous in alfalfa in Nephi-Mills area of Juab County. (Knowlton). ARIZONA - Decreased on alfalfa in Safford area; infestations now light. Counts in Yuma area about 18-20 per sweep. (Ariz. Coop. Sur.). COLORADO - Populations very high in Mesa and Delta Counties; 8,000-12,000 per 100 sweeps. Low populations present in Arkansas Valley and northern area. (Bulla, Jenkins, Schweissing). OKLAHOMA - Populations low in alfalfa in southwest, central and north central areas; ranged 25-100 per 10 sweeps. Infestations still lighter in southeast and east counties. Some fields in Garvin County moderately infested; 400 per 10 sweeps. (Okla. Coop. Sur.).

WYOMING - Averaged 600 per 100 sweeps in alfalfa in Goshen County. (Fullerton). NEBRASKA - Average per 10 sweeps 4 in Howard County alfalfa (Calkins) and 2 in Cuming County (Bergman). NORTH DAKOTA - Ranged from a trace to 300 per 10 sweeps on alfalfa and sweetclover. (N. D. Ins. Sur.). MINNESOTA - Increased on alfalfa; average per 100 sweeps by districts 4,500 in east central, 4,600 in central and 200 in west central. Predators numerous. (Minn. Ins. Rpt.). WISCONSIN - Many small nymphs present in alfalfa and populations expected to increase; counts per sweep ranged 1-40. (Wis. Ins. Sur.). MARYLAND - Averaged 6 per sweep on second-growth alfalfa in Frederick County. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEW MEXICO - Heavy populations built up in Dona Ana County alfalfa within 2 weeks of second cutting. Most growers cut hay early rather than attempt to treat these fields. (N. M. Coop. Rpt.). OKLAHOMA - Light, 10-150 per 10 sweeps, in north central, southwest, central and western areas. Fields in southeast negative in some cases, moderate in others; ranged up to 500 per 10 sweeps. Light to moderate in south central area. (Okla. Coop. Sur.). KANSAS - Counts lower in northern area; about 1 per 20 sweeps. (Peters). NEBRASKA - Counts per 10 sweeps in alfalfa 10 in northeast (Bergman) and 4 in Howard County (Calkins). MISSOURI - Two very light infestations found in southwest; first of season. (Munson, Thomas, Wood).

POTATO LEAFHOPPER (*Empoasca fabae*) - DELAWARE - Adults present on alfalfa in New Castle and western Kent Counties. (Burbutis). MARYLAND - Ranged 1-4 per sweep on alfalfa in central and western areas. (U. Md., Ent. Dept.). PENNSYLVANIA - Population low on alfalfa in Lancaster County. (Pepper). WISCONSIN - Nymphs appearing in some alfalfa although adults in alfalfa generally low. (Wis. Ins. Sur.). MINNESOTA - Counts per 100 sweeps on alfalfa 10 in east central district, 90 in central and 20 in west central district. Nymphs present in east central and central districts. (Minn. Ins. Rpt.).

LEAFHOPPERS - MARYLAND - *Aceratagallia sanguinolenta* and other brown species extremely abundant on recently cut alfalfa at Buckeystown, Frederick County. (U. Md., Ent. Dept.). OHIO - Adults of *Empoasca* sp. ranged 6-95 per 50 sweeps in southern and southeastern areas. (Davidson, Lyon).

TARNISHED PLANT BUG (*Lygus lineolaris*) - DELAWARE - Adults averaged 2-3 per 10 sweeps on wheat and alfalfa in western New Castle and western Kent Counties. (Burbutis). MARYLAND - Adults common in alfalfa and clover in Frederick County. (U. Md., Ent. Dept.). OKLAHOMA - Light on alfalfa; 5 per 10 sweeps in southwest and 30 per 10 sweeps in south central area. (Okla. Coop. Sur.).

LYGUS BUGS (*Lygus* spp.) - IDAHO - Ranged up to 35 per sweep in some untreated alfalfa seed fields in Canyon County; mostly nymphs. (Waters). WYOMING - Adults averaged 50 per 100 sweeps and nymphs 40 per 100 sweeps in alfalfa in Goshen County. (Fullerton). COLORADO - Increased on alfalfa in Prowers, Bent, Otero, Crowley and Pueblo Counties; counts 200-500 per 100 sweeps. (Schweissing). NEW MEXICO - Treatments of alfalfa seed fields to prevent damage underway in Dona Ana County. (N. M. Coop. Rpt.). ARIZONA - Very numerous in seed alfalfa at Safford Experiment Farm; counts average 850-950 adults and nymphs per 100 sweeps. In hay alfalfa, only light to medium populations present. (Ariz. Coop. Sur.). UTAH - Very numerous in alfalfa at Vernal-Naples area, Uintah County; all stages of nymphs present; 85 percent *L. elisus*. All stages of nymphs numerous on alfalfa in Nephi-Mills area of Juab County and Vernal-Duchesne area of Uintah County; 75 percent *L. elisus*. (Knowlton). NEVADA - Adults and nymphs varied 7-40 per sweep in alfalfa hay fields in Douglas and southern Washoe Counties. (Cooney, Parker).

PLANT BUGS (*Lygus lineolaris*, *Adelphocoris lineolatus*, *A. rapidus*) - MINNESOTA - Nymphs numerous; average per 100 sweeps 300 in east central and central districts and 150 in west central district. (Minn. Ins. Rpt.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Increased slightly on alfalfa; averaged 60-150 adults per 100 sweeps. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Nymphs decreased and adults becoming more common in alfalfa. Adults range as high as 8 per sweep in fields in Walworth and Waukesha Counties and 10 per sweep in southern Grant County. (Wis. Ins. Sur.). OHIO - Ninety-five percent adult in southwestern, southern and southeastern areas; highest counts on first-cutting red clover field in Greene County (225 adults per 50 sweeps). (Lyon). PENNSYLVANIA - Adults common in Lancaster and Franklin Counties. (Pepper). MARYLAND - Adults present but not numerous in alfalfa and clover in central and western areas. (U. Md., Ent. Dept.). DELAWARE - First adults of season present on alfalfa in western Kent and New Castle Counties. (Burbutis). VERMONT - Prevalent on most legumes. (MacCollom, June 10).

SEED CHALCIDS (Bruchophagus spp.) - IDAHO - B. platyptera averaged 4 per sweep in one second-year red clover seed field near Wilder. Numbers of B. roddi low in alfalfa seed fields near Parma, ranging 0-1 per 10 sweeps. (Waters).

ALFALFA CATERPILLAR (Colias eurytheme) - MARYLAND - Larvae light in alfalfa in Allegany and Frederick Counties. (U. Md., Ent. Dept.). OHIO - Larvae present in many alfalfa and red clover fields in southwest; no economic damage could be estimated. (Lyon).

GARDEN WEBWORM (Loxostege similalis) - OKLAHOMA - Light infestations common in many southwest, south central and north central fields; 2-5 per 10 sweeps. (Okla. Coop. Sur.). MISSOURI - Very light infestations, 0-4 per 10 sweeps, observed in alfalfa in southwest. (Munson, Thomas, Wood).

GREEN CLOVERWORM (Plathypena scabra) - MARYLAND - Moderate numbers of half-grown larvae swept from second-growth alfalfa on 2 farms in Frederick County. (U. Md., Ent. Dept.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Causing light damage to field of peanuts in Covington County. (Stephenson).

RED-NECKED PEANUTWORM (Stegasta basqueella) - OKLAHOMA - Light on peanuts in Marshall County. (Okla. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - OKLAHOMA - Light in alfalfa in southwest; 1.5 per 10 sweeps. (Okla. Coop. Sur.). DELAWARE - First larvae of season present on corn in western Kent County. (Burbutis).

THRIPS - GEORGIA - Unspecified species light to moderate on peanuts throughout southern area. (Johnson). MARYLAND - Unspecified species increasing on corn and soybeans on lower Eastern Shore. (U. Md., Ent. Dept.). DELAWARE - Sericothrips variabilis fairly common on soybeans in western Sussex County. (Burbutis). OKLAHOMA - Frankliniella spp. heavy, 25 per row foot, on peanuts in Marshall and Bryan Counties, southern area. (Okla. Coop. Sur.).

CRICKETS - MISSOURI - Reported feeding on leaves of soybeans and cotton along Mississippi River levees in southeast; counts range 3-7 per square yard. Some infestations serious enough to warrant controls. (Munson, Thomas, Wood).

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - DELAWARE - Very heavy on clover in central Kent County; causing severe injury. (J. Mellott).

FRUIT INSECTS

CODLING MOTH (*Carpocapsa pomonella*) - VERMONT - No evidence of emergence to June 7. First adults expected by June 14. (MacCollom, June 10). NEW YORK - Emergence proceeded rapidly during week of June 2 in Niagara County; egg laying heavy. First eggs hatched June 9 in Monroe County; emergence increased markedly week of June 2 in 5 seeded cages located in principal fruit-growing areas of county. Emergence as follows: June 2 - 11; June 3 - 14; June 4 - 16; June 5 - 18; June 6 - 12; June 7 - 14; June 8 - 7; and June 9 - 21. Thousands of larvae used in the 5 seeded cages from which these records came. (N. Y. Wkly. Rpt., June 10). OHIO - Adults emerged June 14 at Wooster, Wayne County; survival percentage much lower than usual. (Forsythe). INDIANA - First and second brood activity in Vincennes area, Knox County, will overlap. Few adults still emerging from overwintering larvae and early first-generation larvae ready to leave apples. (Hamilton, June 11). MISSOURI - First brood about ended. New entries due in southeastern area but none reported. (Wkly. Rpt. Fr. Grs., June 12). WISCONSIN - Larvae entered fruit at Gays Mills; eggs probably began hatching in that area about June 7-8; treatments underway. Two blacklight traps at Gays Mills yielded 18 adults June 4-7; trap at Madison yielded 26 adults June 6-10; and trap at Middleton yielded 4 adults June 6-9. (Wis. Ins. Sur.). CALIFORNIA - Heavy on peach trees in Sacramento, Sacramento County. (Cal. Coop.Rpt.).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - INDIANA - Number of adults coming to bait traps in Vincennes area, Knox County, increasing and second-brood eggs now being laid. (Hamilton, June 11).

EYE-SPOTTED BUD MOTH (*Spilonota ocellana*) - MAINE - Light populations and damage noted in southern area. (Boulanger, June 10).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - NEW YORK - Larvae found in peach terminals in Niagara County June 6. (N. Y. Wkly. Rpt.). OHIO - Twig-feeding populations appear low; very little first-brood injury in Wayne County. (Forsythe). INDIANA - Adults started reappearing in bait traps on June 9 in Vincennes area, Knox County, following no captures since May 8. Egg hatch expected to start about June 18. (Hamilton). MISSOURI - Mostly pupated in Kansas City area; fresh twig injury noted in southeastern area June 7. (Wkly. Rpt. Fr. Grs., June 12). ALABAMA - Continues active in peach twigs in Lee County. (McQueen).

PEACH TREE BORER (*Sanninoidea exitiosa*) - WISCONSIN - Reared from larvae taken from peach tree in Madison; species not common in State. (Wis. Ins. Sur.).

PEACH TWIG BORER (*Anarsia lineatella*) - CALIFORNIA - Heavy on peach trees in Sacramento, Sacramento County. (Cal. Coop. Rpt.). COLORADO - Pupation beginning in peach terminals in Mesa County. (Bulla).

PLUM CURCULIO (*Conotrachelus nenuphar*) - VERMONT - Peak activity passed. (MacCollom, June 10). RHODE ISLAND - Occasional adult still collected on untreated apple in Kingston area, Washington County, but peak abundance probably passed. (Mathewson). NEW YORK - Egg laying began in Niagara County about May 28. (N. Y. Wkly. Rpt.). OHIO - Adults abundant on apples at untreated orchard near London, Madison County. Serious oviposition and adult feeding punctures on all apples on 3 trees in orchard; 10-14 punctures per apple commonly observed. (Lyon). Moderate to heavy damage on plum fruit in Wayne County and moderate damage to apples noted. (Forsythe). MINNESOTA - Noted on apples near Hastings; controls recommended. (Minn. Ins. Rpt.).

PERIODICAL CICADAS - INDIANA - Heavy oviposition started about June 5 in Vincennes area, Knox County. Peak egg laying probably occurred but cannot yet be determined. Growers using controls secured good results, but now having considerable difficulty in preventing fertile females in wooded areas surrounding orchard from migrating into orchards. (Hamilton, June 11). MISSOURI - At least one orchard sustained some damage by egg laying in southeastern area; oviposition now nearly over in that area which is the only area of State reporting cicadas this year. (Wkly. Rpt. Fr. Grs., June 12).

APPLE APHID (*Aphis pomi*) - MAINE - Winged migrants appearing in most areas by June 9. (Boulanger). MASSACHUSETTS - Heavy buildup on watersprouts noted. (Wheeler). RHODE ISLAND - Alates appearing and small amounts of reproduction commenced in apple orchards in Kingston, Washington County; very spotty. (Mathewson). CONNECTICUT - More appearing on terminal growth. (Savos). WISCONSIN - Built up on watersprouts in Door County week of June 1, but no movement to terminals occurred. (Wis. Ins. Sur.).

ROSY APPLE APHID (*Anuraphis rosea*) - NEVADA - Light to heavy on apple in southern Washoe County. (Bechtel, Parker).

WOOLLY APPLE APHID (*Eriosoma lanigerum*) - NEW MEXICO - Relatively heavy on untreated apple trees in Dona Ana, Bernalillo and Sandoval Counties. (N. M. Coop. Rpt.). ALABAMA - Caused severe injury at ground level to first-year apple trees in Lee County. (Moore).

PEAR PSYLLA (*Psylla pyricola*) - NEW YORK - Several orchards in western part of State indicate populations numerous despite routine control programs. Careful surveillance suggested. Seasonal development in western area as follows: March 25 - adult migration from hibernation sites; March 30 - first oviposition; April 18 - first hatch; and May 26 - first adults of summer brood. (N. Y. Wkly. Rpt., June 10). CONNECTICUT - Building up to damaging proportions on check trees; some growers in central part of State having little difficulty on control. (Savos).

OYSTERSHELL SCALE (*Lepidosaphes ulmi*) - MAINE - Light numbers and damage noted in Corinth, Penobscot County. (Boulanger, June 10).

SAN JOSE SCALE (*Aspidiotus perniciosus*) - FLORIDA - Severe on pear at Rockledge, Brevard County. (Levan, June 5). ALABAMA - Caused severe damage to apple trees and to fruit (one tree) in Lee County. (Bagby).

LOCUST LEAF MINER (*Xenochalepus dorsalis*) - OHIO - Feeding injury on leaves of apple trees near London, Madison County; leaves 10-45 percent skeletonized. Fifteen to twenty locust trees adjacent to orchard. Adults frequently numbered 5-10 per leaf. Damaged soybeans, grape and lima beans. (Lyon). Noted in Columbiana County; heavy on oats, wheat, ash trees and weeds; no economic damage except for some leaf skeletonizing of red oak. (Custer, June 3).

EUROPEAN RED MITE (*Panonychus ulmi*) - MAINE - Spotty in State; in southern area, populations range light to heavy. Few moderately heavy infestations in central area. Damage in most areas none or light to June 10. Females noted in Leeds on June 3; few if any eggs present then; eggs found in area south of Auburn, Androscoggin County. (Boulanger, June 10). VERMONT - Troublesome on Red Delicious apples where controls poor or neglected. (MacCollom, June 10). NEW YORK - Not numerous in Orleans County but can be found, mostly adults. (N. Y. Wkly. Rpt., June 10). RHODE ISLAND - Scattered, localized masses of eggs noted in cherry orchards in Kingston, Washington County; no evidence of hatching. (Mathewson). CONNECTICUT - Development slowed by cool, wet weather. (Savos). OHIO - Counts revealed 2 per plum leaf and one or fewer per apple leaf in Wayne County orchards. (Forsythe, June 6).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - OREGON - Building up on pears in Medford area. (Berry). CONNECTICUT - Eggs and adults appear more numerous than European red mite. (Savos). MASSACHUSETTS - Buildup heavy on watersprouts. (Wheeler).

PEAR RUST MITE (*Epitimerus pyri*) - NEW YORK - Found in Niagara County May 29; mostly just underneath calyx lobes on fruit. (N. Y. Wkly. Rpt., June 10). OREGON - Continues present on pears in Medford area, Jackson County. (Berry).

ORCHARD MITES - INDIANA - Temperatures ideal for development in Vincennes area, Knox County; degree of populations present in any orchard varies extensively. (Hamilton, June 11). MISSOURI - Beginning to appear in greater numbers, but in scattered, isolated spots in Kansas City area. If weather continues hot, more mite trouble anticipated. (Wkly. Rpt. Fr. Grs., June 12).

CHERRY FRUITWORM (Grapholitha packardii) - NEW JERSEY - Flight continues heavy, particularly in untreated blueberry fields. (Ins.-Dis. Newsltr., June 11).

CHERRY FRUIT FLY (Rhagoletis cingulata) - NEW YORK - Emergence in Monroe County very slow to June 12. Seeded cage in Brockport zone yielded following: June 1, 1; June 2, 2; June 3-6, none; June 7, 7; June 8, 12. (N. Y. Wkly. Rpt., June 10).

BLACK CHERRY APHID (Myzus cerasi) - WISCONSIN - Building up in greater numbers on sour cherry than in recent years in Door County; could become a problem. (Wis. Ins. Sur.).

PECAN PHYLLOXERA (Phylloxera devastatrix) - ALABAMA - Caused heavy damage in large pecan orchard in Marengo County; very light and isolated infestations on few trees in Elmore and Lee Counties. (Gossard, Bagby).

BLACK-MARGINED APHID (Monellia costalis) - NEW MEXICO - Building up rather rapidly on pecan trees in Las Cruces area, Dona Ana County. (N. M. Coop. Rpt.).

OBSCURE SCALE (Chrysomphalus obscurus) - ALABAMA - Caused heavy damage in large pecan orchard in Marengo County. (Gossard, Bagby).

PECAN NUT CASEBEARER (Acrobasis caryae) - GEORGIA - Light on pecans in southern area. (Johnson). ALABAMA - Damage by first generation appears about ended in central and southern areas; some dead larvae noted in small, affected pecans. (McQueen).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - ALABAMA - Light on pecans in orchards in Lee County. (McQueen).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Moderate, widespread infestations stripping pecan trees in De Witt County. (Tex. Coop. Rpt.; Smith).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Considerable infestations in Henry, Barbour and Russell Counties, and lesser numbers noted in Lee County on pecans; condition static in Mobile County. (Seibels et al.). TEXAS - Heavy, widespread infestations defoliating pecan trees in Calhoun County. (Tex. Coop. Rpt.; Bales).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - Third bait spray application for 1963 underway at San Ysidro, San Diego County, in border areas adjacent to Tijuana, Mexico. Trapping in area continues, with 2,900 traps in operation in border and buffer zones. All detection methods negative in State this year. (Cal. Coop. Rpt.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - Moderate on citrus at Bereah, Polk County (Keen, Denmark) and at Thonotosassa, Hillsborough County (Simmons, June 4).

YUMA SPIDER MITE (Eotetranychus yumensis) - ARIZONA - Spot treatment continues in Yuma area. (Ariz. Coop. Sur.).

CITRUS WHITEFLY (Dialeurodes citri) - FLORIDA - Severe on Key lime at Dania, Broward County. (Brown, June 4).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Treatment continues in Yuma area; high counts required second treatment to some young citrus in some groves. (Ariz. Coop. Sur.).

WESTERN GRAPE LEAF SKELETONIZER (*Harrisina brillians*) - CALIFORNIA - Over 1,500 yard-hosts inspected in towns of Kerman, Firebaugh, Mendota, Coalinga and Biola in Fresno County, with negative results. In Livermore area, Alameda County, numerous adult collections made in known infested area. Controls began June 3; no extension of infestation reported. (Cal. Coop. Rpt.).

GRAPE BERRY MOTH (*Paralobesia viteana*) - MISSOURI - Very small, young larvae now present in grapes; controls recommended where there is at least a partial grape crop. (Wkly. Rpt. Fr. Grs., June 12).

A FALSE CHINCH BUG (*Nysius raphanus*) - CALIFORNIA - Adults heavy on grapes in Hughson area, Stanislaus County, and very heavy in drying fields in Merced, Merced County. (Cal. Coop. Rpt.).

PAPAYA FRUIT FLY (*Toxotrypana curvicauda*) - FLORIDA - Collected in Steiner traps in guava and kumquat trees at Homestead, Dade County. (Fay, May 14).

A CECIDOMYIID (*Dasyneura vaccinii*) - MAINE - Localized but heavy infestations reported on blueberries in Hancock County. (Boulanger, June 10).

A CRANBERRY BLOSSOMWORM (*Epiglaea apiata*) - NEW JERSEY - Very active on cranberry bogs; immediate controls urged. (Ins.-Dis. Newsltr., June 11).

CRANBERRY FRUITWORM (*Acrobasis vaccinii*) - NEW JERSEY - Flight continues heavy, particularly in untreated blueberry fields. (Ins.-Dis. Newsltr., June 11).

A LEAF ROLLER MOTH (*Sparganothis* sp.) - NEW JERSEY - Now very active in cranberry bogs; immediate controls urged. (Ins.-Dis. Newsltr., June 11).

LEAF-FOOTED BUG (*Leptoglossus phyllopus*) - ALABAMA - Light on blueberries in Covington County. (Stephenson).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - RHODE ISLAND - Hatching general in Kingston and adjacent parts of Washington County. (Kerr). NEW YORK - Noticeable in Suffolk County, especially in tomato and eggplant fields. Earliest eggs hatched on potatoes in Suffolk County but generally few in number. Egg masses now much more numerous; fair number of larvae expected after June 10. (N. Y. Wkly. Rpt., June 10). NEW JERSEY - Hatching on potato plots at Adelphia, Monmouth County. (Ins.-Dis. Newsltr., June 11). DELAWARE - Very heavy on commercial tomato planting in western Kent County; larvae causing rather severe feeding injury. (Burbutis). MARYLAND - Larvae destructive to garden potatoes on several farms in Montgomery and Frederick Counties. (U. Md., Ent. Dept.). OHIO - Primarily last instars collected from potato plants in southern area; 14 larvae representing all instars noted locally in Scioto County; no adults found in State. (Lyon). UTAH - Larvae appearing in numbers in Weber and Davis Counties in potato fields; numerous on tomatoes in some Davis County communities. (Knowlton).

POTATO FLEA BEETLE (*Epitrix cucumeris*) - MAINE - Moderate numbers, probably this species, causing moderate damage to tomatoes, cucumbers and potatoes in Presque Isle, Aroostook County. (Boulanger, June 10). RHODE ISLAND - Statewide on potatoes, tomatoes and broccoli. (Mathewson). PENNSYLVANIA - Ranged light to heavy on potatoes in Potter and Erie Counties. (Adams). MARYLAND - Heavy on potatoes at Jefferson, Frederick County. (U. Md., Ent. Dept.). WISCONSIN - First-generation adults began feeding on solanaceous crops but injury light; averaged 1 per potato plant in Kenosha County. Attacking potatoes in Langlade County. (Wis. Ins. Sur.). NORTH DAKOTA - Some feeding observed on potatoes in southeast. (N. D. Ins. Sur.). NEBRASKA - Adults feeding on potatoes and tomatoes in Lancaster County. (Bergman).

WIREWORMS - OHIO - Undetermined species damaged 55 acres of potatoes in Fulton County; counts 8-10 per seed piece in several areas of field, primarily last instars. Controls underway. (Overton, June 5).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Nymphs and adults found on early potatoes in Weld County; adults range 1-4 per 100 sweeps. On *Lycium* sp. in Weld County, counts range 10-40 per 100 sweeps. Not found on tomatoes in Prowers, Bent, Otero, Crowley and Pueblo Counties. (Jenkins, Schweissing).

POTATO LEAFHOPPER (*Empoasca fabae*) - WISCONSIN - Few adults noted in certain potato fields in Kenosha County. Counts remain at 1 per plant in marginal portion of lima bean fields in Rock County. (Wis. Ins. Sur.). PENNSYLVANIA - Adults average about 3 per plant on potatoes in Greene County. (Udine). None on potatoes in Potter and Erie Counties. (Adams).

POTATO APHID (*Macrosiphum euphorbiae*) - NEW JERSEY - Moderate on potatoes at Adelphia, Monmouth County. (Ins.-Dis. Newsltr., June 11). MARYLAND - Light to moderate on garden tomatoes on 2 farms in Frederick County. (U. Md., Ent. Dept.).

GREEN PEACH APHID (*Myzus persicae*) - COLORADO - Found in one of 8 early potato fields in Weld County; colony observed on sugar beet plant in same county. (Berry, Jenkins).

Potato Aphids in Maine - Populations of BUCKTHORN APHID (*Aphis nasturtii*), POTATO APHID (*Macrosiphum euphorbiae*), GREEN PEACH APHID (*Myzus persicae*) and FOXGLOVE APHID (*Acyrtosiphon solani*) very low at Presque Isle and vicinity, Aroostook County. *A. nasturtii* predominates, with trace numbers of *M. euphorbiae*. Spring migrations of *A. nasturtii* and *M. euphorbiae* started about June 5, the usual time. While no potato plants infested with *A. solani* found, indications are that spring migration of this species started about or soon after June 7. Survey of aphid abundance on Canada plum, primary host of *Myzus persicae*, on June 10-11 in 26 thickets distributed over northeastern Maine, failed to reveal any *M. persicae*. (Shands et al.)

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - ALABAMA - Caused heavy damage to lima beans locally in Covington County; extremely heavy on lima beans in Mobile County, with heavy egg laying on over 50 percent of plants in many fields. Several overlapping generations seem to be occurring. (Stephenson, Seibels, Wallace). MARYLAND - Adults infesting garden beans in Frederick and Montgomery Counties. (U. Md., Ent. Dept.). DELAWARE - Adults fairly common on snap beans, causing noticeable feeding injury in commercial field in central Sussex County. (Burbutis). OHIO - Overwintering adults and newly laid eggs noted on garden beans in many southern counties; 3-4 adults per leaf on some plants. Eggs on undersides of leaves numbered approximately 40-50 per aggregate. Adults mating and laying eggs. (Lyon). COLORADO - Not found on beans in Weld County. (Jenkins).

WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata undecimpunctata*) - OREGON - Few adults appearing on bush beans in Jefferson area. (Hanna).

PEA WEEVIL (*Bruchus pisorum*) - OREGON - Adults heavy past 3 weeks in Woodburn-Canby-Brooks area pea fields; ranged 15-40 per 10 sweeps. (Hanna).

COTTON SQUARE BORER (*Strymon melinus*) - ALABAMA - Causing light damage to southern peas and lima bean pods throughout Mobile County. (Seibels).

PEA APHID (*Acyrtosiphon pisum*) - WISCONSIN - Many small nymphs present in peas; late and midseason peas rapidly attaining populations where controls may be needed. Counts per sweep in early peas ranged 1.5-4.5 in Dane, Rock and Walworth Counties and averaged 10 per sweep in Sauk and Iowa Counties. Counts per sweep in late peas ranged 2-21 in same 5 counties. Some pea acreage treated after counts reached 60-70 per sweep week of June 1. (Wis. Ins. Sur.). OREGON - Light and scattered in freezing variety peas; adults noted in Woodburn area. (Hanna).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ALABAMA - Appears to be increasing on southern peas and beans in Mobile County. (Seibels).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - ALABAMA - This species and Lygus spp. numerous on southern peas and beans in Mobile County. (Seibels, Wallace).

SEED-CORN MAGGOT (Hylemya platura) - OHIO - Approximately 95 percent damage to lima beans in home garden near Orrville, Wayne County. Conspicuous damage to cotyledons noted; counts of 10-14 maggots per bean seedling in several locations. (Sleesman, Lyon, June 4).

CABBAGE APHID (Brevicoryne brassicae) - WISCONSIN - Abundant on some plantings of cabbage in Kenosha and Racine Counties. (Wis. Ins. Sur.).

DIAMONDBACK MOTH (Plutella maculipennis) - WISCONSIN - Larvae noticeable and causing some injury to cabbage in southeast; up to 4 per leaf noted. (Wis. Ins. Sur.). MARYLAND - Destructive to garden cabbage at Jefferson, Frederick County. (U. Md., Ent. Dept.).

IMPORTED CABBAGEWORM (Pieris rapae) - MAINE - Adults light on cole crops in Yarmouth-Cape Elizabeth area, Cumberland County. (Boulanger, June 10). MARYLAND - Larvae destructive to garden cabbage at Jefferson, Frederick County. (U. Md., Ent. Dept.). OHIO - Frequently observed flying in southwestern, southern and southeastern areas. (Lyon).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Problem in lettuce fields near Los Lunas, Valencia County, and in Bernalillo County where adequate controls not used. Also problem in home gardens on cabbage, lettuce and eggplants in many areas of State. (N. M. Coop. Rpt.).

CABBAGE MAGGOT (Hylemya brassicae) - MAINE - Numbers moderate, with heavy damage to cauliflower and radish in Scarborough; heavy egg deposits on cabbage and cauliflower in Cape Elizabeth, both in Cumberland County. The former case concerns well-developed maggots, first of season. In the latter area, only eggs observed. Light damage also reported at Yarmouth. (Boulanger, June 10). NEW YORK - Causing losses in some areas; improper treatments may be cause. Quite severe on newly set transplants in Niagara County and continues to show as plants are handled. Very little preventive action taken in seedbeds. (N. Y. Wkly. Rpt., June 10). PENNSYLVANIA - Causing considerable injury to cabbage in home gardens in Lancaster and Franklin Counties. (Pepper). WISCONSIN - This species probably responsible for severe damage to radishes in Shawano County. (Wis. Ins. Sur.).

SPINACH LEAF MINER (Pegomya hyoscyami) - RHODE ISLAND - Mining spinach and chard in Kingston, Washington County. (Mathewson). NEW YORK - Caused considerable damage to spinach and beets in Suffolk County home gardens week of May 29. (N. Y. Wkly. Rpt.). NEW JERSEY - Heavy on spinach and chard in Cumberland County and on chard in Morris County; controls recommended. (Ins.-Dis. Newsltr., June 11). WISCONSIN - Relatively heavy on planting of red beets in Kenosha County; other plantings in area with insignificant numbers of miners. Most now beginning to pupate. (Wis. Ins. Sur.). WYOMING - Larvae numerous in leaves of sugar beets throughout Goshen County. (Fullerton). UTAH - This species, or perhaps P. betae, mined up to 35 percent of older, larger leaves in some sugar beet patches. Damage well above average for time of year. (Dorst, Knowlton).

LEAF MINERS - CONNECTICUT - Unspecified species feeding on spinach, Swiss chard and beet leaves; controls recommended. (Savos).

BEEF WEBWORM (Loxostege sticticalis) - WYOMING - Flight large in and around sugar beet and alfalfa fields in Goshen County. (Fullerton). COLORADO - Adults continue to appear at light traps in Otero County; no eggs or larvae found on sugar beets in county. (Schweissing). NORTH DAKOTA - Adults observed along roadsides in southwestern counties. (N. D. Ins. Sur.).

GARDEN WEBWORM (Loxostege similalis) - COLORADO - Adults, eggs and first instars present in sugar beet and cabbage fields in Weld and Adams Counties. (Colo. Ins. Sur.).

WESTERN BLACK FLEA BEETLE (Phyllotreta pusilla) - IDAHO - Injuring young sugar beets in fields near Aberdeen. (Bishop).

BEEF LEAFHOPPER (Circulifer tenellus) - UTAH - Occasional specimen recovered on wild mustards in Ashley Valley of Uintah County. Curly top ranged 0-1 percent on tomatoes at Hooper, Box Elder County; 2 diseased in 300 tomato plants examined. (Dorst). IDAHO - Abundant in sugar beet fields near Aberdeen. (Bishop). COLORADO - Numbered 0-1 per square foot of beet row in Mesa County and 0-2 per square foot in Delta County. (Bulla).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - MAINE - Heavy and damaging cucumbers in Auburn, Androscoggin County. (Boulanger, June 10). NEW YORK - Present on 2-leaf gourd plants at Hurley, Ulster County, June 3. (N. Y. Wkly. Rpt.). CONNECTICUT - Controls recommended in home gardens. (Savos). DELAWARE - Adults very common on cucumbers locally in western Kent County and present on water-melons in southwestern Sussex County. (Burbutis). WISCONSIN - This and other cucumber beetles caused severe damage to cucumbers in Walworth County; controls needed. (Wis. Ins. Sur.). OKLAHOMA - Moderate in garden areas of Marshall County. (Okla. Coop. Sur.). COLORADO - Appearing erratically on cantaloup in Prowers, Bent, Otero and Pueblo Counties. (Schweissing).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - OKLAHOMA - Moderate on cantaloups in Custer County. (Okla. Coop. Sur.). CONNECTICUT - Controls recommended in home gardens. (Savos).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - CALIFORNIA - Larvae light in cantaloup planting in El Centro, Imperial County. (Cal. Coop. Rpt.).

SQUASH BUG (Anasa tristis) - OKLAHOMA - Light to moderate in most cucurbit-growing areas of State. (Okla. Coop. Sur.).

EARWIGS - ARIZONA - Apple bait spread in cantaloup fields to control undetermined species in Yuma area. (Ariz. Coop. Sur.).

ASPARAGUS BEETLE (Crioceris asparagi) - NEW YORK - Active in Niagara County. (N. Y. Wkly. Rpt., June 10). DELAWARE - Eggs and larvae present on asparagus foliage locally in New Castle County. (Burbutis). KANSAS - Moderate on asparagus in Shawnee County. (Charlton, Guldner).

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) - DELAWARE - Adults present to fairly common on asparagus foliage in New Castle County. (Burbutis).

ONION MAGGOT (Hylemya antiqua) - WISCONSIN - Caused severe damage to onions in Shawano County. (Wis. Ins. Sur.). MINNESOTA - Controls good at Castle Rock; skips at row ends heavily infested. (Minn. Ins. Rpt.). COLORADO - Adults appearing in bait traps in Montrose County; no maggots in onion fields. (Bulla).

THRIPS - DELAWARE - Undetermined species abundant and causing heavy injury to onions on truck farm in southwestern Sussex County. (Burbutis). COLORADO - Thrips tabaci ranged 0-25 per onion plant in Prowers, Bent, Otero and Pueblo Counties. (Schweissing).

RHUBARB CURCULIO (Lixus concavus) - RHODE ISLAND - Adults collected in Kingston, Washington County. (Mathewson). OHIO - Larvae noted in rhubarb stalks from home garden in Washington County. Early instars present; some stalks yielded 6-8 larvae. (Lyon).

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) - NEW YORK - Continued buildup in Orange County; lettuce stunt and drop continues evident. (N. Y. Wkly. Rpt., June 10).

STRAWBERRY WEEVIL (Anthonomus signatus) - MAINE - Populations and damage moderate to heavy in Orono area, Penobscot County. (Boulanger, June 10).

STRAWBERRY APHID (Pentatrichopus fragaefolii) - NEW JERSEY - First flight continues; controls recommended. (Ins.-Dis. Newsltr., June 11).

OMNIVOROUS LEAF TIER (Cnephasia longana) - OREGON - Larvae found on late blossoms of strawberries not properly treated around Gresham areas; appeared to be late hatch. (Hanna).

BAGWORM (Thyridopteryx ephemeraeformis) - KANSAS - Numerous on strawberries in home garden in Riley County. Ranged 0-2 per leaf and causing considerable defoliation. (Knutson, Peters).

CYCLAMEN MITE (Steneotarsonemus pallidus) - MAINE - Populations and damage light on strawberry plants in home planting in Farmington, Franklin County. (Boulanger, June 10). CONNECTICUT - Noted on strawberries in Putnam June 6-13. (Savos). MINNESOTA - Appearing on some strawberry plants. (Minn. Ins. Rpt.).

FLEA BEETLES (undetermined) - VERMONT - Activity increased on tomatoes and potatoes. (MacCollom, June 10). NEW YORK - Noticeable in Suffolk County, especially in tomato and eggplant fields. Active in Niagara County on tomatoes, potatoes and cabbage. (N. Y. Wkly. Rpt., June 10). CONNECTICUT - Active on potatoes, peppers, tomatoes and other plants. (Savos). MISSOURI - Continue troublesome in home gardens. (Wkly. Rpt. Fr. Grs., June 12).

CUTWORMS - NEW YORK - Noticeable in Suffolk County, especially in tomato and eggplant fields. (N. Y. Wkly. Rpt., June 10). MINNESOTA - Particularly damaging in vegetable gardens in metropolitan areas on tomatoes. (Minn. Ins. Rpt.). NEBRASKA - Peridroma saucia larvae causing damage to garden vegetables in Lancaster County. (Roselle). CALIFORNIA - Feltia subterranea medium on tomato fruit in El Centro, Imperial County. (Cal. Coop. Rpt.).

APHIDS (undetermined) - MARYLAND - Light on strawberry plantings surveyed in Wicomico County. (U. Md., Ent. Dept.). NEW JERSEY - Considerable populations on untreated raspberries. (Ins.-Dis. Newsltr., June 11). RHODE ISLAND - Apparent on spinach in Kingston, Washington County. (Mathewson). MINNESOTA - Conspicuous on strawberries south of St. Paul and Hastings areas. (Minn. Ins. Rpt.).

SPIDER MITES (undetermined) - ARIZONA - Contributing factor in early decline of some cantaloup fields. (Ariz. Coop. Sur.). ALABAMA - Causing heavy damage to beans, tomatoes and other garden plants in Lee County. (Bagby et al.). MARYLAND - Caused heavy damage to small strawberry plantings in Baltimore County. (U. Md., Ent. Dept.). MINNESOTA - Conspicuous on strawberries south of St. Paul and Hastings areas. (Minn. Ins. Rpt.).

TOBACCO INSECTS

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to moderate on tobacco in southern area. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light on tobacco in southern area. (Johnson).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Active in all counties except those in extreme northwestern area. Some punctured squares noted in unprotected cotton. (Cott. Ltr., June 11). Adults ranged 5-98 per acre in 3 untreated fields in Florence area compared with 23-604 in 4 untreated fields at same time in 1962. Emergence in area ranged from light to medium; maximum emergence will not occur until additional rainfall occurs. (Taft et al.; June 12). GEORGIA - Percent punctured squares ranged 0-5 (averaged 3). (Johnson). FLORIDA - Light on cotton at Sneads, Jackson County. (Gary, June 7). ALABAMA - Only 5 live weevils located in some 16 fields scouted totaling approximately 800 acres in Henry County. Square infestations ranged 0-8 percent, mostly 2 percent, in fields affected. Percent punctured squares averaged 2 percent in Dallas County. (Cott. Scouts, Griffin et al.). MISSISSIPPI - Light on cotton in delta area, and in Jeff. Davis, Lowndes and Monroe Counties; controls applied. (Ouzts). TENNESSEE - Few weevils found feeding on terminal buds in Hardin, Chester and McNairy Counties; all in early cotton. Weather favorable for emergence from hibernation. (Locke). LOUISIANA - Emergence of overwintering weevils continues low in Tallulah area. One live weevil removed from hibernation cage on June 14; first of season. Field populations remain low and range from none to very light. (Smith et al.). TEXAS - Infestations increasing slowly in most areas of State; no economic populations reported. (Tex. Coop. Rpt.). Percent punctured squares in McLennan and Falls Counties averaged 0.3 in 94 early treated, early planted fields and 1.5 percent in 12 untreated fields. (Cowan et al.).

A WHITE-FRINGED BEETLE (Graphognathus leucoloma pilosus) - ALABAMA - Fifty percent of stand destroyed in one 10-acre cotton field near Repton, Conecuh County. (Lemons).

BOLLWORM (Heliothis zea) - CALIFORNIA - Detectable in Imperial County cotton having squares, but populations light. (Downing, June 3). ARIZONA - Causing some concern in Casa Grande area; controls required. (Ariz. Coop. Sur.). OKLAHOMA - Occasional larva found on early planted cotton seedlings in Tillman County, southwest. (Okla. Coop. Sur.). TEXAS - Most serious threat to cotton at present. Populations occurring somewhat earlier than normal. Light to heavy in Rio Grande Valley, coastal bend and upper coastal regions of State. Light populations and increased egg laying observed in central area. (Tex. Coop. Rpt.). SOUTH CAROLINA - Total of 148 adults trapped to June 12 in light trap in Florence area compared with 332 at same time in 1962. (Taft et al.; June 12).

TOBACCO BUDWORM (Heliothis virescens) - TEXAS - Moderate to heavy populations prevalent in central area causing damage to terminals and fruit. (Tex. Coop. Rpt.).

BOLLWORMS (Heliothis spp., et al.) - SOUTH CAROLINA - Present in many Coastal Plain and lower Piedmont counties. (Cott. Ltr., June 11). GEORGIA - Eggs ranged 3-12 (averaged 6) per 100 terminals; larvae ranged 0-4 (averaged 2) per 100 terminals. (Johnson). ALABAMA - Larvae 0-32 and eggs 0-30 per 100 terminals on cotton in Dallas and Autauga Counties; 0-18 larvae and considerable egg laying in Henry and Lee Counties. Adults of H. zea and H. virescens noted in all cotton fields checked. (Cott. Scouts, Griffin et al.). MISSISSIPPI - Light to medium on cotton in delta area, and in Jeff. Davis, Lowndes and Monroe Counties; controls applied. (Ouzts). Eggs ranged 0-9 (averaged 1) per 200 terminals in delta counties. (Pfrimmer et al.). LOUISIANA - Egg hatching underway in Tallulah

area; controls required in some experimental plots. Spotted infestations of small larvae observed feeding in squares in some plots. (Smith et al.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Total of 183 moths emerged from test cages at Safford Experimental Farm, Graham County, first 10 days of June; peak emergence. (Ariz. Coop. Sur.).

BEE T ARMYWORM (Spodoptera exigua) - CALIFORNIA - Low populations in Imperial County cotton. (Downing, June 3). TEXAS - Light infestations reported in some central areas. (Tex. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Light on cotton in southern area. (Johnson). ALABAMA - Few small larvae noted in squaring cotton in Henry County. (Cott. Scouts).

COTTON LEAFWORM (Alabama argillacea) - TEXAS - Present in Rio Grande Valley and coastal bend counties. (Tex. Coop. Rpt.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - CALIFORNIA - Migrating into cotton from adjacent weedy areas and barley fields in Tulare Lake Basin. (Leigh, June 5).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - TENNESSEE - Found in number of cotton fields in western area; causing some scattered damage. (Locke).

COTTON FLEAHOPPER (Psallus seriatus) - ARIZONA - Causing some concern in Casa Grande area; controls required. (Ariz. Coop. Sur.). OKLAHOMA - Moderate, 20 per 100 terminals, in Garvin County, southern area. (Okla. Coop. Sur.). TEXAS - Infestations still a problem in some central and northwest areas where cotton beginning to square. (Tex. Coop. Rpt.). In McLennan and Falls Counties, averaged 6.5 per 100 terminals in 95 treated fields and 11.6 in 13 untreated fields (average 7.1). This compares with 13.6 per 100 terminals in 86 fields previous week. (Cowan et al.). LOUISIANA - Populations in several experimental plots in Tallulah area highest for past several years. (Smith et al.). MISSISSIPPI - Light on cotton in delta area and in Calhoun, Copiah, Montgomery and Prentiss Counties. (Ouzts). Collected in 12 of 33 fields checked in delta counties. Averaged 0.85 (ranged 0-8) per 100 sweeps. (Pfrimmer et al.). ALABAMA - Adults and nymphs light in Henry County cotton. (Cott. Scouts).

BLACK FLEAHOPPERS - MISSISSIPPI - Collected in 5 of 33 cotton fields checked in delta counties; ranged 0-2 per 100 sweeps. (Pfrimmer et al.). ARIZONA - Spanogonicus albofasciatus appearing in Yuma and Safford area cotton fields; controls started in Maricopa County. (Ariz. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - Abundant in alfalfa and potatoes in Kern County; adult migration to cotton expected when alfalfa is cut and potatoes harvested. (Leigh, June 5). Counts low in cotton in Imperial County except in fields adjacent to recently cut alfalfa. (Downing, June 3). ARIZONA - Building up in Maricopa County cotton. Several fields treated in Casa Grande area. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - ALABAMA - Very light in Henry County cotton; some small squares destroyed in all fields scouted. (Cott. Scouts). MISSISSIPPI - Light to medium on cotton in delta area, and in Copiah, Montgomery and Prentiss Counties. (Ouzts). Collected in 24 of 33 fields checked in delta counties. Averaged 2.36 (ranged 0-9) per 100 sweeps. (Pfrimmer et al.).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Localized infestations in Kern and Madera Counties continue a threat where moving from weed hosts to adjacent cotton. (Leigh, June 5; Burton).

APHIDS - SOUTH CAROLINA - County agents report that infestations have been more severe on young cotton than ever before. Root infesting species damaging cotton in Berkeley, Colleton, Dillon, Kershaw and Orangeburg Counties; damage more widespread than at anytime during past 15 years. (Cott. Ltr., June 11). **GEORGIA** - Aphis gossypii light on cotton in southern area. (Johnson). **TENNESSEE** - Infestations reduced in western area. (Locke). **TEXAS** - A. gossypii light to moderate in some central areas. (Tex. Coop. Rpt.). **OKLAHOMA** - Aphis sp. very light in Kiowa and Major Counties. (Okla. Coop. Sur.). **CALIFORNIA** - A. craccivora very abundant on cotton through May in Madera County; however, parasites and predators brought infestations under control. (Johnson, June 4). A. craccivora continues severe in some Kern County fields. Parasites and predators brought most infestations under control. (Leigh, June 5).

LEAFHOPPERS (Empoasca spp.) - ALABAMA - Present in all cotton examined in southern and central areas, but no damage noted. (Cott. Scouts).

GRASSHOPPERS - TEXAS - Several species causing damage to cotton in fields near pastures in central, eastern and western areas. (Tex. Coop. Rpt.).

THRIPS - SOUTH CAROLINA - County agents reported infestations on young cotton have been more severe than ever before. (Cott. Ltr., June 11). **MISSISSIPPI** - Medium to heavy in Choctaw, Tallahatchie and Tunica Counties; controls applied. (Ouzts). **TENNESSEE** - A problem only in late and slow-growing cotton in western area. (Locke). **TEXAS** - Heavy damage by several species reported in some cotton which survived flooding in northwestern area. (Tex. Coop. Rpt.). **OKLAHOMA** - Frankliniella spp. ranged light in areas which had heavy showers to moderate in other areas. Southwestern counties report 1-3 per plant. Southern and southeastern counties have higher populations. (Okla. Coop. Sur.). **ARIZONA** - Continue present in cotton in all areas; counts averaged 1-7 per 15 plants in Safford area. (Ariz. Coop. Sur.). **CALIFORNIA** - Injury evident in practically all Madera County cotton fields; however, with recent warm weather, cotton outgrowing early damage. (Johnson, June 4).

SPIDER MITES - CALIFORNIA - Major pest problem in Imperial County cotton. Many fields, especially those adjacent to alfalfa or sugar beets, required controls. (Downing, June 3). Tetranychus atlanticus present in all fields examined in Kern County. In few fields, 75-90 percent of plants infested. T. telarius evident, but infestations light. (Leigh, June 5). T. pacificus present in many Fresno County fields, but infestations generally light. (Leigh, June 5). Heavy infestations of unspecified species observed in early planted cotton adjacent to alfalfa or weedy areas in Madera County; some controls necessary. (Johnson, June 4). **ARIZONA** - Treatments applied for control of Tetranychus spp. in several Yuma County fields. (Ariz. Coop. Sur.). **TENNESSEE** - Some movement of unspecified species into cotton fields noted in western area. (Locke). **ALABAMA** - Undetermined species light in isolated areas of 3 Henry County fields. (Cott. Scouts).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

ENGRAVER BEETLES (Ips spp.) - MISSISSIPPI - Heavy, isolated infestations occurring on pines in Forrest County. Controls applied. (Ouzts). **CALIFORNIA** - I. confusus appearing in blow-down ponderosa pine timber in 5,500-acre stand in Bass Lake area, Sierra National Forest; approximately 1,600 trees infested. This could result in serious buildup in growing timber. (J. Murphy, USFS).

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Building up in several one and 2-acre stands of ponderosa pines, with as many as 30 trees per acre killed. (D. Pengilly, USFS). D. brevicomis and Ips spp. appearing in single trees and groups of ponderosa pines in 640-acre area in Bodkin Cabin area, Mendocino National Forest; some 160 trees already killed. (W. J. Bradley, USFS).

A PINE REPRODUCTION WEEVIL (Cylindrocopturus eatoni) - CALIFORNIA - Severely damaging ponderosa pines in Twin Rocks Ridge area, Mendocino National Forest; 50-70 trees killed in 2-acre stand. Adults and larvae present in twigs; needles show typical feeding damage. This is native timber stand, not a plantation. (J. C. Hilman, USFS).

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Few third-stage larvae observed June 5 in Marinette County, but second stage predominates. Third stage predominated June 7 on stands in west central area, with some fourth-stage larvae appearing. Substantial larval populations present in parts of Polk and Burnett Counties first week of June; populations low or declining elsewhere. (Wis. Ins. Sur.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - RHODE ISLAND - Larvae and pupae found in about equal frequency in Newport County nursery. No evidence of adults. (Kerr, Mathewson). INDIANA - Larvae in final stage in La Porte County; much lighter than usual. (Schuder).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - ARKANSAS - Second-generation larvae active in State. (Ark. Ins. Sur.).

ZIMMERMAN PINE MOTH (Dioroctria zimmermani) - INDIANA - Infestation in untreated area of La Porte County averaged 20 percent during week of June 10. Larvae entering whorls. (Schuder).

SPRUCE NEEDLE MINERS ("Recurvaria" spp.) - MINNESOTA - A problem in most spruce in State; will soon pupate. (Minn. Ins. Rpt.).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - WISCONSIN - Colonies prevalent on Douglas-fir in Dane County. (Wis. Ins. Sur.). UTAH - Galls developing on blue and Engelmann spruce in areas of Uintah, Duchesne and Weber Counties. (Knowlton). PENNSYLVANIA - Large hatch occurred on Douglas-fir in Bucks and Montgomery County areas. (Cole).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - NEW YORK - Crawlers settled by June 5 in infestations over several hundred acres in Cayuga County. (N. Y. Wkly. Rpt.).

SPRUCE BUD SCALE (Physokermes piceae) - DELAWARE - Severe on spruce in an area of New Castle County. (Bray).

SPITTLEBUGS (Aphrophora spp.) - MINNESOTA - A. parallela increasing in Brainerd area, Crow Wing County. (Minn. Ins. Rpt.). WISCONSIN - Approximately two-thirds of A. saratogensis eggs observed in Marinette County hatched May 27. Several localized, moderately heavy A. parallela infestations reported first week of June; nymphs in second stage in Marinette County May 27. (Wis. Ins. Sur.). NEW YORK - Moderate numbers, probably A. parallela, present on white pine in Watkins Glen, Schuyler County; about as abundant on Scotch pine in Cayuga and Tioga Counties as in 1962. (N. Y. Wkly. Rpt., June 10).

BALSAM GALL MIDGE (Cecidomyia balsamicola) - WISCONSIN - New galls observed on new growth of balsams in Langlade County June 5. This is same stand in which adults observed May 16. (Wis. Ins. Sur.).

CONIFER SAWFLIES - MINNESOTA - Neodiprion pratti banksianae fairly numerous throughout jack pine range in central and east central areas. First-stage Diprion similis larvae observed in Crow Wing County; adults still ovipositing. (Minn. Ins. Rpt.). WISCONSIN - Neodiprion nanulus nanulus larvae in late stages June 6 in a Columbia County red pine plantation; defoliation much less severe than in 1962. D. similis oviposition observed June 3 in Oneida County. (Wis. Ins. Sur.). NEW YORK - Considerable activity by unspecified species reported in pine trees in Orange County. Moderate to severe Neodiprion sertifer population

damaging red, Scotch and Austrian pines in Christmas-tree plantation near Utica, Oneida County; larvae varied in size and development, but many appeared full grown. N. sertifer infestations reported in many Broome County plantations. (N. Y. Wkly. Rpt., June 10).

LARCH SAWFLY (Pristiphora erichsonii) - WISCONSIN - Third and fourth-stage larvae relatively heavy on Dane County larch June 7. (Wis. Ins. Sur.).

CANKERWORMS - NEW YORK - Generally lighter throughout Suffolk County this season but some areas badly infested. Minor problem at St. James and Ronkonkoma this year, although extremely heavy in 1962 and 1961; heavy at Wading River for second season, but may be lighter in 1964; heavy at Nassau Point, Aquebogue, Hampton Bays, Riverhead and Southold and may be heavy in 1964. Heaviest all over Suffolk in 1960 and 1961, then gradually moved eastward; no heavy populations reported on south shore at present, except in Hampton area. (N. Y. Wkly. Rpt., June 10). WISCONSIN - Larvae of Aisophila pometaria and Paleacrita vernata nearly full grown in Columbia and Marquette Counties; defoliation nearly complete in localized areas. Lady beetle larvae feeding on larvae in Columbia County. (Wis. Ins. Sur.). NORTH DAKOTA - Unspecified species abundant on trees and shrubs over State. (N. D. Ins. Sur.). CALIFORNIA - Aisophila pometaria larvae medium on elder trees in Rio Nida area, Sonoma County. (Cal. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MAINE - Infestations and damage light on several tree species in Androscoggin and Sagadahoc Counties. (Boulanger, June 10). RHODE ISLAND - Dispersal subsided; cocoons common; occasional migrating larvae still being found. (Mathewson). NEW YORK - Heavier in Suffolk County than in 1962; spotty throughout county. (N. Y. Wkly. Rpt., June 10). WISCONSIN - Pupating in southern counties. (Wis. Ins. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - MINNESOTA - Low numbers present in northern portion of State; caused no serious defoliation. (Minn. Ins. Rpt.).

FALL WEBWORM (Hyphantria cunea) - TEXAS - Causing serious defoliation of shade trees in Calhoun County. (Tex. Coop. Rpt.; Bales). KANSAS - Heavy on several trees in Riley County. Heavy webbing noted on one elm in Saline County. (Charlton).

GYPSY MOTH (Porthetria dispar) - MAINE - Infestation and damage light on maples and other trees in Androscoggin and Sagadahoc Counties. (Boulanger, June 10). RHODE ISLAND - Larvae collected in Cranston, Providence County. (Cartier).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Infested 40 percent of nut-cluster samples in Carter County. Heavy infestations reported in Cotton, Murray, Bryan, Okmulgee and Mayes Counties. (Okla. Coop. Sur.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEW MEXICO - Light to heavy numbers appearing on Chinese elms in Albuquerque area, Bernalillo County. All stages noted; defoliation very pronounced in some areas. (N. M. Coop. Rpt.). KANSAS - Feeding by first-generation larvae completed on American and Siberian elms in Saline County; leaves 10-75 percent injured; pupation underway. First-generation larvae caused slight damage to Siberian elms in Ford County; about 50 percent first generation pupae and second-generation adults present; few egg clusters noted. (Thompson). OKLAHOMA - Moderate to heavy over most of State. (Okla. Coop. Sur.). ALABAMA - Larvae, adults and eggs range light to medium on isolated elms in Clay, Chambers and Lee Counties. (Barwood et al.).

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) - RHODE ISLAND - Abundance about normal on willow and poplar in Kingston, Washington County. (Mathewson).

LOCUST LEAF MINER (Xenochalepus dorsalis) - DELAWARE - Adults and larvae common on black locust in an area of New Castle County. (Burbutis).

A LEAF BEETLE (Anomoea laticlavia) - DELAWARE - Adults present on black locust in an area of New Castle County. (Burbutis).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - Larvae and adults medium locally in elms in Arlington, Riverside County. (Cal. Coop. Rpt.).

WALKINGSTICK (Diaperomera femorata) - WISCONSIN - Hatching underway June 5 in Marinette County; nymphs observed ascending from ground vegetation. No nymphs observed in area May 27. (Wis. Ins. Sur.).

A LEAF-EATING GRASSHOPPER (Dendrotettix quercus) - WISCONSIN - Nymphs observed emerging from egg pods in duff in Marinette County. In some localities, continuous streams of nymphs observed climbing up large oaks June 5. All nymphs were in first stage. (Wis. Ins. Sur.).

WOOLLY ALDER APHID (Prociphilus tessellatus) - GEORGIA - Heavy on silver maple throughout northern portion of State. (Coleman).

A LARCH APHID - WISCONSIN - Populations very heavy on European larch in Dane County. (Wis. Ins. Sur.).

AN ASH PLANT BUG (Neoborus pacificus) - CALIFORNIA - Nymphs and adults heavy on ash trees in El Cajon, San Diego County. (Cal. Coop. Rpt.).

EUROPEAN ELM SCALE (Gossyparia spuria) - CALIFORNIA - Larvae and adults heavy on Chinese elms in Gilroy, Santa Clara County. (Cal. Coop. Rpt.). NEW MEXICO - Moderate to heavy and severely damaging American elms in some areas of Albuquerque, Bernalillo County. (N. M. Coop. Rpt.). KANSAS - Very heavy on American elms in Saline County; crawlers migrating to leaves; more than 50 percent of branches dead on most trees in western third of Salina. Crawlers settled on leaves of American elms in Ford County. Siberian elms more frequently attacked than in previous years. (Thompson). NEBRASKA - Eggs beginning to hatch in Omaha area, Douglas County. (Roselle).

SCURFY SCALE (Chionaspis furfura) - KANSAS - Locally heavy on willows in Barton County; eggs hatching. (Thompson).

TULIPTREE SCALE (Toumeyella liriodendri) - ARKANSAS - Infesting tupiltrees in Clay County, northeast. (Ark. Ins. Sur.).

AN OAK KERMES SCALE (Kermes pubescens) - KANSAS - Heavy on bur oak in Jackson County May 29. (Thompson). PENNSYLVANIA - Moderate on several dozen pin oaks shipped from out of State to nursery at York, York County. (Negley).

BIRCH LEAF MINER (Fenusa pusilla) - MAINE - Infestations and damage light on birch in Presque Isle, Orono and Jonesboro. First-generation adults still active in Orono area, Penobscot County, June 5; larvae about two-thirds grown. (Boulanger, June 10). VERMONT - Severe injury appearing on unsprayed birches. (MacCollom, June 10).

MAPLE PETIOLE BORER (Caulocampus acericaulis) - CONNECTICUT - A problem on maples at Newtown and Storrs. (Savos).

ELM SAWFLY (Cimbex americana) - NEBRASKA - Larvae present in eastern portion of State. (Roselle).

AN OAK GALL (Callirhytis punctata) - OHIO - Galls present on small branches of oak at Hartsville, Stark County; galls approximately 1.5 inches in diameter. (Neiswander).

ERIOPHYID MITES - KANSAS - Aceria fraxinivorus heavy on ash trees in Franklin and Saline Counties. (Charlton, Guldner). UTAH - Unspecified species damaging many poplars at Manila and some poplars in Sheep Creek area, Daggett County. (Knowlton).

BAGWORM (Thyridopteryx ephemeraeformis) - TEXAS - Locally moderate to heavy populations stripping leaves from hackberry in Cooke County. (Turney). ARKANSAS - Larval feeding increasing. (Ark. Ins. Sur.). OKLAHOMA - Damage increasing in severity generally. Infestations moderate to heavy in Stillwater area, Payne County, and Ardmore area, Carter County; lighter in Garvin County. (Okla. Coop. Sur.). KANSAS - Light to moderate on evergreens in Saline, Shawnee and Franklin Counties. (Charlton, Guldner). ILLINOIS - Hatching in central area; will hatch soon in northern area. (Ill. Ins. Rpt.). OHIO - Many empty cases observed in Highland and Clark Counties; no larvae found. High winter mortality may have reduced populations. (Kennedy, Cooley). DELAWARE - First larvae of season found feeding on sycamore in Sussex County and locust in New Castle County, June 10. (Burbutis). NEW JERSEY - Beginning to feed on arborvitae. (Ins.-Dis. Newsltr., June 11).

FRUIT-TREE LEAF ROLLER (Archips argyrosplis) - IDAHO - Larvae abundant in Twin Falls and Moscow areas on variety of broadleaf trees and shrubs. Damage extensive in some instances, but larvae now reaching full growth and pupating. (Gibson, Manis).

LEAF ROLLER MOTHS - NEVADA - Choristoneura sp. larvae heavy and damaging dogwood, quince, cultivated and wild roses, and 2 unidentified garden shrubs in southern Washoe County, and wild rose in Minden, Douglas County. (Bechtel, Lauderdale, Parker). KANSAS - Larvae of Fascista cercerisella light to moderate on redbud in Saline County. (Charlton). INDIANA - Tortrix pallorana adults emerging in La Porte County. Infestation averaged 3 percent on Christmas-tree plantation. (Schuder).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - Noted on mimosa in Mobile County. (Seibels). ARKANSAS - Larval feeding damage appearing in northwest area. (Ark. Ins. Sur.). OHIO - First hatch of season observed June 8 on honeylocust in Washington County. (Ellis).

LILAC BORER (Podosesia syringae syringae) - KANSAS - Moderate on lilac in Franklin County; frass and some pupal cases noted. (Charlton, Guldner). IOWA - Adults emerged June 5 at Ames, Story County. (Iowa Ins. Inf.).

AN OLETHREUTID MOTH (Eucosma gloriola) - NEW YORK - Typical larval injury common on 1962 growth of Scotch, red and white pines in several Oneida and Franklin County Christmas-tree plantations. Damage to 1963 growth not yet apparent. (N. Y. Wkly. Rpt., June 10).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ALABAMA - Considerable numbers causing concern to nurserymen over Mobile County area. (Seibels).

TOBACCO BUDWORM (Heliothis virescens) - FLORIDA - Moderate on red silk-oak (Grevillea banksi fosteri) at Ft. Lauderdale, Broward County (June 4), and angels-trumpet (Datura arborea) at Holly Hill, Volusia County (June 6). (Fla. Coop. Sur.).

ASH-GRAY ELISTER BEETLE (Epicauta fabricii) - NORTH DAKOTA - Adults stripping foliage from caragana hedge in Bismarck area, Burleigh County. (Olson).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - RHODE ISLAND - Pupating in Middletown, Newport County. (Mathewson). CONNECTICUT - Adults active in some areas. (Savos). PENNSYLVANIA - Moderate numbers of adults emerging on Taxus sp. in Dauphin County, and infesting same host at Harrisburg. (Simons). OHIO - Adults heavy about roots of Taxus sp. near Westlake, Cuyahoga County. Approximately 0.5 acre infested, with one-third of plants dead. Injury severe. (Kile).

HOLLYHOCK WEEVIL (Apion longirostre) - MARYLAND - Adults caused heavy injury to hollyhock buds at Buckeystown, Frederick County. (U. Md., Ent. Dept.).

COCKLEBUR WEEVIL (Rhodobaenus tredecimpunctatus) - MARYLAND - Adults punctured tips of sunflowers at Brinklow, Montgomery County, June 6. (U. Md., Ent. Dept.).

A BARK WEEVIL (Magdalis austera substriga) - NEW YORK - Large numbers found widely scattered on Scotch pine Christmas-tree plantations in Cayuga County. (N. Y. Wkly. Rpt., June 10).

ROSE CHAFER (Macrodactylus subspinosus) - MASSACHUSETTS - Emerging and will require controls on many ornamentals. (Wheeler). RHODE ISLAND - Adults building up in gardens in Narragansett, Washington County, and Warwick, Kent County. (Mueller, Mathewson, Cartier). CONNECTICUT - Active on ornamentals. (Savos).

A ROSE CURCULIO (Rhynchites bicolor wickhami) - NEVADA - Adults heavy on wild rose in southern Washoe and Douglas Counties. (Bechtel, Cooney, Parker).

A TUMBLING FLOWER BEETLE (Mordellistena sp.) - COLORADO - Numerous on iris flowers in Moffat County. (Hantsbarger).

APHIDS - MAINE - Light numbers causing light damage to maples in Presque Isle, Aroostook County. Heavy populations causing moderate injury to roses in Orono, Penobscot County. (Boulanger, June 10). CONNECTICUT - Increasing on many ornamentals. A problem on roses at Wallingford. (Savos). NEW JERSEY - Building up rapidly on several ornamental plants, shrubs and trees. (Ins.-Dis. Newsltr., June 11). UTAH - Conspicuous on various shade trees and ornamentals at Logan, Cache County. Curling leaves of crab apple and snowball bushes at Manila, Daggett County; largely controlled by lady beetles and minute pirate bugs. (Knowlton). WISCONSIN - Aphis spiraeicola colonies well developed on new shoots of spirea in Dane County. (Wis. Ins. Sur.). IOWA - Macrosiphum rosae deformed rose buds in Le Grand, Marshall County; leaves sticky with honeydew. (Iowa Ins. Inf., June 10).

LACE BUGS - NEW JERSEY - Unspecified species building up rapidly on several ornamental shrubs, plants and trees. (Ins.-Dis. Newsltr., June 11).

EUONYMUS SCALE (Unaspis euonymi) - OKLAHOMA - Heavy on euonymus in Ardmore area, Carter County. (Okla. Coop. Sur.). NEW JERSEY - Crawlers active on euonymus and pachysandra. (Ins.-Dis. Newsltr., June 11). NEW YORK - Hatching underway during past 7-10 days at Ithaca, Tompkins County. (N. Y. Wkly. Rpt., June 10). CONNECTICUT - Crawlers active on euonymus. (Savos).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CONNECTICUT - Crawlers active on wide variety of plants. A problem on lilac at Winsted. (Savos). NEW YORK - Crawlers active at Huntington, Long Island, June 5. (N. Y. Wkly. Rpt.). NEW JERSEY - Crawlers active on lilac. (Ins.-Dis. Newsltr., June 11). COLORADO - Crawlers settled on twigs of lilac in Larimer County. (Jenkins).

AN ORCHID MEALYBUG (Pseudococcus importatus) - CALIFORNIA - New infestation found on cattleya in orchidhouse at Los Angeles, Los Angeles County. Several plants involved; eradicated treatment planned. (Cal. Coop. Rpt.).

COCCIDS - MASSACHUSETTS - Diaspis carueli crawlers appearing. (Wheeler). PENNSYLVANIA - Diaspis carueli heavy on juniper nursery stock in Bucks County. (Cole). MARYLAND - Numerous adults of Pseudococcus sp. noted crawling from yews to ground in Bel Air, Harford County. Eriococcus azaleae infested azaleas at Pikesville, Carroll County. (U. Md., Ent. Dept., June 7). ALABAMA - Neolecanium parvucornum and Chrysomphalus obscurus heavy on Japanese magnolia in Mobile County. (Seibels). IDAHO - Lecanium fletcheri severe on yew in Orofino, Clearwater County. (Fitzsimmons). NEVADA - Saissetia hemisphaerica heavy on Pyracantha sp. in Reno, Washoe County. (Bechtel). ARIZONA - Icerya purchasi heavy on pittosporum shrubs in Safford area, Graham County. (Ariz. Coop. Sur.). CALIFORNIA - Asterolecanium arabisidis locally heavy on Pittosporum tobira nursery stock in Ukiah, Mendocino County. (Cal. Coop. Rpt.).

Coccids in Florida - Pseudaulacaspis pentagona severe on Acalypha wilkesiana at Orlando, Orange County (June 4), and severe on Diospyros sp. at Glen St. Mary, Baker County (June 7). Lepidosaphes camelliae and Fiorinia theae severe on Ilex cornuta burfordii at Orlando (June 4). Asterolecanium bambusae and Odonaspis penicillata severe on Bambusa sp. and Howardia biclavis severe on Gardenia jasminoides at Ft. Lauderdale, Broward County, early in June. Eucalymnatus tessellatus heavy on Jasminum sp. at Pompano Beach, Broward County (June 5). (Fla. Coop. Sur.).

ROSE LEAFHOPPER (Edwardsiana rosae) - UTAH - Discoloring rose foliage at Ogden, Brigham City, Delta, Nephi, Mona and other localities in central and northern areas. (Knowlton).

AZALEA WHITEFLY (Pealius azaleae) - RHODE ISLAND - Adults active on azalea in Greenville area, Providence County. (King, Mathewson).

A WHITEFLY (Dialeurodes kirkaldyi) - FLORIDA - Light on several species of jasmine in Broward County (June 5) and severe in Miami area, Dade County (June 6). (Fla. Coop. Sur.). These are new county records. See CEIR 13(33):620 for first report from Dade County.

HACKBERRY NIPPLE GALL (Pachyphylla celtidismamma) - IOWA - Galls prominent on hackberry leaves statewide. (Iowa Ins. Inf., June 10).

THRIPS - CALIFORNIA - Frankliniella occidentalis adults extremely heavy on rose flowers in Sutter Creek, Amador County. (Cal. Coop. Rpt.). KANSAS - F. tritici ranged 1-9 per rose bud in Riley County. (Charlton). WISCONSIN - First adult feeding by Dendrothrips ornatus underway in Dane County. Controls should be applied to prevent yellowing of privet. (Wis. Ins. Sur.). OHIO - Unspecified species damaging rose buds in Lawrence County. (Crawford, Blair). CONNECTICUT - Iridothrips iridis a problem on iris in Wilton. (Savos).

A SUBTERRANEAN TERMITE (Reticulitermes sp.) - MARYLAND - Workers severely damaged yews at University Park, Prince Georges County, June 10. (U. Md., Ent. Dept.).

COLUMBINE LEAF MINER (Phytomyza minuscula) - DELAWARE - Very heavy in an area of Sussex County. (Burbutis).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MAINE - Troublesome in greenhouses in Cumberland, Oxford and York Counties; some heavy infestations observed. (Boulanger, June 10). MARYLAND - Heavy on hollyhocks at Buckeystown, Frederick County. (U. Md., Ent. Dept.). KANSAS - Light to moderate on evergreens in Saline County. (Charlton).

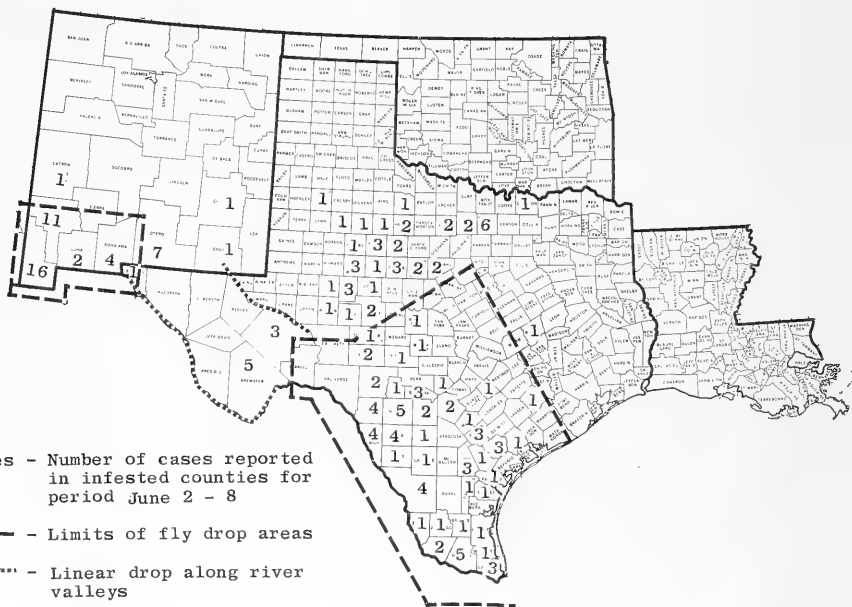
SPIDER MITES - CALIFORNIA - Oligonychus coniferarum heavy on junipers locally in Sacramento, Sacramento County. (Cal. Coop. Rpt.). UTAH - Unspecified species injuring junipers in Nephi and Levan, Juab County. (Knowlton). NEBRASKA - Heavy populations of undetermined species caused considerable damage to redcedar shelterbelt in Lancaster County, and heavy populations damaging evergreens in Deuel County. (Bergman). MARYLAND - Oligonychus spp. infesting azaleas at College Park and hemlock at Greenbelt, Prince Georges County. (U. Md., Ent. Dept.). ALABAMA - Unspecified species causing heavy damage to roses and other plants in gardens and flower beds in Lee County. (Bagby et al.).

CYCLAMEN MITE (Steneotarsonemus pallidus) - CALIFORNIA - Light on African-violets in greenhouse in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

STATUS OF THE SCREW-WORM (*Cochliomyia hominivorax*) IN THE SOUTHWEST

During the period June 2 - 8, a total of 128 infestations, including one of unknown origin, was reported from TEXAS and 43 from NEW MEXICO. Specimens were reported from 66 counties in Texas and 8 counties in New Mexico. Screw-worm was reported for the first time this year from Knox, Grayson, Nolan, Taylor, Robertson and Colorado Counties, Texas, and from Chaves County, New Mexico. A total of 112,189,050 sterile flies was released during the period June 2 - 8. (Anim. Dis. Erad. Div.).



MOSQUITOES - MAINE - Reports indicate numbers extremely heavy over entire State; much above normal. (Boulanger, June 10). RHODE ISLAND - Complaints concerning unspecified species numerous in Providence County. (King). MARYLAND - Aedes grossbecki collected June 11, 1963, in home at Kensington, Montgomery County. Det. by J. Mallack and W. E. Bickley. This is a new county record. (U. Md., Ent. Dept.). IOWA - Sixteen biting specimens collected in 5 minutes on June 4 from one individual in Ames, Story County; 11 Aedes vexans, 3 Aedes trivittatus, 2 Aedes sticticus. Number of actual bites per minute much higher. Culex spp. larvae ranged 10-200 per tire June 5 in trapped water at tire stores and filling stations in Ames June 5. (Iowa Ins. Inf., June 10). WISCONSIN - Aedes vexans larval populations very high in temporary pools in Madison area, Dane County; potential for large population greater than normal. Adult emergence should begin during period June 16-22. Reports from field indicate other species becoming more noticeable, especially in areas near rivers and lowlands. Controls underway in Columbia and Dane Counties. (Wis. Ins. Sur.). MINNESOTA - During period June 2-8, total of 763 larval collections made; Aedes vexans present in 316, Culiseta inornata in 273, Culex restuans in 199. Fourteen other species taken in small numbers. Trap collections increased somewhat during last few days. In 38 15-minute bite collections, 161 A. vexans taken. (Minn. Ins. Rpt.). NORTH DAKOTA - In Fargo area, Cass County, Aedes vexans emergence heavy; Aedes dorsalis troublesome during morning hours, although no more abundant than usual; Culex tarsalis appeared in light trap for first time this season during period June 1-7. A. vexans and A. dorsalis also troublesome at Williston, Williams County. (N. D. Ins. Sur.). OKLAHOMA - Psorophora spp. and Aedes spp. moderate in most low-lying areas of State. (Okla. Coop. Sur.). TEXAS - Unspecified species heavy and causing annoyance in Lubbock County. (Tex. Coop. Rpt.; Russell et al.). MISSISSIPPI - Psorophora spp. light in delta area. (Ouzts). ARIZONA - Unspecified species building up. (Ariz. Coop. Sur.). UTAH - Unspecified species troublesome in Sheep Creek and Deep Creek areas, Daggett County; Jensen-Vernal and Gusher areas, Uintah County; Duchesne-Myton area, Duchesne County; Logan-Logan Canyon area, Cache County. Also annoying in fields west of Orem, Utah County; in Delta-Hinkley area, Millard County; at Mills, Juab County. (Knotlton).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Heavy on livestock in Choctaw, Hinds, Madison and Pearl River Counties. Controls applied. (Ouzts). ARKANSAS - Increased during first 2 weeks of June in most areas. (Ark. Ins. Sur.). OKLAHOMA - Counts of 300-500 per head general over State. Counts high as 1,200 per head on bulls and 150 per head on calves reported from Choctaw, Pushmataha and McCurtain Counties, southern area. (Okla. Coop. Sur.). NEBRASKA - Ranged 6-300 per head on beef and dairy animals in northeast area. (Bergman). NORTH DAKOTA - Counts remain low. (N. D. Ins. Sur.). ILLINOIS - Varied 0-50 per animal in northwest and 0-250 per animal in west district. (Ill. Ins. Rpt.). IOWA - Counts increased to 10-15 per animal due to hot weather. (Iowa Ins. Inf., June 10).

CATTLE GRUBS (Hypoderma spp.) - IOWA - "Heel flies" running cattle in Lyon, Cherokee, Howard and Allamakee Counties. H. bovis larvae ready to emerge from backs of dairy cows in Howard County. (Iowa Ins. Inf., June 10). OHIO - "Heel flies" causing cattle to run wildly in central and southern areas. Often, entire dairy herd may stampede from one end of field to other end. (Lyon).

STABLE FLY (Stomoxys calcitrans) - MISSISSIPPI - Heavy on livestock in Madison County. Controls applied. (Ouzts). OKLAHOMA - Ranged 3-6 per head in Stillwater area, Payne County. (Okla. Coop. Sur.). IOWA - Counts increased to 5-10 per animal due to hot weather. (Iowa Ins. Inf., June 10). NORTH DAKOTA - Not troublesome at present. (Noetzel).

FACE FLY (Musca autumnalis) - IOWA - Ranged 3-5 per face with advent of hot weather. (Iowa Ins. Inf., June 10). ILLINOIS - Varied 0-2 per face on cattle in west and northwest districts. Generally too windy and too cool for good fly activity. (Ill. Ins. Rpt.).

TABANIDS - OKLAHOMA - Tabanus spp. populations of 3-6 per head attacking livestock in southeastern and north central areas of State. Chrysops spp. ranged 2-7 per head on livestock in Payne County, north central. (Okla. Coop. Sur.). MISSISSIPPI - Various species heavy in Madison and Hinds Counties. Controls applied. (Ouzts).

BLACK FLIES - MAINE - Unspecified species extremely heavy statewide. (Boulanger, June 10). MARYLAND - Simulium spp. annoying residents on many properties in central and western sections. (U. Md., Ent. Dept.). MINNESOTA - Unspecified species numerous and biting at International Falls and Brainerd. (Minn. Ins. Rpt.). IDAHO - Simulium spp. adults severely annoying horses at Soda Springs and Franklin, and calf at Nezperce. (Duren, Dailey).

MIDGES - OHIO - Huge swarms annoying at local restaurants in Toledo, Lucas County. (Triplehorn, Lyon). UTAH - Numerous and irritating in Mills area, Juab County, and Delta area, Millard County. (Knowlton).

CAT FLEA (Ctenocephalides felis) - CALIFORNIA - Heavy in lawn areas locally in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

GRAIN THIRIPS (Limothrips cerealium) - CALIFORNIA - Populations medium in El Cajon, San Diego County; residents complaining of being bitten. (Cal. Coop. Rpt.).

SWALLOW BUG (Oeciacus vicarius) - CALIFORNIA - Heavy on walls of house where swallows nest in Carpinteria, Santa Barbara County. (Cal. Coop. Rpt.).

VESPID WASPS (Polistes spp.) - RHODE ISLAND - New nests causing concern to homeowners in various parts of State. (Mathewson).

TICKS - RHODE ISLAND - Complaint of stubborn dog-and-house infestation of Rhipicephalus sanguineus in East Greenwich, Kent County. (Mathewson). CONNECTICUT - R. sanguineus taken from child in Plantsville. Unspecified species creating problem in Stonington. (Savos). PENNSYLVANIA - Unspecified species reported in large numbers from several locations in Montgomery County and annoying to pets and children. (Cole). MINNESOTA - Dermacentor variabilis numerous and active in Minneapolis-St. Paul area. (Minn. Ins. Rpt.). OKLAHOMA - Amblyomma americanum reported heavy in Pushmataha and McCurtain Counties; populations appear to be diminishing. Larvae should appear in great numbers momentarily. (Okla. Coop. Sur.).

MITES - CALIFORNIA - Sternostoma sp., probably tracheacolum, heavy in tracheae of canaries in aviary in Clements, San Joaquin County. Ornithonyssus sylviarum invading residence and biting inhabitants in Marysville, Yuba County. (Cal. Coop. Rpt.). WISCONSIN - Ornithonyssus bacoti infested child's crib in Madison, Dane County. (Wis. Ins. Sur.).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Becoming more numerous in Stillwater area, Payne County. (Okla. Coop. Sur.). KANSAS - Numerous in house in Riley County, with estimated 400 in window wells and finished basement. (Knutson). There have been several reports concerning this species, but no cases of person being bitten have been reported this year. (Peters).

A SCORPION (Vejovis minimus) - CALIFORNIA - Specimen of this variant collected in Orinda, Contra Costa County. Det. by H. L. Stahnke. Species has extremely mild venom. (Cal. Coop. Rpt.).

HOUSEHOLD AND STRUCTURAL INSECTS

LARDER BEETLE (Dermestes lardarius) - PENNSYLVANIA - Infestation found in a Cameron County home. (Adams). IOWA - Adults and larvae reported from Carroll, Hardin, Iowa, Linn, Jackson, Palo Alto and Poweshiek Counties. (Iowa Ins. Inf.). MINNESOTA - Reported from numerous homes. (Minn. Ins. Rpt.). COLORADO - Numerous in attic of house in Larimer County. (Hantsbarger).

BLACK CARPET BEETLE (Attagenus piceus) - NORTH DAKOTA - Caused severe damage to wool carpeting in home in Minot, Ward County. (N. D. Ins. Sur.).

COCKROACHES - MARYLAND - Blatta orientalis infested home at Rockville, Montgomery County; Blattella germanica heavy in home at Riverdale, Prince Georges County. (U. Md., Ent. Dept.).

OLD-HOUSE BORER (Hylotrupes bajulus) - MARYLAND - Heavily damaged posts in barn at Clear Spring, Washington County. (U. Md., Ent. Dept.).

TERMITES - MARYLAND - Winged forms of Reticulitermes sp. collected around porch post at Kensington, Montgomery County, May 31. (U. Md., Ent. Dept.). COLORADO - Unspecified species found in crawl space under home in Larimer County; winged forms present. Grade stakes on building site in Douglas County found infested. (Hantsbarger).

PAVEMENT ANT (Tetramorium caespitum) - MARYLAND - Winged forms and workers appearing in and around homes in Baltimore and Montgomery Counties and in Baltimore. (U. Md., Ent. Dept.). PENNSYLVANIA - Numerous in a York County home. (Pepper).

CARPENTER ANTS (Camponotus spp.) - CONNECTICUT - Creating problems in Canaan and Scotland. (Savos). MARYLAND - C. ferrugineus collected from ceiling of home at Annapolis, Anne Arundel County. (U. Md., Ent. Dept.). ALABAMA - C. ferrugineus infesting dwelling in Franklin County. (Warren, Ledbetter).

CARPENTER BEES - NEW JERSEY - Unspecified species again causing some concern to homeowners. (Ins.-Dis. Newsltr., June 11). CONNECTICUT - Xylocopa virginica boring in home in New Britain. (Savos). RHODE ISLAND - X. virginica very heavy in rustic siding of 2 adjacent houses in Peace Dale area, Washington County. (Mathewson, Bromley).

BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Large numbers of Hippodamia convergens and Coleomegilla maculata fuscilabris (mostly H. convergens) in all cotton fields examined. (McQueen). MISSISSIPPI - Unspecified species present in many cotton fields in delta counties. (Pfrimmer et al.). COLORADO - Chilocorus stigma feeding on scale insects infesting honeylocust in Mesa County. (Bulla). WYOMING - Adults of several species averaged 35 per 100 sweeps in Goshen County alfalfa; very few larvae present. (Fullerton). NORTH DAKOTA - Several species, predominantly H. convergens and Adalia bipunctata, moderate in most fields where aphids present. (N. D. Ins. Sur.).

A MELYRID BEETLE (Collops quadrimaculatus) - ALABAMA - Very noticeable on cotton throughout State. (McQueen).

GOLDEN-EYE LACEWING (Chrysopa oculata) - ALABAMA - Eggs, larvae and adults noted in all cotton fields checked. (McQueen).

DAMSEL BUGS (Nabis spp.) - WYOMING - Adults averaged 22 per 100 sweeps in Goshen County alfalfa. (Fullerton). ALABAMA - Few noted in all cotton fields examined. (McQueen). MISSISSIPPI - Present in many cotton fields in delta counties. (Pfrimmer et al.). OHIO - N. ferus adults ranged 40-45 per 50 sweeps in Brown County forage fields. (Lyon).

BIG-EYED BUGS (Geocoris spp.) - MISSISSIPPI - Present in many cotton fields in delta counties. (Pfrimmer et al.). ALABAMA - G. punctipes nymphs and adults very active in all cotton fields checked. (McQueen). Few G. punctipes noted in gardens, roadsides and old fields in Clay County. (Harris, Barwood, Davis).

A FLOWER BUG (Orius insidiosus) - ALABAMA - Considerable numbers noted in most cotton fields checked. (McQueen).

ALKALI BEE (Nomia melanderi) - IDAHO - First emergence noted June 9 near Wilder, Canyon County. (Waters).

A LEAFCUTTING BEE (Megachile rotundata) - IDAHO - First general emergence noted in Arena Valley near Parma on June 11. (Waters).

PREDATORY MITES - OREGON - Numerous on pears in Medford area, Jackson County, where two-spotted spider mite populations increasing. (Berry).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - CALIFORNIA - Survey continues in 6-county area with 5,700 traps in operation; over 9,000 visual inspections made to June 14. No beetles taken to this date, which is 3 weeks past time first beetle of season taken in 1962 and one week past discovery date in 1961. Second foliage treatment applied with satisfactory coverage in Sacramento, Sacramento County, and West Sacramento, Yolo County. (Cal. Coop. Rpt.). OHIO - Emergence underway near Gallipolis, Gallia County; approximately 3 percent of population adults. Only larvae observed at Kent, Portage County. (Polivka). RHODE ISLAND - Another single adult collected in Kingston, Washington County. Heavy emergence reported on property in Pawtucket, Providence County. (Sayer, Mathewson, Cartier).

NORTHERN MASKED CHAFER (Cyclocephala borealis) - OHIO - Emergence underway near Gallipolis, Gallia County. (Polivka).

LARDER BEETLE (Dermestes lardarius) - RHODE ISLAND - Concentration noted in neglected beehives in East Greenwich, Kent County. (Mathewson).

BARK BEETLES - PENNSYLVANIA - Xyleborus saxeseni and Xyloterinus politus boring into fresh sawed red maple logs in Cameron County, May 7. Det. by D. Anderson. (Adams).

WHITE-FRINGED BEETLES (Graphoganthus spp.) - FLORIDA - Collected from dogfennel in 9 new townships in Holmes County on May 24 and 28 by I. C. Whitehead and N. D. Palmer. Det. by W. Breidenbach. (Fla. Coop. Sur.).

TORTOISE BEETLES - ALABAMA - Metriona bicolor, Agroiconota bivittata and 2 other unidentified species taken from sweetpotatoes, morning-glory and other plants in Clay County. (Harris, Barwood, Davis).

SAP BEETLES (Glischrochilus spp.) - WISCONSIN - Populations increased significantly during past few weeks and many inquiries are being received concerning these pests. (Wis. Ins. Sur.).

A PYRALID MOTH (Dicymolomia julianalis) - DELAWARE - Adults emerged May 27-31 from overwintered bagworm cases collected in Dover, Kent County. This is a first State record. (Bray).

PERIODICAL CICADAS - IOWA - First emergence noted at Des Moines, Polk County, May 18; nymphs still emerging in numbers June 7. Peak emergence occurred May 30-31. Mating began June 2-3, egg laying June 6. Very many cast skins on leaves of trees and various other plants. Many adults with incompletely expanded wings; could be result of hot weather and strong winds. Heavy populations reported in southern half of Washington County. (Iowa Ins. Inf.). ILLINOIS - Brood III reported for first time from De Witt, Knox and Henderson Counties, and Brood XXIII for first time from Greene County. (Ill. Ins. Rpt.).

CICADAS - ARIZONA - Appearing for first time this season in Casa Grande area, Pinal County. (Ariz. Coop. Sur.).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Results of quarter-mile grid section inspection negative in 2-mile extension beyond infested zone; half-mile grid section to be used in next 5-mile zone. (Cal. Coop. Rpt.).

MUSCOID FLIES - IDAHO - Dead and clinging to foliage in Parma area, Canyon County. Attitude similar to that of flies killed by the fungus Entomophthora muscae. (Scott). IOWA - Large numbers of Hylemya platura adults killed by a fungus; hanging on shrubs, leaves of pine and spruce and on weeds. (Iowa Ins. Inf., June 10).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Two mounds found on 50 acres at Tampa, Hillsborough County, June 6 by C. W. Hale and S. A. Fuller. Quarantine requested on all plants within 100 feet of mounds. (Fla. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Heavy adult population migrating from grass areas onto walls of residence in Suisun, Solano County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 13(23):644 - AN ARCTIID MOTH (Ecpantheria deflorata) - ALABAMA - Should read "...; quite common in western area of Mobile County." (Seibels)."

CEIR 13(24):645 - A LEAF ROLLER MOTH (Sparganosis sp.) should read Sparganothis sp.

CEIR 13(24):655 - COTTONY MAPLE SCALE (Pulvinaria innumerabilis) should read Pulvinaria innumerabilis.

ADDITIONAL NOTES

MICHIGAN - New collections of CEREAL LEAF BEETLE (Oulema melanopa) made in Kent and Ionia Counties; total known infested counties in State now 13. Fourth instars and pupae most common stages in primary infestation area of Berrien and Cass Counties. Adults relatively hard to find as over 95 percent of overwintering beetles died. In wheat (most attractive crop for early emerging beetles) life stages present approximately 75 percent pupae, 15 percent large larvae, 5 percent small larvae and 5 percent eggs and old adults. In oats (preferred crop later in spring) ratio about 45 percent pupae, 40 percent large larvae, 10 percent small larvae and 5 percent eggs and adults. No new adults emerged to June 14, but if warm weather prevails, new beetles may be expected within coming week. First pupae observed June 3. (Ring, Castro). BILLBUGS (Sphenophorus spp.) larvae causing considerable injury in several southern counties; adult feeding punctures common in many corn fields. (Everson, Gallun, Steeby, Woodman, Wells). FACE FLY (Musca autumnalis) adults averaged 10 per animal in Ingham County Holstein herd on June 9. Populations in State will likely build up rapidly with extended period of warm weather. (Dowdy). EUROPEAN FRUIT LECANIUM (Lecanium corni) eggs in white stage in Ingham County; expected to turn pink prior to hatch later this month. (Hoffman). Heavy infestations of FLETCHER SCALE (L. fletcheri) on yews and arborvitae in Wayne County, eggs present; moderate on yew in Livingston County. (Dollhopf, Haugard). Emergence of ROSE CHAFER (Macrodactylus subspinosus) noted in Berrien, Van Buren, Wayne, Ottawa, Shiawassee and Ingham Counties. Populations large in Oakland and Lenawee. (Tatter, Carpenter, Kfdd, Machiele, Hoffman, Abel, Bless).

NORTH CAROLINA - Tetranychus spp. quite abundant in strawberry field in Columbus County. (Martin). CORN ROOT WEBWORM (Crambus caliginosellus) damaged 50 percent of tobacco plants in Stokes County field; WIREWORMS also caused considerable damage to same field; determined one specimen each of Melanotus communis and

Conoderus lividus. (Mount, Barnes). Tetranychus spp. heavy on arborvitae and red maple in Jackson County. (Wray). WOOLLY ALDER APHID (Prociphilus tessellatus) heavy on silver maple in Davidson County. (Mulder).

MAINE - OYSTERSHELL SCALE (Lepidosaphes ulmi) crawlers numerous in untreated orchards; hatch appears complete. Controls urged. Heavy infestations of STRIPED CUCUMBER BEETLE (Acalymma vittata) continue causing severe damage on cucumbers in Androscoggin and Sagadahoc Counties. FLEA BEETLES, probably Epitrix cucumeris, caused heavy damage in same counties to tomatoes and other plants; moderate infestations and damage noted on potatoes and tomatoes in Cumberland County. Moderate to heavy infestations of BIRCH LEAF MINER (Fenusa pusilla) caused moderate to severe damage in most areas of State; controls excellent. BLACK FLIES and MOSQUITOES noted heavy in all areas. DEER and HORSE FLIES coming into prominence now. (Boulanger).

VERMONT - Emergence of CODLING MOTH (Carpocapsa pomonella) started. HOUSE FLY (Musca domestica) increasing rapidly. FACE FLY (M. autumnalis) averaged 10-15 per animal and HORN FLY (Haematobia irritans) 45 per animal. BLACK FLIES and MOSQUITOES severely annoying pastured cattle in some locations. (MacCollom).

LIGHT TRAP COLLECTIONS

Pseud. Agrot. Perid. Prod. Ostrin. Protoparce Heliothis
unip. ips. saucia ornith. nubil. quin. sexta zea vires.

FLORIDA									
Gainesville 6/10				2					
GEORGIA									
Tifton 6/6-12							3	2	
ILLINOIS (County)									
Champaign 6/7-11	49	13		2	1				
INDIANA (Counties)									
La Porte 5/28-6/10	17	1			1				
Lawrence 5/27-6/10	2	13	20		1	1		2	
Tippecanoe 6/7-12	2	1	1						
Vanderburgh 5/29-6/11	1	5	4						
KANSAS									
Garden City 6/5-10		1	4	1					1
Hays 6/3, 7, 10	2		2	2					
Manhattan 6/7-14	256	78	82	95	1				6
Wathena 5/31, 6/2, 4, 6, 8, 9	10	27	3	30	20				1
MARYLAND									
Centreville 6/5-11	4	18	18		8				7
MISSISSIPPI									
*Stoneville 6/7-13	9	24	30	121		3	19	243	24
MISSOURI									
Portageville 5/30-6/5	5	6	19	12					
Portageville 6/6-12	26	6	51	43					10

* Two traps - Stoneville

(Continued on page 697)

LIGHT TRAP COLLECTIONS (Continued)

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Ostrin. nubil.	Protoparce quin.	Heliothis sexta	zeae	vires.
NEBRASKA									
Bushnell 5/25-31	6	7	3						
Bushnell 6/1-4	7	2	4						
Lincoln 6/6-12	53	2	3		24				
Kearney 5/25-6/3	4	3	9		149		1	1	
North Platte 5/29-6/4	61	39	71		17	3	3	4	
Ogallala 5/28-6/4	22	6	19				1		
Scotts Bluff Expt. Sta. 5/28-6/3	15	2	7						
Scotts Bluff Expt. Sta. 6/4-10	45	2	63						1
NORTH DAKOTA									
Fargo 6/8-14	3	2	4		9				
McLeod 6/8-14		2	1		100				
Linton 6/8-14		3	6		1				
OHIO									
Wooster 6/7-13	18	42			7				
Hoytville 6/7-13	2				10				
SOUTH CAROLINA									
Oconee 6/1-7	2		6		24			3	1
Oconee 6/8-14	1	1	4		6		1	1	
Charleston 6/10-16		2	36		15		3	2	2
TEXAS									
Waco 6/8-14	34		28		58			319	12
*Brownsville 6/6-12	2	58	31		3	51	31	1,582	14
WISCONSIN									
Platteville 5/30-6/3	38	1	3		38				
Janesville 6/4-10	58								
Mazomanie 6/5-10	10	3	4		13				
Middleton 6/6-12	23	5	10		17				
Madison 6/6-12	104	14	14		21				
Nenno 6/4-10	40								
Theresa 6/4-10	44								
Wayne 6/4-10	49								
Waldo 6/4-10	34				1				
Cedar Grove 6/4-10	31	3			2				
WYOMING									
Cheyenne 5/26-31	3	9	17						

Additional light trap collections

ILLINOIS (Champaign 6/11) Laphygma frugiperda - 4. MISSISSIPPI (*Stoneville 6/7-13) L. frugiperda - 6. TEXAS (*Brownsville 6/6-12) L. frugiperda - 902; Pectinophora gossypiella - 7. (Waco 6/8-14) P. gossypiella - 1.

* Two traps - Stoneville; 6 traps - Brownsville.

HAWAIIAN INSECT NOTES

The following notes on Hawaii insect conditions were presented at the 689th meeting of the Hawaiian Entomological Society held on May 13, 1963.

AN OLETHREUTID MOTH (Cryptophlebia ombrodelta) - On April 3, 1963, an apparent heavy infestation of this moth was noted on Bauhinia sp. seed pods on the grounds of the Iolani Palace, Honolulu. This constitutes a new host record for the species. Other new State host records from interceptions made by Federal Plant Quarantine inspectors are: Euphoria longan, Litchi chinensis, Phaseolus vulgaris, Pithecellobium dulce and Poinciana pulcherrima. (D. C. Hamilton, PQD).

A PYRALID MOTH (Cactoblastis cactorum) - A cytoplasmic polyhedrosis virus was found infecting this species on Oahu. This disease was present in epizootic form for the past month. Collections of C. cactorum made at Waahila hill, 16th Avenue, Diamond Head, Punchbowl, Makapuu, Waianae, Kipapa, and Waimea were all found infected with the virus. Although mortality from the disease in the laboratory was very high, it has not yet been ascertained that there is a correspondingly high mortality in field populations. Apparently, this is the first report of a virus disease from this species in the world. (Dr. M. Tamashiro, Univ. of Hawaii).

A GIANT AFRICAN SNAIL (Achatina fulica) - A new infestation of this snail was discovered at Hakalau, island of Hawaii, on April 16, 1963. A single, medium sized specimen was found near the Hakalau Overpass and subsequent investigations disclosed numerous snails, mostly juveniles, on the lower side of the highway. As of the end of April, 106 A. fulica had been collected and destroyed. This is second major infestation discovered on the island of Hawaii. The first was discovered at Keaukaha, Hilo, in 1958, and successfully eradicated. Eradication of the second infestation is considered economically feasible and is underway. (C. J. Davis).

A SUBTERRANEAN TERMITE (Coptotermes formosanus) - During treatment of a residence in Wailuku, Maui, for drywood termites on April 23, 1963, employees of an exterminating company discovered an infestation of this species. To this date, the island of Maui was considered "ground termite free." A small infestation in propagative coconuts was discovered over 30 years ago but was eradicated. Following the present discovery, 3 other infestations were found, 2 additional ones in Wailuku and one in Kahului. Since these infestations appear to be localized, eradication measures are in progress. (C. J. Davis).

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

GRASSHOPPER populations increasing in several States; control programs underway or planned in some instances. (pp. 701-702). EUROPEAN CORN BORER larval infestations becoming more prevalent in Midwestern States; reaching economic levels in Iowa, Missouri and Nebraska. (pp. 703, 732). ARMYWORM outbreak continues in Ohio and Indiana, and injury appearing in 3 Michigan counties. (pp. 703-704). CORN EARWORM larvae present in Delaware and Maryland, and adults trapped in Wisconsin and Washington. (p. 704). A CERAMBYCID (Derobrachus brevicollis) damaging Bahia grass in Alabama; growers alerted. (p. 705). CORN ROOTWORMS damaging corn in Iowa. (p. 732).

ALFALFA WEEVIL populations high in extreme west central area of South Dakota; economic damage reported for first time in Albany County, New York; and resistance to recommended chemicals appears to be evident in nearly all areas of Wyoming. (pp. 706-707). LYGUS BUGS damaged alfalfa seed fields in Washington and Nevada, and controls applied in Yuma County, Arizona. MEADOW SPITTLEBUG light to heavy throughout Ohio and usual or more than usual injury reported in northern Lower Peninsula of Michigan. (p. 708).

MEDITERRANEAN FRUIT FLY found in Florida for fourth time; collected at Miami, Dade County. (p. 710). CITRUS MITES increasing in Florida, and GLOVER SCALE and CHAFF SCALE much above average levels in Florida citrus. (p. 710). PLUM CURCULIO egg laying underway in Ohio and Michigan. (p. 712).

PEA APHID required extensive treatments in some Wisconsin pea fields. MEXICAN BEAN BEETLE continues active; eggs found June 20 in Massachusetts and newly emerged adults found in Kansas. (p. 715). SPINACH LEAF MINER damage reported in the Northeast, Michigan and Washington. (p. 716).

BOLL WEEVIL infestations continue relatively light; highest percent punctured squares reported in South Carolina. BOLLWORM complex causing considerable damage to cotton in central and southern half of Texas, and feeding evident in several other States. (p. 718). GARDEN WEBWORM damaging cotton in Texas and Oklahoma. (p. 719).

Damage by second-brood TIP MOTHS may appear more spectacular than normal in Arkansas. (p. 721). Defoliation by a SAWFLY (Neodiprion taedae linearis) greater than any year since 1947 in Arkansas. EUROPEAN PINE SAWFLY (N. sertifer) caused heavy defoliation in several areas of Michigan, and Scotch pine growers applied treatments in Erie County, Pennsylvania. (pp. 722, 733). ELM LEAF BEETLE continues to cause widespread defoliation in Oklahoma, and damage reported in number of other States. (p. 722). SATIN MOTH larvae heavy on silver poplars in Alturas, Modoc County, California; first record of larval infestation in State. (p. 723). BAGWORM feeding as far north as Indiana, Ohio and New Jersey. (p. 724). ROSE CHAFER activity noticeable in the Northeast, and in Ohio, Michigan and Wisconsin; JAPANESE BEETLE adults increasing on roses and other host plants in southern Maryland. (p. 725).

MOSQUITOES continue a problem in various areas; extremely abundant sometimes. (pp. 727-728). HORN FLY continues general increase; controls being applied. FACE FLY also increasing in certain areas, but counts generally light. TABANIDS troublesome in some areas to man and animals. (pp. 729, 732, 733). LARDER BEETLE relatively abundant this year in Iowa and Ohio. (pp. 730, 732).

DETECTION

CURRENT STEM GIRDLER (*Janus integer*) reported for first time in Washington (p. 713), and a WHITEFLY (*Aleuroplatus gelatinosus*) reported new to Utah (p. 726). ALFALFA WEEVIL (*Hypera postica*) found in 2 new counties: St. Francis, Arkansas, and Mercer, Pennsylvania. (pp. 706, 733).

SPECIAL REPORTS

Status of the Screw-worm in the Southwest. (p. 728).

List of Some of the More Important Pests for 1962. (p. 736).

Notes on Sweep Nets (Survey Methods). (pp. 737-738).

CORRECTIONS and ADDITIONAL NOTES

See pages 732 and 733.

Reports in this issue are for week ending June 21, unless otherwise indicated.

WEATHER OF THE WEEK ENDING JUNE 24

At the beginning of the week, a cold front extending from Texas to the Carolinas edged slowly southward. High pressure, sunny skies, and moderately warm temperatures prevailed north of the front. Showers and thunderstorms soaked the Gulf strip and the South Atlantic coast south of the front. A few 24-hour totals exceeded 5 inches. Under sunny skies, temperatures in the sandy Southwest soared to 110° or higher. Blythe, California, registered 112° on Monday. As vigorous thundershowers continued along the Gulf, cool, dry air began pressing southward into the Northern Prairies. Moist air flowed northward south of this front. Cloudiness increased, followed by drizzle and light showers. By midweek, numerous thunderstorms were occurring over the eastern half of the Nation. One of the heaviest thunderstorms dumped about 8 inches of rain at Sugartown, Louisiana, Wednesday afternoon and evening. A few isolated thunderstorms occurred over the western mountains. By daybreak Friday, the leading edge of the cold air was pushing into the northern portions of the Gulf States and the Middle Atlantic Coastal Plain. Numerous record low temperatures were reported in the North Central Interior, and frost occurred in a few scattered areas as far south as northern Indiana and Illinois. Heavy thundershowers occurred in the warm, humid air in the lower Mississippi Valley region and along the Gulf coast. Galveston, Texas, received nearly 5 inches of rain Friday morning. Afternoon temperatures were mostly in the 60's and lower 70's from the Great Lakes region and Ohio Valley eastward. Another cool spot was the Northwest where a maritime air mass kept daytime temperatures in the 50's and 60's inland to Idaho and Montana. Thunderstorms broke out in Montana, Wyoming and Colorado. One storm at Miles City, Montana, produced hail and was accompanied by winds approaching 60 m.p.h. Local flooding occurred in central and northern Wyoming, causing several million dollars damage, with Lander being especially hard hit.

At the end of the period, hot, humid air with thunderstorms continued in the Deep South. Cool temperatures, clear skies, early morning temperatures in the 30's and 40's, and afternoon temperatures in the 60's and 70's persisted in the Northeast. In the southwestern deserts, maximum temperatures shot to 90° to 100° or (Continued on page 733)

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - NEVADA - Nymphs, mostly first to third instar but up to fifth instar, infesting several thousand acres of crested wheatgrass and rangeland in Orovada and Paradise Valley areas, Humboldt County; counts as high as 40-60 per square yard in heavily concentrated, localized areas. Counts averaged 12-20 per square yard over much of a 15-20 mile strip along lower west slopes of Santa Rosa Mountains in Orovada area. Counts generally lower and nymphs smaller in Paradise Valley. Dominant species Aulocara elliotti, Camnula pellucida, Melanoplus spp. and Oedaleonotus enigma. (Coop. Rpt.). UTAH - In Iron County, grasshopper control in progress on 6,000 acres in Paragonah-Parowan area, and another 10,000 acres around Kanarraville; much cropland around Newcastle may need control. In Washington County, about 6,000 acres around Summit is moderate to severe and 20,000 acres around New Harmony have severe outbreaks. In San Juan County, situation east and south of Monticello looks less severe than few weeks ago, and 2,000 acres east of La Sal need control. In Sanpete County, 6,000 acres north of highway and east of Gunnison have a severe range outbreak with an area of 7,000 to 8,000 acres of rangeland, plus cropland, and also serious in area northwest of Mayfield. In Grand County, 5,000 acres of largely range in Castleton area and 3,000 acres on Wilson Mesa above Moab need control. Numerous enough to cause damage to some alfalfa in Vernal and Roosevelt areas of Uintah Basin. Melanoplus spp. 10 percent winged in Flaming Gorge area, Dagget County; light except in local areas. Grasshopper outbreak in Sanpete County includes 70,000 acres of rangeland and at least 5,000 acres of farmland north of Gunnison to north of Fayette and to Salina. (Thornley, Knowlton; June 17-22).

COLORADO - Grasshoppers vary considerably in number on grassland in Weld, Larimer and Boulder Counties. In northern Weld and Larimer Counties, populations 1-2 per square yard. In southern area of Larimer County and in Boulder County, east of foothills, counts 1-4 per square yard. Newspapers reported grasshoppers present in southwest Larimer County and northwest Boulder County at levels of 25 per square yard. (Jenkins). NORTH DAKOTA - Nymphal survey on rangeland in McKenzie, Golden Valley, Billings and Slope Counties showed 1-20 (average 6) per square yard. In Cartwright area, McKenzie County, average 12 per square yard. Development of Aulocara elliotti and Melanoplus sanguinipes first through fourth instar; Ageneotettix deorum first through third instar; 60 percent of 'hoppers in second instar. In cropland in Dunn, McKenzie and Slope Counties, marginal counts ranged 1-20 (average 4) per square yard; field counts 1-12 (average 2) per square yard. Nymphal development of M. bivittatus first through fifth instar and M. packardii first through fourth instar. Development of M. sanguinipes first through third instar. Most 'hoppers in second and third instars. (Brandvik). Survey in Nelson, Foster, Eddy, Griggs and Steele Counties showed negative to trace numbers to an occasional count of 3-4 per square yard. Benson County had trace to 10 per square yard in Esmond and Maddock areas. Ramsey County, north of Webster, had 10-15 per square yard. Northern half of Sheridan County had 40-50 per square yard. Dominant species M. bivittatus, M. sanguinipes and M. packardii. (Olson). Counts in Pembina, Walsh, Grand Forks, Cavalier and Traill Counties averaged 4 per square yard in field margins and less than one in fields. M. bivittatus and M. sanguinipes species involved; most in second instar. In Rolette County, counts 32 (fields) and 27 (margins) per square yard in alfalfa and soil bank land; M. bivittatus and M. sanguinipes species involved. Counts 10 per square yard in pastures and margins in Towner County; Camnula pellucida species observed. Development of M. sanguinipes first through third instar, M. bivittatus and C. pellucida mostly first and second instar. (Wilson).

SOUTH DAKOTA - Grasshopper numbers generally low in cropland and rangeland, with some localized exceptions. Development ranges from first to fifth instar, with M. bivittatus, M. sanguinipes, M. differentialis dominant; few M. femurrubrum also appearing. Counts in central and western area cropland usually 1-5 per square yard, with an occasional marginal count of 30 per square yard. In localized area of western Mellette County, numbers were as high as 60 per 10 sweeps throughout field of alfalfa. In range areas of Custer, Dewey, Fall River, Shannon and Ziebach Counties, counts low with localized high

counts. Localized counts in Custer County showed 10-15 nymphs per square yard in Pilger Mountain area and 15-35 per square yard in Elk Mountain area. (Burge, Zimmerman, Hintz). During week June 7-14, areas of potential range infestation surveyed with following results: Harding County (short pine area) averaged 3 per square yard; Moream River area, 2-4 per square yard; northwest Haakan County, 5 per square yard; Pine Ridge area of Shannon County, 2-6 per square yard; Elk Mountain area of Custer County, 10-30 per square yard (potential "hot spot"). Species in these areas Ageneotettix deorum, M. sanguinipes, M. confusus and several species which overwinter as nymphs. The latter and M. confusus mostly adults. In crop areas of western and central sections of State, some counts ranged up to 20 per square yard in field margins, with 10 per square yard in fields, but counts not generally this high. (Burge, Zimmerman). NEBRASKA - M. sanguinipes (third to fourth instar), M. bivittatus (third to fifth instar), M. differentialis (second to third instar) and M. femurrubrum (first to second instar) counts approximately 80 per square yard in hatching areas of northern Burt, Cedar and Dixon Counties. Fields of oats in Burt County had uniform population throughout field. (Bell). M. differentialis (second to third instar) and M. femurrubrum (first to second instar) averaged approximately 12 per square yard in Cuming, Dodge and Saunders County field margins. Infestations evenly distributed through soybean fields in Saunders County. (Roselle, Bergman). KANSAS - Counts in field margins in northeast and east central areas ranged 0-10 per square yard; primarily M. sanguinipes and M. femurrubrum. Adult M. sanguinipes noted; M. femurrubrum ranged from second to fourth instar. (Peters). OKLAHOMA - Nymphal surveys continued in Beaver, Ellis, Harper, Major, Woods and Woodward Counties. In Woodward County, 40 rangeland checks showed counts of 3-20 per square yard. Dominant species Ageneotettix deorum, Philibostroma quadrimaculatum, Amphitornus coloradus and Mermiria maculipennis. Counts ranged 1-8 per square yard in Beaver, Ellis, Harper, Major and Woods Counties with dominant species Melanoplus bivittatus, M. packardii. (Okla. Coop. Sur.). TEXAS - Complaints of damage by several species of grasshoppers to cultivated crops and pastureland being received from coastal bend, central and north central areas. (Tex. Coop. Rpt.).

MISSOURI - Moderate to high populations of Melanoplus spp. observed in spots throughout State; counts in central and northeast ranged 5-35 per square yard in field margins and 2-14 per square yard in infested pastures and legumes. (Munson, Thomas, Wood). IOWA - Newly hatched M. differentialis ranged 5-10 per square yard in Harrison County and 40-50 per square yard in Washington County. Also feeding on soybean leaves at Ames, Story County. (Iowa Ins. Inf., June 17). WISCONSIN - Populations of first and second instar M. femurrubrum and first, second and third instar M. differentialis rising rapidly in second growth and sparse first-growth alfalfa in Marquette County, and in Wisconsin River flats of Dane, Sauk and Richland Counties; counts 15-60 per square yard, with M. differentialis dominant. Oat fields had 30 and 5 per square yard locally in Marquette and Green Counties, respectively. M. femurrubrum principal species in portions of Green and Walworth Counties; 40-60 per sweep. Some feeding injury becoming evident in few such fields. Hatching just begun in heavier soiled areas of Iowa, Lafayette and Grant Counties; counts 1-10 per square yard. Some treatments used in Oconto County. (Wis. Ins. Sur.). ILLINOIS - Melanoplus spp. varied 40-760 (average 229) per 100 sweeps in grassy roadsides in central, west and northwest districts. Most first instars with few larger ones and 1 adult observed. (Ill. Ins. Rpt.). ALABAMA - Romalea microptera heavy on grass in Chambers County. (Stewart). Several species appearing in greater numbers on crops in general in Escambia, Conecuh and Monroe Counties. (Lemons).

EUROPEAN CORN BORER (*Ostrinia nubilalis*) - NORTH DAKOTA - Pupation 80 percent in Richland and Sargent Counties; emergence 15 percent; no egg masses seen. (N.D. Ins. Sur.). SOUTH DAKOTA - Preliminary egg survey in southeast showed 1-16 egg masses per 25 plants. Height of corn (leaves extended) averaged 27 inches in southern area. (Hintz). NEBRASKA - Infestation ranged 20-75 percent in east and northeast; larvae, first to third stages, feeding in plant whorl. (Bergman). KANSAS - Few moths and eggs present in Riley County, northeast; first and second instar dominant. Few third instars entering stalks of sweet corn and early field corn. In Jefferson, Douglas, Brown and Republic Counties, populations low. Infestations only in few of earliest fields of corn; 5-70 percent of plants infested. Development ranged from eggs to third-stage larvae. (Burkhardt). Less than one percent of plants infested in Wyandotte County; only earliest fields infested. (Peters). MISSOURI - Populations and damage approaching economic levels in central and northeast areas; leaf feeding damage in susceptible fields in northeast evident on 10-65 percent of plants. Infested plants had 0-8 larvae per plant. Very few egg masses observed. (Munson, Thomas, Wood). IOWA - Egg masses per 100 plants and percent leaf feeding reported as follows: Crawford County, 15-20 inch corn, 40 egg masses and 20 percent feeding; Monona County, 30-inch corn, 80-100 egg masses and 20-30 percent feeding; Harrison County (June 13), 30 and 36-inch corn being treated, 50-60 egg masses and 20-40 percent feeding; Ames, Story County, 25-30 inch corn, 100 egg masses and 30 percent feeding; Knoxville, Marion County, 150 egg masses and 60 percent feeding (treated June 13). (Iowa. Ins. Inf., June 17). WISCONSIN - Leaf feeding becoming noticeable on larger field corn in southern counties. Few egg masses still being found. Highest percent of plants infested was 8. (Wis. Ins. Sur.). ILLINOIS - Egg masses per 100 plants averaged 87.7 in northwest, 32 in northeast, 107.3 in west, 60 in central and 34.4 in east. Percent plants infested averaged 42.7 in northwest, 31 in northeast, 41.8 in west, 27.8 in central and 32.2 in east. Larvae per infested plant averaged 4 in northwest, 2.7 in northeast, 4.9 in west, 1.7 in central and 2 in east. Majority of larvae in first stage. (Ill. Ins. Rpt.). INDIANA - Eggs hatched and larvae actively feeding in whorls of corn across central area. Infestations range 4-60 percent. Leaf feeding in southern area about 10 percent in early corn. (Everly, Matthew). MICHIGAN - Egg masses common and larval feeding evident on corn foliage in southwestern area. (Tatter, Carpenter). NEW YORK - Egg masses fairly easy to find on sweet corn in Hudson Valley; several per 100 plants. Hatching noted June 10. (N.Y. Wkly. Rpt., June 17). MARYLAND - Light to moderate larval infestations in late field and sweet corn on Eastern Shore; 20 percent highest recorded. Egg masses found on sweet corn at Fairland, Montgomery County. (U. Md., Ent. Dept.).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - MISSISSIPPI - Light on corn in Marshall County. (Ouzts). OKLAHOMA - Approximately 50 percent of stalks infested in cornfield in Washita County; occasional lodging of stalks noted. (Okla. Coop. Sur.).

STALK BORER (*Papaipema nebris*) - MARYLAND - Infesting marginal areas of field corn in sections of Frederick and Worcester Counties. (U. Md., Ent. Dept.). INDIANA - Reported in various parts of State. Damage reported to outside 2-3 rows of corn. (Gould). KANSAS - Damaging corn in field margins in 2 fields in southwestern Riley County. (Burkhardt).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - ALABAMA - Field of corn (200 acres) in Cleburne County being heavily damaged by this species in combination with 2 unidentified flea beetles, mixed species of thrips and southern cornstalk borer (*Diatraea crambidoides*). (Ventress).

ARMYWORM (*Pseudaletia unipuncta*) - OHIO - Infestations occurring over western half of State. Distribution ranges from Ottawa County (northern area) to Warren County (southern area). (Holdsworth). Severe in 2 fields of wheat in Ottawa County; all sizes of larvae present. Several spots in fields stripped. (Ruff, June 12). Found infesting small grains and corn near Eaton, Preble County. (Wadlington, June 14). Larvae in wheat migrating to corn at Wilmington, Clinton County. (Baxter, June 17). Several fields of wheat near Troy, Miami County,

infested. (Arnold, June 17). Migrating from wheat to corn at Lebanon, Warren County. (Ross, June 17). Larvae on move from wheat into corn at South Charleston, Clark County. (Holdsworth, June 17). INDIANA - Continues damaging in localized parts of central and northern counties. Feeding completed in southern counties. Controls underway in northwest. (Matthew). MICHIGAN - Larvae reported causing some injury in Berrien, Allegan and Ottawa Counties. (Janes, Carpenter, Machiele). DELAWARE - Larvae feeding on corn in eastern Kent County; 32 adults collected in blacklight trap on June 17-18 in Sussex County. (Burbutis). MARYLAND - Severe in large planting of sweet corn near Price, Caroline County. (U. Md., Ent. Dept.)

CORN EARWORM (Heliothis zea) - MARYLAND - Light on field corn in whorl stage on lower Eastern Shore. (U. Md., Ent. Dept.). DELAWARE - First young larvae of season present on alfalfa in area of New Castle County; 5 adults collected in blacklight trap in Sussex County June 17-18. Larvae averaged 3 per 100 corn plants in Sussex County. (Burbutis). ALABAMA - Heavy on corn in Chambers County. (Stewart). OKLAHOMA - Heavy in mature alfalfa in Greer County, 25-40 per 10 sweeps. Generally lighter in Washita, Kiowa, Jackson and Tillman Counties, 0-6 per 10 sweeps. Head counts on sorghum ranged from 50 per 100 heads in Tillman County to 60-200 per 100 heads in Jackson County. Light terminal infestations noted in younger sorghum in these areas. Ears 85 percent infested in cornfield in Washita County, with 110 larvae per 100 ears. Noted in Bryan County with heavy egg deposition in same field. (Okla. Coop. Sur.). KANSAS - Eggs and various larval stages found on sweet corn in Riley County, northeast; over 50 percent of ears infested. (Burkhardt). WISCONSIN - Adult collected in blacklight trap at Janesville, Rock County, on June 15. (Wis. Ins. Sur.). WASHINGTON - First moth collected in light trap at Prosser, Benton County; also first date of emergence from caged pupae in soil. (Klostermeyer).

BLACK CUTWORM (Agrotis ipsilon) - NEBRASKA - Caused extensive damage to cornfield in Otoe County. (Roselle, Bergman). OHIO - Caused 20 percent damage locally to corn in Pickaway County. (Hamrick, Holdsworth).

SMEARED DAGGER MOTH (Acronicta oblongata) - DELAWARE - Larvae present but scarce on wheat in area of New Castle County. (Burbutis).

SOD WEBWORMS (Crambus spp.) - SOUTH DAKOTA - Severely damaged bluegrass lawn in Codington County. (Walton, Spaw; June 14). RHODE ISLAND - Heavy in lawn at Providence, Providence County; adults flying at night in Kingston, Washington County. (Buonaiuto, Mathewson). MARYLAND - Necessitated replanting of 175 acres of field corn at Cecilton, Cecil County. (U. Md., Ent. Dept.).

CEREAL LEAF BEETLE (Oulema melanopa) - MICHIGAN - New quarantine will go into effect in 15 counties on or near June 23. Jackson County found infested for first time. First new adults started emerging in Berrien County on June 17, but very small percentage appeared to June 21. Pupae dominant at present. Percentages of various stages found approximately 80 percent pupae, 19 percent larvae and one percent adults and eggs. Large scale emergence of new adults expected by July 5. (Ring, Castro).

CORN ROOTWORMS (Diabrotica spp.) - NEBRASKA - Larvae causing damage to corn in southern half of State; easily found working in corn root zone in southeastern and eastern areas. Many in late stages; pupation probably will occur within one week. Larvae in northeast in early stages, with feeding damage present on root tips. D. undecimpunctata howardi adults feeding on corn plants in Otoe and Nemaha Counties. (Roselle, Bergman).

SEED-CORN BEETLE (Agonoderus lecontei) - WISCONSIN - Caused damage to corn in Winnebago County; one field reduced by one-third. (Wis. Ins. Sur.).

BILLBUGS - OHIO - Adult feeding punctures common in many corn fields throughout State; species undetermined. (Schurr, Lyon). VIRGINIA - Adults of Sphenophorus sp. heavily infested 80-acre cornfield in section of Orange County. (Amos, Lutz, Woodside; June 15). NEBRASKA - Adult feeding signs of Sphenophorus sp. readily found in an Otoe County cornfield. (Bergman).

A CERAMBYCID (Derobrachus brevicollis) - ALABAMA - Heavy in 3-acre field of Bahia grass in Covington County. (Kinard). Destroyed 20-acre field of Bahia grass in Houston County, 1959-1960. Chemical insecticides did not exert control; fungus eventually controlled infestation. (Ledbetter). Several specimens taken at lights throughout State each year. One taken each in Lee and Clay Counties recently. (Barwood, McQueen).

JAPANESE BEETLE (Popillia japonica) - VIRGINIA - About 2 acres of pasture completely destroyed in Rockingham County. (Brackney, June 11).

WIREWORMS - WISCONSIN - Numerous in many areas of Dodge and Fond du Lac Counties. (Wis. Ins. Sur.) OHIO - Averaged one per square foot of soil in several spots throughout field of soybeans near Tiffin, Seneca County; found at depths of 8-12 inches. Field has history of soil treatments. (Blair, Lyon). VIRGINIA - Melanotus communis locally damaging to corn in Rockbridge, Rockingham, Franklin and Mecklenburg Counties. (Tarpley et al., June 10-18).

GREENBUG (Schizaphis graminum) - COLORADO - Trace numbers found on small grains in Larimer, Weld, Adams and Boulder Counties; 0-50 per 100 sweeps. (Jenkins). SOUTH DAKOTA - Counts per 40 linear feet of drill row in oats as follows: 49 in Turner County; 25 in Hyde County; 1 in McPherson County; 4 in Day County; 182 on a farm in Brookings County. (Kleckhefer). WISCONSIN - Scarce in southern and western areas of State; "red leaf" symptoms rare. Reports from Marinette, Oconto and Shawano Counties reveal higher than normal incidence of both this insect and "red leaf" disease. Counts 50-100 per leaf in Shawano County. (Wis. Ins. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - UTAH - Light to moderate in wheat examined in Salt Lake and Duchesne Counties. (Knowlton). SOUTH DAKOTA - Counts per 40 linear feet of drill row in oats as follows: 26 in Turner County; 18 at Highmore, Hyde County; 2 at Eureka, McPherson County; 8 on Waubay National Wildlife Refuge, Day County; and 48 on a farm in Brookings County. (Kleckhefer). WISCONSIN - Some increase noted in oats ranging from flowering to milk stage. Counts per sweep 1-5 in Dodge, Green Lake and Fond du Lac Counties; 25 in Iowa County; 1 in Crawford County; 4 in Grant and Vernon Counties; 1-5 in Trempealeau; 18 in Dane County; 9 in Rock County; and 3 in Green County. (Wis. Ins. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEVADA - Light, spotted infestations on wheat in Grovada and Paradise Valley, Humboldt County. (Bechtel, Cooney, Lundahl). COLORADO - Populations of this species and R. fitchii high in some barley fields in Montrose County; 400-1,000 per 100 sweeps. Controls being applied to malting barley and some grain fields. (Bulla).

A MEALYBUG (Heterococcus graminicola) - WASHINGTON - This species and unidentified thrips attacking bluegrass grown for seed at Spokane, Spokane County; apparently causing unfilled heads. (Harwood).

RICE STINK BUG (Oebalus pugnax pugnax) - ARKANSAS - Quite common on grasses that are forming seeds. Number of nymphs small compared to adults present. Some reproduction occurring. (Ark. Ins. Sur.).

BLACK GRASS BUGS - UTAH - Severely discoloring crested wheatgrass, with moderate damage to intermediate wheatgrass and other grasses, over large areas in Cedar Breaks, Cedar Mountains and Panquitch Lake areas of Iron and Garfield Counties. Light damage to some grasses on Wellsville Mountain, Box Elder County. (Thornley, Knowlton).

CHINCH BUG (Blissus leudopterus) - OKLAHOMA - Moderate infestations reported in grain sorghum in Craig and Mayes Counties, northeast. (Okla. Coop. Sur.).

CORN BLOTCH LEAF MINER (Agromyza parvicornis) - MISSOURI - Heavy infestations observed in west central area; some infested plants had as many as 100 mines per leaf. (Munson, Thomas, Wood).

A RICE LEAF MINER (Hydrellia griseola) - CALIFORNIA - Larvae medium on reed canarygrass (Phalaris arundinacea) in Alturas area, Modoc County; causing severe loss of leaves with damage to quality of forage. Condition general throughout area. (Cal. Coop. Rpt.).

SEED-CORN MAGGOT (Hylemya platura) - WISCONSIN - Considerable activity reported in Calumet County. This species probably responsible for many corn fields being replanted in Fond du Lac County. (Wis. Ins. Sur.).

WHEAT STEM MAGGOT (Meromyza americana) - WISCONSIN - Noticeably blasting heads of rye and wheat in Walworth, Rock and Kenosha Counties, particularly along field margins. Maggots nearly full grown. (Wis. Ins. Sur.).

Hessian FLY (Phytophaga destructor) - MICHIGAN - Generally lower populations in southwest than in past 3 years; larvae entering flax-seed stage. (Gallun, Everson; June 14).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - This species and sugarcane beetle (Euetheola rugiceps) caused medium, isolated damage to corn in Conecuh County. (Lemons, Daniels).

THIEF ANT (Solenopsis molesta) - KANSAS - Damaging grain sorghum in Dickinson County, central area; causing reduced stands. (Burkhardt).

A BARLEY THRIPS (Limothrips denticornis) - NORTH DAKOTA - Counts 10-15 per stem on barley near Hope; 5 per stem on barley near Walhalla. (N.D. Ins. Sur.).

GARDEN SYMPHYLAN (Scutigera immaculata) - IOWA - Recorded in O'Brien County for a new record; attacking 40-acre field of corn. (Iowa Ins. Inf., June 17).

OHIO - Damage to corn hair roots observed at Bellefontaine, Logan County, west central area. Many specimens found around hair roots. (Hufford, Blair, June 14).

ALFALFA WEEVIL (Hypera postica) - NEVADA - Larvae averaged 6 per sweep in alfalfa seed fields in Kings River Valley, 1-2 per sweep in seed fields and 6-15 per sweep in hay fields with some retarding of new growth occurring in recently cut, old hay fields in Orovada, Humboldt County. (Bechtel, Lundahl). Averaged 3-20 per sweep in hay fields in Paradise Valley, Humboldt County. (Bechtel, Cooney). UTAH - Larval counts very high in some Cache, Salt Lake and Box Elder County alfalfa; overwintered adults remain fairly numerous in most fields. (Knowlton). WYOMING - Larvae averaged 140 per 100 sweeps in Big Horn Basin. Resistance to recommended chemicals appears to be evident in nearly all areas. (Fullerton). SOUTH DAKOTA - High populations in extreme west central area; varied 30-700 per 100 sweeps in Butte, Meade, Pennington and Lawrence Counties. Larvae in first to fourth stages. (Gerhardt, Walstrom, Hintz; June 14). ARKANSAS - Two specimens collected from alfalfa in St. Francis County, east central, May 22; new county record. (Ark. Ins. Sur.). VIRGINIA - Severely infesting clover in pasture near Pleasant Grove. (Wood). Larvae range 20-60 per 100 sweeps in untreated field at Steeles Tavern, Augusta County; few adults present. Averaged about 80 larvae per 100 sweeps in Orange County field treated after first cutting. (Woodside). MARYLAND - Larval damage to second growth continues; larvae ranged 2-10 per sweep in Dorchester and Frederick Counties. (U. Md., Ent. Dept.). DELAWARE - Feeding injury to second-growth alfalfa generally light in most areas; larvae averaged less than 3-4 per 10 sweeps. Few adults present in some areas. (Burbutis). NEW YORK - Feeding peaked in Ulster County; pupation general throughout all unharvested fields. Early cut fields being heavily damaged as regrowth occurs and many

growers treating or plan to immediately. Treatment this past fall continues to look very promising. Damage medium to heavy in southeastern quarter of Albany County; first time weevil damage has been a problem in the county. (N.Y. Wkly. Rpt.; June 17). RHODE ISLAND - Larvae averaged 5 per sweep in alfalfa-clover-timothy mixture in Kingston, Washington County. (Kerr).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Counts 25-30 per 100 sweeps in alfalfa in west central area. (Gerhardt, Walstrom, Hintz).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Heavy, isolated damage to corn and peanuts in all parts of Conecuh and Monroe Counties. (Lemons).

PALE-STRIPED FLEA BEETLE (Systema blanda) - DELAWARE - Adults present on alfalfa statewide; rather numerous locally in New Castle County. (Burbutis). MARYLAND - Averaged 1 per sweep on second-growth red clover at Trappe, Talbot County. (U. Md., Ent. Dept.). OHIO - Serious feeding damage occurred on corn at Wooster, Wayne County; approximately 1,600 square feet infested. Heaviest counts 4-5 beetles per corn leaf. Many leaves dying. (Guthrie, Findlay, Lyon).

STRIPED FLEA BEETLE (Phyllotreta striolata) - SOUTH DAKOTA - High on alfalfa in Jones and Mellette Counties; 150-550 per 100 sweeps. (Hintz).

BLISTER BEETLES - ALABAMA - Epicauta cinerea destroyed one acre of peanuts before control started in Covington County. Undetermined species rather heavy in Chambers County. (Stephenson, Stewart). Epicauta sp. feeding light on isolated grass in areas of Lee County. (McQueen). NEW MEXICO - Epicauta sp., possibly cinerea, averaged 10-15 per 100 sweeps in alfalfa near Albuquerque, Bernalillo County; feeding damage noted. (N.M. Coop. Rpt.). SOUTH DAKOTA - E. fabricii collected on alfalfa throughout State; ranged from less than 1 to 3 per 10 sweeps. (Gerhardt, Walstrom, Hintz; June 14). NORTH DAKOTA - E. fabricii adults up to 20 per 10 sweeps in southwest alfalfa. (Brandvik).

PEA APHID (Acyrtosiphon pisum) - WASHINGTON - Agamic forms attacking alfalfa. Increasing rapidly after first cutting; many fields treated. A parasite, Praon sp., increasing in fields. (Featherston). Building up rapidly on alfalfa grown for seed in lower Yakima Valley. (Menke). NEVADA - Averaged 20 per sweep in alfalfa seed fields in Kings River Valley and varied 0-14 per sweep in hay and seed fields in Orovida, Humboldt County. (Bechtel, Lundahl). Only occasional specimens found in most hay fields in Paradise Valley, Humboldt County. (Bechtel, Cooney). Averaged 10-15 per sweep in seed fields in Reese River, Lander County. (Lundahl). UTAH - Increased during recent weeks of cool, rainy weather over much of northern area. (Knowlton). ARIZONA - Counts in alfalfa remaining much higher than usual and for longer periods of time. Some injury to seed fields may result. (Ariz. Coop. Sur.). NEW MEXICO - Continues light in Bernalillo County alfalfa. Disappearing in alfalfa in southern counties as temperatures rise to 90-100 degrees F. (N.M. Coop. Rpt.). COLORADO - Continues low on alfalfa in Weld, Larimer and Boulder Counties. (Jenkins). OKLAHOMA - Generally light on alfalfa in southwest; counts ranged from fewer than 25 to 200 per 10 sweeps. (Okla. Coop. Sur.). WYOMING - Averaged 500 per 100 sweeps in Big Horn Basin; about 80 percent of fields cut. (Fullerton). SOUTH DAKOTA - Populations much lower than previous weeks; probably due to high predator counts. (Hintz). NORTH DAKOTA - Low on alfalfa in northeast; lady beetles and lacewings numerous in several fields. (N.D. Ins. Sur.). WISCONSIN - Populations generally static; becoming somewhat more noticeable on some second-crop alfalfa. Winged forms prevalent in some fields. Parasites and predators apparently increasing. Counts ranged 4-40 per sweep; highest in Crawford, Dane, Rock, Green, Dodge and Green Lake Counties. (Wis. Ins. Sur.). MARYLAND - Generally light on alfalfa; ranged 0-15 per sweep on alfalfa in Dorchester and Frederick Counties. (U. Md., Ent. Dept.). DELAWARE - Populations generally higher in Kent and Sussex Counties; averaged 5 per sweep in these counties and 1-3 per sweep in New Castle County. (Burbutis). RHODE ISLAND - Relatively light at Kingston, Washington County. (Kerr).

SPOTTED ALFALFA APHID. (Therioaphis maculata) - SOUTH DAKOTA - Continues to be found farther west; counts per 100 sweeps in alfalfa 9-12 alates in Tripp County, 2 alates and 2 apterous in Mellette County, and 2 apterous in Jones County. (Hintz). Collected as far west as Tripp-Todd County line in south central region week of June 7-13 with 7 apterous forms per 100 sweeps. (Gerhardt, Walstrom, Hintz). OKLAHOMA - Light in all fields checked, with highest counts noted in Greer County (35-50 per 10 sweeps) and Jackson County (75-125 per 10 sweeps). (Okla. Coop. Sur.). ARIZONA - Building up in Safford area. (Ariz. Coop. Sur.).

CLOVER APHID (Anuraphis bakeri) - UTAH - Common on red clover in Henefer area, Summit County. (Knowlton).

LYGUS BUGS (Lygus spp.) - WASHINGTON - Adults and nymphs rapidly building up on alfalfa grown for seed. Damaging flower heads in lower Yakima Valley, Yakima County. Adults and nymphs averaged 25 per 10 sweeps on alfalfa grown for seed at Connell, Franklin County. (Landis, Menke, June 14). Second brood beginning rapid development on alfalfa in lower Yakima Valley. (Menke, June 21). NEVADA - Averaged 40-50 per sweep in alfalfa seed fields in Oroveda, Humboldt County, and 15-20 per sweep in Reese River, Lander County; mostly nymphs and adults. (Lundahl). ARIZONA - Counts in alfalfa average 1,000 nymphs and adults per 100 sweeps at Experimental Farm in Graham County; seed growers applied controls in Yuma County. (Ariz. Coop. Sur.). WYOMING - Nymphs averaged 40 per 100 sweeps in alfalfa in Big Horn Basin. (Fullerton).

FALSE CHINCH BUGS - OKLAHOMA - Nysius sp. reported heavy in alfalfa field, migrating from harvested wheatfield in Grady County. (Okla. Coop. Sur.). CALIFORNIA - N. raphanus medium on hay being harvested in Cholame, San Luis Obispo County. (Cal. Coop. Rpt.)

SUPERB PLANT BUG (Adelphocoris superbus) - UTAH - Nymphs moderately numerous on alfalfa at Manila, Daggett County, and in Vernal-Naples area, Uintah County. (Knowlton).

PLANT BUGS (Lygus lineolaris, Adelphocoris lineolatus) - NORTH DAKOTA - Moderate numbers on alfalfa in northeast. (N.D. Ins. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - MICHIGAN - Additional reports indicate usual or more than usual injury in northern Lower Peninsula. Adults first reported from Montcalm County on June 8. (Kirch, Myers, Post, Mars; June 14). OHIO - Light to heavy throughout State. Heaviest counts 2,500-3,000 adults per 50 sweeps in Columbiana County, northeast; 25-50 adults per 50 sweeps in Seneca County, north central. Populations approximately 99 percent adult throughout State. (Lyon). DELAWARE - Adults 5 per 10 sweeps on alfalfa in New Castle and Kent Counties. (Burbutis). MARYLAND - Adults common on alfalfa and red clover in Frederick County. (U. Md., Ent. Dept.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Counts 80-300 adults per 100 sweeps in alfalfa in Safford area and averaged 10 per sweep in Yuma area. Also on increase in central area. (Ariz. Coop. Sur.). ARKANSAS - Very light on soybeans. (Ark. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - MISSOURI - Counts in alfalfa in northeast ranged 4-25 per sweep; some yellowing of alfalfa evident in northeast and east central areas. (Munson, Thomas, Wood). WISCONSIN - Generally light on alfalfa. (Wis. Ins. Sur.). OHIO - Adults averaged one per sweep on alfalfa at Wooster, Wayne County. (Trecee, Miller). MARYLAND - Second-growth alfalfa in Dorchester and Frederick Counties had below 1 per sweep. (U. Md., Ent. Dept.). DELAWARE - Adults fairly common on alfalfa. (Burbutis). VIRGINIA - Adults ranged 0-6 per 10 sweeps on alfalfa at Raphine, Rockbridge County. (Woodside).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - DELAWARE - Adults common to numerous on alfalfa throughout State. (Burbutis).

LEAFHOPPERS (undetermined) - SOUTH DAKOTA - Collected throughout southeastern and south central areas of State; present on both alfalfa and small grains. Counts ranged 27-175 per 10 sweeps; large number nymphs. (Hintz). OHIO - Soybean plants infested in Wood County, northwest. (Wagoner).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Generally light on alfalfa in southwest. (Okla. Coop. Sur.). ARKANSAS - Very light on soybeans. (Ark. Ins. Sur.). MARYLAND - Larvae light on alfalfa and red clover in Dorchester and Talbot Counties. (U. Md., Ent. Dept.). DELAWARE - First larvae of season present to common on alfalfa statewide; 5 per 10 sweeps. (Burbutis).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - OKLAHOMA - Moderate populations, 6-12 per 10 sweeps, observed on alfalfa in Greer County. Lighter counts, 0-3 per 10 sweeps, present in other areas checked in southwest. (Okla. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - UTAH - Less numerous than normal in various areas of State. (Knowlton). OKLAHOMA - Generally light on alfalfa in southwest. (Okla. Coop. Sur.).

WEBWORMS (Loxostege spp.) - KANSAS - Occasional fields of corn, sorghum and soybeans being severely attacked in Lyon County, east central; alfalfa in area not infested. (Peters). OKLAHOMA - L. similalis heavy, 25-50 per 10 sweeps, and damaging alfalfa in parts of Greer and Jackson Counties. Lighter, 2-6 per 10 sweeps, and less damaging in Washita, Kiowa and Tillman Counties. (Okla. Coop. Sur.). MISSOURI - L. similalis larvae light in northeast. (Munson, Thomas, Wood).

SPIDER MITES - MARYLAND - Heavily infesting red clover grown for seed at Hurlock, Caroline County. (U. Md., Ent. Dept.).

STRAWBERRY ROOTWORM (Paria fragariae) - DELAWARE - Adults present but scarce; feeding on soybeans in western Kent County. Det. by W. Connell. (Burbutis).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Increasing somewhat on soybeans in Wicomico County. (U. Md., Ent. Dept.).

BEAN LEAF BETTLE (Cerotoma trifurcata) - NEBRASKA - Adults averaged 5 per 10 sweeps on soybeans in Saunders County; much feeding damage evident on leaves. (Bergman). IOWA - Feeding on soybean leaves at Ames, Story County. (Iowa Ins. Inf., June 17). ARKANSAS - Very light on soybeans; occasional specimen found in Pulaski County. (Ark. Ins. Sur.). MARYLAND - Adults causing light to moderate foliage injury to soybeans on Eastern Shore. (U. Md., Ent. Dept.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - WASHINGTON - Counts 0-10 adults plus numerous eggs and young stages per leaflet on plot of red clover raised for seed near Othello, Adams County; treatment required because it is single-cut variety of clover. (Johansen, June 14). All stages attacking red clover at Toppenish, Yakima County. Infestation on clover for some time; now moving to beets and other crops. (Landis, June 21). Severely damaging red clover at Othello, Grant County. (Johansen, June 21). ILLINOIS - Commonly observed on corn in west and northwest districts; eggs also present. (Ill. Ins. Rpt.). COLORADO - Damage to corn not evident since recent rain in Larimer and Weld Counties. (Jenkins).

THRIPS (undetermined) - ARIZONA - Some controls being applied in Yuma area. (Ariz. Coop. Sur.). NEBRASKA - Infestations causing damage to corn leaves in Dodge and Saunders Counties. (Roselle, Bergman). DELAWARE - Several species numerous and apparently increasing on several crops, i.e. alfalfa, small grains, corn and soybeans, in many areas. (Burbutis). MARYLAND - Heavy on alfalfa, red clover, corn and soybeans in eastern and central sections. (U. Md., Ent. Dept.).

FRUIT INSECTS

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - FLORIDA - June 17 marked beginning of fourth infestation of species in State. Adults trapped in Miami, Dade County. Additional traps being placed in area; some fruit cutting for larval survey also underway. Total of 5 adults at 2 locations trapped on June 17 and 18. (Fla. Coop. Sur.).

Citrus Insect Situation in Florida - Mid-June - CITRUS RUST MITE (*Phyllocoptruta oleivora*) infested 47 percent of groves (norm 49 percent); 34 percent economic (norm 28 percent). Population near normal for June and increasing. High level will prevail in July and August. Highest districts Bartow, west coast, ridge, Brooksville and upper east coast. TEXAS CITRUS MITE (*Eutetranychus banksi*) infested 60 percent of groves (norm 47 percent); 34 percent economic (norm 29 percent). High population level will occur from mid-June to mid-July, then decline. Highest districts Indian River, ridge and upper east coast. CITRUS RED MITE (*Panonychus citri*) infested 55 percent of groves (norm 74 percent); 26 percent economic (norm 52 percent). Population will rise into high range in July, but heavy infestations expected to be fewer and more scattered than normal. Highest districts west coast and Orlando. PURPLE SCALE (*Lepidosaphes beckii*) infested 65 percent of groves (norm 79 percent); 10 percent economic (norm 17 percent). Population below normal, with little change anticipated; parasites expected to keep most infestations light. CHAFF SCALE (*Parlatoria pergandii*) infested 59 percent of groves (norm 41 percent); 19 percent economic (norm 1 percent). GLOVER SCALE (*Lepidosaphes gloverii*) infested 50 percent of groves (norm 27 percent); 22 percent economic (norm 1 percent). Both chaff scale and glover scale populations much above normal. Further increase, especially on fruit, expected. Heavy infestations will occur in numerous groves not badly damaged by cold. BLACK SCALE (*Saissetia oleae*) infested 43 percent of groves (norm 43 percent); 32 percent economic (norm 28 percent). Although statewide population only slightly above normal, it is very high in groves that escaped cold damage mostly in Indian River, Bartow and ridge districts. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

A PINK CITRUS RUST MITE (*Aculus pelekassi*) - FLORIDA - Infesting trifoliolate orange at Melrose, Alachua County (Graham, June 4); sweet orange at Eustis, Lake County (Brown); at Plant City, Hillsborough County (Custead, Hill, June 11); and at Davenport, Polk County (Norton, June 12).

TEXAS CITRUS MITE (*Eutetranychus banksi*) - FLORIDA - Infesting citrus at Lake Jem, Lake County. (Fatic, June 13).

CITRUS RED MITE (*Panonychus citri*) - FLORIDA - Severe on hundreds of citrus plants at Lake Jem, Lake County. (Fatic, June 13).

CITRUS RUST MITE (*Phyllocoptruta oleivora*) - FLORIDA - Rather severe in citrus area on citrus; collections made in Lake, Hillsborough and Volusia Counties. (Fla. Coop. Sur.).

CODLING MOTH (*Carpocapsa pomonella*) - NEW MEXICO - Large percentage of fruit infested in untreated apple orchards in Bernalillo and Sandoval Counties; good to excellent control in properly treated orchards. (N. M. Coop. Rpt.). COLORADO - Controls good in Mesa County; second cover spray underway in Delta County. (Bulla). MISSOURI - New entries noted in southeast; pupation underway in most orchards. (Wkly. Rpt. Fr. Grs., June 19). WISCONSIN - Two traps at Gays Mills yielded 3 adults June 17. Total of 8 collected in Madison trap June 13-17 and one at Middleton June 13. Adults noted in Bayfield County. (Wis. Ins. Sur.). INDIANA - First and second-brood activity in Vincennes area, Knox County, will overlap. Few adults still emerging from overwintering tree bands. Early first-generation larvae have left apples. (Cleveland, June 18). MICHIGAN - Adults continued to emerge in sizeable numbers in cages in Kent and Oakland Counties June 3-10; eggs observed in Berrien County orchards June 7; no larval entries

noted to June 14 but expected within following 7 days. (Gilmore, Siefert, Tatter, Carpenter, Howitt). NEW YORK - Activity greatly retarded by cool weather in Niagara County; eggs laid June 7 now in red-ring stage. Emergence in cages continues at moderate level (27 through June 7; 4 on June 10; 6 on June 14 and 1 on June 15). None taken in bait traps since June 10 in Niagara County. (N. Y. Wkly. Rpt., June 17). CONNECTICUT - Continues unreported in State. (Savos). MARYLAND - Emergence continues at Hancock, Washington County. (U. Md., Ent. Dept.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MISSOURI - Fresh entries noted in peach terminals in central and southeastern areas. (Wkly. Rpt. Fr. Grs., June 19). INDIANA - Adults coming to bait traps in Vincennes area, Knox County; second-brood egg laying probably started. Hatch expected about June 18. (Cleveland). NEW YORK - Damage appearing on new growth of peaches in Nassau County. Few peach terminals showing activity in Orleans County. (N. Y. Wkly. Rpt., June 17). CONNECTICUT - First terminal injury of season found at New Haven; only one terminal injured. (Savos).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - MAINE - Infestation noted in Turner; 75 percent pupated June 13. Confined to tops of taller trees. (Boulanger, June 14). OREGON - Emergence noted in Salem area week of June 10. (Goeden).

PEACH TWIG BORER (Anarsia lineatella) - CALIFORNIA - Larvae heavy in apricot fruit in Porterville, Tulare County. (Cal. Coop. Rpt.).

SPOTTED CUTWORM (Amathes c-nigrum) - CALIFORNIA - Causing severe damage to peach orchards in Empire-Modesto areas, Stanislaus County. Chewing large holes in green peaches and severely damaging foliage. Accompanying cover crops Johnson grass, dock and miscellaneous weeds; adults abundant in light traps. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - MAINE - Moderate infestations scattered in southern and central areas. Damage light in southern area; injury moderate on foliage in one central area orchard. Controls, when properly applied, appear to be satisfactory; ovicides also gave good results and phosphates gave excellent kill of first-generation (overwintering) forms. (Boulanger, June 14). VERMONT - Building up in some orchards; bronzing evident on Red Delicious variety. (MacCollom, June 17). CONNECTICUT - Populations appear lower but expected to change with predicted hot weather. Close inspections urged. (Savos). NEW YORK - Not yet numerous in Orleans County. (N. Y. Wkly. Rpt., June 17). NEW JERSEY - Populations on apple increasing rapidly on untreated check trees in southern test areas. Only adults and eggs evident previous week, but eggs now hatching. Bronzing of leaves noticeable where no controls applied. (Ins.-Dis. Newsltr., June 18). OHIO - Averaged 1.5 or fewer per leaf on apple at Wooster, Wayne County, June 18-20. (Forsythe). MICHIGAN - Recent rains temporarily halted buildup in fruit areas. (Howitt, Carpenter, Tatter, June 14). INDIANA - Populations in Vincennes area, Knox County, vary 0-100 forms per leaf. (Cleveland, June 18).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MAINE - Could become serious if warm weather of past few weeks continues. Some movement into trees already reported; adults well up in a number of trees in orchard in Leeds. (Boulanger, June 14). CONNECTICUT - Populations appear lower but expected to change with predicted hot weather; close inspections urged. (Savos). MISSOURI - Building up on untreated trees in southeast and present in low numbers in west central area. (Wkly. Rpt. Fr. Grs., June 19). COLORADO - Appearing on bindweed and cover crops in apple and pear orchards in Delta and Mesa Counties; none found on fruit trees. (Bulla). OREGON - Building up on pears and apples in Jackson County. (Berry).

SPIDER MITES - MARYLAND - Decreasing on apple at Hancock, Washington County. (U. Md., Ent. Dept.). UTAH - Bryobia rubricolus extremely numerous in home apple orchard at Logan, Cache County; moderately numerous in small apple orchard

near Tremonton, Box Elder County. (Davis, Knowlton). NEW MEXICO - Tetranychus mcdanieli beginning to build up in apple orchards in Sandoval and Bernalillo Counties. (N. M. Coop. Rpt.).

PEAR RUST MITE (Epitrimerus pyri) - NEW YORK - Building up rapidly on untreated trees in Niagara County; little russetting evident. (N. Y. Wkly. Rpt., June 17). OREGON - Continues problem on pears and apples in Jackson County. (Berry).

APPLE APHID (Aphis pomi) - MAINE - Infestations and injury light in southern areas; winged forms migrating in central areas; no damage apparent. (Boulanger, June 14). CONNECTICUT - Increasing in many parts of State. Building up rapidly on terminals and sucker growth at Storrs; inspections urged. (Savos). NEW YORK - Beginning to build up on various apple varieties in Nassau County. (N. Y. Wkly. Rpt., June 17). UTAH - Populations below normal in number of orchard areas in southern and central parts of State. (Knowlton).

ROSY APPLE APHID (Anuraphis rosea) - UTAH - Numerous on apple foliage. (Knowlton, Davis). CONNECTICUT - Scarce, probably on way out. (Savos).

MEALY PLUM APHID (Hyalopterus pruni) - CALIFORNIA - All stages heavy on plum trees locally in Chico, Butte County. (Cal. Coop. Rpt.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Light to heavy in many orchards in northern counties, especially on new growth in center of trees. (N. M. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Building up on pears throughout State. (Savos). WASHINGTON - All stages attacking pears near Mayview, Garfield County. (Brannon).

APPLE LEAFHOPPER (Empoasca maligna) - UTAH - Discoloring apple foliage at Uintah and Ogden, Weber County, and at Croyden, Morgan County. (Knowlton).

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria) - NEW YORK - Adults and nymphs evident in orchard in Clinton in spite of treatment; foliage exhibits considerable feeding injury. (N. Y. Wkly. Rpt., June 17). RHODE ISLAND - Building up on untreated apple trees in Kingston, Washington County. (Mathewson).

PERIODICAL CICADAS - INDIANA - Adults still active in Vincennes area, Knox County; oviposition continues. Growers cautioned not to end treatments too early. Considerable migration to orchards from adjacent woodlands observed. Egg hatch should begin about July 20. (Cleveland, June 18). MISSOURI - Activity ceased in southeastern area. (Wkly. Rpt. Fr. Grs., June 19).

STINK BUGS - OREGON - Hatching in large numbers on pear and apple leaves in Jackson County. (Berry).

PLUM CURCULIO (Conotrachelus nenuphar) - OHIO - First larvae left dropped plums at Wooster, Wayne County, June 18. (Forsythe). Oviposition and feeding damage abundant on apples in several northeastern counties, viz Stark, Mahoning, Summit, Medina and Portage. Adults collected easily from tree in Medina County; all apples infested. (Lyon). MICHIGAN - Egg laying and very pronounced adult feeding, which was underway during warm period earlier in month on unsprayed stone fruits, decreased during past week. (Carpenter, Siefert, June 14). NEW YORK - Damage not severe in Nassau County. Caused considerable damage in untreated prune orchards in Wayne County. (N. Y. Wkly. Rpt., June 17).

PEAR-SLUG (Caliroa cerasi) - RHODE ISLAND - Typically skeletonized leaves noted on home yard tree in Riverside, Providence County. (Mathewson). VIRGINIA - Infesting cherry trees locally in Spotsylvania County (Tarpley, Kash), cherry tree in Independence, Grayson County (Tarpley, Cassell, June 10) and common on plum trees in nursery in Chesterfield County (Tarpley, June 6).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - NEW YORK - Many apples damaged in Nassau County. (N. Y. Wkly. Rpt., June 17).

GLOBOSE SCALE (Lecanium prunastris) - DELAWARE - Present on peach locally in New Castle County; not all eggs laid, but hatching of previously laid eggs now occurring. (Bray).

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - Severe on pear at Starke, Bradford County. (Collins, June 13). OREGON - Crawlers appeared week of June 17 in Medford area on pears and apples. (Berry).

BLACK CHERRY APHID (Myzus cerasi) - MICHIGAN - Populations continue high on sweet and red cherry trees in Berrien County. (Tatter, June 14). UTAH - Numerous in some Willard-Perry orchards in Box Elder County. (Knowlton). This and other species numerous on prunes at Providence, Cache County. (Knowlton, Davis).

CECIDOMYIIDS (Dasyneura spp.) - MAINE - D. mali moderate and injury light to apple in Greene, Androscoggin County. (Boulanger, June 14). NEW JERSEY - D. vaccinii notably scarce on cranberry bogs where controls applied in 1962. (Ins.-Dis. Newsltr., June 18).

APPLE MAGGOT (Rhagoletis pomonella) - CONNECTICUT - Five adults, first of season, collected at Storrs June 24 from emergence cages. Controls urged especially on early varieties of apples. (Savos).

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) - MICHIGAN - Adults observed active in field in Berrien County June 7, same day emergence occurred in cage in Grand Traverse County. Growers north of Charlevoix, Otsego, Oscoda and Alcona County line advised first fly spray should be applied by June 18. (Tatter, Gardner).

GRAPE ROOTWORM (Fidia viticida) - IOWA - Larval damage on roots and adult feeding on grape leaves noted in vineyard in Harrison County. Roots severely shortened; foliage sparse. Single adult seen. (Iowa Ins. Inf., June 17).

GRAPE LEAF FOLDER (Desmia funeralis) - RHODE-ISLAND - Adults collected in black-light trap in Kingston, Washington County. (Mathewson). FLORIDA - Moderate on grapes at Daytona Beach, Volusia County. (Pott, June 13).

GRAPE BERRY MOTH (Paralobesia viteana) - MISSOURI - Few adults observed in several vineyards in both Rosati and Steelville areas. (Wkly. Rpt. Fr. Grs., June 19).

APHIDS - MISSOURI - Very heavy on grapevines near Steelville; in fact, nearly entire grape area in State shows some aphids on tips of vines. (Wkly. Rpt. Fr. Grs., June 19).

CURRENT STEM GIRDLER (Janus integer) - WASHINGTON - Attacking Wilder Red currants at Grandview, Yakima County; about 4 acres involved. Heavy, 8-20 injured shoots per plant noted. This species new to State, apparently not previously known west of Manitoba and Montana. Det. by B. D. Burks. (Cone).

LEAF ROLLER MOTHS (Sparganothis spp.) - NEW JERSEY - Populations in cranberry bogs apparently very heavy; controls have been delayed by poor weather. (Ins.-Dis. Newsltr., June 18).

RED-HUMPED CATERPILLAR (Schizura concinna) - CALIFORNIA - Medium on black walnut trees in Laton, Fresno County. (Cal. Coop. Rpt.).

A FILBERT APHID (Myzocallis coryli) - OREGON - Building up on filberts in Eugene area. (Stephenson).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - WASHINGTON - Recently hatched at Zillah, Yakima County. No general infestation but potentially severe. At Walla Walla, Walla Walla County, almost full-grown, first-generation larvae parasitized by a tachinid (Doryphorophaga dorypharæ). Damaging potatoes in gardens at Yakima, Yakima County, and tomatoes in gardens at Moses Lake, Grant County. (Landis, June 14). Eggs and larvae heavy in some potato fields at Quincy, Grant County; treatment necessary. (Landis). UTAH - Infesting most tomato and potato fields at Clinton, Davis County. (Knowlton, June 17). OHIO - All instars noted on potato plants at Medina, Medina County; ranged 2-18 larvae per plant, but only few plants infested in patch. (Lyon). VIRGINIA - Larvae and adults severe and general in Westmoreland County on tomatoes and potatoes. (Ptucha, June 5). Continues main problem on Eastern Shore potatoes. Many growers applied 3 treatments. Eggs hatching; large second brood expected. (Hofmaster). MARYLAND - Light to medium on commercial tomatoes at Whitehaven, Wicomico County. (U. Md., Ent. Dept.). NEW YORK - Heavy on eggplant in Suffolk County. Eggs hatched on potatoes in Suffolk County; noted in tomato field in Monroe County. (N. Y. Wkly. Rpt., June 17). CONNECTICUT - Problem on tomatoes and potatoes in New Milford and North Canaan. (Savos). MASSACHUSETTS - Larvae and unhatched eggs easily found in many potato fields and on tomatoes. Eggplant also favored host plant. (Wheeler). VERMONT - Prevalent in small home garden plantings. (MacCollom, June 17).

THREE-LINED POTATO BEETLE (Lema trilineata) - OHIO - Larvae and adults noted on potatoes in Fulton County. (Jones).

POTATO FLEA BEETLE (Epitrix cucumeris) - MAINE - Populations and feeding damage to potato foliage by overwintering adults unusually light at Presque Isle, Aroostook County. Reports indicate situation may prevail elsewhere, at least in central Aroostook County. (Shands et al.). MASSACHUSETTS - Still very active on unprotected tomatoes and potatoes. (Wheeler). VIRGINIA - Generally light on Eastern Shore. (Hofmaster). OHIO - Light to moderate damage throughout State. Many potato leaves perforated. Highest counts, 4-5 adults per leaflet in Summit County. (Lyon). NORTH DAKOTA - Flea beetles, mostly this species, noted on most mustards and potato fields; 20 per 10 sweeps in some fields. (N. D. Ins. Sur.).

TUBER FLEA BEETLE (Epitrix tuberis) - COLORADO - Adults in trace numbers on potatoes in southwestern Weld County. (Jenkins).

HORNWORMS (Protoparce spp.) - VIRGINIA - Larvae medium and scattered on tomatoes in Westmoreland County; first controls applied May 29. (Ptucha, June 3). ALABAMA - Averaged one larva per 10-15 tomato plants in Covington County in isolated fields. (Stephenson).

GREEN PEACH APHID (Myzus persicae) - MASSACHUSETTS - Heavy infestation found June 20 on staked tomatoes; large colonies on undersides of lower and middle leaves. (Wheeler). COLORADO - Low on early potatoes in Weld County. (Berry, Cress). WASHINGTON - Agamic forms increasing on potatoes; treatments underway at Royal City, Grant County. (Landis).

POTATO APHID (Macrosiphum euphorbiae) - MASSACHUSETTS - Small numbers of winged forms found on upper leaves and stems of tomatoes and potatoes. (Wheeler).

Potato Aphids in Maine - Populations of BUCKTHORN APHID (Aphis nasturtii), POTATO APHID (Macrosiphum euphorbiae), GREEN PEACH APHID (Myzus persicae) and FOXGLOVE APHID (Acyrtosiphon solani) very small, especially on most of acreage of recently emerging potato plants, but substantial increase in percent infested plants in early planted fields. A. nasturtii predominates, with small numbers of M. euphorbiae and traces of A. solani. Spring migration of M. persicae in progress, but numbers so small none observed on potatoes at Presque Isle, Aroostook County. (Shands et al.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Not found on early potatoes in Weld County. (Berry, Cress).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ALABAMA - Heavy on 15-acre potato field; affecting grade; all potatoes sold as commercial. (Lemons, Daniel).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Caused severe injury in untreated field in Monroe County. (N. Y. Wkly. Rpt., June 17).

A LEAF MINER FLY (Liriomyza sp.) - CALIFORNIA - Causing severe mining of 2-acre planting of Swiss chard in Santa Ana, Orange County. (Cal. Coop. Rpt.). Caused severe damage to mustard greens in Compton area, Los Angeles County, in 20-acre planting. (H. Johnson).

IMPORTED CABBAGEWORM (Pieris rapae) - MARYLAND - Heavy on cabbage in several home gardens in Dorchester and Wicomico Counties. (U. Md., Ent. Dept.). NEW YORK - Active in many seedbeds in Orleans County. (N. Y. Wkly. Rpt., June 17).

CABBAGE LOOPER (Trichoplusia ni) - MARYLAND - Larvae appearing on cabbage and other crucifers in Wicomico County. (U. Md., Ent. Dept.).

CABBAGE CURCULIO (Ceutorhynchus rapae) - VIRGINIA - Noted in 6 fields of cabbage in Northampton County. (Hofmaster).

PEA APHID (Acyrtosiphon pisum) - WISCONSIN - Numbers in some pea fields require extensive treatments. Populations fluctuate, especially in areas where severe thunderstorms occurred. Some indications that reinfestation may be occurring. Counts on early, midseason and late varieties in Fond du Lac County ranged 1-10 per sweep; 5-10 per sweep in La Crosse and Trempealeau Counties; 10 per sweep in Iowa County. In Columbia County, averaged 12 per sweep on early varieties and 4 per sweep in midseason and late varieties. Averaged 14 per sweep on early varieties in Dane County and 16 per sweep in Rock County; 11 per sweep in Rock County on midseason and late varieties. Averaged 18 per sweep on midseason and late varieties in Walworth County. (Wis. Ins. Sur.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MASSACHUSETTS - Eggs found on vegetables June 20; none hatched in Springfield area. (Wheeler). NEW YORK - Moderate to heavy in Suffolk County. (N. Y. Wkly. Rpt., June 17). MARYLAND - Adults and larvae very destructive to unprotected garden snap and lima beans in Dorchester, Wicomico and Worcester Counties. (U. Md., Ent. Dept.). VIRGINIA - Not yet heavy on snap and lima beans on Eastern Shore. (Hofmaster). ALABAMA - Heavy and widespread in untreated gardens and on pole and lima beans in southern Covington County. (Stephenson). KANSAS - Occasional, newly emerged beetle noted on snap beans in Wyandotte County; very little damage. (Peters). COLORADO - Trace numbers on beans in Weld County; no eggs found. (Jenkins). UTAH - Noted in additional bean patches in Weber and Salt Lake Counties, and at Logan, Cache County. (Thornley, Knowlton, June 17).

BEAN LEAF BEETLE (Cerotoma trifurcata) - VIRGINIA - Not yet heavy on snap and lima beans on Eastern Shore. (Hofmaster). MARYLAND - Injury moderate on snap beans at Fruitland, Wicomico County. (U. Md., Ent. Dept.).

ASH-GRAY BLISTER BEETLE (Epicauta fabricii) - ALABAMA - Heavy locally on southern peas in Escambia County; controls necessary. (Lemons, Daniel).

BEET WEBWORM (Loxostege sticticalis) - WYOMING - Eggs hatching in Big Horn Basin, particularly in Washakie County; recent survey indicates possible heavy infestation. (Fullerton). NORTH DAKOTA - Few adults noted in field margins in north-east; no eggs observed. (N. D. Ins. Sur.).

BLACK CUTWORM (Agrotis ipsilon) - OREGON - Probably this species infesting beet seedlings in southern Willamette Valley. (Stephenson).

BEET LEAFHOPPER (*Circulifer tenellus*) - WASHINGTON - Spring-flight adults increased from 4 per 100 sweeps June 10 to 25 per 100 sweeps June 13 on sugar beets at Prosser, Benton County. (Klostermeyer). UTAH - One tomato field at Washington, Washington County, noted with 33 percent curly top. (Dorst). COLORADO - Ranged 0-6 per square foot on sugar beets in Montrose, Delta and Mesa Counties. Incidence of curly top ranges 2-20 percent. (Bulla).

SPINACH LEAF MINER (*Pegomya hyoscyami*) - MAINE - Infestations and damage moderate on spinach and beets in Scarborough and Cape Elizabeth. (Boulanger, June 14). VERMONT - Reported on spinach. (MacCollom, June 17). NEW YORK - Heavy on spinach, beets and Swiss chard in Albany County. (N. Y. Wkly. Rpt., June 17). MICHIGAN - Serious on spinach and Swiss chard in Kalamazoo County. (Warner, Guyer, June 14). WASHINGTON - Now in egg and larval stages. Leaf damage to sugar beets more severe at Walla Walla, Walla Walla County, than for several years. Populations developing more slowly at Yakima, Yakima County, and Connell, Franklin County. (Landis, June 14).

SPRINGTAILS - OREGON - Damaging beet seedlings in Eugene area. (Stephenson).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - WASHINGTON - All stages attacking sugar beets; infestations in red clover for some time now moving to beets and other crops in Toppenish, Yakima County. (Landis).

ONION MAGGOT (*Hylemya antiqua*) - COLORADO - Adults numerous in some onion fields. First-generation larvae caused considerable damage; now ovipositing and further losses can be expected in Weld County. (Jenkins). NEW YORK - Some stands of onions, already quite thin, expected to be thinned more by maggots in Madison-Oneida County area. (N. Y. Wkly. Rpt., June 17).

ASPARAGUS BEETLES (*Crioceris* spp.) - VERMONT - C. asparagi very active. (MacCollom, June 17). CONNECTICUT - C. duodecimpunctata problem in Mansfield. (Savos).

CUCUMBER BEETLES - MARYLAND - *Acalymma vittata* adults attacking cucumber flowers in large planting at Fruitland, Wicomico County. (U. Md., Ent. Dept.). NEW YORK - Unspecified species quite prominent on many cucurbits in Suffolk County. Principal concern in Monroe County. (N. Y. Wkly. Rpt., June 17). MASSACHUSETTS - A. vittata still in fields. (Wheeler).

WHITEFLIES - CONNECTICUT - Problem on lettuce in North Canaan. (Savos).

VARIEGATED CUTWORM (*Peridroma saucia*) - RHODE ISLAND - Damaging lettuce in Peace Dale, Washington County. (Mathewson).

SWEETPOTATO FLEA BEETLE (*Chaetocnema confinis*) - VIRGINIA - Present in new sweetpotato plantings and causing severe damage in localized areas on Eastern Shore. (Hofmaster). MARYLAND - Feeding signs, especially on older leaves, very conspicuous in several sweetpotato fields in Wicomico County. (U. Md., Ent. Dept.).

STRAWBERRY LEAF ROLLERS - UTAH - *Ancyliis comptana fragariae* damaging strawberry foliage at Mantua, Box Elder County, and causing moderate damage at Garden City, Rich County. (Knowlton). Adults of 2 species in moderate numbers over strawberry patches at Garden City; third species, chiefly larvae, about ready to pupate. (Knowlton, Cazier).

A WEEVIL (*Trachyploeus bifoveolatus*) - OREGON - Small numbers of adults present under strawberry plants at Estacada. (Rosensteil).

CYCLAMEN MITE (*Steneotarsonemus pallidus*) - MAINE - Infestations and damage moderate on strawberries in Lewiston, Androscoggin County. (Boulanger, June 14).

FLEA BEETLES - VERMONT - Active on tomatoes and potatoes. (MacCollom, June 17). NEW YORK - Caused normal amount of damage in Albany County. Very active on potatoes in Madison-Oneida County area. Causing considerable trouble on canning

beets in Ontario County; most growers expect plants to outgrow trouble. (N. Y. Wkly. Rpt., June 17). CONNECTICUT - Problem on tomatoes in Torrington and Mansfield. (Savos).

WIREWORMS - WASHINGTON - *Limonium* spp. larvae damaging potatoes and sugar beets. Damage noted earlier in some fields continuing in spite of hot weather, but at slower rate, at Quincy, Grant County, and Walla Walla, Walla Walla County. (Onsager). ALABAMA - Undetermined species caused lowered grade of 30 acres of potatoes; sold commercially. (Lemons, Daniel).

GRASSHOPPERS - NEW MEXICO - Damaging truck crops and home gardens in Bernalillo and Sandoval Counties. (N. M. Coop. Rpt.). MISSOURI - Troublesome in home gardens in Boone County. (Wkly. Rpt. Fr. Grs., June 19). ALABAMA - Various species appearing in greater numbers in gardens in Escambia, Conecuh and Monroe Counties. (Lemons).

CUTWORMS - MAINE - Infestations and damage light on vegetables in Cumberland County. (Boulanger, June 14). NEW YORK - Caused normal amount of damage in Albany County. (N. Y. Wkly. Rpt., June 17). ALABAMA - Feeding on 80-acre field of potato tubers underground in Escambia County; twice as many selling as grade #2 as usual. (Lemons, Daniel). NORTH DAKOTA - Noted in home gardens in various parts of State. (N. D. Ins. Sur.). CALIFORNIA - *Proxenus mindara* damaging strawberry plantings in Gilroy, Santa Clara County. (Cal. Coop. Rpt.).

LEAF MINERS - NEW YORK - Damaged spinach and beets in Suffolk County. Some damage to lettuce in Albany County. (N. Y. Wkly. Rpt., June 17). VIRGINIA - Weather unfavorable for buildup on Eastern Shore. (Hofmaster).

POTATO LEAFHOPPER (*Empoasca fabae*) - DELAWARE - Becoming numerous on snap beans in some areas of State; heavy on potatoes locally in western New Castle County and very light elsewhere. (Burbutis). MARYLAND - Increasing on snap and lima beans in Dorchester and Wicomico Counties. (U. Md., Ent. Dept.).

SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*) - NORTH DAKOTA - Trace numbers in sugar beet fields near Grafton and Neche. (N. D. Ins. Sur.). COLORADO - Not found on carrots in Weld County. (Jenkins).

GREEN STINK BUG (*Acrosternum hilare*) - VIRGINIA - Taken in large numbers in light traps on Eastern Shore. (Hofmaster).

LYGUS BUGS (*Lygus* spp.) - WASHINGTON - Nymphs and adults causing noticeable wilting and death of new tip leaves of potato at Othello, Grant County; light on sugar beets at Connell, Franklin County. (Landis).

THRIPS - MARYLAND - Heavy on several large plantings of beans and cucumbers in Caroline, Dorchester and Wicomico Counties. (U. Md., Ent. Dept.).

SPIDER MITES - ARIZONA - *Tetranychus* spp. heavy on many melon fields in Yuma area. (Ariz. Coop. Sur.). UTAH - Mites of two-spotted group extremely abundant in, and damaging to, larger raspberry fields in 1962, appeared unusually early this spring. Some fields already treated four times for control at Garden City, Rich County. (Knowlton).

TOBACCO INSECTS

GREEN PEACH APHID (*Myzus persicae*) - MARYLAND - Small colonies noted on tobacco in Prince Georges and St. Marys Counties. No significant increase expected until July. (U. Md., Ent. Dept.).

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - MARYLAND - Adults ranged 2-8 per tobacco plant at Upper Marlboro, Prince Georges County; new generation indicated. (U. Md., Ent. Dept.).

HORNWORMS (*Protoparce* spp.) - MARYLAND - Light to moderate numbers of eggs and larvae on tobacco in Prince Georges and St. Marys Counties. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - TEXAS - Infestations heavy locally in extreme southern area; infestations in other areas generally light. (Tex. Coop. Rpt.). Percent punctured squares averaged 1 in McLennan and Falls Counties; first-generation weevils appearing in occasional early planted field. (Cowan et al.). OKLAHOMA - Percent punctured squares 3 locally in Bryan County; occasional weevil noted in southwest, but no damage noted. Light activity reported from Webbers Falls area, east central. (Okla. Coop. Sur.). ARKANSAS - Activity very low in most cotton fields. (Ark. Ins. Sur.). TENNESSEE - Few found to June 21 in southern part of western counties. (Locke). MISSISSIPPI - Light in Holmes, Lowndes, Monroe, Prentiss and Quitman Counties; controls applied. (Ouzts). In delta counties, weevils found in one field; punctured squares found in 6 to 27 fields checked. Average percent punctured squares in infested fields 4.17, with range of 0-21. (Pfrimmer et al.). LOUISIANA - Overall infestation in Tallulah area remains low; very few fields treated. (Smith et al.). ALABAMA - Infestation remains low; movement of adults from overwintered quarters still very slow. New generation expected to begin June 28 to July 5. (McQueen et al.). SOUTH CAROLINA - Emergence ranged light to moderate in most areas; punctured squares as high as 30 percent in unprotected fields. (Cott. Ltr., June 17). Damage increasing. Fewer weevils emerging from hibernation in Florence area than year ago. As high as 40 percent punctured squares in untreated fields. Average percent punctured squares 3.67 in treated fields and 13 in untreated fields. (Cott. Ltr., June 25).

BOLLWORMS (*Heliothis* spp., et al.) - SOUTH CAROLINA - Feeding on young squares throughout Coastal Plain and lower Piedmont counties; more evident than boll weevil punctures in fields examined; as many as 6 squares per plant being injured by single larva. (Cott. Ltr., June 17). Populations increasing. At Florence, 264 *H. zea* caught in light traps compared with 211 at same time in 1962. Total caught to June 19 in area has been 412 compared with 543 in 1962. (Cott. Ltr., June 25). ALABAMA - Eggs 0-75 per 100 terminals. (McQueen et al.). LOUISIANA - Few fields in Tallulah area warrant treatment; some infestation present in almost all fields. Beneficials numerous in untreated fields. Infestation lower during latter part of week. (Smith et al.). MISSISSIPPI - Light to medium on cotton in delta counties, and in Attala, Choctaw, Copiah, Holmes, Lowndes and Monroe Counties; controls applied. (Ouzts). Eggs per 100 terminals ranged 0-4 (averaged 0.8) in 9 of 27 fields checked. Injury to squares very heavy in one field. (Pfrimmer et al.). TENNESSEE - Light, scattered damage to small squares occurring in southern part of western area. (Locke). ARKANSAS - Active in many fields, but egg and larval counts not high. (Ark. Ins. Sur.). MISSOURI - Of 645 fields scouted, 8 infested with 0-5 per 100 plants. (French). OKLAHOMA - Infestations 3-15 percent in Jackson County, southwest; 2 percent in Bryan County. Most plantings in southwest in presquare stage; feeding evident where squares available. (Okla. Coop. Sur.). TEXAS - *H. virescens* comprises about 75 percent of bollworm complex in much of central area and in southern half of State. Considerable damage occurring and controls being applied. (Tex. Coop. Rpt.). Percent injured squares in McLennan and Falls Counties averaged 5.5 in treated fields and 2.2 in untreated fields; boll injury averaged 2.5 percent. About 58 percent of larvae *H. zea*. (Cowan et al.). ARIZONA - *H. zea* found in Pinal County in squares and small bolls in many fields; controls started. (Ariz. Coop. Sur.).

BEEF ARMYWORM (Spodoptera exigua) - ALABAMA - Noted in Autauga County cotton on May 16. This is second year pest reported in State; may become a problem. (Watson).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Collected at Marathon Shores, Monroe County, on wild cotton June 6. (Allen, Creamer, Williams).

COTTON SQUARE BORER (Strymon melinus) - NEW MEXICO - Occasional larva found in cotton in southern Eddy County. (N. M. Coop. Rpt.). OKLAHOMA - Infestation 2-3 percent on cotton in Bryan County, south central. (Okla. Coop. Sur.).

GARDEN WEBWORM (Loxostege similalis) - TEXAS - Heavy and causing considerable damage to seedling cotton in several northwest counties. (Tex. Coop. Rpt.). OKLAHOMA - Extensive localized damage occurring in Altus area; 5 acres of 10-acre field defoliated. Light in most fields checked in Kiowa, Jackson and Tillman Counties, but damage evident. Approximately 5-6 percent of seedling plants showed feeding damage in field northeast of Frederick, Tillman County. (Okla. Coop. Sur.). MISSISSIPPI - Light in Tunica County. (Ouzts).

CUTWORMS - CALIFORNIA - Serious in many cotton fields in Blythe area, Riverside County; controls required. (Eskafi, June 4).

COTTON FLEAHOPPER (Psallus seriatus) - TEXAS - Infestations variable, but some fields in all areas being damaged and controls being applied. (Tex. Coop. Rpt.). Averaged 5 per 100 terminals in McLennan and Falls Counties. (Cowan et al.). OKLAHOMA - Light in most cotton fields checked in Washita, Kiowa, Greer, Jackson and Tillman Counties. (Okla. Coop. Sur.). ARKANSAS - Numbers in central and southeast somewhat higher than normal, but economic infestations very rare. Counts in several fields checked ranged 10-15 per 100 terminals. (Ark. Ins. Sur.) MISSISSIPPI - Light to medium in Humphreys, Madison, Prentiss, Tallahatchie, Sharkey and Sunflower Counties; controls applied. (Ouzts). Counts per 100 sweeps in delta counties ranged 0-5 and averaged 3.56 in 9 of 27 fields checked. (Pfrimmer et al.). ALABAMA - Noted in most cotton fields, but apparently not as heavy as 10-15 days ago. (McQueen et al.).

A BLACK FLEAHOPPER (Spanogonicus albofasciatus) - ARIZONA - Present on cotton in Yuma, Maricopa, Pima, Pinal and Graham Counties. In Pima, Pinal and Graham Counties, counts 15-75 nymphs and adults per 100 sweeps. Injured leaves very noticeable where nymphs feeding. (Ariz. Coop. Sur.). NEW MEXICO - Appearing in cotton in southern counties; also found commonly on weeds around borders of cotton fields in Eddy County. (N. M. Coop. Rpt.).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Heavy populations in grain and weedy areas adjacent to cotton in Tulare County; no appreciable damage observed. Some insecticide barriers being used. (George, June 7).

LYGUS BUGS (Lygus spp.) - ARIZONA - Counts 12-60 per 100 sweeps in various parts of State. In Pima County, around Marana, many plants need protection. (Ariz. Coop. Sur.). NEW MEXICO - Remain low in most cotton fields in Eddy and Chaves Counties, although apparently building up in some Dona Ana County cotton. (N. M. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - MISSISSIPPI - Light to medium on cotton in Coahoma, Humphreys, Lowndes, Madison, Tallahatchie, Tunica and Sharkey Counties; controls applied. (Ouzts). Counts per 100 sweeps in delta counties ranged 0-5 and averaged 1.7 in 15 of 27 fields checked. (Pfrimmer).

PLANT BUGS - MISSOURI - Total of 306 fields of 645 scouted infested, with 0-22 per 100 plants. (French).

SPIDER MITES - CALIFORNIA - Tetranychus telarius and T. cinnabarinus represent most serious pest problem during early June in Blythe area, Riverside County; controls required in some fields. (Eskafi, June 4). Unspecified species increasing in most areas of Tulare County; controls being used. (George, June 7). Cotton growing rapidly in Madera County, but mite populations keeping up with growth in some fields. T. atlanticus prevalent as indicated by defoliation. (Johnson, Burton; June 13). **NEVADA** - Tetranychus spp. infestations continue medium to heavy in Pahrump Valley, Nye County, with several fields currently being treated. (Lauderdale, Slater). **ARIZONA** - Tetranychus spp. present in more than usual numbers in cotton throughout State. (Ariz. Coop. Sur.). **MISSOURI** - Marginal and spot infestations of unspecified species found in 108 of 645 fields scouted. (French). **TENNESSEE** - Unspecified species present in number of western area fields, but not damaging. (Locke). **MISSISSIPPI** - Tetranychus spp. light to medium on cotton in Prentiss and Quitman Counties; controls applied. (Ouzts). **ALABAMA** - Isolated, heavy infestations of unspecified species reported. (McQueen et al.).

THRIPS - MISSISSIPPI - Light to heavy in Quitman County; controls applied. (Ouzts). **TEXAS** - Several species continue to cause light to heavy damage to smaller cotton, particularly in northwest where considerable replanting done. (Tex. Coop. Rpt.). **OKLAHOMA** - Frankliniella spp. light in Washita, Greer, Kiowa, Jackson and Tillman Counties; moderate to heavy in central, south central and southeast counties. (Okla. Coop. Sur.).

APHIDS - CALIFORNIA - Heavy populations prevalent during May in Tulare County; however, beneficial species, mainly lady beetles and parasites, brought infestations under control. (George, June 7). **NEW MEXICO** - Heavy, spotted infestations of Aphis sp., probably craccivora, in few cotton fields in Dona Ana and Eddy Counties. (N. M. Coop. Rpt.). **MISSOURI** - Light, spotted infestations found in 150 of 645 fields scouted. (French). **MISSISSIPPI** - Aphis gossypii light in Attala County; controls applied. (Ouzts). **SOUTH CAROLINA** - Populations remain static or decreasing in all counties except Dillon and Horry where increases noted. (Cott. Ltr., June 25).

GRASSHOPPERS - TENNESSEE - Some spot damage occurring in isolated cases over cotton-growing area. (Locke).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - ARKANSAS - Ips spp. and Dendroctonus terebrans infesting more local spots. Weather has been very favorable for buildup; stands should be watched closely for increased activity. D. terebrans increasing in pine shade trees. (Ark. For. Pest Rpt., June). MISSISSIPPI - D. terebrans and Ips spp. medium in pine in Attala County; controls applied. (Ouzts). ALABAMA - Isolated, heavy infestation of Ips pini in Dallas and Lowndes Counties. Appears difficult to control in Dallas County; one acre of pines dead in Lowndes County. (Granberry, Shuler).

PINE REPRODUCTION WEEVILS - ARKANSAS - Adult activity declined; no reports of damage to seedlings during June. In fire scarred areas, activity can be expected to increase. (Ark. For. Pest Rpt.).

WHITE-SPOTTED SAWYER (Monochamus scutellarius) - MAINE - Numbers and damage moderate on exposed evergreen logs and weakened trees in Orono, Penobscot County. Peak of emergence apparently about June 8; this 7-10 days early and probably due to unusually warm weather and radiant heat on logs because of high percentage of sunny days. (Boulanger, June 14).

SOUTHERN PINE SAWYER (Monochamus titillator) - ALABAMA - Noted as more abundant but smaller in size during the spring than in preceding years. (Pearson).

PINE CHAFER (Anomala obliqua) - MICHIGAN - First feeding noted in northern Lower Peninsula. (Flink).

PINE TUSSOCK MOTH (Dasychira plagiata) - WISCONSIN - Populations generally low in Bayfield and Douglas County stands, except on 1,500-acre area of planted and natural jack pine where high population persisted; third to fifth stage larvae observed in field June 13 and cocoons of Meteorus sp. frequently noted. (Wis. Ins. Sur.).

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Except for locally high larval counts in some Polk County localities, populations endemic throughout State. High, early counts in some west central county stands declined sharply as development progressed. Larvae in second to fourth stages in Marinette County June 14, with few sixth stage observed in Juneau County same date. (Wis. Ins. Sur.).

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) - VIRGINIA - Pupating with few adults in flight at Lawrenceville, Brunswick County. Small hymenopterous parasite, probably Hyssopus thymus, common. (Kulman, June 3).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - RHODE ISLAND - Adults emerging in Middletown, Newport County. (Kerr).

ZIMMERMAN PINE MOTH (Diorcystria zimmermani) - INDIANA - Much more prevalent in Indianapolis area, Marion County, than when first found few years ago. (Ind. Cons. Dept. Ent. Div.).

TIP MOTHS - ARKANSAS - Damage by first larval generation locally severe. Emergence of second adult brood passed peak. Weather favored adult activity. Because of lack of rainfall, pines will not tolerate as heavy an attack as under good growing conditions; thus, damage by second larval brood may appear more spectacular than normal. (Ark. For. Pest Rpt., June).

PINE BARK APHID (Pineus strobi) - MICHIGAN - Heavy on Christmas-tree plantations in Livingston and Sanilac Counties. (Haugard, Sowerby, June 14). NORTH CAROLINA - Infesting white pine in Cleveland County June 10. (Wray).

SPRUCE GALL APHIDS (Chermes spp.) - WISCONSIN - C. abietis galls unusually numerous on some Jefferson County Norway spruce. C. cooleyi population high on ornamental Douglas-fir, as it has been for several previous years. (Wis. Ins. Sur.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - WISCONSIN - Heavy on scattered individual trees and small groups in several northern area locations. Some scattered tree mortality occurred; more can be expected. Young lady beetle larvae active on some infested trees in Douglas and Bayfield Counties June 13. (Wis. Ins. Sur.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - CONNECTICUT - Creating a problem on Scotch pine at Danbury. (Savos).

CONIFER SAWFLIES (Neodiprion spp.) - ARKANSAS - Defoliation by N. taedae linearis greater than any year since 1947. Estimates indicate infestations active on possibly 500,000 acres of pine timberland in central counties; up to 250,000 acres moderately to heavily attacked. First larval brood of N. lecontei present in scattered areas; infestations appear light and non-significant. A predator (Arilus sp.) partly responsible for suppression of numbers. (Ark. For. Pest Rpt., June). N. taedae linearis larvae that were very heavy in southeast earlier now full grown. (Ark. Ins. Sur.). WISCONSIN - Most N. nanulus nanulus larvae cocooned in small Columbia County red pine plantation June 14. Defoliation not as severe as in 1962. (Wis. Ins. Sur.). MICHIGAN - N. sertifer larvae caused heavy defoliation in several areas including Ingham County; feeding largely complete. Some carry-over of virus disease sprayed in 1962 observed. (Flink, Wells).

WEB-SPINNING SAWFLIES (Acantholyda spp.) - CONNECTICUT - A. erythrocephala a problem in Lebanon and Wallingford. (Savos). RHODE ISLAND - Acantholyda sp. active on pine in Cranston, Providence County. (Buonauro, Mathewson).

SPRUCE SPIDER MITE (Oligonychus ununguis) - INDIANA - Heavy populations severely damaged ornamental plantings of Norway and blue spruce in Michigan City area, La Porte County. (Schuder). MARYLAND - On hemlock and spruce in areas of Anne Arundel, Allegany, Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - ALABAMA - Continues to cause heavy damage to elm in Lee County. (Pearson). OKLAHOMA - Egg deposition for third generation occurring in Stillwater area, Payne County. Widespread defoliation continues throughout State. (Okla. Coop. Sur.). ARKANSAS - Second larval brood appearing. In some areas, damage by first brood heavy; locally severe damage by second brood can be expected. (Ark. For. Pest Rpt., June). NEVADA - First and second-stage larvae on elms in Winnemucca, Humboldt County. (Bechtel, Cooney). NEBRASKA - Caused heavy foliage damage to elms in some areas of southeast section. Full-grown larvae moving down tree trunks to pupate in Peru, Nemaha County. (Bergman). INDIANA - Larvae feeding on Chinese elm in central areas; infestations locally heavy. (Ind. Cons. Dept. Ent. Div.). DELAWARE - Damaging elms in area of Sussex County. (Burbutis). VERMONT - Eggs hatching; feeding will begin soon. (MacCollom, June 17).

LARGER ELM LEAF BEETLE (Monocesta coryli) - NORTH CAROLINA - Large numbers noted emerging under elm trees in Forsyth County June 7 and 8. (Wright). Also noted in Alexander and Orange Counties. (Warrick, Armstrong, June 14).

LOCUST LEAF MINER (Xenochalepus dorsalis) - INDIANA - Adults numerous on black locust. (Ind. Cons. Dept. Ent. Div.).

LEAF BEETLES - DELAWARE - Anoplitis inaequalis adults common on black locust in area of New Castle County. (Burbutis). KANSAS - Anomoea laticlavata defoliated locust trees in Republic County, north central, June 13 (Gates); severely defoliated terminal growth of locust in Saline County same date;

feeding on locust in Leavenworth County, northeast, June 8, with only few trees infested (Charlton). NORTH DAKOTA - Chrysomela crotchii adults numerous on poplar and willow in northeast corner of State. Also noted in small grain fields; in one instance, large numbers noted on clothing on outside line and on buildings around farmstead. (N. D. Ins. Sur.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEBRASKA - Adults feeding on elms in Nebraska City, Otoe County. (Bergman).

BRONZE BIRCH BORER (Agrilus anxius) - INDIANA - Adults numerous in central area. Damage to paper birch expected to be heavy again this year. (Ind. Cons. Dept. Ent. Div.).

CANKERWORMS - WISCONSIN - Defoliation by Alsophila pometaria and Paleacrita vernata ranged light to heavy in Columbia and Marquette Counties; some defoliation noticeable in parts of Wood, Eau Claire and Winnebago Counties. Refoliation and pupation occurring in infested areas of Columbia and Marquette Counties. Larvae in last stage in Polk County June 14. (Wis. Ins. Sur.).

FALL WEBWORM (Hyphantria cunea) - ARKANSAS - Active in northwest. (Ark. Ins. Sur.). NEW MEXICO - First generation on shade trees in Carlsbad area. (N. M. Coop. Rpt.). OREGON - Egg laying noted in Salem area. (Stephenson).

SATIN MOTH (Stilpnotia salicis) - CALIFORNIA - Larvae heavy on silver poplars in Alturas, Modoc County; this is first record of larval infestation in State. Light adult populations have been noted since 1960 when species first recorded. (Cal. Coop. Rpt.). MAINE - Moderate populations causing light damage to poplars in Corinna, Penobscot County. (Boulanger, June 14).

FOREST TENT CATERPILLAR (Malacosoma disstria) - NEW JERSEY - Heavily damaged oak in Palatine area, Salem County. (Buck, June 18). RHODE ISLAND - Noted in Johnston, Providence County. (Cartier). MICHIGAN - Larval feeding complete as far north as Kalkaska County; defoliation heavy this year. (Flink, Patterson).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MICHIGAN - Large larvae numerous on maple in Kalkaska County. (Flink, Patterson). DELAWARE - Adults common in blacklight traps and first eggs noted June 11 in Kent County. (Bray).

GREGARIOUS OAK LEAF MINER (Cameraria cincinnatiella) - OHIO - Moderate to heavy on English oak in Hamilton County, southwest; 4-5 larvae per mine in many leaves. Most larvae full grown. No infestations on adjacent red, willow, pin and shingle oak trees. (Cooley).

CARPENTERWORM (Prionoxystus robiniae) - COLORADO - Active in shelterbelt trees in Phillips County. (Hantsbarger).

GYPSY MOTH (Porthetria dispar) - MAINE - Infestations and damage light on shade trees in Auburn, Androscoggin County. (Boulanger, June 14). VERMONT - Defoliating shrubbery in Burlington area, Chittenden County. (MacCollom, June 17).

LARGE ASPEN TORTRIX (Choristoneura conflictana) - WISCONSIN - Defoliation in Rusk and Sawyer Counties appeared more scattered and less severe than in 1962. (Wis. Ins. Sur.).

SPINY OAKWORM (Anisota stigma) - FLORIDA - Severe on Quercus spp. at Buckingham, Lee County (June 10). (Shirah).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - SOUTH DAKOTA - Larvae reported heavy on elm at Olivet, Hutchinson County. (Kantack).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - WASHINGTON - Heavy on silver maples at Pullman, Whitman County; now ovipositing. (Telford). COLORADO - Crawlers active on maple in Denver County. (Hantsbarger). IOWA - Infesting maple in Plymouth County and silver maple in Iowa City, Johnson County. (Iowa Ins. Inf., June 17). WISCONSIN - Eggs hatching in Janesville area, Rock County. Treatment should begin soon in southern area of State for best results. (Wis. Ins. Sur.).

WOOLLY ALDER APHID (Prociphilus tessellatus) - MARYLAND - Heavy on silver maple at locations in Anne Arundel and St. Marys Counties. (U. Md., Ent. Dept.). VIRGINIA - Severe on maples at several locations in King William County (Tarpley, Kelly, June 7) and a location in Prince George County (Tarpley, Ryburn, June 8); also at 2 locations in Gate City, Scott County (Tarpley, Rich, June 5, 14).

EUROPEAN ELM SCALE (Gossyparia spuria) - UTAH - Damaging number of large elms in Salt Lake City area. (Knowlton). WISCONSIN - Eggs have hatched; crawlers still beneath parent scales. Emergence expected after few days of warm weather. (Wis. Ins. Sur.).

A PHYLLOXERA (Phylloxera sp.) - ALABAMA - Heavy on willows in isolated area in Mobile County. (Bolton, Seibels).

PLANT BUGS - CALIFORNIA - Neoborus pacificus adults heavy on ash trees generally in Highlands area, San Bernardino County. (Cal. Coop. Rpt.). NORTH DAKOTA - Adults and nymphs of undetermined species causing severe damage to ash foliage in northern Dunn County. (Brandvik).

WALKINGSTICKS - ARKANSAS - Nymphs of unspecified species appearing on foliage. Particular attention should be given sites heavily infested during 1962. Abnormal activity should be reported. (Ark. For. Pest Rpt., June).

BIRCH LEAF MINER (Fenusa pusilla) - NEW JERSEY - Second generation active and laying eggs on birch. (Ins.-Dis. Newsltr., June 18).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - CONNECTICUT - Injury to maple causing concern at Norwich and Suffield. (Savos).

BAGWORM (Thyridopteryx ephemeraeformis) - NEW JERSEY - Feeding on arborvitae. (Ins.-Dis. Newsltr., June 18). MARYLAND - Hatching heavy on cedars and junipers in parts of St. Marys County. Infesting boxelders in Caroline County. (U. Md. Ent. Dept.). OHIO - Larvae observed in nursery in Muskingum County, east central. (Ellis). INDIANA - Larvae one-half inch long and damaging arborvitae in Warrick County; also feeding heavily in Sullivan County. (Schuder, Matthew). No viable eggs found in central area; winter killed. (Ind. Cons. Dept. Ent. Div.). ARKANSAS - Activity has been locally heavy; largest larvae now two-thirds grown. To prevent serious damage, controls should be applied immediately. (Ark. For. Pest Rpt., June). Observed feeding on ornamental apple in Jefferson County. (Ark. Ins. Sur.). OKLAHOMA - Heavy populations damaging evergreens throughout State. (Okla. Coop. Sur.). TEXAS - Activity continues moderate on variety of small shrubs and trees in eastern half of State. (Newton).

LEAF ROLLER MOTHS - OREGON - Archips rosaceanus unusually abundant this year and causing considerable damage to Pyracantha sp. (Richer). NEVADA - Undetermined species ranged light to heavy on chrysanthemum, lilac and forsythia in Reno, Washoe County. (Lauderdale). UTAH - Gracilaria negundella stripped foliage from numerous boxelder trees south of Ogden, Weber County. (Knowlton, June 17).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Infestation 13.5 percent in unsprayed pecans in Sparks area, Lincoln County, north central. Reported light to moderate in Muskogee, Okmulgee, Murray and Cotton Counties. (Okla. Coop. Sur.).

HICKORY SHUCKWORM (Laspeyresia caryana) - OKLAHOMA - Light on pecans in Sparks area, Lincoln County. (Okla. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Infesting Chrysanthemum sp. in Charlotte and Lee Counties, June 10. Approximately 1,500 plants inspected. (Walsh).

MIMOSA WEBWORM (Homadaula albizziae) - ARKANSAS - Active in northwest area. (Ark. Ins. Sur.).

DOGWOOD BORER (Thamnospectica scitula) - ALABAMA - Considerably active in dogwoods in Chambers County. (Stewart).

IRIS BORER (Macronoctua onusta) - NORTH CAROLINA - About to enter roots in Rowan and Yadkin Counties. (J. F. Greene, June 14).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - MICHIGAN - Adults emerged from rooted yew cuttings in Ottawa County June 13. (Andrus, Marlowe). Larvae and adults found on dying yew plants in several private landscape plantings in Wayne County. (Smith, June 14).

PINE ROOT COLLAR WEEVIL (Hylobius radicis) - WISCONSIN - Severely damaging some Scotch pine Christmas-tree plantings in Adams and Jackson Counties. (Wis. Ins. Sur.).

PALES WEEVIL (Hylobius pales) - INDIANA - Infesting pine stumps in Christmas-tree plantation in Warrick County. This is new county record. (Schuder).

ROSE CHAFER (Macroductylus subspinosus) - WISCONSIN - Noticeably active and feeding in Dunn, Brown, Monroe, Outagamie, Waushara, Menomarie, and parts of Sauk and Columbia Counties. (Wis. Ins. Sur.). MICHIGAN - Generally heavy in Lawanee County and moderate to light in some other areas. (Tatter, Johnson, Woodman, Bless, Kendeigh, Carlson, Bloomer, Machiele, Mullett, Patterson). OHIO - First adults of season taken in traps near Friendship, Scioto County, and West Union, Adams County, June 6. (Polivka). Adults observed on grape plants in Lake County June 12 (Still), and 2 adults taken in sweepings at Canfield, Mahoning County, June 18 (Lyon). CONNECTICUT - Active in all parts of State. (Savos). RHODE ISLAND - Building up statewide. (Mathewson, Buonaiuto, King). VERMONT - Present in large numbers. (MacCollom, June 17).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Adults increasing on roses and other host plants in southern counties. (U. Md., Ent. Dept.).

A SCARAB (Trichiotinus piger) - OHIO - Many adults observed feeding on roses near Willard, Huron County, north central. (Kostwicz).

THREE-LINED POTATO BEETLE (Lema trilineata) - SOUTH DAKOTA - Caused considerable damage to Japanese lantern plants (groundcherry, Physalis sp.) in garden in Brookings, Brookings County. Eggs, larvae and adults present. (Spawn, June 13).

ROSE LEAF BEETLE (Nodonota puncticollis) - DELAWARE - Adults feeding on roses in area of New Castle County. (Burbutis).

BUMBLE FLOWER BEETLE (Euphoria inda) - OHIO - Adults injuring roses at Upper Sandusky, Wyandot County, northwest. (Mitchell, Holdworth).

APHIDS - CALIFORNIA - Eulachnus rileyi infesting pines on ranch near Miramar, San Diego County. Cinara piceicola heavy on spruce trees in Alturas, Modoc County. All stages of Therioaphis tiliae present on leaves and twigs of linden trees in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

APHIDS (undetermined) - NORTH DAKOTA - Various species apparently building up on trees and shrubs. (N. D. Ins. Sur.). WASHINGTON - Heavily attacking maples at Yakima, Yakima County, and Pullman, Whitman County; causing heavy honeydew drip and premature shedding of leaves. (Landis, Telford). UTAH - Numerous on roses, curling leaves of ash trees and present on some maples in Morgan and Croyden, Morgan County. (Knowlton, June 17). Several species troublesome to variety of ornamentals in some areas. (Knowlton, Davis). NEW MEXICO - Curling leaves of green ash at Albuquerque, Bernalillo County. (N. M. Coop. Rpt.).

LACE BUGS - CONNECTICUT - Unspecified species active on andromeda, rhododendron and azalea. (Savos). UTAH - Numerous on leaves of chokecherry in Hubble Creek Canyon, Utah County, and Parleys Canyon, Salt Lake County. (Knowlton, Taylor).

COCCIDS - CALIFORNIA - Chionaspis ortholobis medium on Ceanothis sp. in Yuba Summit, Sierra County. (Cal. Coop. Rpt.). OREGON - Pulvinaria floccifera crawlers moving from egg masses on holly in Willamette Valley. (Nicolaison). UTAH - Lepidosaphes ulmi eggs hatching on ash in Croyden, Morgan County, June 14. Some hatch noted at Coalville, Summit County. (Knowlton). WISCONSIN - Eggs of Lecanium sp. hatched in Jefferson and Dodge Counties; crawlers emerging from beneath parent scales. Heavy infestations noted on junipers in area. (Wis. Ins. Sur.). IOWA - Lecanium fletcheri eggs hatching on yew at Iowa City, Johnson County. (Robb, June 14). DELAWARE - Lecanium corni infesting sweetgum trees in an area of New Castle County; most eggs laid but no hatch noted. (Bray). CONNECTICUT - Lepidosaphes ulmi a problem on lilac at Torrington. (Savos). RHODE ISLAND - Lepidosaphes yanagicola eggs present in Middletown, Newport County; no evidence of hatch. (Cartier). Probably Pseudococcus cuspidatae, heavy on ornamental yew in Wakefield, Washington County. (Stessel, Mathewson). Lecanium sp. heavy on Franklinia sp. in Providence, Providence County. (Buonaiuto).

Coccids in Florida - Cerococcus sp. light to moderate on Hibiscus sp. at North Miami Beach, Dade County; live females with eggs present. (Hickman, June 11). Chrysomphalis anonidum severe on Trachycarpus martianus at South Miami, Dade County (Dowling, Swanson, May 29), and on Cymbidium finlaysonianum at Boynton Beach, Palm Beach County (Long, June 14). Comstockiella sabalis moderate on Sabal palmetto at Daytona Beach and Icerya purchasi moderate on Pittosporum tobira at Holly Hill, Volusia County. (Pott, June 13). Ischnaspis longirostris severe on T. martianus at South Miami. (Dowling, Swanson, May 29). Orthezia insignis heavy on Coleus sp. at Kissimmee, Osceola County. (Vild, June 13). Pseudaonidia clavigera infested Camellia sp. at St. Petersburg, Pinellas County, with live crawlers found. (Miller, June 11). Pseudaulacaspis pentagona severe on Catalpa sp. at Lake Butler, Union County. (Collins, June 11). Pseudococcus anonidum severe on Codiaeum sp. and Platyserium sp. at Eau Gallie and Pothos sp. at Cocoa, Brevard County. (Levan, June 13, 14). Pseudococcus citri moderate to severe on Gardenia sp. at Eau Gallie. (Levan, June 10).

WHITEFLIES - UTAH - Nymphs of Tetraclica sp. and Tetraleurodes sp. moderately numerous during past 2 months on evergreen oaks in Pintura and Leeds, Washington County; Tetraclica sp. most numerous along Mt. Carmel highway. Tetraleurodes ursorum and Aleuroplatus sp. also occurred April 16; Aleuroplatus gelatinosus was also collected. Det. by L. M. Russell. Latter species is a new State record. (Knowlton).

THRIPS - NORTH CAROLINA - Unspecified species infesting roses in Johnston and Rockingham Counties. (Robertson, June 14). Unusually abundant on ornamentals for past several weeks. (J. F. Greene, June 14). DELAWARE - Heavy on roses in New Castle County; severely deformed buds. (Bray).

EUROPEAN EARWIG (Forficula auricularia) - WASHINGTON - Damaging flowers and gardens at Yakima, Yakima County. (Landis). UTAH - Notching leaves of lilac about some homes in Salt Lake City. (Knowlton).

KATYDIDS - NEW MEXICO - Moderate on trees and shrubs in Albuquerque area, Bernalillo County; nymphs causing some foliage damage. (N. M. Coop. Rpt.).

LEAF MINER FLIES - OHIO - Phytomyza minuscula larvae mined leaves of columbine at Lisbon, Columbiana County, northeast. Active larvae present. (Neiswander). CALIFORNIA - Possibly Liriomyza langei caused heavy mining of petunia leaves locally in Long Beach, Los Angeles County. (Cal. Coop. Rpt.).

MIDGES - INDIANA - Oligotrophus sp., a severe pest of Caenert juniper, emerged at Lafayette, Tippecanoe County, June 18. (Schuder). OHIO - Dasyneura gleditschiae infestation 100 percent on 50 honeylocust trees in Summit County, northeast. (Kelly). RHODE ISLAND - Galls, probably formed by Rhabdophaga sp., heavy on cultivated pussy willow (Salix discolor) in Hopkinton, Washington County. (Mathewson).

PECAN LEAFROLL MITE (Aceria caryae) - OKLAHOMA - Curling leaves of pecans in Stillwater area, Payne County. Reported to be heavier than in 1962. (Okla. Coop. Sur.).

SPIDER MITES - ARIZONA - Tetranychus spp. very common on many shrubs in central area; controls necessary in many instances. (Ariz. Coop. Sur.). NEW MEXICO - Unspecified species serious on junipers, roses and other ornamentals throughout most of State. (N. M. Coop. Rpt.). COLORADO - Damaging numbers of unspecified species on apple trees in Boulder County. (Hantsbarger). OREGON - Probably Tetranychus sp. causing dieback of tips on Alberta and Colorado spruce in Multnomah County. (Hemmerling). MISSOURI - Unspecified species infesting evergreens in southeast area. (Wkly. Rpt. Fr. Grs., June 19). MARYLAND - Unspecified species infesting English boxwood in St. Marys County. (U. Md., Ent. Dept.).

TAWNY GARDEN SLUG (Limax flavus) - CALIFORNIA - Heavy on ornamental rhubarb plants in Visalia, Tulare County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - MISSISSIPPI - Psorophora spp. light to medium in delta area. (Ouzts). TEXAS - High populations of unspecified species causing considerable annoyance to residents of Floyd and Bailey Counties. (Tex. Coop. Rpt.). NEW MEXICO - Unspecified species extremely abundant in Carlsbad and Artesia, Eddy County; very annoying in fields and cities following recent rains. (N. M. Coop. Rpt.). ARIZONA - Unspecified species causing some annoyance to homeowners in Casa Grande area, Pinal County. (Ariz. Coop. Sur.). UTAH - Unspecified species moderately annoying at Blue Creek and Howell, Box Elder County; Morgan, Croymen and Petersen, Morgan County; in fields about Centerville, Davis County; and in orchards in Perry area, Box Elder County. (Knowlton, June 17). Becoming more troublesome in Garden City and Randolph areas, Rich County; some annoyance experienced in Sugar House area, Salt Lake County; continue troublesome in many parts of Cache County, including adjacent canyons; very troublesome in fields about Farmington and West Kaysville, Davis County. Annoying to cattle in Myton-Duchesne area, Duchesne County. More annoying in Salt Lake City area than for several years, as continuing rains make control difficult. Populations high around Bear Lake, from Woodruff to Randolph and from Allen Canyon to summit of mountains in Rich County; continue annoying in Delta area, Millard County. (Knowlton). SOUTH DAKOTA - Mostly Aedes spp. becoming annoying in Brookings, Brookings County. (Spawn, June 13). Mosquito development apparently somewhat slowed by cool weather. (Gerhardt, June 14). NORTH DAKOTA - Continue to build up over State; Aedes vexans dominant in Fargo area, Cass County. Counts of 15-20 Aedes dorsalis adults made per animal on cattle in central area. (Noetzel). WISCONSIN - Unspecified species annoying cattle grazing at night in Wood, Trempealeau and Grant Counties. Populations mostly not significant in southernmost counties; reports indicate increased activity in portions of central and northern areas. (Wis. Ins. Sur.). MICHIGAN - Adults of several species

one per animal on central area cattle. (Noetzel). SOUTH DAKOTA - Averaged 65 per side of dairy and beef animals in herds checked in Yankton and Bon Homme Counties. (Hintz). KANSAS - Ranged from less than 25 to 250 per animal in northeast and east central areas. (Peters). OKLAHOMA - Increased considerably in north central area; ranged 400-1,200 per head (average 800) on cows and averaged 4,000 per head on bulls. (Okla. Coop. Sur.). UTAH - Troublesome to cattle in Myton-Duchesne area, Duchesne County. (Knowlton).

CATTLE GRUBS (*Hypoderma* spp.) - IOWA - "Heel fly" activity appears to be much greater this spring. (Iowa Ins. Inf., June 17). COLORADO - *H. lineatum* adults active in Larimer and Weld Counties. Larvae emerging from cattle on ranch near Wellington, Larimer County. (Jenkins).

FACE FLY (*Musca autumnalis*) - KANSAS - Few observed on and around cattle in northeast area; counts minimal. (Peters). MISSOURI - Populations light in north central and northeast areas; ranged 0-10 per animal. High herd average 3.2. (Wingo). IOWA - Building up rapidly in southern and central sections; ranged 8-10 per animal. (Iowa Ins. Inf., June 17). SOUTH DAKOTA - Averaged 4 per head in Hurley area, Turner County, on day when there was slight drizzle and temperature of 68°F. Ranged 2-5 per head on beef cattle during normal day in Bon Homme County. (Kantack, Hintz). WISCONSIN - Increasing in Bayfield County area. (Wis. Ins. Sur.). ILLINOIS - Showing some increase in numbers, especially in northwest district; ranged 0-26 (average 5.4) per face; one herd in district had 12.7 per face and 34 clustered on back per animal. Ranged 0-20 (average 3.4) per face in west district. (Ill. Ins. Rpt.). OHIO - Very light in northeast area; many cattle with no flies present June 17. (Lyon). Light throughout Wooster area, Wayne County; 1-2 per face June 20. (Trecee). MARYLAND - Ranged 2-20 per head on dairy cattle checked in Frederick and Howard Counties. (U. Md., Ent. Dept.).

HOUSE FLY (*Musca domestica*) - WYOMING - Becoming a problem to homeowners throughout State. (Fullerton). OKLAHOMA - Ranged up to 18-20 per Scudder grid, with average of 6. (Okla. Coop. Sur.). NORTH DAKOTA - Counts remain low over State. (N. D. Ins. Sur.). CONNECTICUT - Becoming more abundant. (Savos).

STABLE FLY (*Stomoxys calcitrans*) - NORTH DAKOTA - Averaged less than one per head on cattle in central area. (Noetzel). IOWA - Building up rapidly, with counts of 5-10 per animal in southern and central areas. Backrubbers not available to most pastured cattle. (Iowa Ins. Inf., June 17). ILLINOIS - Few observed in west district; none noted in northwest. (Ill. Ins. Rpt.). OKLAHOMA - Averaged 3 per head on cattle in north central area. (Okla. Coop. Sur.). MISSISSIPPI - Ranged light to medium on livestock in delta area. (Ouzts).

TABANIDS - UTAH - Annoying cattle in Myton-Duchesne area, Duchesne County. (Knowlton). WISCONSIN - Increase in activity noted. (Wis. Ins. Sur.). MICHIGAN - Adults of several species annoying man and animals in many Lower Peninsula counties. (Myers, Kidd, Kirch, Sowerby, Wells, June 14). ILLINOIS - Occasional specimen noted in west district; none observed in northwest. (Ill. Ins. Rpt.). MISSOURI - *Tabanus lasiophthalmus* observed feeding on briskeys and udders of cattle and undersides of horses in east central area; ranged 0-40 per animal. Higher populations observed feeding on undersides of horses. (Munson, Thomas, Wood). OKLAHOMA - *Tabanus* spp. and *Chrysops* spp. heavy, 10 per head, on horses and cattle in Noble County area. (Okla. Coop. Sur.). MISSISSIPPI - Various species medium to heavy on livestock in delta area. Controls applied. (Ouzts). ALABAMA - Unspecified species of deer flies noted in Clay and Lee Counties. (Barwood, Davis). FLORIDA - *Agristocerus megerlei* collected at light on house wall at Gainesville, Alachua County, by R. P. Esser on June 13, 1963. This is first male for State collection of arthropods. Previously taken in Highlands Hammock State Park, but this is first record for Alachua County. (Fla. Coop. Sur.).

SHEEP BOT FLY (Oestrus ovis) - OHIO - Many flocks of sheep in central area observed crowding together with heads held low; mucous discharge from nostrils prevalent. (Lyon).

BLACK FLIES - VIRGINIA - Adults severe and attacking humans in Richmond. These first observed this season. (Matheny, June 11). MICHIGAN - Adults of several species annoying man and animals in many Lower Peninsula counties. (Myers, Kidd, Kirch, Sowerby, Wells, June 14). SOUTH DAKOTA - Simulium sp. considerably annoying to humans in Brookings, Brookings County. (Spawn, June 13).

BITING MIDGES - MICHIGAN - Adults of several species annoying man and animals in many Lower Peninsula counties. (Myers, Kidd, Kirch, Sowerby, Wells, June 14).

CATTLE LICE - WISCONSIN - Bovicola bovis and Haematopinus eurysternus found on cattle at Neenah, Winnebago County, June 7. (Wis. Ins. Sur.).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - OKLAHOMA - Causing concern in Oklahoma City area. (Okla. Coop. Sur.).

FLEAS (Ctenocephalides spp.) - OKLAHOMA - Causing concern to homeowners in Stillwater and Okmulgee areas. (Okla. Coop. Sur.).

HOUSEHOLD AND STRUCTURAL INSECTS

LARDER BEETLE (Dermestes lardarius) - OHIO - Adults observed near Urbana, Champaign County. Species unusually abundant in many counties this year. (Murray, Holdworth). IOWA - Adults and larvae reported from all sections of State. (Iowa Ins. Inf., June 17). SOUTH DAKOTA - Reported from homes in Menno, Hutchinson County, and in Yankton County. (Spawn, Kantack, June 13). Reported from numerous locations and in larger than normal numbers; infestations usually noted in upper floors in homes. (Spawn).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Annoying to homeowners in Yuma, Phoenix and Casa Grande areas; causing no damage. (Ariz. Coop. Sur.).

WHARF BORER (Nacordes melanura) - RHODE ISLAND - Adults appearing in house in Newport, Newport County. (Mathewson). NEW JERSEY - Now emerging and will continue through early July. (Ins.-Dis. Newsltr., June 18). OHIO - Occurred in home in Cleveland, Cuyahoga County. (Triplehorn).

OLD-HOUSE BORER (Hylotrupes bajulus) - VIRGINIA - Adult collected in Arlington. (Tarpley, Pettibone, June 14). ALABAMA - Only one specimen taken by class of 20 students in Forest Entomology class at Auburn University during spring quarter; species normally collected by each student. (Pearson).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - WYOMING - Large infestation found on lower floor of pharmacy building on University of Wyoming campus. (Fronk). UTAH - R. hesperus damaging home at Provo, Utah County. (Knowlton). SOUTH DAKOTA - R. flavipes infesting home in Parker, Turner County. Apparently long established infestation with several colonies present. (Kantack, Pahl, Spawn).

CARPENTER ANTS (Camponotus spp.) - CONNECTICUT - A problem at Cornwall and Willimantic. (Savos). VIRGINIA - Winged adults of C. ferrugineus noted in Warrenton, Fauquier County (Tarpley, Tudor, June 6), and winged adults of C. pennsylvanicus noted in Monterey, Highland County (Tarpley, Shepherd, June 13). COLORADO - Camponotus sp. damaging cabin in Boulder County. (Hantsbarger).

PAVEMENT ANT (Tetramorium caespitum) - CONNECTICUT - Continues to swarm in many localities. (Savos). VIRGINIA - Winged adults common at a location in Rustburg, Campbell County. Emerging from crack in floor in home. (Rowell, Wills, June 6).

STORED-PRODUCT INSECTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - ALABAMA - Noted in stored wheat, along with numerous undetermined species of rove beetles. (Wakefield).

CIGARETTE BEETLE (Lasioderma serricornis) - ALABAMA - Destroyed bag of Bermuda grass seed in Dallas County. (Alsbrook).

BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Considerable numbers of Coleomegilla maculata fuscilabris noted in gardens, roadsides and old fields in Clay County; Hippodamia convergens, Coccinella novemnotata and Coccinella sanguinea also common. (Harris, Barwood, Davis, June 14). Unspecified species range medium to heavy in cotton fields. (McQueen). ARKANSAS - Various species second most important group of predators in cotton at present. (Ark. Ins. Sur.). SOUTH DAKOTA - Larvae of unspecified species abundant in southeast; average of 92 larvae per 100 sweeps probably accounts for low aphid numbers in area. (Hintz). COLORADO - H. convergens increasing in grain fields in Montrose County where heavy aphid populations present. (Bulla). NEW MEXICO - Hippodamia spp. larvae and adults abundant in alfalfa and fruit trees infested with aphids in Bernalillo, Valencia and Dona Ana Counties. (N. M. Coop. Rpt.).

A MELYRID BEETLE (Collops quadrimaculatus) - NORTH CAROLINA - Numbers light over an entire cotton field June 3. Det. by D. A. Mount. (Savage).

GREEN LACEWINGS (Chrysopa spp.) - NEW MEXICO - Larvae and adults abundant in aphid infested ash trees in Albuquerque, Bernalillo County; also on aphid infested pecan trees in Mesilla and Pecos Valley areas. (N. M. Coop. Rpt.).

DAMSEL BUGS (Nabis spp.) - ARKANSAS - Second most important group of predators in soybeans at present. (Ark. Ins. Sur.).

BIG-EYED BUGS (Geocoris spp.) - ARKANSAS - G. punctipes most abundant predator in cotton and soybeans at present. (Ark. Ins. Sur.). ALABAMA - Unspecified species ranged medium to heavy in cotton fields. (McQueen).

ALKALI BEE (Nomia melanderi) - WASHINGTON - Adult emergence occurred June 9-12 at Sunnyside and Wapato, Yakima County. Renesting underway June 19 at Sunnyside; bees emerging rapidly in Wapato area. Many alfalfa seed growers timed first cutting of alfalfa too late for effective use of bees for pollination. (Menke).

HONEY BEE (Apis mellifera) - RHODE ISLAND - Continues to swarm statewide. (Mathewson).

A PARASITIC BOMBYLIID - OREGON - Full-grown larvae averaged 50 per square foot in Camnula pellucida egg beds in Burns area, Harney County. (Goeden).

MISCELLANEOUS INSECTS

WHITE-FRINGED BEETLES (Graphognathus spp.) - FLORIDA - Collected on dogfennel in 2 new townships in Gadsden County by I. C. Whitehead and E. L. Tipton on June 4 and 5. (Fla. Coop. Sur.).

NORTHERN MASKED CHAFER (Cyclocephala borealis) - OHIO - Several adults collected in blacklight traps in Licking County, central area. (Walker).

PSYCHIDS (Eurukuttarus spp.) - CONNECTICUT - Attracting attention in many parts of State; present on sides of many homes. (Savos).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - All stages heavy on plants, ground and in residences in Siskin, Merced County. A considerable nuisance in northern part of Sacramento, Sacramento County, and in Chico, Butte County. Infestations this year possibly heaviest in several seasons. (Cal. Coop. Rpt.).

PERIODICAL CICADAS - IOWA - Reported in Polk, Madison, Guthrie and Lucas Counties. (Iowa Ins. Inf., June 17).

EUROPEAN EARWIG (Forficula auricularia) - RHODE ISLAND - Populations normal statewide for time of year; probably heaviest in Newport County. (Mathewson, Peabody, King). UTAH - Complaints of annoyance increasing in central area localities. (Knowlton).

A MAYFLY (Hexagenia bilineata) - MISSOURI - Heavy flights, probably this species, observed at lights in northeast area. (Munson, Thomas, Wood).

A SPRINGTAIL (Hypogastrura armata) - NORTH CAROLINA - Troublesome in swimming pool in Rowan County June 6. Det. by D. L. Wray. (Holler).

SAGEBRUSH DEFOLIATOR (Aroga websteri) - NEVADA - Variable populations and damage (light to heavy) on Artemisia tridentata in Orovida and Paradise Valley areas, Humboldt County. (Bechtel, Cooney, Lundahl).

WESTERN HARVESTER ANT (Pogonomyrmex occidentalis) - COLORADO - Believed to be increasing by ranchers in Calhan-Ellicott area, El Paso County; mounds per acre 31-37. (Hantsbarger).

CORRECTIONS

CEIR 13(16):419 - A SCORPION (Vajovis boreus) should read (Vejevovis boreus).

CEIR 13(25):669 - MAP - Distribution of Alfalfa Weevil - Additional counties reported infested to July 14, 1963, should read "... June 14, 1963."

ADDITIONAL NOTES

IOWA - WOOD TICKS, probably Dermacentor variabilis, continue abundant. FLIES on cattle probably increased. Up to 100 HORN FLY (Haematobia irritans) adults per animal, but few specimens of FACE FLY (Musca autumnalis). DEER FLIES biting viciously in Allamakee County. CHIGGERS out in central area. EUROPEAN CORN BORER (Ostrinia nubilalis) continues number one pest. Every field of corn measuring 40 or more inches extended height with 75-95 percent of plants showing leaf feeding along U. S. Highway 30 from Ames to Cedar Rapids. No egg masses found, bearing out light trap evidence that flight now over. Ranged 0-55 egg masses per 100 plants in Boone County and 0-62 percent leaf feeding in 32 study fields. Leaf feeding in all parts of State, including northeast, now appearing enough to justify serious warning to farmers. Very small larvae of CORN ROOTWORMS (Diabrotica spp.) noted feeding on corn roots in Plymouth County on June 18; treatments, if necessary, will be needed week of June 24. Last instar of D. undecimpunctata undecimpunctata collected in treated corn field in Ringgold County. D. virgifera now mature and damaging roots of 30-inch corn severely at Sanborn; treatments necessary. Severe corn rootworm feeding with lodging of 16-inch corn noted at Honey Creek, Pottawattamie County. COTTONY MAPLE SCALE (Pulvinaria innumerabilis) collected on elms at Le Mars and West Liberty. Treatments recommended week of July 1. LARDER BEETLE (Dermestes lardarius) of concern in Black Hawk, Dickinson, Iowa, Linn, Mitchell, Palo Alto, Pocahontas and Shelby Counties. CARPET BEETLES and CLOTHES MOTHS abundant in State. CARPENTER ANTS (Camponotus spp.) appearing statewide. Larvae of Trogoderma glabrum abundant locally in Poweshiek County. (Iowa Ins. Inf.).

PENNSYLVANIA - ALFALFA WEEVIL (Hypera postica) collected in 5 alfalfa fields in Mercer County; this is a new county record. Only Crawford County now without record of this species. POTATO LEAFHOPPER (Empoasca fabae) light on alfalfa in northwest and averaged 1 per 4 sweeps in potatoes in Erie County. EUROPEAN CORN BORER (Ostrinia nubilalis) egg masses found on sweet corn in Lawrence County June 13. POTATO FLEA BEETLE (Epitrix cucumeris) fairly heavy in some potato fields in Erie County, especially on 6-8-inch potato plants. EUROPEAN PINE SAWFLY (Neodiprion sertifer) required treatment by several growers of Scotch pine in Erie County. Larvae of Pissodes approximatus about 50 percent grown in Erie County on stumps of Scotch pine. FOUR-LINED PLANT BUG (Poecilocus lineatus) heavy, practically killed some leaves of flowering plants in northwest. (Adams). STALK BORER (Papaipema nebris) quite numerous on flowering plants in Westmorland County and caused numerous stems of blackberries to wilt in same county. A LEAFHOPPER (Erythroneura sp.) heavy on European hornbeam in Westmorland County. (Udine).

NORTH CAROLINA - A WIREWORM (Melanotus communis) destroyed 15-20 percent of plantings in 2-acre field of corn in Yancey County and damaged another field. Slightly damaged 2 fields in Macon County with severe damage confined to one area of both fields; 1.5 acres in 7-acre field and one-third of 4-acre field killed in Clay County; 1.5 acres of 8-acre field largely destroyed in Macon County. Number of other fields also affected in Macon County. Wireworms also problem on corn in Jackson and Haywood Counties. Damage appeared more prevalent in lower portions of fields. Wireworm larvae still abundant on cotton; however, most damage occurred earlier. M. communis apparently responsible for injury to 1-acre tomato field earlier in Jackson County. Most of first plants badly injured by wireworms tunnelling in stems. Larvae of M. communis abundant in soil but not causing apparent damage presently. M. communis apparently injured small field of tobacco very severely earlier in June in Yancey County; grower reset many plants to get stand. Several of less vigorous plants examined showed severe injury to roots. Larvae of M. communis abundant in soil but apparently not injuring plants presently. This species caused resetting of about half of 0.6-acre tobacco field in Madison County. (Mount). PLUM CURCULIO (Conotrachelus nenuphar) second generation emerged in sand hills area of State; first observed June 17. (Peach Ltr.). Adult LARGER ELM LEAF BEETLE (Monocesta coryli) defoliating elms in Chatham County. (Snipes, Axtell). FACE FLY (Musca autumnalis) ranged 10-12 per animal in cattle herd in Clay County; collected adults determined this species. (Mount).

Weather of the week ending June 24 (continued from page 700)

higher each afternoon. In the northern Rockies, early morning temperatures dropped to the 30's and 40's. Gusty southerly winds brought higher temperatures, increasing humidity and scattered thunderstorms to the Great Plains from the Gulf of Mexico to the Red River Valley of the North. Rainfall during the week exceeded 2 inches over parts of Arkansas, southern Louisiana, Mississippi, Alabama, Georgia and South Carolina. Numerous localities in those States received more than 4 inches. One of the largest totals, 10.78 inches, fell at Charleston, South Carolina. Most of the rest of the Nation received less than 1 inch of rain during the week. Most parts of the Northern Prairies, the Rocky Mountains, and westward received less than one-half inch. Many stations in California (except the extreme north), Arizona, southern New Mexico, and the extreme western part of Texas received no rain.

Temperatures averaged slightly above normal over the northern Rockies, the Florida Peninsula and at a few localities elsewhere. Below normal average temperatures occurred over the southern High Plains, the Northern Prairies, and eastward to extreme eastern Massachusetts. Temperature departures ranged from +4° at Orlando, Florida, to -9° at Huntington, West Virginia. (Summary supplied by U. S. Weather Bureau).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Ostrin. nubil.	Protoparce quin.	Heliothis sexta	zeae	vires.
ARKANSAS									
Hope 6/13-19		4							51
Morrilton 6/13-19	30	17	14						133
Kelso 6/13-19	2								7
Fayetteville 6/13-19									70
FLORIDA									
Gainesville 6/19					2				
ILLINOIS (County)									
Champaign 6/14-20	344	18		10			1		
INDIANA (Counties)									
La Porte 6/11-18	6	2	4	2			1		
Lawrence 6/11-17	19	11	34	8		1	1		2
Tippecanoe 6/13-19	28	2	7	6		1			
Vanderburgh 6/12-18	13	8	45	2					
Jasper 6/14-18	16		8	1	41				
KANSAS									
Garden City 6/12, 17	8	3	9	3					4
Hayes 6/12, 14, 17	45	28	22	10					
Manhattan 6/15-21	388	65	221	129	1				3
Mound Valley 6/13, 17	8	7	9	9		1			2
Wathena 6/11, 13, 15-16	37	6	13	11	4				
MARYLAND									
Centreville 6/12-18	14	34	19		12		7		7
MICHIGAN (Counties)									
Livingston 6/4-10			4						
Kent 6/4-10			4						
Jackson 6/4-10			2						
Wayne 6/4-10			1						
*Monroe 6/11-17	10								
Lenawee 6/11-17	3								
Washtenaw 6/11-17	2								
*Macomb 6/11-17	8								
Jackson 6/11-17	7				5				
Livingston 6/11-17	5				3				
Kent 6/11-17	14								
Schoolcraft 6/11-17	2								
MISSISSIPPI									
*Stoneville 6/14-20	24	22	24	99			12	267	14
NEBRASKA									
Bushnell 6/5-7	3	1	14						
Kearney 6/4-7	1	1	6		45				
Lincoln 6/13-19	248	79	33	8	46				3
North Platte 6/5-11	24	17	95	4	310	6	2	13	12
North Platte 6/12-18	42	29	37	3	216			1	11
Ogallala 6/5-7	11	4	15		1				
Scotts Bluff Expt. Sta. 6/11-17	1	3	27					42	1

* Two traps - Monroe, Macomb and Stoneville.

(continued on page 735)

Light Trap Collections (Continued)

	Pseud. unip.	Agrot. ips.	Perid. saucia	Prod. ornith.	Ostrin. nubil.	Protoparce quin.	Heliothis sexta	zeae	vires.
NORTH DAKOTA									
Fargo 6/15-21	18	1		2					13
Linton 6/15-21	59	2		7					6
Williston 6/15-21	24	13		14					
McLeod 6/15-21	3			1					93
Walhalla 6/15-21	3								1
Bowman 6/15-21	2	5		8					
Bismark 6/15-21	18	6		6					
Bottineau 6/15-21	25			9					
Trotters 6/15-21	3								
OHIO									
Wooster 6/14-20	47	8							14
Ripley 6/10-17	2								7
Marietta 6/10-17	22	14					1		3
Hoytville 6/10-17	12								14
Castalia 6/10-17									3
OREGON (daily average)									
Willamette Valley 6/17-21		10		41					
SOUTH CAROLINA									
Charleston 6/21-23		4		4	29		4		6
TEXAS									
Waco 6/15-21	48	279		59	84				912
*Brownsville 6/13-21	1	196		104	111	118	474	7,015	38
WISCONSIN									
Platville 6/10-17	55	1							12
Janesville 6/11-17	193								7
Mazomanie 6/11-18	9	10							19
Middleton 6/13-19	8	7		4					2
Madison 6/13-19	27	17		6					2
De Forest 6/11-17	26	6		5					
Arlington 6/11-17	47								8
Nenno 6/11-17	45								3
Theresa 6/11-17	75								7
Wayne 6/11-17	45								5
Waldo 6/11-17	9								1
Cedar Grove 6/11-17	16	2							
WYOMING									
Cheyenne 5/26-6/3	3	3		9					

Additional light trap collections

NORTH DAKOTA (Trotters 6/15-21) Loxostege sticticalis - 9. (Northwood 6/15-21) L. sticticalis - 76. (Bottineau 6/15-21) L. sticticalis - 2,000.

TEXAS (*Brownsville 6/13-21) Pectinophora gossypiella - 41. (Waco 6/15-21) P. gossypiella - 2.

* Six traps - Brownsville.

SOME OF THE MORE IMPORTANT PESTS FOR 1962 1/

FLA.	A chinch bug (St. August- tine grass)	Florida red scale	Serpentine leaf miners	Spider mites on citrus	Corn ear- worm	Southern armyworm	Wireworms	Fall armyworm	Cabbage looper
KANS. 2/	Corn root- worms	Hessian fly	Corn ear- worm	Spring cankerworm	Fall web- worm	Wheat curl mite	Sod webworm	Elm leaf beetle	Smaller European elm bark beetle
	Mosquitoes	Horn fly	House fly	Face fly	Termites	Chiggers	Cock- roaches	Hackberry psyllids	Stored- product insects
N. C.	Alfalfa weevil	Boll weevil	Eastern subter- ranean termite	House fly	Mosquitoes	Rice weevil	Southern corn root- worm	Southern pine beetle	Wireworms (Conoderus spp.)
R. I. 3/	Colorado potato beetle	White-pine weevil	Japanese beetle and Asiatic garden beetle	Gypsy moth	Eastern subter- ranean termite	Alfalfa weevil	American dog tick	Smaller European elm bark beetle	Face fly
WYO.	Alfalfa weevil	Army cutworm	Pea aphid	Potato psyllid	Beet leaf- hopper	Lygus bugs (Lygus spp.)	Striped flea beetle	Alfalfa looper	Mexican bean beetle
	Common and Northern cattle grubs	Cattle lice (Solenopotes capillatus), (Haematopinus eurysternus)	Subter- ranean termite (Reticuli- termes sp., prob. hes- perus)	Mosquitoes	Boxelder bug	House fly	Horn fly	Stable fly	Horse flies (Tabanus spp.)

1/ Two lists are tabulated for Kansas and Wyoming. The first list is for "Crop and Forest Pests" and the second for "Man, Animal and Household Pests."

2/ Order of ranking does not necessarily indicate order of importance.

3/ In the compilation of this list, primary consideration was given to the intrinsic capacity of the organism to inflict damage, whether or not such damage was done in 1962.

NOTES ON SWEEP NETS*

W. P. Boyer, Survey Entomologist
University of Arkansas

Insect collection with a sweep net is made easier by the use of a 7-dram plastic capsule vial attached to the end of the sweep net bag. In cases in which insects are to be collected for accurate counting or preserving, this adaptation eliminates the use of a killing jar and the transfer of insects from the bag to the killing jar and from killing jar to other container. (Figure 1).

This adaptation was designed by Dr. F. D. Miner, Entomologist, University of Arkansas.

To make this adaptation, the end of the bag is cut off being careful that the proper length of the tip end of the tapered bag is removed. This permits the cloth to fit over the plastic vial cap. Glue is used to help hold the vial cap in place. Fine nylon string is then wrapped firmly around the cloth and vial cap, and glue is applied to the string. After the glue is dry, a hole is cut in the vial cap removing all of the top of the cap and leaving the rim of the cap around the top of the vial. (The hole should not be cut before wrapping and gluing in order to keep the vial and cap rigid when wrapping.) The vial can then be removed and replaced as desired.

When surveying and/or collecting, the surveyor has a supply of vials containing alcohol or other preservative. With an empty vial attached to the bag, the surveyor makes the desired number of sweeps, works the insects down into the vial, and removes the vial from the bag. Escape of insects can be avoided by holding the thumb over the vial. Preservative from a filled vial is emptied into the vial with the collection and the vial just emptied is inserted into the bag. This method has been satisfactory except, of course, for large species.

The five-inch net (Figure 2), also designed by Dr. F. D. Miner, has proved to be useful in sweeping alfalfa. When sweeping heavy foliage, as alfalfa, this net penetrates the foliage much better than does the standard 15-inch net. Very large numbers of insects are often taken by a sweep net in alfalfa. This results in large numbers to count when the surveyor makes the proper number of sweeps to provide field coverage. Better penetration of foliage and greater field coverage with countable numbers of insects results in more accurate sampling with the smaller net.

The financial outlay for sweep net bags often becomes expensive. The use of nylon cord in a double strand, as shown in Figure 2, adds to the life of the bag. This method is also used with the standard 15-inch net with a standard bag looped around the steel ring. Varnish on the cloth loop also adds to the life of bags. In some cases both nylon cord and varnish are used.

* Published with approval of Director of Arkansas Agricultural Experiment Station.



Figure 1



Figure 2

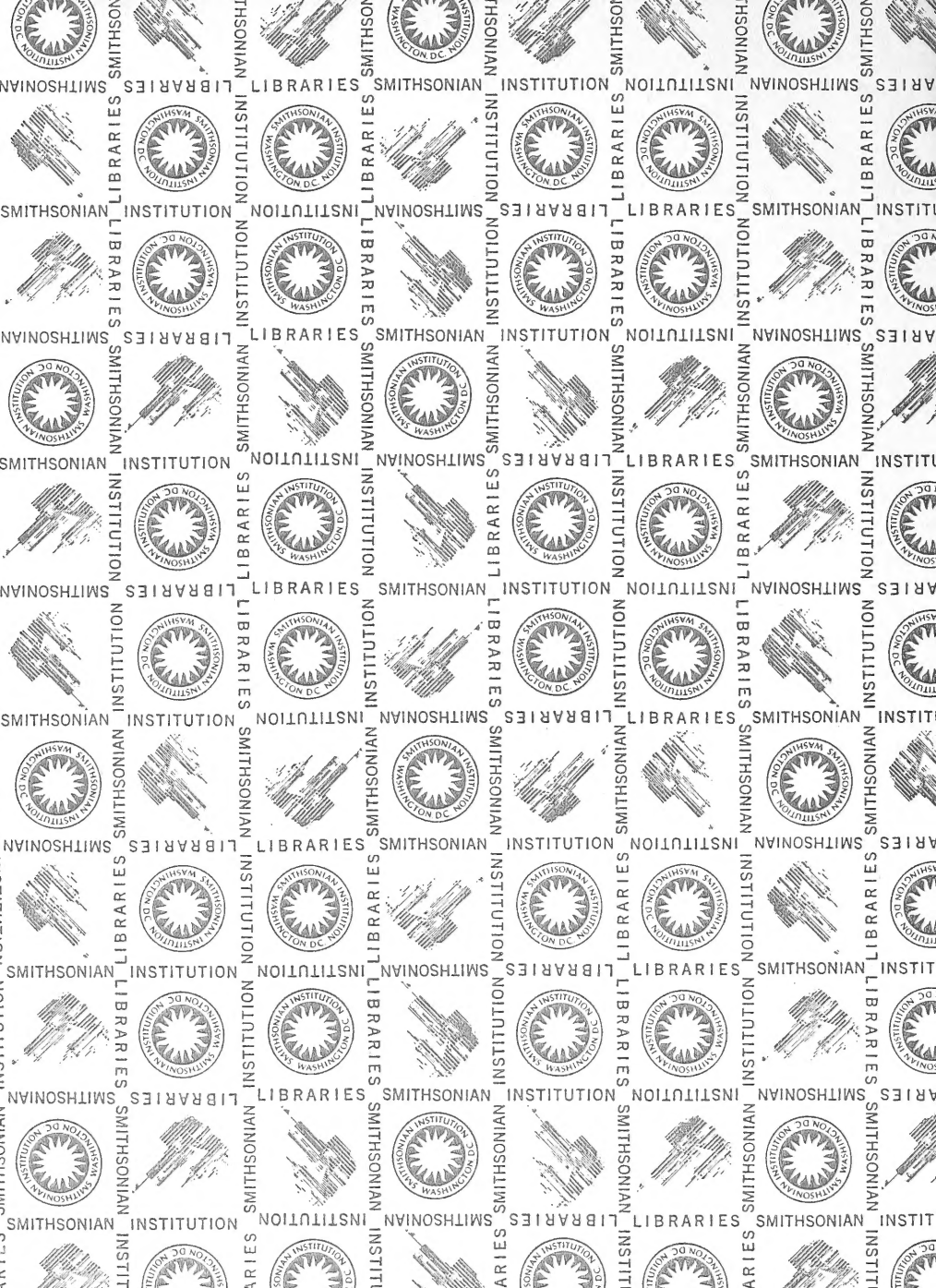
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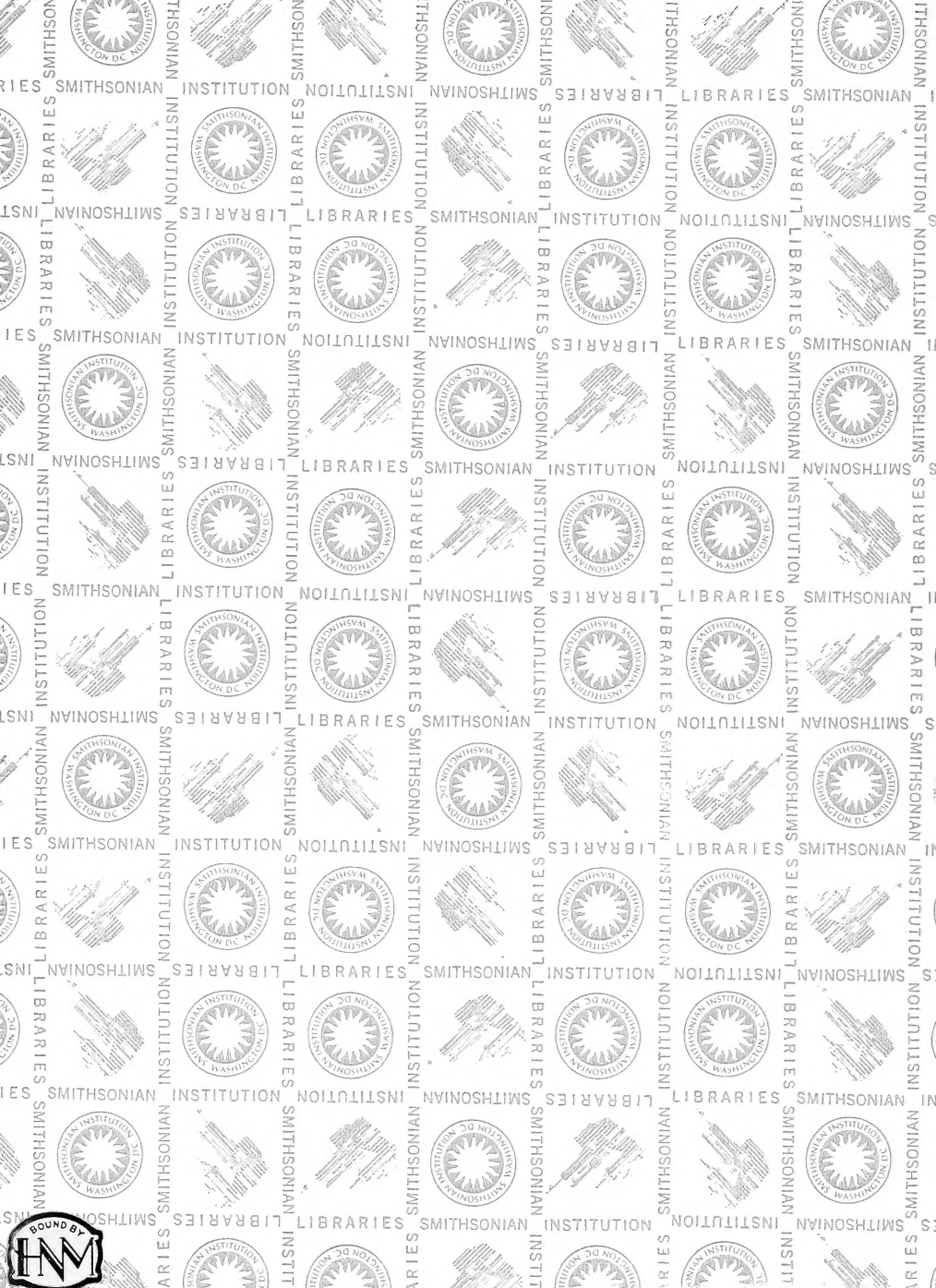
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