





VOL. 10 NO. 1

JANUARY 1, 1960

513
823
c77

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 of Insect Conditions

Annual CHINCH BUG hibernation survey in Illinois is reported. (p. 3).

BOLL WEEVIL hibernation survey in North and South Carolina is summarized. (p. 4).

CORRECTIONS (p. 5).

List of STATE CLEARING OFFICES for economic insect reports. (p. 6).

Status of some IMPORTANT INSECTS in the United States. (p. 9).

Reports in this issue are for the week ending December 25, unless otherwise designated.

WEATHER OF THE WEEK ENDING DECEMBER 28

Last week's weather generally was characterized by mild temperatures and frequent, widespread precipitation with considerable snowfall in the North. A cold air mass which moved over the East at the end of the previous period remained over that section nearly all week, and average temperatures for the week ranged from near normal in the Southeast to several degrees below normal in the Northeast. The latter area experienced its first cold week since the third week in November and its coldest weather so far this winter early in the week when minima fell to subzero levels in many sections on the 23rd and 24th, with a low of -34° at Wanakena, New York, on the 23rd. Temperatures in the East moderated throughout the week, rising to above normal levels by the weekend. Temperatures for the week in the Midcontinent area averaged from 3° above normal in most southern sections to as much as 20° above in the extreme northern Great Plains where mild temperatures have prevailed for 4 consecutive weeks. Temperaturewise the week was near normal in the Far West.

Precipitation for the week exceeded a half inch in the Midcontinent area, along the Pacific Coast, and in many southern sections west of the Continental Divide. Much of the lower and upper portions of the Mississippi Valley and the Great Lakes region received 1 to over 2 inches as did also some local areas in the Far Southwest. Most of the week's precipitation fell during the passage of a storm which moved into the Far West on the 24th and was centered over Iowa on the 28th. This storm brought beneficial precipitation to nearly all of the Far West. Light to moderate snow accumulation occurred in most mountain areas, with heavy amounts of 3 feet in the northern mountains of Utah, and amounts equivalent to 2 inches of water in some sections of the White and San Francisco Mountains in Arizona. A Midwestern storm early in the week brought heavy snow to the Great Lakes region. Wisconsin reported 5 to 20 inches of snow, with falls in the southeastern portion of the State the heaviest for December in the last 20 years. At the same time another storm covered the Northeast, with depths ranging from 1 to 5 inches in many sections. More snow fell in north-central areas over the weekend and high winds created near blizzard conditions over sections of the northern Great Plains and upper Mississippi Valley. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

CHINCH BUG (Blissus leucopterus) - ILLINOIS - The 1959 survey began November 18 and ended December 5. Results of the survey show an increase in populations and an expansion in the area rating a light to severe infestation. For several previous years, populations have been gradually declining and the area of light to severe infestations diminishing. The 1959 survey indicates that populations may be increasing again. County ratings were severe in 6, moderate in 2 and light in 11 compared with one severe, 6 moderate and 8 light in 1958. The present hibernating population has the potential of causing some damage in the central area to small grain and corn fields in 1960. The following counties have ratings of moderate to severe and under favorable conditions can expect some damage to occur in 1960: Tazewell, McLean, De Witt, Macon, Piatt, Douglas, Sangamon and Christian. Although not quite averaging a moderate rating, populations in Logan, Mason, Menard and southwestern Champaign Counties show possibilities of being damaging in some areas. (Ill. Ins. Rpt.).

GREENBUG (Toxoptera graminum) - OKLAHOMA - Populations continue low in areas checked during past 2 weeks. (VanCleave et al.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Recent rains reduced populations in north central area of State. Counts averaged 29 per square foot of crown area in alfalfa. (Bryan).

FRUIT INSECTS

SCALE INSECTS - CALIFORNIA - Aonidiella aurantii, Parlatoria oleae and Aspidiotus perniciosus infestations medium on almond in Marysville, Yuba County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - Medium on various vegetable crops in lower Rio Grande Valley. (Deer, Dec. 21).

A FALSE CHINCH BUG (Nysius sp.) - TEXAS - Light to medium on endive and escarole in lower Rio Grande Valley. (Deer, Dec. 21).

HARLEQUIN BUG (Murgantia histrionica) - TEXAS - High infestation caused severe damage to mustard, turnips and radishes in lower Rio Grande Valley. (Deer, Dec. 21).

SALT-MARSH CATERPILLAR (Estigmene acrea) - TEXAS - Light to medium infestation invading some vegetable fields in the lower Rio Grande Valley. (Deer, Dec. 21).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Infestations continued active with eleven spots uncontrolled. Wet ground conditions prevented control crews from reaching some infested spots. Aerial detection flights will continue. (Young).

A SCALE INSECT (Aspidiotus lataniae) - CALIFORNIA - Heavy infestations, principally on bark and trunks of young mulberry trees, in Salida, Stanislaus County. (Cal. Coop. Rpt.).

AN APHID (Cinara tujafilina) - OKLAHOMA - Fifteen to twenty percent of arborvitae sampled in Stillwater area has heavy infestations. (Bieberdorf).

MEXICAN MEALYBUG (Phenacoccus gossypii) - CALIFORNIA - Heavy populations in conjunction with Myzus persicae on hedge plants in Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH and SOUTH CAROLINA - Fall surface woods trash collections were made during the fall of 1959 in the same areas of these two states as they were in the fall of 1956, 1957 and 1958. In each area a total of 30 locations (farm sites) were sampled, with 3 samples of 2 square yards each being taken at each location. Sampling was begun on November 18 and completed in all areas on December 22. The average number of hibernating weevils per acre for the four areas represented in the North and South Carolina survey are tabulated below. (A. R. Hopkins et al.). The data from the Coastal Plains district was previously reported in CEIR 9(52):1061-63, as was the data from Texas, Tennessee, Missouri, Louisiana and Mississippi).

Fall Surface Trash Examinations for Hibernating Boll Weevils in North and South Carolina

Area	Location	Number of Live Weevils Per Acre	
		1958	1959
1	South central section of South Carolina (Orangeburg, Bamberg, Dorchester Counties)	995	1,318
2	Coastal Plains of North and South Carolina (Florence, Darlington and Marlboro Counties, S.C.; Scotland County, N.C.)	4,625	5,082
3	Piedmont section of North and South Carolina (Anderson, Greenville, Spartanburg Counties, S.C.; Mecklenburg, Cleveland, Union Counties, N.C.)	2,635	4,383
4	North central section of North Carolina (Nash, Wilson, Franklin, Edgecombe Counties)	968	834

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - Grubs appearing in backs of cattle in Cache County. They appeared a few weeks earlier in Washington and Kane Counties. (Knowlton). OKLAHOMA - Counts of H. lineatum ranged 4-15 grubs per animal in 60 feedlot yearlings in Love County (Vinson), 6 per animal in 120 two-year-old steers in Woodward County and 3 per animal in 100 mature cows in Payne County (Howell, Dec. 19). H. lineatum found infesting only 8 (6 grubs per animal) of 88 head of 300-pound yearlings in Johnston County (Vinson), averaged 17 per animal in 450 yearling steers in Beaver County and 14 per animal on 60 yearling heifers in Blaine County (Wills, Howell).

CATTLE LICE - OKLAHOMA - Moderate to heavy populations on cattle in Johnston County. (Vinson).

STORED-PRODUCT INSECTS

RED FLOUR BEETLE (Tribolium castaneum) - TEXAS - Annoying residents and attacking foodstuff in Comanche County. (Texas Coop. Rpt.).

MISCELLANEOUS INSECTS

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Invading many homes in central and eastern areas, causing concern by their presence. (Howell). A few to several dozen adults found overwintering in garages in Payne County. (Walton).

CORRECTIONS

CEIR 9(20):389 - A LEAF GALL MIDGE (Cecidomyia ocellaris) should read (Itonida ocellaris).

CEIR 9(51):1049 - CHINCH BUG - KANSAS - Last phrase should read "...severe in McPherson County (1544 per square foot)."

LIGHT TRAP COLLECTIONS

	<u>Pseudaletia unipuncta</u>	<u>Laphygma frugiperda</u>	<u>Peridroma margaritosa</u>	<u>Agrotis ypsilon</u>	<u>Feltia subterranea</u>
<u>FLORIDA</u>					
Monticello 12/10	2				
Gainesville 12/16	1				
Quincy 12/14	1				
<u>SOUTH CAROLINA</u>					
Charleston 12/14-20	7	1		9	21
<u>TEXAS</u>					
Brownsville 12/9-11	12	9	6	5	5

STATE CLEARING OFFICES

For Economic Insect Survey Reports

Alabama	Dr. F. S. Arant, Head, Department of Zoology and Entomology, Auburn University, Auburn
Alaska	Dr. Richard H. Washburn, Entomology Department, Agricultural Experiment Station, Palmer
Arizona	Dr. J. N. Roney, Extension Entomologist, University of Arizona, 1201 W. Madison St., P. O. Box 751, Phoenix
Arkansas	Mr. Gordon Barnes, Extension Entomologist, University of Arkansas, Fayetteville
California	Mr. R. W. Harper, Chief, Bureau of Entomology, State Department of Agriculture, Sacramento 14
Colorado	Dr. Leslie B. Daniels, Head, Department of Entomology, Colorado State University, Ft. Collins
Connecticut	Mr. J. Peter Johnson, Associate Entomologist, Agricultural Experiment Station, P. O. Box 1106, New Haven 4
Delaware	Dr. Dale F. Bray, Chairman, Department of Entomology University of Delaware, Newark
Florida	Dr. W. G. Cowperthwaite, Plant Commissioner, State Plant Board of Florida, Gainesville
Georgia	Dr. C. R. Jordan, Jr., Extension Entomologist, University of Georgia, College of Agriculture, Athens
Hawaii	Division of Entomology & Marketing, Board of Agriculture and Forestry, Honolulu 1
Idaho	Dr. H. C. Manis, Head, Department of Entomology, University of Idaho, Moscow
Illinois	Dr. H. B. Petty, Jr., Extension Entomologist, Illinois Agricultural Extension Service, 280 Natural Resources Building, Urbana
Indiana	Dr. John V. Osmun, Head, Department of Entomology, Purdue University, Lafayette
Iowa	Dr. H. M. Harris, Head, Department of Zoology and Entomology, Iowa State University, Ames
Kansas	Dr. Herbert Knutson, Head, Department of Entomology, Kansas State University, Manhattan
Kentucky	Dr. Lee H. Townsend, Head, Department of Entomology, University of Kentucky, Lexington 29
Louisiana	Dr. L. D. Newsom, Head, Entomology Research, Louisiana State University, Baton Rouge 3

Maine	Dr. G. W. Simpson, Head, Department of Entomology, University of Maine, Orono
Maryland	Mr. T. L. Bissell, Department of Entomology, University of Maryland, College Park
Massachusetts	Dr. E. H. Wheeler, Extension Entomologist, University of Massachusetts, Amherst
Michigan	Mr. Ray Hutson, Head, Department of Entomology, Michigan State University, East Lansing 13
Minnesota	Dr. D. M. Coe, Director, Division of Plant Industry, Department of Agriculture, Dairy and Food, 312 Coffey Hall, University Farm, St. Paul 1
Mississippi	Dr. R. E. Hutchins, Head, Department of Zoology and Entomology, Mississippi State University, State College
Missouri	Mr. Stirling Kyd, Extension Entomologist, Department of Entomology, University of Missouri, Columbia
Montana	Dr. J. H. Pepper, Head, Department of Zoology and Entomology, Montana State College, Bozeman
Nebraska	Dr. Roscoe E. Hill, Chairman, Department of Entomology, University of Nebraska, Lincoln 3
Nevada	Mr. Lee M. Burge, Director, Division of Plant Industry, Department of Agriculture, P. O. Box 1027, Reno
New Hampshire	Dr. J. G. Conklin, Professor of Economic Entomology, University of New Hampshire, Durham
New Jersey	Dr. B. B. Pepper, Department of Entomology, Rutgers University, New Brunswick
New Mexico	Mr. Dallas Rierson, Director, State Department of Agriculture, New Mexico State University, University Park
New York	Dr. A. A. Muka, Extension Entomologist, Department of Entomology and Limnology, Cornell University, Ithaca
North Carolina	Mr. George D. Jones, Extension Entomologist, North Carolina State College of Agriculture, Raleigh
North Dakota	Dr. J. R. Dogger, Chairman, Department of Entomology, North Dakota Agricultural College, State College Station, Fargo
Ohio	Dr. C. R. Neiswander, Associate Chairman, Department of Zoology and Entomology, Ohio Agricultural Experiment Station, Wooster
Oklahoma	Dr. D. E. Howell, Head, Department of Entomology, Oklahoma State University, Stillwater
Oregon	Mr. Joseph Capizzi, Survey Entomologist, Division of Plant Industry, State Department of Agriculture, Salem

Pennsylvania	Mr. J. O. Pepper, Extension Entomologist, Zoology and Entomology Department, Pennsylvania State University, University Park
Puerto Rico	Agricultural Experiment Station, Rio Piedras
Rhode Island	Dr. F. L. Howard, Head, Department of Plant Pathology and Entomology, University of Rhode Island, Kingston
South Carolina	Mr. W. C. Nettles, Leader, Extension Entomology and Plant Disease Work, Clemson Agricultural College, Clemson
South Dakota	Dr. G. B. Spahn, Head, Department of Entomology and Zoology, South Dakota State College of A & M Arts, College Station
Tennessee	Mr. R. P. Mullett, Extension Entomologist and Plant Pathologist, College of Agriculture, University of Tennessee, Knoxville 16
Texas	Dr. J. C. Gaines, Head, Department of Entomology, Texas A & M College, College Station
Utah	Dr. George F. Knowlton, Extension Entomologist, Utah State University, Logan
Vermont	Mr. John W. Scott, Director, Division of Plant Pest Control, State Department of Agriculture, Montpelier
Virginia	Dr. J. O. Rowell, Extension Entomologist, Virginia Polytechnic Institute, Blacksburg
Washington	Dr. Horace S. Telford, Chairman, Department of Entomology, Washington State University, Pullman
West Virginia	Dr. C. K. Dorsey, Professor of Entomology, West Virginia University, Morgantown
Wisconsin	Mr. E. L. Chambers, Chief, Plant Industry Division, Department of Agriculture, 448 W. Washington Avenue, Madison 3
Wyoming	Mr. T. R. Robb, Extension Entomologist, University of Wyoming, Laramie

STATUS OF SOME IMPORTANT INSECTS IN THE UNITED STATES

SWEETCLOVER APHID (Therioaphis riehmi (Borner))

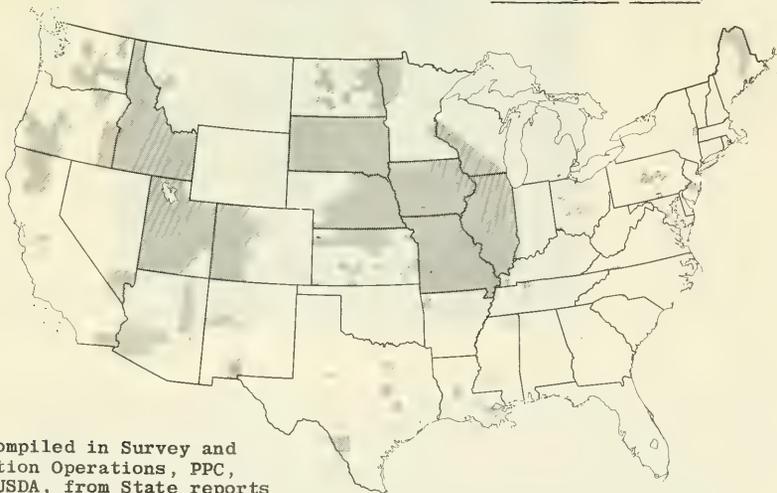
Economic Importance: This aphid was first described in Europe in 1949. It was apparently found for the first time in the United States in connection with surveys to determine the extent of infestation of spotted alfalfa aphid (Therioaphis maculata). Losses of economic importance were first reported from Minnesota in 1955.

Distribution: T. riehmi is doubtless present in much of Europe, as it is known to occur in England, France, Germany and the Netherlands. Specimens have also been found in Iran. In America it is established from the Atlantic Ocean to the Pacific and from the southern borders of the United States northward into Canada (see map for distribution in the U. S.).

Hosts: Studies that were conducted in Kansas show that T. riehmi is confined to species of the genera Melilotus (sweetclover) and Trigonella. The insect did not reproduce on any of more than 50 other species of legumes studied. Differences in infestations have been observed in the field on varieties of Melilotus but often these were related to stage and type of growth. Additional field studies show that alfalfa and red clover were immune to T. riehmi. Resistance was also evidenced in several species of Melilotus.

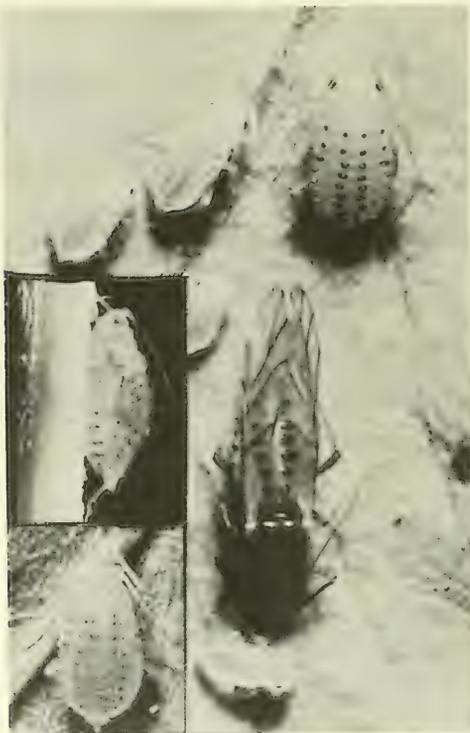
Life History and Habits: No detailed life history study has been published. Observations in Kansas indicate an initial buildup of aphids in the spring through the blossoming period, a decrease during the formation of seeds, and another increase in the fall on first-year plants of biennial varieties. Late in the fall, eggs are laid by apterous females. All males and viviparous females are winged. In the presence of functional males and egg-laying females, this species differs from T. maculata where virtually all females are viviparous and the few males produced are nonfunctional.

DISTRIBUTION OF SWEETCLOVER APHID (Therioaphis riehmi)



Map compiled in Survey and
Detection Operations, PPC,
ARS, USDA, from State reports
received to December, 1959,
ARS and USNM records

Description: Usually winged. Pale yellow or whitish, with four rows of black spots on the abdomen; eight somewhat transverse spots in a submedian row and six subcircular spots in a marginal row, on each half of the body. Body 2.25 to 2.65 mm. long. Sweetclover aphid can be separated from spotted alfalfa aphid and yellow clover aphid (*T. trifolii*) as indicated in the illustration below. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies. Special material on the studies conducted in Kansas furnished by R. H. Painter and descriptive material furnished by L. M. Russell). CEIR 10 (1): 1-1-60.



Figures - Sweetclover aphid nymphs and alate adult in the main picture. Note four rows of dark spots are visible. The insect in the left lower corner is a dorsal view of an apterous yellow clover aphid. Note that there are more than four rows of dark spots in this species, as in the spotted alfalfa aphid. The other insert shows a lateral view of an apterous spotted alfalfa aphid adult with the darkened ventral areas characteristic of this species. (Photograph courtesy of Kansas Agricultural Experiment Station).

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business



VOL. 10 NO. 2

JANUARY 8, 1960

SB

823

C77

Ent.

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 of Insect Conditions

WINTER GRAIN MITE medium to heavy on oats in Shackelford County, Texas. (p. 13).

Additional information on distribution of PUMPKIN CATERPILLAR in Florida. (p. 14).

Light BEET LEAFHOPPER infestation on spinach in Zavala and Dimmit Counties, Texas. (p. 14).

CORRECTION (p. 15)

INSECT DETECTION: New State records reported were a clover weevil (Hypera meles) in Utah, an eriophid mite (Aceria mangiferae) and citrus bud mite in Florida, and smaller European elm bark beetle in Texas. (pp. 13-14).

INTERCEPTIONS of special interest at U. S. ports of entry. (p. 16).

List of new INSECT RECORDS reported in 1959. (p. 17).

INSECTS not known to occur in the United States. (p. 21).

WEATHER BUREAU 30-DAY OUTLOOK

JANUARY 1960

The Weather Bureau's 30-day outlook for January calls for temperatures to average below seasonal normals over the western two-thirds of the Nation with greatest departures over the Mountain States and Great Plains. Above normal temperatures are indicated from the Appalachians to the east coast. In unspecified areas, near normal averages are predicted. Precipitation is expected to exceed normal over most of the country except for subnormal amounts over the Northwest and also the extreme Southeast. The anticipated temperature and precipitation patterns suggest a succession of vigorous winter storms attended by considerable wind, snow, and sleet, especially over central and northern regions.

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 JANUARY 4

Temperatures this week were below normal over all of the Far West, the Rocky Mountains, and much of the South, while above-normal readings again covered the north central and northeastern sections of the country. An extremely cold air mass remained over the western third of the country most of the week, keeping temperatures much below seasonal levels and bringing below-zero readings to many areas of the Plateau States and subfreezing readings to all of California and Arizona except the immediate central and southern coasts. Minimum temperatures reached alltime low levels in some areas of California, including a reading of 21° at Santa Maria on January 2. Temperatures in the avocado and citrus areas reached the low 20's, and some damage to young trees was reported.

An extensive low pressure area developed over Arizona and Nevada on December 30, bringing widespread general precipitation over those States on the 31st, with strong winds and local blizzard conditions in several areas. As the storm moved northeastward across Colorado and the central Great Plains to the western Great Lakes by January 3, heavy snow, sleet, and freezing rain covered wide sections of the northern Great Plains, upper Mississippi Valley, and Great Lakes. High winds caused much drifting of snow which blocked transportation. Snow amounts ranged up to 10 to 12 inches in southeastern South Dakota, 6 to 10 inches in the central sections of the State, and from 2 to 8 inches over Minnesota, northwestern Iowa, and northeastern Nebraska.

Temperatures fell rapidly in the wake of the storm from the unusually mild levels which had been prevalent over the upper midcontinent area for several weeks as arctic air swept southward, and minima below zero were recorded as far south as Nebraska on January 4. International Falls, Minnesota, and Aberdeen, South Dakota, both registered lows of -29°. Temperatures across the Southern States averaged slightly below normal, except over Florida where generally mild weather stimulated plant growth. Moderate to heavy rain spread northward across Texas on Thursday and Friday and over the Southeastern States and into the southern Ohio Valley on Friday and Saturday.

In the Northeastern States, generally mild and wet weather was the rule. Two major storms swept through New England during the week. A combination of easterly gales and spring tides caused widespread coastal flooding in Massachusetts on December 28 and 29, as heavy snow, sleet, and glaze covered interior sections of New England, New York, and northern Pennsylvania. The second storm, with gales and heavy rains, swept over the Northeast on January 2 and 3 as the low pressure area which had brought severe weather to the Plains States moved rapidly northeastward across southern Canada. Winds of 60 to 80 mph caused heavy damage in coastal and southeastern Massachusetts, and general moderate to heavy precipitation extended from the Carolinas to New England. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

A CLOVER WEEVIL (Hypera meles) - UTAH - Damaged alfalfa at Providence, Cache County, during the summer of 1958. Specimens recently determined by V. M. Tanner. This is a new State record for the species. (Tilley, Davis, Knowlton).

GREENBUG (Toxoptera graminum) - TEXAS - Infestation medium to heavy on test plots of small grain in College Station, Brazos County. (Turney). OKLAHOMA - Low populations continued to be the rule throughout the areas sampled. Wheat fields in Beckham and Washita Counties and barley fields in Pawnee County showed no infestation. (Hudson, Stiles). Samples taken in wheat in Kingfisher County averaged 3.5 aphids per linear foot. (Owens). A single older field in Custer County showed counts ranging from 1-4 per linear foot. (Hudson). None observed in Stillwater area of Payne County. (Bryan).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Medium to heavy infestation on oats in Shackelford County. Small plots of oats had been completely killed. (Vines).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Two wheat fields in Caddo County had infestations ranging from 1-20 per linear foot. (Hudson).

CHINCH BUG (Blissus leucopterus) - KANSAS - The number of hibernating bugs per square foot of bunch grass averaged 74 in Washington County. The rating for this county is the same as reported in 1958 (noneconomic). (Fitchett, Dec. 24).

DUSKY SAP BEETLE (Carpophilus lugubris) - UTAH - Adults and larvae of nitidulids reported infesting sweet corn in Washington, Kane and Iron Counties during the summer of 1959 have been determined as this species by W. A. Connell. (Knowlton).

LEAFHOPPERS (Empoasca sp. and Aceratagallia curvata) - ARIZONA - Counts in Yuma County alfalfa averaged 80 and 23 per 100 sweeps, respectively. Empoasca populations were increased over previous counts. (Ariz. Coop. Sur.).

PEA APHID (Macrosiphum pisi) - ARIZONA - Light infestations present in central and southwestern areas. Counts in Yuma County average 8 per 100 sweeps. (Ariz. Coop. Sur.). OKLAHOMA - Low populations in Bison area of Garfield County where only 6 per square foot were observed on alfalfa. (Owens). Higher populations in scattered alfalfa fields in Stillwater area of Payne County; some field counts were as high as 30 per square foot of plant area. (Bryan).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Low populations continue, statewide. Slow increase in fields of alfalfa in Payne County. Counts average 35 per square foot of crown area. (Bryan). In Garfield County, counts averaged 20 per square foot of crown area. (Owens). None observed in the Blair area of Jackson County. (Presgrove).

A SOD FLY (Metoponia rubriceps) - CALIFORNIA - Found heavily infesting a lawn sod in Sigmund Stern Grove, San Francisco, San Francisco County. (Cal. Coop. Rpt.).

FRUIT INSECTS

AN ERIOPHID MITE (Aceria mangiferae) - FLORIDA - Found at Homestead (August 25, 1959) and Miami (August 26, 1959), Dade County, on buds of mango by H. H. Attiah, Director, Acarology Investigations, Dokki, Egypt (United Arab Republic), while visiting in Florida. The terminal buds of the mango were dark brown, the terminal leaves of some branches were defoliated and some of the new leaves were deformed. This species has not heretofore been reported in Florida. In Egypt, this species causes severe malformation in the vegetative and floral growth of mango and young trees fail to obtain normal size and growth. (Fla. Ent. 42:189).

CITRUS BUD MITE (Aceria sheldoni) - FLORIDA - Found at South Miami on buds of orange trees on August 27, 1959. (Attiah). This is the first record of this species in the State. It is considered a pest of citrus in California. (Fla. Ent. 42:189).

Citrus Insect Situation in Florida - Mid-December - PURPLE SCALE (Lepidosaphes beckii) activity remained in the low range and will continue below average in all districts for several weeks. Moderate activity is present in the Ridge and Bartow districts. FLORIDA RED SCALE (Chrysomphalus aonidium) activity is increasing and is expected to approach the high range during the next 2 or 3 weeks. Infestations generally will be low during January but a few groves will have high populations. Highest activity is in the Indian River, Ridge and Bartow districts. CITRUS RED MITE (Panonychus citri) activity decreased and a further drop is expected. Infestations generally will be low through January. Highest activity is in the west coast and Bartow districts. CITRUS RUST MITE (Phyllocoptura oleivora) activity continued upward and will remain in the high range until mid-January. Infestations generally are about average for this time of year. During the winter, rust mites are likely to be more numerous on leaves than on fruit. Highest activity is in the Bartow, west coast, Ridge, Brooksville and Indian River districts. TEXAS CITRUS MITE (Eutetranychus banksi) is increasing but high infestations are not likely to be common. Some groves are showing leaf drop where roots were damaged by water earlier in the year. (Simanton, Thompson, Johnson (Citrus Experiment Station, Lake Alfred)).

TRUCK CROP INSECTS

PUMPKIN CATERPILLAR (Diaphania indica) - FLORIDA - Adults collected August 19 and September 1, 1959, at Homestead, Dade County. (Wolfenbarger). When this species was first identified for the State, all older specimens in the genus Diaphania were checked and one specimen from Gainesville (October 11, 1946) (H. V. Weems, Jr.) has been identified as this introduced species. It is, therefore, evident that D. indica is not a new introduction and has been with us for at least 13 years. It has, apparently, been mistaken previously for melonworm (Diaphania hyalinata). (Fla. Coop. Sur.). For additional information of the status of pumpkin caterpillar in Florida, see CEIR 9(47):1012.

A LEAF ROLLER (Platynota stultana) - CALIFORNIA - Medium infestation locally in bell peppers in Los Angeles, Los Angeles County. (Cal. Coop. Rpt.).

BEEF LEAFHOPPER (Circulifer tenellus) - TEXAS - Light infestation on spinach in Zavala and Dimmit Counties. Curly top symptoms in spinach very low; less than one-half of one percent. (Harding).

A BLISTER BEETLE (Meloe angusticollis) - NORTH CAROLINA - Moderate infestation reported in a patch of crucifers in Alamance County. (Harship, Farrier).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Sticky board collections were as follows: (December 14-21) - Mesa - 2; Kyrene - 2; Waddell - 2; Glendale - 4; Deer Valley - 3; (December 21-28) - Mesa - 1; Kyrene - 3; Waddell - 1; Glendale - 6; Deer Valley - 0. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - TEXAS - Adults collected from Chinese elm trees in El Paso, El Paso County, by W. B. R. Stromberg on April 20, 1959. Specimens determined by W. H. Anderson. This is the first record of occurrence in Texas. (Texas Coop. Rpt.).

BARK BEETLES - VIRGINIA - Ips sp., probably I. avulsus, heavy in dead pine and spruce covering 1/4 acre of timber in King George County. (Morris, Hall).

LINDEN LOOPER (Erannis tiliaria) - PENNSYLVANIA - Adults attracted to windows at night by light in Cumberland County (November 19, 1959) and seen flying in woods in Blair and Perry Counties (December 2, 1959). (Negley, Balsbaugh).

FALL CANKERWORM (Alsophila pometaria) - PENNSYLVANIA - Males and females noted to be fairly abundant in Dauphin and Perry Counties on December 2, 1959. (Sleesman).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Eggs and adults heavy locally on willow in Somis, Ventura County. (Cal. Coop. Rpt.).

OBSURE SCALE (Chrysomphalus obscurus) - NORTH CAROLINA - Moderate infestation on 5 willow trees in Rowan County on August 17, 1959. Det. H. M. Morrison. (Jones).

SPIDER MITES - ARIZONA - Heavy populations, probably Tetranychus cinnabarinus, damaging arborvitae in central area. (Ariz. Coop. Sur.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - A medium infestation of adults and larvae found in dichondra lawn in Chula Vista, San Diego County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS - UTAH - Appearing in backs of some Weber County cattle. (Knowlton). ARIZONA - Control of Hypoderma lineatum has been very good in treated beef cattle herds throughout the State. Only one grub found in 200 head shipped from Pinal County ranch. Some untreated animals on the same ranch are heavily infested with as many as 43 grubs per animal. (Ariz. Coop. Sur.). OKLAHOMA - About 20 percent of a mixed lot of 100 cattle were found lightly to moderately infested with H. lineatum in Bryan County. (Vinson).

CATTLE LICE - UTAH - Abundant on beef cattle in some west Box Elder County herds. (Knowlton). OKLAHOMA - Light to heavy infestations on 100 head of mixed cattle in Bryan County. (Vinson).

STORED-PRODUCT INSECTS

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Light infestations in walnuts from San Leandro, Alameda County; from almonds in Escondido, San Diego County; and from macadamia nuts in El Cajon, San Diego County. (Cal. Coop. Rpt.).

DRUG-STORE BEETLE (Stegobium paniceum) - CALIFORNIA - A heavy infestation in wheat flour from San Diego, San Diego County. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

RED FLOUR BEETLE (Tribolium castaneum) - NORTH CAROLINA - Causing retailers to return large numbers of blankets to factory because pests were packaged with blankets in plastic shipping bags in Forsyth County. (Wright, Farrier).

CORRECTION

CEIR 9(11):167 - CURCULIONIDS - FLORIDA - Hyperodes delumbis should read Hyperodes humilis. Original report was a misidentification.

LIGHT TRAP COLLECTIONS

	<u>Pseudaletia</u> unipuncta	<u>Prodenia</u> ornith.	<u>Peridroma</u> margaritosa	<u>Agrotis</u> ypsilon	<u>Feltia</u> subterranea
<u>ARIZONA</u>					
Mesa 12/21-27		54			
<u>FLORIDA</u>					
Gainesville 12/23	1				
<u>SOUTH CAROLINA</u>					
Charleston 12/21-27	15	3		18	12
Charleston 12/28-1/3	3			1	8
Clemson 12/19-25	2			3	
Clemson 12/26-1/1	9	2	2	12	

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

(1959 records unless otherwise indicated)

An adult of a COCCINELLID (Epilachna sp.) in banana debris from Ecuador on July 30 at Baltimore, Maryland (although previously identified as E. paenulata (Germ.) from other interceptions with Ecuadoran bananas, Dr. E. A. Chapin now indicates it is an undescribed species); two collections of KHAPRA BEETLE (Trogoderma granarium) in ships' stores, including one at Houston, Texas, on June 12 and one at New Orleans, Louisiana, on October 13; 11 interceptions of WHITE GARDEN SNAIL (Theba pisana (Muller)) on military cargo, collectively, from France, Spain, Morocco and Libya at Norfolk (1), Virginia, Charleston (5), South Carolina, New York (4), New York, and New Orleans (1), Louisiana; one larva of a FRUIT FLY (possibly Dacus sp.) in California mail at Honolulu, Hawaii, on August 4; larvae of MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) 14 times, collectively, at Honolulu in baggage and mail (9) destined from California in case of 7 lots, Boston, Massachusetts, in mail and baggage (2), Miami, Florida, in baggage and airplane stores (2) and San Francisco, California, in baggage (1); larvae of ORIENTAL FRUIT FLY (Dacus dorsalis Hendel) 6 times, including one in California baggage at Honolulu, 4 at San Francisco from Hawaii in baggage and quarters and also one in mail from Guam; larvae of MELON FLY (Dacus cucurbitae (Coq.)) in ships' stores from Hawaii on June 9; an important Japanese citrus SCALE (Unaspis yanonensis (Kuw.)) not known in the U. S., 153 times since November 1958 in airplane and ships' stores, at Honolulu (133) and San Francisco (20); adult and nymphs of possibly a new genus of Miridae with a mail shipment of mammillaria plants from Mexico on June 16 at Laredo, Texas; eggs and larvae of CITRUS BLACKFLY (Aleurocanthus woglumi Ashby) on citrus leaves in baggage destined for California from Mexico on August 18 at El Paso, Texas; larvae of a WEEVIL, genus unknown, in potatoes in baggage from Mexico on September 1 at Brownsville, Texas; larva of ASIATIC RICE BORER (Chilo suppressalis (Wlk.)) in rice straw packing for steel pipe from Japan on July 27 at Corpus Christi, Texas. (Plant Quarantine Division).

INSECT DETECTION

New Records Reported in 1959

First United States Report

<u>Species</u>	<u>Host</u>	<u>State</u>	<u>County</u>	<u>CEIR Vol. 9 Page No.</u>
<u>Aglossa pinguinalis</u> (a pyralid)	-	Massachusetts	Barnstable, Norfolk	811
<u>Apanteles galleriae</u> (a parasite)	wax moth	North Carolina	Polk	687
<u>Diaphania indica</u> (pumpkin caterpillar)	light trap	Florida	Manatee, Dade, Sarasota	1012
<u>Haplothrips clarisetis</u> (a thrips)	dandelions, Russian thistle, mesembry- anthemum	California	Riverside	193
<u>Laspeyresia fletcherana</u> (an olethreutid)	Douglas-fir	Montana	Lincoln	388
<u>Meconema thalassinum</u> (a katydid)	-	New York	Queens	852
<u>Phyllophaga bruneri</u> (a May beetle)	trees, sever- al species	Florida	Dade	598, 621
<u>Prionopelta</u> sp. (an ant)	soil	Florida	Marion	852
<u>Sinoxylon conigerum</u> (a bostrichid)	sapodilla	Florida	Dade	886
<u>Tetraneura hirsuta</u> (a root aphid)	rice	Florida	Palm Beach	508

First State Report

<u>Species</u>	<u>Host</u>	<u>State</u>	<u>County</u>	<u>CEIR Vol. 9 Page No.</u>
<u>Acarapis</u> sp., probably <u>dorsalis</u> (a bee mite)	honey bee	Massachusetts, California	-	986 968
<u>Acrobasis rubrifasciella</u> (a phycitid)	<u>Alnus</u> sp.	Wisconsin	Polk	952
<u>Aedes increpitus</u> (a mosquito)	-	Nebraska	Sioux	831
<u>Aleyrodes spiraeoides</u> (a whitefly)	<u>Iris</u> sp.	Florida	Leon	633
<u>Amathes c-nigrum</u> (spotted cutworm)	light trap	Florida	Alachua	329
<u>Aphaenogaster fulva</u> (an ant)	-	Florida	Levy	852
<u>Aspidiotus ostreaeformis</u> (European fruit scale)	<u>Garrya</u> sp. (silktassel tree)	California	Ventura	903

Species	Host	State	County	CEIR Vol. 9 Page No.
<u>Aspidiotus spinosus</u> (a scale insect)	<u>Ilex</u> sp.	Oklahoma	Tulsa	361
<u>Bucculatrix ainsliella</u> (oak skeletonizer)	oaks	North Carolina	Rockingham	997
<u>Cardiocondyla nuda</u> <u>minutior</u> (an ant)	-	California	San Diego	133
<u>Centrinaspis penicellus</u> (a curculionid)	corn	Connecticut	New Haven	167
<u>Chrysomphalus albopictus</u> (a scale insect)	magnolia leaves	Oklahoma	Oklahoma	361
<u>Diabrotica virgifera</u> (western corn rootworm)	corn	Montana	Yellowstone	771
<u>Euzophera semifuneralis</u> (American plum borer)	peaches	Ohio	Wayne	981
<u>Graphognathus leucoloma</u> <u>striatus</u> (a white-fringed beetle)	-	Arkansas	St. Francis	801
<u>Gronocarus autumnalis</u> (a scarab)	St. Augustine grass	Florida	Bay	1030
<u>Gynaikothrips</u> sp. (a thrips)	rubber trees	California	San Diego	921
<u>Haplothrips clarisetis</u> (a thrips)	lettuce	New Mexico	Dona Ana	215
<u>Harrisina brillians</u> (western grape leaf skeletonizer)	grapes	Nevada	Clark	900
<u>Heterodera glycines</u> (soybean cyst nematode)	-	Illinois	Pulaski	877
<u>Homadula albizziae</u> (mimosas webworm)	mimosas	Louisiana	Webster	903
<u>Hoplocampa testudinea</u> (European apple sawfly)	apples	Rhode Island	Washington	509
<u>Hypera postica</u> (alfalfa weevil)	alfalfa	Tennessee	Sullivan, Johnson	480
		Alabama	Houston	572
		Kentucky	Hart	980
<u>Hyperodes anthracinus</u> (a weevil)	turf	New York	Nassau	786
<u>Labopidea ainsliei</u> (a mirid)	moraine locust	North Carolina	Wake	551
<u>Lema sayi</u> (a leaf beetle)	various plants	Pennsylvania	-	998

Species	Host	State	County	CEIR Vol. 9 Page No.
<u>Lissorhoptrus oryzophilus</u> (rice water weevil)	rice and grasses	California	Butte	620
<u>Livia vernalis</u> (a psyllid)	pine	South Carolina	Aiken	830
<u>Murgantia histrionica</u> (harlequin bug)	-	Minnesota	Murray	384
<u>Musca autumnalis</u> (face fly)	cattle and horses	Virginia Ohio Indiana Illinois Pennsylvania Wisconsin Michigan Massachusetts New Hampshire Delaware New Jersey West Virginia Vermont	Loudoun Wayne several Champaign several Dane numerous Hampshire Strafford Essex Hunterdon — several	171 634 657 713 759 904 832 832 850 850 850 850 850
<u>Mycetophagus obsoletus</u> (a hairy fungus beetle)	-	Pennsylvania	Philadel- phia	939
<u>Myzocallis pulchellus</u> (an elm aphid)	elms	California	Placer	712
<u>Nasonovia ribis-nigri</u> (an aphid)	lettuce	Montana	Missoula	995
<u>Neoconocephalus robustus</u> (a katydid)	-	California	Yuba Sacramento	1060
<u>Odontaleyrodes rhododendri</u> (a whitefly)	azalea	Florida	Lake	315
<u>Oligonychus aceris</u> (a maple mite)	silver maple	California	Riverside	809
<u>Parasa indetermina</u> (stinging rose cater- pillar)	dogwood	South Carolina	Anderson	955
<u>Paramyeloides transitella</u> (navel orangeworm)	almonds	Utah	Washington	1006
<u>Pogonomyrmex maricopa</u> <u>barnesi</u> (a harvester ant)	-	Utah	Washington	998
<u>Polia legitima</u> (striped garden caterpillar)	goldenshower senna	Florida	Alachua	150
<u>Ptinus clavipes</u> (brown spider beetle)	wool rug	South Carolina	Aiken	155
<u>Pulvinaria acericola</u> (a scale insect)	persimmon	Oklahoma	McCurtain	633
<u>Pyrausta nubilalis</u> (European corn borer)	corn	Texas	Bowie	1005

Species	Host	State	County	CEIR Vol. 9 Page No.
<u>Raillietia auris</u> (a mite)	ears of goats	Massachusetts	Hampshire	238
<u>Reticulitermes hageni</u> (a termite)	building	New Jersey	Mercer	6
<u>Rhipicephalus sanguineus</u> (brown dog tick)	-	Arkansas	Washington	811
<u>Rhyacionia buoliana</u> (European pine shoot moth)	red pine	Washington	King	867
<u>Scolytus multistriatus</u> (smaller European elm bark beetle)	window sills in house	South Dakota	Minnehaha	358
<u>Simulium decorum</u> (a black fly)	humans	Florida	Gadsden	22
<u>Sitona californicus</u> (a weevil)	-	Utah	Washington Cache	19
<u>Sitona cylindricollis</u> (sweetclover weevil)	sweetclover	Kentucky	Hart	1056
<u>Spanogonicus albofasciatus</u> (a plant bug)	cantaloup	Nevada	Churchill- Clark	732
<u>Tetralopha militella</u> (a webworm)	American planetree	Florida	Alachua	886
<u>Trogoderma granarium</u> (khapra beetle)	stored feed	Texas	El Paso	194
<u>Ufeus sagittarius</u> (a noctuid)	poplar	Wyoming	Fremont	849
<u>Vespa crabro germana</u> (giant hornet)	-	Georgia	Franklin	52
<u>Zeadiatraea grandiosella</u> (southwestern corn borer)	corn	Mississippi	Coahoma	597
<u>Zorotypus hubbardi</u> (a zorapteron)	sawdust	Oklahoma	McCurtain	22

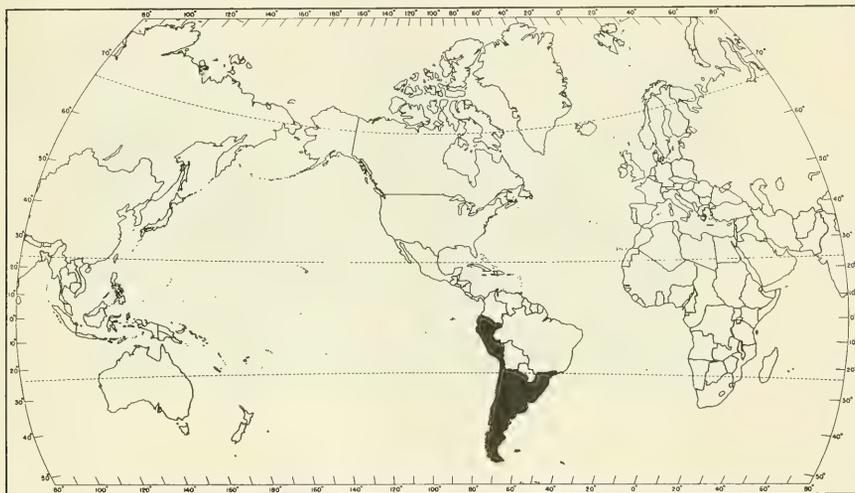
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

LUCERNE CATERPILLAR (Colias lesbia F.)

Economic Importance: Lucerne caterpillar is the most important pest of alfalfa in Argentina, where it is reported to destroy about a quarter of the crop annually. Severe damage to this crop also occurs in Chile and Uruguay.

Distribution: C. lesbia lesbia occurs only in Argentina. Other subspecies have been recorded in southern Brazil, Uruguay, Chile, Peru and Ecuador.

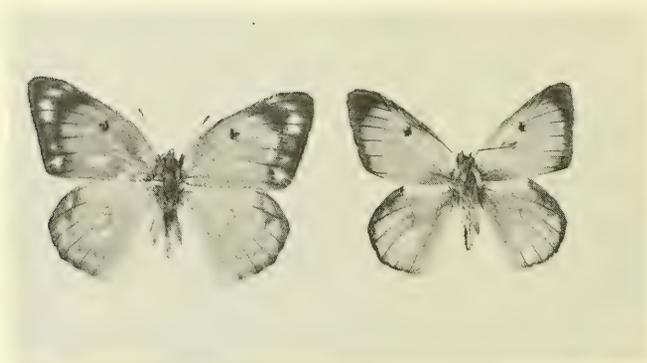
Hosts: Alfalfa. Also reported as occurring on sugar beet.



General Distribution of Colias lesbia and Subspecies

Life History and Habits: In Argentina, C. lesbia has three generations a year in the southern area but development is continuous in the warmer regions. Under favorable conditions, egg through pupal stages last from 19 to 31 days. The butterflies migrate long distances into regions where they cannot survive the winter. Each female deposits from 200 to 500 eggs. The eggs are laid on alfalfa plants. On hatching, the young larvae begin feeding avidly on the foliage and, when populations are abundant, great destruction occurs. The green coloring of the larvae blends with the foliage, making detection difficult. Pupation occurs on the host plants. The adults fly low with rapid movements. They are most active in the heat of the day.

Description: ADULT wing expanse 45-52 mm., color generally white, yellowish and spotted. Male forewing yellow orange, specimens also with violet reflections. There is a sepia tone, broader in the apices of the forewing but thin in the hindwings. Under surfaces, with exception of reddish middle of forewing, vivid yellow with usual Colias markings. Ground color of upper surface in females very variable: orange-yellow, yellow, yellowish or white with gray dusting also occur. Numerous subspecies, aberrations and forms have been described. EGG elliptical, 1.1 mm., striated. Fastened vertically to foliage of host. LARVA of same coloring as alfalfa foliage, 15-20 mm. in length, with white line on the side. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U. S. National Museum). CEIR 10(2):1-8-60.



Female

Male

Adults of Colias lesbia

USDA Photograph

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE



VOL. 10 NO. 3

JANUARY 15, 1960

SB

823

C17

Ent.

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 of Insect Conditions

BOLL WEEVIL hibernation survey in Georgia is reported. (p. 26).

Several species of BARK BEETLES constitute a serious threat to some valuable timber in California in 1960. (p. 26). Another bark beetle (Pityophthorus juglandis) has become established in California black walnut in southern California. (p. 27).

COMMON CATTLE GRUB populations medium on yearling steers examined in Canadian County, Oklahoma, and an unusual instance of occurrence in man reported in California. (p. 27).

Three new KHAPRA BEETLE infestations reported in Imperial County, California. (p. 27).

INSECT DETECTION: Alfalfa plant bug reported for first time in Kentucky and sweetclover aphid recorded for the first time in Rich and Daggett Counties, Utah. (p. 25).

Status of EUROPEAN CORN BORER in 1959. (pp. 29-38).

GRASSHOPPER adult survey, fall 1959 (map). (following page 38).

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

WEATHER OF THE WEEK ENDING JANUARY 11

Mean temperatures for this week were near or below normal over the Far West, the Southern States, and from North Dakota to New England. Above-normal readings extended over an area from the northern and central Rocky Mountains and northwestern Great Plains across the midsection of the country to the middle Atlantic coast and also prevailed in the extreme Southeast. Mild, springlike weather in southern Florida was ideal for rapid plant growth, as temperatures touched the low 80's on most days in this State; Marathon recorded 87°, and Miami 84° on Thursday for a new record high temperature on that date.

Moderate to heavy precipitation extended inland from the coastal regions of the Pacific Northwest and California, as generally cloudy and cool weather continued there most of the week. Totals ranged up to 2-1/2 inches in coastal sections of Oregon, with snow in several lower elevation areas of Oregon and Washington providing a good protective cover for the winter wheat crop. Precipitation was very light or absent over a broad band from Arizona northeastward across Colorado and the central Great Plains to the Ohio Valley. A low pressure area moving northeastward from the north-central Gulf of Mexico produced heavy snow in a belt extending from the Texas Panhandle to the Virginias and light to moderate rain over most other areas of the Southern States on Tuesday and Wednesday. Over 11 inches of snow fell at Little Rock, Arkansas, for the heaviest of record there in January since 1918, and accumulations ranged up to 9 inches in Tennessee, 7 inches in northern Mississippi, southwestern Virginia, and the High Plains of Texas, with lighter amounts in other sections from Missouri to North Carolina.

Temperatures fell to near -30° in the Dakotas, Minnesota and Wisconsin on Tuesday morning as extremely cold arctic air covered the area. Marked warming with 24-hour temperature rises of 40° to 50° began late on Tuesday, and abnormally mild weather was the rule over most of the Great Plains and Middle West the remainder of the week, as tropical air moved northward from the Gulf of Mexico. Temperatures reached the 40's in South Dakota, the lower 60's in southern Indiana, and the 70's in Oklahoma and Arkansas over the weekend. A second cold wave late in the week moved down over northern sections of North Dakota, the upper Great Lakes, and the New York-New England area. Below-zero temperatures reached southern New England and readings of -30° or lower were reported in Vermont, Maine, and the Adirondacks of eastern New York. At Massena, New York, the temperature remained below zero from late Friday night until Monday afternoon. Snow accompanied the cold air with 2 to 4 inches in southern New England and up to 8 inches in northern New York. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ALFALFA PLANT BUG (Adelphocoris lineolatus) - KENTUCKY - Specimens taken from alfalfa at Lexington, Fayette County, on July 6, 1959, constitute a first reported record for this species in the State. Det. P. D. Ashlock. (Starks).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - CALIFORNIA - Adults collected in Santa Barbara, Santa Barbara County. This species, which occurred only in the Imperial Valley for many years, has now become a pest of alfalfa in the coastal area as far north as Santa Barbara County. (Cal. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Present in ground litter around alfalfa plants in an Appomattox County field; 2 fourth-instar and 6 second and third-instar larvae and one adult collected January 2, 1960. (Jones).

PEA APHID (Macrosiphum pisi) - OKLAHOMA - Populations continue low. Counts showed 12 per square foot of crown area in Garfield County fields. (Owens).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Populations continue to rise slowly in the north central area. Counts have risen to 240 per square foot of crown area in the Bison area, Garfield County. (Owens).

SWEETCLOVER APHID (Therioaphis riehmii) - UTAH - Collected in Rich and Daggett Counties in October, 1959. These collections represent new county records. (Knowlton).

A LEAF MINER (Melanagromyza gibsoni) - CALIFORNIA - Larvae medium in stems of alfalfa in Bonsall, San Diego County. (Cal. Coop. Rpt.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Populations ranged 0.5-3 per linear foot in Kingfisher County, an apparent increase in population. (Owens).

GREENBUG (Toxoptera graminum) - OKLAHOMA - Low populations prevail throughout areas sampled. None were observed in wheat fields in Granite-Lone Wolf area of Greer and Kiowa Counties. (Hudson). Samples from 7 fields in Kingfisher and Garfield Counties averaged 1-3 per linear foot. (Owens). None were observed in fields sampled in Cotton and Tillman Counties. (Hatfield).

PLANTHOPPERS (Sogata spp.) - ARKANSAS - Identification of specimens taken in 42 fields during the hoja blanca survey in October 1959, revealed no S. orizicola, 5 males of S. furcifera and 21 females of Sogata sp. (Ark. Ins. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - None observed in wheat fields in Kingfisher, Cotton, Tillman, Greer and Kiowa Counties. (Hudson, Owens, Hatfield).

A SOD FLY (Metoponia rubriceps) - CALIFORNIA - Larval populations medium to heavy in soil and sod in San Francisco, San Francisco County, and light in a cemetery in Coloma, San Mateo County. (Cal. Coop. Rpt.).

FRUIT INSECTS

CITRUS RED MITE (Panonychus citri) - FLORIDA - Activity has decreased to a very low level and will continue low through January. Infestations are presently at the lowest December level in 9 years of record. Moderate activity is present in the Bartow and west coast districts. (Simanton, Thompson, Johnson, Dec. 31, 1959).

DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi) - CALIFORNIA - Medium on lemon leaves and twigs in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

Peach Insects in Texas - Adults, larvae and pupae of Scolytus rugulosus were abundant in bark of recently destroyed plum trees in Houston County. Sannioidea exitiosa, Synanthedon pictipes and Aspidiotus perniciosus infestations were found to be heavy on old peach trees being removed from an orchard in Smith County. (Texas Coop. Rpt.).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Very light infestations continue in some central area lettuce. (Ariz. Coop. Sur.). TEXAS - Present in some lettuce and cabbage fields in lower Rio Grande Valley. Infestation appeared to be on a downward trend as no eggs were found. (Deer).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Sticky board collections for the period December 29, 1959 - January 4, 1960, were as follows: Kyrene - 2, Glendale - 2. (Ariz. Coop. Sur.).

ONION THRIPS (Thrips tabaci) - TEXAS - Light infestations noted on onions along the Rio Grande River, with heavier populations in Hidalgo County. (Deer).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - GEORGIA - Fall examinations of surface trash from woods adjacent to old cotton fields, to determine the number of boll weevils in hibernation, were made in 4 regions in the State from November 20 to December 15, 1959. The State average was 716 live weevils per acre of surface trash. This is lower than the 9-year average of 1,216 and 1 year ago when the counts averaged 1,133 weevils. The averages for 1959 for the different areas where samples were collected were as follows: northwest (Gordon County) 145; north central (Butts, Spalding, Pike, Coweta and Meriwether Counties) 1,186; east central (Burke County) 823; and south (Tift, Atkinson, Berrien, Irwin and Turner Counties) 242. The averages for 1959 were lower in the north and north central areas but slightly higher in the east central and south than they were in 1958. Five samples of two square yards each were taken from each of 50 farms. Live weevils were found on 52 percent of the farms examined. The maximum number of weevils per acre found on a single farm was in Pike County, the number being 8,712. Samples from the same farms will be examined during the spring to determine the winter survival of weevils. (C. M. Beckham and L. W. Morgan).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - CALIFORNIA - Ips spp., Dendroctonus brevicomis, D. monticolae and D. jeffreyi constitute a serious threat to some of the finest timber in the State during 1960. Ponderosa and sugar pines in lower elevations, particularly in fringe timber, have already been hard hit and lodgepole and Jeffrey pine forests in the high country are currently being damaged. Drought conditions, along with unseasonably warm weather which prevailed all fall and winter, as well as unusually heavy lightning damage, heavy snow breakage, considerable scattered forest fire damage and, in some areas, slash left from early cuttings, have provided a plentiful supply of breeding material. These conditions are triggering epidemics in material that is ripe for attack. Sanitary salvage logging and falling and treating of infested trees is starting as a means of stemming the greatest bark beetle threat in more than a decade. Many choice recreational areas of high value and high usage are also threatened. (Cal. For. Pest Cont. Act. Coun.).

A BARK BEETLE (Pityophthorus juglandis) - CALIFORNIA - Medium to heavy on Juglans californica in an area around Tarzana, Los Angeles County. Previously reported from this area a year ago, this species has become quite prevalent and damaging to native black walnuts in the area this season, probably because of extreme drought conditions. Previously known from Arizona and New Mexico, it has now become established in the southern part of California. (Cal. Coop. Rpt.).

A CUTWORM (Heliothis phloxiphaga) - OREGON - Infesting a large greenhouse planting of geraniums in Portland, Multnomah County, December 15, 1959. Det. S. E. Crumb. (Larson).

A SCALE INSECT - MARYLAND - An undetermined species is affecting boxwood at Gibson Island, Anne Arundel County. (U. Md., Ent. Dept.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Male moths were flying December 26, 1959, in Manhattan, Riley County. (Thompson)

A GALL MIDGE (possibly Contarinia coloradensis) - ARIZONA - Collected in galls on needles of pine near Sedona, Coconino County. (Ariz. Coop. Sur.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - KANSAS - Light numbers appearing in Riley, Pottawatomie, Wabaunsee and Morris Counties. Approximately 20 percent of cattle checked at a sales barn were lightly infested. (Knapp, Peters). OKLAHOMA - H. lineatum larval population averaged 18 per head on approximately 400 yearling steers in Canadian County. Populations in mature cows averaged 9 per animal. (Howell). TEXAS - Larvae of H. lineatum appearing in backs of about 400 head of cattle in Bowle County. Price of infested animals being lowered about two cents per pound. (Jones). UTAH - Occurrence of larvae of unspecified species becoming common in cattle in northern portion of State. (Knowlton). CALIFORNIA - An unusual instance of the occurrence of a first-stage larva of H. lineatum taken from the skin of a human by a physician reported from Red Bluff, Tehama County. This is a rare case of this common cattle pest occurring in humans. Verified by Bureau of Vector Control. (Cal. Coop. Rpt.).

DOG FOLLICLE MITE (Demodex canis) - NORTH CAROLINA - Four cases reported to the State Veterinarian during November 1959. (Zweigart).

HOG LOUSE (Haematopinus suis) - KANSAS - Heavy on hogs checked at a sales barn in Pottawatomie County. (Knapp, Peters).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - CALIFORNIA - Three new infestations reported from Imperial County, involving 2 farm properties and one feed lot. One mill in Brawley, Imperial County, and one feed lot in Borrego, San Diego County, have been fumigated. Arrangements to fumigate the 4 remaining known infestations are underway. (Cal. Coop. Rpt.).

A DERMESTID (Trogoderma parabile) - ARIZONA - Extremely heavy populations of adults and larvae present in some central area grainmills. (Ariz. Coop. Sur.).

INDIAN-MEAL MOTH (Plodia interpunctella) - OKLAHOMA - Numerous reports of this species being especially numerous in homes in Stillwater, Perry and Woodward areas. (Howell, Bieberdorf).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Populations remain low in alfalfa fields in Garfield County and in wheat in areas of Kingfisher and Tillman Counties. (Hudson, Owens).

MISCELLANEOUS INSECTS

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Appearing in diminishing numbers in habitations in Payne County. Overwintering populations generally lower than at this time in 1959. (Howell).

CORRECTION

CEIR 10(2):13 - AN ERIOPHID MITE (Aceria mangiferae) should read AN ERIOPHYID MITE (Aceria mangiferae). Same correction should be made under INSECT DETECTION on highlight page.

LIGHT TRAP COLLECTIONS

	<u>Pseudaletia</u> <u>unipuncta</u>	<u>Prodenia</u> <u>ornithogalli</u>	<u>Feltia</u> <u>subterranea</u>
ARIZONA			
Mesa 12/28-1/3		1	
FLORIDA			
Gainesville 12/31, 1/6		2	3
Monticello 1/5	2		2

STATUS OF THE EUROPEAN CORN BORER IN 1959

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

Cooperating agricultural agencies in 20 states reported on surveys conducted in their states to determine the abundance and distribution of the European corn borer (Pyrausta nubilalis) in 1959. 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 processing. This report is a compilation of the information submitted by the State agencies.

Distribution

Spread of the European corn borer during 1959 was rather limited. A total of 13 new counties was reported from Alabama, Arkansas, Colorado, Georgia, Michigan, North Carolina and Texas. The new county record in Texas was the first for that State. The 13 new counties reported during 1959 are a considerable decrease compared with the total of 58 new counties and parishes reported in 1958.

Counties reported as infested for the first time in 1959 are as follows:

<u>Alabama</u>	<u>Colorado</u>	<u>North Carolina</u>
Lee	Yuma	Duplin Northampton
<u>Arkansas</u>	<u>Georgia</u>	<u>Texas</u>
Garland Hot Spring Little River Ouachita Pike Sevier	Carroll <u>Michigan</u> Baraga	Bowie

Abundance

The 1959 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 1959. A district is usually a group of counties within a state, in some cases being based on the Agricultural Marketing Service Crop Reporting Districts. However, some of the states are being considered as a single district in this report. The population levels for 1958 and 1959 are shown in Table 1.

Population levels of the European corn borer were generally lower than 1958 in the Central States. Decreases that were most notable were in Iowa, Kansas, Missouri, Nebraska and North Dakota, where the number of borers per 100 plants averaged 99, 48, 36, 116 and 125, respectively, compared with 166, 135, 96, 177 and 219 in 1958. Slight decreases were recorded in Illinois and South Dakota. Population increases were noted in Indiana, Minnesota, Ohio and Wisconsin, but they were generally only slight.

In the Eastern States, populations were generally higher than those encountered in 1958, with the exception of Virginia. In Delaware and New Jersey, substantial increases were recorded. The average number of borers per 100 plants in the latter named states was 394 and 271, compared with 249 and 169 in 1958. This year's State average for Delaware was 145 borers per 100 plants over the 1958 record high of 249. The counts of 722 in Mercer County and 568 in Middlesex County, New Jersey, were the highest county averages recorded during the 1959 survey. Populations in Pennsylvania, West Virginia and New York were only slightly higher than those recorded in 1958.

Surveys were conducted in Michigan and Arkansas again in 1959, but population counts were not included in the United States average since they were not comparable to the 1958 survey. Districts were used for the first time in Arkansas, with the highest counts being recorded in east central district (80 borers per 100 plants). The survey in Michigan indicates that populations are about the same as those recorded in 1958.

For the states reporting, based on comparable districts or counties surveyed, the average number of borers per 100 plants decreased from 106 in 1958 to 102 in 1959.

A summary of the 1958 and 1959 surveys is shown on Table 1 by States and Districts. State summaries are shown on Table 2. Accompanying maps show districts surveyed, approximate population levels, and counties infested for the first time in 1959.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1959, Compared With Data for 1958

States	1958		1959		Comparable Districts or Counties	
	:Average No. of Borers	:No. of Districts	:Average No. of Borers	:No. of Districts	:Surveyed Both Years	:Borers Per 100 Plants
	:Surveyed	:100 Plants	:Surveyed	:100 Plants	:Number	: 1958 1959
Eastern						
Delaware	1	249	3	394	1	249
Maryland 2/	3	95	3	114	3	95
New Jersey	1	169	12	271	12	169
New York	1	21	1	32	2	7
Pennsylvania 2/	1	38	26	54	26	38
Virginia	2	252	2	182	2	252
West Virginia	1	25	1	29	9	16
Total	10	105	10	111		118
Average 1/						
North Central						
Illinois 2/	1	64	43	77	40	80
Indiana 2/	12	43	92	65	12	43
Iowa	12	166	99	50	99	166
Kansas 2/	4	106	4	38	3	135
Minnesota	6	16	63	35	6	16
Missouri	8	96	50	36	8	96
Nebraska	8	177	72	116	8	177
North Dakota	3	179	6	125	2	116
Ohio 2/	1	43	1	73	1	43
South Dakota	6	83	42	52	6	83
Wisconsin	9	15	62	32	9	15
Total	71	594	68	574		69
Average 1/						
United States						
Total	81	699	78	685		102
Average 1/						
States Surveyed but not Included in U. S. Average						
Arkansas	1	39	16	55	4	18
Michigan	3	7	22	11	1	6

1/ Weighted averages based on districts surveyed.

2/ 1958 figures revised.

Table 2 - European Corn Borer Abundance in Corn,
Fall of 1959, Compared with Data for 1958

State	Average Number: of Borers Per :100 Plants		State	Average Number of Borers Per :100 Plants	
	:1958	: 1959 :		:1958	: 1959
<u>Arkansas</u> (Ext. Ser., Exp. Sta.)			<u>Illinois</u> (cont'd)		
North Central	-	32	Macon	31	28
Northeast	-	68	Macoupin	58	127
East Central	-	80	Madison	29	33
Southeast	-	40	Mercer	164	100
State mean	39	55	Moultrie	53	9
(Survey in 1958 represented 16 counties).			Ogle	124	211
<u>Delaware</u> (Agr. Exp. Sta.)			Peoria	81	53
Kent	249	427	St. Clair	9	9
New Castle	193	282	Sangamon	35	14
Sussex	304	473	Vermillion	34	11
State mean	249	394	Whiteside	165	184
			Will	36	75
			Winnebago	57	83
			Woodford	168	121
			State mean	80	77
			<u>Indiana 1/</u> (Ext. Ser., Exp. Sta.)		
<u>Illinois 1/</u> (Natural History Survey, Ext. Ser.)			North Northwest	78	50
Adams	138	175	North North Central	69	93
Boone	36	64	North Northeast	44	208
Brown	98	104	Northwest	37	49
Bureau	158	208	North Central	61	107
Champaign	24	3	Northeast	46	72
Christian	73	36	Southwest	15	10
Clark	16	27	South Central	32	21
De Kalb	99	200	Southeast	88	64
Du Page	55	59	South Southwest	17	23
Effingham	14	45	South South Central	20	30
Greene	40	69	South Southeast	17	52
Hancock	192	64	State mean	43	65
Henderson	146	87	<u>Iowa</u> (State Dept. of Agr., Ext. Ser., Exp. Sta., Ent. Research USDA)		
Iroquois	47	61	District I	166	245
Jasper	18	16	District II	74	78
Jefferson	0	4	District III	23	15
Jo Daviess	94	114	District IV	396	123
Kankakee	48	107	District V	93	37
Knox	203	108	District VI	81	52
Lake	57	39	District VII	411	30
La Salle	101	120	District VIII	151	26
Lawrence	31	29	District IX	171	47
Livingston	93	85	District X	296	23
Logan	98	12	District XI	146	16
McDonough	149	65	District XII	131	18
McLean	134	118	State mean	166	50

1/ 1958 figures revised.

Table 2 - (Cont'd)

State	Average Number of Borers Per 100 Plants		State	Average Number of Borers Per 100 Plants	
	1958	1959		1958	1959
<u>Kansas 1/</u> (Ins. Sur.)			<u>Missouri (cont'd)</u>		
Northeast	263	72	District V	69	31
North Central	37	33	District VI	22	24
Southeast	19	8	District VII	32	12
East Central	<u>105</u>	<u>40</u>	District IX	<u>123</u>	<u>42</u>
State mean	106	38	State mean	96	36
State mean comparable districts (3)	135	48	<u>Nebraska 2/</u> (Agr. Exp. Sta., Ext. Ser., Ins. Sur.)		
<u>Maryland 1/</u> (Agr. Ext. Ser., Ins. Sur.)			North	88	79
Eastern Shore	172	191	Northeast	330	223
Southern area	38	68	Northwest	22	25
Western and Central areas	<u>47</u>	<u>62</u>	Central	177	158
State mean	95	114	East	299	170
			South	160	161
			Southeast	276	66
			Southwest	<u>65</u>	<u>42</u>
			State mean	177	116
<u>Michigan</u> (Ext. Ser.)			<u>New Jersey</u> (Dept. of Agr. and College of Agr.)		
State mean	7	11	Burlington	188	256
(Survey in 1958 represented 3 districts (22 counties), while survey in 1959 represents 1 district (6 counties))			Camden	128	372
			Cumberland	200	155
			Gloucester	163	344
			Hunterdon	16	164
			Mercer	186	722
<u>Minnesota</u> (State Dept. of Agr.)			Middlesex	299	568
West Central	23	19	Monmouth	369	333
Central	10	20	Salem	168	95
East Central	3	22	Somerset	293	175
Southwest	46	119	Sussex	11	9
South Central	16	42	Warren	<u>8</u>	<u>57</u>
Southeast	<u>6</u>	<u>22</u>	State mean	169	271
State mean	16	35	<u>New York</u> (Ext. Ser.)		
<u>Missouri 2/</u> (Ext. Ser., Ins. Sur.)			Dutchess	4	22
District I	161	47	Erie	11	43
District II	89	43	Onondaga	70	-
District III	131	56	Orleans	1	-
District IV	<u>137</u>	<u>35</u>	Ulster	<u>21</u>	<u>-</u>
			State mean	21	32
			State mean comparable counties (2)	7	32
<u>1/</u> 1958 figures revised.			Nassau and Suffolk Counties surveyed in 1958, but not included in mean total; only 2 samples taken		
<u>2/</u> Crop Reporting Districts.					

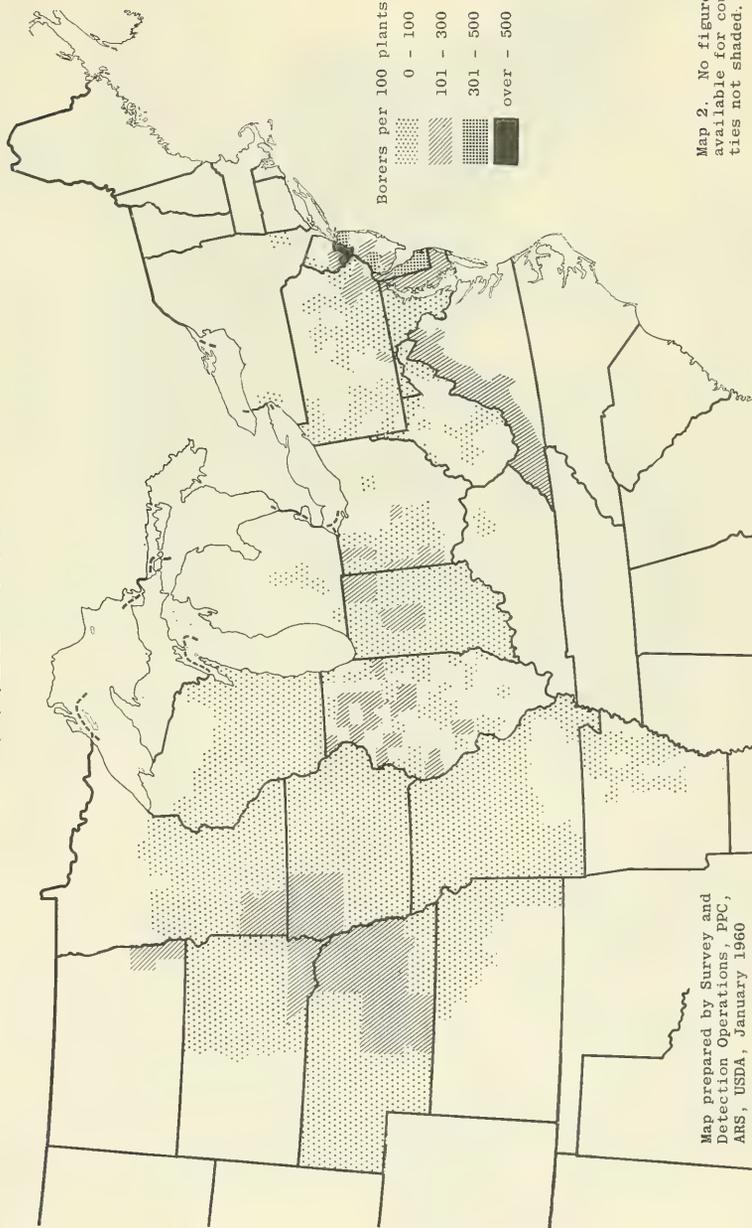
Table 2 - (Cont'd)

State	:Average Number: :of Borers Per : :100 Plants :		State	:Average Number: :of Borers Per : :100 Plants :	
	:1958 :	1959 :		:1958 :	1959 :
<u>North Dakota</u> (State Dept. of Agr.)			<u>Pennsylvania 1/</u> (State Dept. of Agr.)		
District II	219	125	Adams	24	58
			Armstrong	28	26
<u>Ohio 1/</u> (Agr. Exp. Sta., Ext. Ser.)			Berks	73	115
			Bucks	25	92
			Butler	-	31
			Centre	17	21
<u>Northwestern Counties</u>			Chester	160	162
Allen	29	88	Crawford	12	13
Defiance	-	33	Cumberland	21	51
Fulton	34	102	Dauphin	288	23
Hancock	15	62	Erie	7	1
Hardin	6	29	Fayette	5	50
Henry	65	100	Franklin	52	85
Lucas	54	68	Fulton	-	129
Paulding	32	64	Indiana	18	65
Putnam	107	110	Juniata	-	49
Van Wert	19	71	Lancaster	151	55
Williams	-	51	Lawrence	5	55
Wood	24	45	Lebanon	181	30
			Lehigh	44	68
<u>West Central Counties</u>			Luzerne	-	23
Auglaize	21	18	Lycoming	-	17
Champaign	30	18	Mercer	4	26
Clark	49	28	Mifflin	-	38
Darke	7	176	Montgomery	22	151
Logan	4	17	Northampton	45	77
Mercer	8	107	Perry	6	36
Miami	48	72	Schuylkill	-	64
Shelby	22	11	Snyder	28	58
Union	14	38	Somerset	-	30
			Union	-	12
<u>Central Counties</u>			Warren	17	9
Delaware	21	135	Washington	14	74
Fayette	164	14	Westmoreland	19	52
Franklin	38	41	Wyoming	-	30
Madison	28	14	York	27	56
Pickaway	50	83			
			State mean	38	54
<u>Southwestern Counties</u>			State mean comparable		
Butler	76	100	counties (26)	38	58
Clinton	-	78			
Greene	115	34	<u>South Dakota</u>		
Montgomery	51	161	(Agr. Exp. Sta., Ext. Ser.)		
Preble	50	283	North Central	108	6
Warren	56	59	Northeast	49	21
			Central	63	54
<u>Northeastern County</u>			East Central	103	97
Wayne	50	91	Southeast	126	120
			South Central	51	10
State mean	43	73	State mean	83	51
State mean comparable					
counties (30)	43	72			
<u>1/ 1958 figures revised</u>					

Table 2 - (Cont'd)

State	:Average Number: :of Borers Per : :100 Plants :		State	:Average Number :of Borers Per :100 Plants	
	:1958 :	1959 :		:1958 :	1959 :
<u>Virginia</u> (Ins. Sur.)			<u>Wisconsin</u> (State Dept. of Agr.)		
Northern District	290	213	Northwest	12	26
Southwestern District	<u>213</u>	<u>151</u>	North Central	12	10
State mean	252	182	West Central	10	11
			Central	5	29
			Southwest	20	48
			South Central	17	40
			Southeast	9	63
<u>West Virginia</u> (Exp. Sta.)			East Central	28	28
			Northeast	<u>20</u>	<u>37</u>
Berkeley	-	83	State mean	15	32
Braxton	3	5			
Hancock-Ohio-Brooke	Trace	64			
Clay	-	12			
Greenbrier	8	31			
Hampshire	51	19			
Hardy	-	22			
Harrison	21	39			
Berkeley-Jefferson	124	-			
Kanawha	-	33			
Monongalia	27	16			
Monroe	8	18			
Nicholas	1	Trace			
Pleasants	-	27			
Preston	22	46			
Wood	<u>7</u>	<u>20</u>			
State mean	25	29			
State mean comparable counties (9)	16	21			

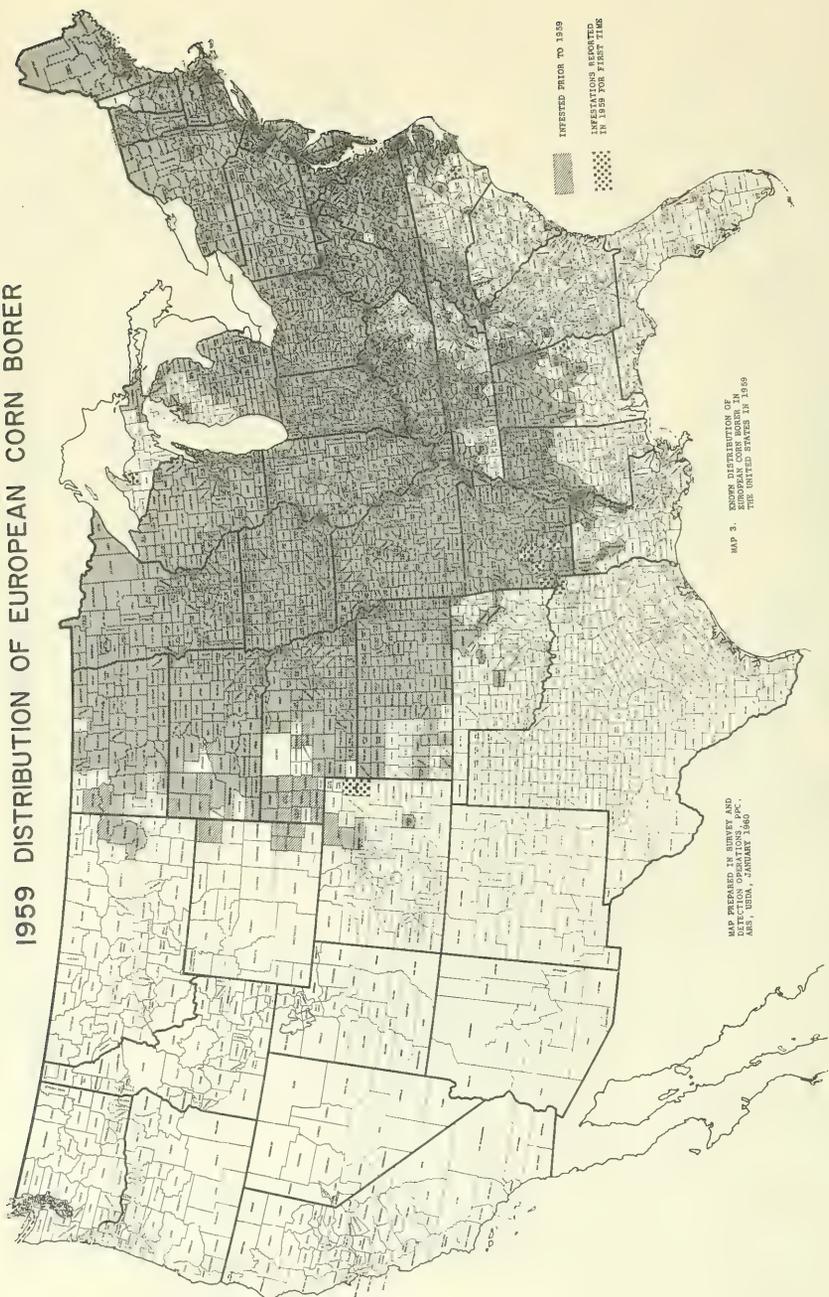
EUROPEAN CORN BORER ABUNDANCE FALL 1959



Map 2. No figures available for counties not shaded.

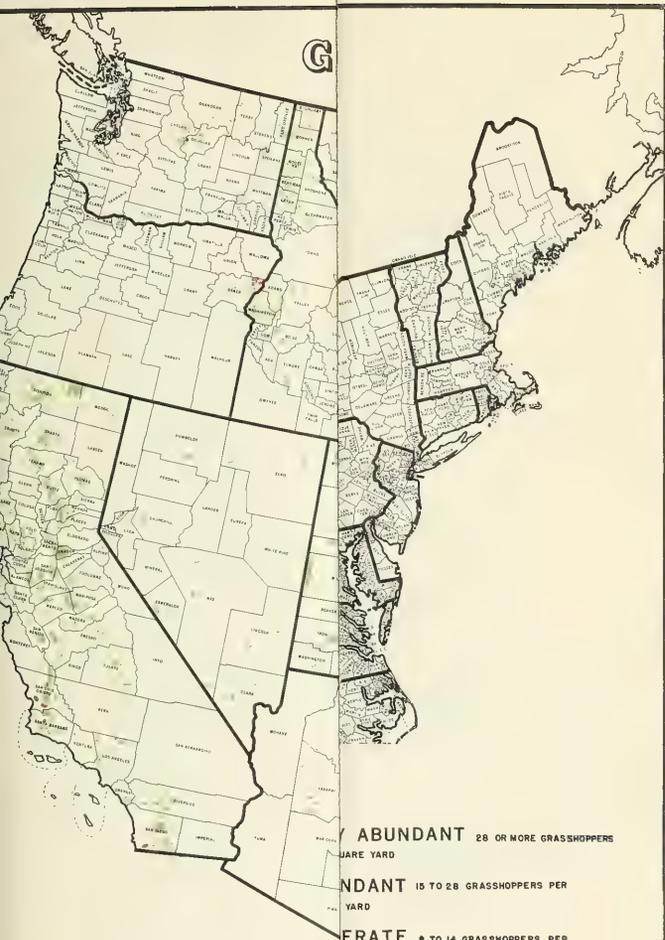
Map prepared by Survey and Detection Operations, PPC, ARS, USDA, January 1960

1959 DISTRIBUTION OF EUROPEAN CORN BORER



MAP 5. KNOWN DISTRIBUTION OF EUROPEAN CORN BORER IN THE UNITED STATES IN 1959

MAP PREPARED IN SURVEY AND DETECTION OPERATIONS DIVISION, ARS, USDA, BUREAU 1960



VERY ABUNDANT 28 OR MORE GRASSHOPPERS
PER SQUARE YARD

ABUNDANT 15 TO 28 GRASSHOPPERS PER
SQUARE YARD

MODERATE 8 TO 14 GRASSHOPPERS PER
SQUARE YARD

SLIGHT 3 TO 7 GRASSHOPPERS PER SQUARE YARD

DARK GREEN - RANGELAND INFESTATIONS
Light Green - CROPLAND INFESTATIONS

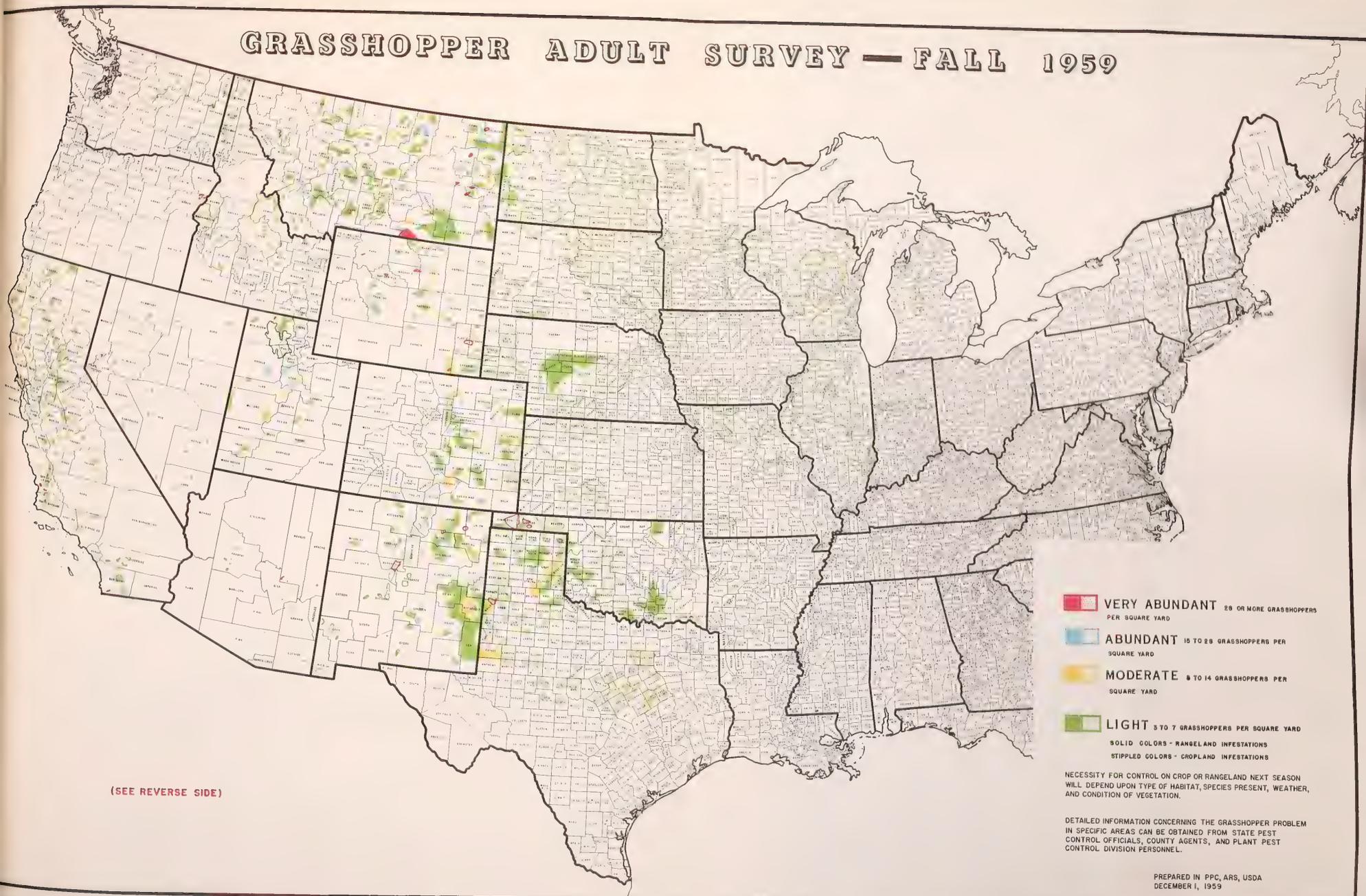
CONTROL ON CROP OR RANGELAND NEXT SEASON
TYPE OF HABITAT, SPECIES PRESENT, WEATHER,
VEGETATION.

(SEE REVERSE SIDE)

FOR MORE INFORMATION CONCERNING THE GRASSHOPPER PROBLEM
CONTACT STATE PEST CONTROL OFFICES. INFORMATION
CAN BE OBTAINED FROM STATE PEST CONTROL
AGENTS, COUNTY AGENTS, AND PLANT PEST
PERSONNEL.

PREPARED IN PPC, ARS, USDA
DECEMBER 1, 1959

GRASSHOPPER ADULT SURVEY — FALL 1959



(SEE REVERSE SIDE)

- VERY ABUNDANT** 28 OR MORE GRASSHOPPERS PER SQUARE YARD
 - ABUNDANT** 15 TO 28 GRASSHOPPERS PER SQUARE YARD
 - MODERATE** 8 TO 14 GRASSHOPPERS PER SQUARE YARD
 - LIGHT** 3 TO 7 GRASSHOPPERS PER SQUARE YARD
- SOLID COLORS - RANGELAND INFESTATIONS
 STIPPLED COLORS - CROPLAND INFESTATIONS

NECESSITY FOR CONTROL ON CROP OR RANGELAND NEXT SEASON WILL DEPEND UPON TYPE OF HABITAT, SPECIES PRESENT, WEATHER, AND CONDITION OF VEGETATION.

DETAILED INFORMATION CONCERNING THE GRASSHOPPER PROBLEM IN SPECIFIC AREAS CAN BE OBTAINED FROM STATE PEST CONTROL OFFICIALS, COUNTY AGENTS, AND PLANT PEST CONTROL DIVISION PERSONNEL.

PREPARED IN PPC, ARS, USDA
 DECEMBER 1, 1959

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 1959. The survey reveals where and how many grasshoppers infest an area, and indicates the potential severity of infestations for 1960. Nymphal surveys, made in the spring, determine population densities, and indicate those areas where control may be necessary in 1960.

The infestations on croplands, shown on the map in stippling, in general are slightly lower than that which was indicated in 1959. 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), total 5,667,010 acres in 13 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 1959

(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	70,200	21,760	91,960	Montana	718,500	330,500	1,049,000
So. Dakota	—	3,000	3,000	New Mexico	713,800	22,200	736,000
				Oregon	—	10,000	10,000
				Idaho	61,200	193,810	255,010
				Washington	10,000	—	10,000
WESTERN:				Wyoming	316,000	64,500	380,500
Arizona	7,000	17,300	24,300				
California	1,191,440	38,000	1,229,440	SOUTHERN:			
Colorado	866,500	123,500	990,000	Texas	873,600	—	873,600
Nevada	4,200	10,000	14,200				

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

December, 1959

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

VOL. 10 NO. 4

JANUARY 22, 1960

513
823
C77
Ent.

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 of Insect Conditions

GREENBUG counts showing some increase in Oklahoma. (p. 41).

CABBAGE LOOPER severely damaging lettuce in some areas of lower Rio Grande Valley and FALSE CHINCH BUGS ranged up to 50 per plant on turnips in Dimmit and Zavala Counties, Texas. (p. 41).

WESTERN PINE BEETLES, Ips spp. and FLATHEAD BORERS causing considerable damage to pines in areas of California and a heavy outbreak of a PINE PITCH MIDGE occurred recently in Washington. (p. 42).

INSECT DETECTION: Imported fire ant collected in Allen Parish, Louisiana, for the first time. (p. 43).

CORRECTIONS. (p. 43).

CHINCH BUG hibernation survey, fall 1959 (map). (p. 45).

SUMMARY OF INSECT CONDITIONS - 1959 - HAWAII. (p. 46).

Phyllophaga bruneri Chapin, a May beetle introduced from Cuba. (p. 47).

SURVEY METHODS - A portable rearing cage for insects. (p. 50).

WEATHER BUREAU 30-DAY OUTLOOK

MID-JANUARY TO MID-FEBRUARY 1960

The Weather Bureau's 30-day outlook for the period mid-January to mid-February calls for temperatures to average below seasonal normals over the western half of the Nation, with greatest departures over the Plateau States. Over the eastern half of the country near normal averages are anticipated except for above normal over the Southeast. Precipitation is expected to exceed normal over most of the Nation except for subnormal amounts over the Pacific Northwest and extreme Southeast. These anticipated conditions indicate a continued succession of vigorous storms moving across the country from the Far Southwest through the central plains into the Northeast.

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 JANUARY 18

Variety was the keynote of weather conditions this week over most of the Nation. Below-normal temperatures persisted in the Far West and the Plateau States as freezing temperatures extended to all sections except the immediate coast, and below-zero readings were widespread in Nevada, Utah, Idaho, and eastern Washington and Oregon. Unseasonably mild weather extended from the northern Rocky Mountains across the Great Plains to the Great Lakes and Ohio Valley and southward to the Gulf and South Atlantic States during most of the week. Maximum temperatures reached the middle 50's in western South Dakota, and readings above 60° extended from Ohio and Indiana to Iowa, Kansas, and southeastern Colorado at midweek. Positive temperature departures exceeded 12° over a wide area of the central Mississippi and Ohio Valleys. Many records for maximum date temperatures were set, including 75° at Nashville, Tennessee, on the 13th; 69° at Kansas City, Missouri, and Evansville, Indiana; and 60° at Burlington, Iowa, on the 12th. Late in the week cold arctic air moved southward across the Great Plains and Mississippi Valley, returning temperatures to winter levels, as below-freezing readings extended to the Louisiana and Texas coasts on Tuesday morning and below-zero readings to the Texas Panhandle. Along the Gulf and Atlantic coasts unusually mild temperatures for mid-January stimulated pasture and small grain growth in the Southern States. Temperatures averaged near normal in New England and the Northeast, except in northern Maine, where above-normal readings were recorded all week.

Moderate to heavy precipitation this week was widespread in most sections of the Nation, except the northern Great Plains and peninsular Florida, as a series of major storm centers moved from the Far Southwest and southern Great Plains north-eastward. Rainfall along the Pacific coast was generally above one inch, with over two inches in the extreme south. Heavy snow covered the southern Plateau States, where record amounts were reported on the ground in the White Mountains of Arizona, and extended across the central and southern Rocky Mountains and Great Plains from north Texas, Colorado, and Nebraska northeastward late in the week. Severe blowing and drifting snow and ice glazing closed roads and schools over a wide area. Snowfall of 4 to 6 inches was general from the Texas Panhandle to Wisconsin, and up to 12 inches fell in Iowa and 10 inches in Kansas. Record rains early in the week in Iowa, in addition to the heavy snow which followed, brought more than the normal January precipitation to several stations there. Showers, thunderstorms, and general rains across the southern tier of states left locally heavy totals in all areas except southern Texas, the Florida Peninsula, and along the south Atlantic coast. Wet weather predominated from the Ohio Valley to New England as almost daily rains fell in Ohio, Kentucky and Tennessee, with weekly totals over one inch. A combination of freezing rain, sleet, and snow produced severe surface glazing early in the week over most of Pennsylvania and New York and western New England. Heavy snow again late in the week extended from the Great Lakes into New England, with 5 to 8 inches general and heavier totals in local areas. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - TEXAS - Infestations ranged from none to very low counts in 5 counties in central area and 9 counties in west central area. Moisture was abundant and all small grains had good growth. (Hawkins). KANSAS - Counts averaged less than one per linear foot of row in wheat fields in Coffey, Montgomery and Elk Counties. (Peters). OKLAHOMA - Populations increased during past few weeks in infested fields of small grains in areas of sandy soil near the Cimarron River in Payne County; counts ranged 1-5 per linear foot in most fields, while an average of 23 per linear foot was noted in one field near Perkins. Counts of less than 3 per linear foot found in limited number of widely scattered fields throughout and including Pottawatomie, Lincoln, Logan, Kingfisher, Payne, Pawnee, Noble and Kay Counties. No winged forms noted. (VanCleave). Counts showed a slight increase over previous week in wheat and barley fields surveyed in Kingfisher County. Counts ranged 1-6 per linear foot (averaged 3.5 per linear foot) in 4 fields. None noted in another field checked in same area. (Owens). None noted in wheat field checked in Jackson County. (Presgrove).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Present in limited numbers (less than one per linear foot) in a few widely scattered fields of small grain in central and north central areas. (VanCleave). Counts ranged 2-4 per linear foot in 4 of 5 fields of small grain checked in Kingfisher County. (Owens).

SPOTTED ALFALFA APHID (Therioaphis maculata) - KANSAS - Populations were less than one per sweep in an alfalfa field in Montgomery County. (Peters). OKLAHOMA - Heavy, 1,000 plus per square foot, in a few isolated fields of old alfalfa in Hennessey area. Very light, up to 25 per square foot, in other fields checked in same area. Very light in alfalfa checked in Kay, Noble, Pawnee, Payne and Lincoln Counties. (VanCleave). Averaged 30 per linear foot of row in alfalfa field checked in Bison area. (Owens). None noted in alfalfa field in Jackson County. (Presgrove).

PEA APHID (Macrosiphum pisi) - KANSAS - Populations averaged less than one per sweep in alfalfa fields in Woodson, Neosho, Montgomery and Elk Counties. (Peters). OKLAHOMA - Present in limited numbers (up to 25 per square foot) in approximately one-half of the alfalfa fields in central and north central areas. (VanCleave). Counts averaged 5 per linear foot in an alfalfa field in Bison area (Owens) and none noted in field of alfalfa in Jackson County (Presgrove).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Low populations were found in Milam, Williamson and Burnet Counties. None were observed in fields sampled in other counties. (Hawkins).

TRUCK CROP INSECTS

A WEBWORM (Pachyzancla periusalis) - ALABAMA - Light infestation found in potatoes in Coffee County on December 1, 1959. This is first record in this host in the State. (Guyton).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Most important pest in lower Rio Grande Valley during week ending January 15. In some areas, lettuce has been severely attacked. (Deer).

FALSE CHINCH BUGS (Nysius spp.) - TEXAS - Infestations ranged up to 50 per plant on turnips in Dimmit and Zavala Counties. (Harding).

FLEA BEETLES - TEXAS - Undetermined species caused damage to late cabbage in Willacy County and caused minor damage to tomatoes and mustard in other areas. (Deer).

DARKLING BEETLES - TEXAS - Undetermined species caused minor damage to tomatoes in Brownsville area. (Deer).

THRIPS - TEXAS - Damage was noted in some onion fields in the lower Rio Grande Valley. (Deer).

BLACK CUTWORM (Agrotis ypsilon) - CALIFORNIA - Damaging sugar beet plantings in Irvine area, Orange County. (Cal. Coop. Rpt.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - LOUISIANA - Five new properties found infested in Lincoln Parish. This parish had been released from quarantine early in 1959. (Spink, PPC).

AN EARWIG - ALABAMA - Large numbers found feeding on sweetpotato scraps during December 1959, in fields near Semmes, Mobile County. (Seibels).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Occurring in epidemic infestations in the Bass Lake area of the Sierras. This rapidly expanding infestation in ponderosa pine is killing groups of 10-20 trees in a 1,200-acre stand. Salvage logging of merchantable timber is underway and it is recommended that poles and unmerchantable trees be felled and treated, as salvage logging alone will not stem the epidemic. This area has a high recreational value and usage. (C. B. Eaton). D. brevicomis in association with Ips spp. is causing serious damage on private and forest stands in the Tule Indian Reservation and Camp Wishon areas of the Sequoia and near Jackson in Amador County. This is a high recreation value area and a rapid buildup of beetles threatens epidemic infestations this spring. (Waklee, Fox). D. brevicomis and flatheaded borers are causing top fade and complete kill of single and groups of ponderosa and Coulter pines in the Arroyo Seco district and Messenger Flats areas of Los Angeles County. Poles through mature trees are being attacked in this high recreational value area. Extreme drought conditions apparently are contributing to the "dieout" in a 500-acre area. (R. B. Foree).

A PINE WEEVIL (Pachylobius picivorus) - ALABAMA - From 1-8 adults observed on stand of pine seedlings in Mobile County during December 1959. (Seibels).

DEODAR WEEVIL (Pissodes nemorensis) - ALABAMA - A moderate infestation observed during December 1959, in Mobile County. (Seibels).

A PINE PITCH MIDGE (Retinodiplosis sp.) - WASHINGTON - A heavy outbreak recently occurred in ponderosa pine in Ferry, Stevens, Pend Oreille, Spokane and Whitman Counties. (Missoula For. Ins. Lab.).

AN ANOBIID (Vrilletta decorata) - CALIFORNIA - Light infestation of black walnut trees in Los Angeles, Los Angeles County. (Cal. Coop. Rpt.).

WALNUT SCALE (Aspidiotus juglans-regiae) - CALIFORNIA - Medium infestations on black walnut trees in Pomona, Los Angeles County. (Cal. Coop. Rpt.).

A SCALE (Aspidiotus lataniae) - CALIFORNIA - Heavy infestation on black walnut trees in west Los Angeles, Los Angeles County. (Cal. Coop. Rpt.).

AZALEA CATERPILLAR (Datana major) - NORTH CAROLINA - Large numbers in a yard in Cumberland County. (Monroe, Farrier).

GRAPE MEALYBUG (Pseudococcus maritimus) - CALIFORNIA - Heavy infestation occurring on dwarf euonymus in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

A BAMBOO BORER (Dinoderus minutus) - CALIFORNIA - Light to medium infestations in bamboo stakes in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (*Hypoderma* spp.) - KANSAS - *H. lineatum* found lightly infesting 2 of 12 steers inspected in Ellis County. (Knapp). UTAH - Numerous in many Kane County cattle. There were few until late December 1959. (Knowlton, Rose). SOUTH CAROLINA - *H. lineatum* averaged 6 grubs per head in herd of untreated cattle at Edisto Experiment Station on January 5. (Adkins).

CATTLE LICE - UTAH - Troublesome in several western Box Elder County herds and in some beef cattle in the Roosevelt-Myton area of Duchesne County. (Knowlton). Also common, generally moderate to severe, in Kane County herds. (Knowlton, Rose). OKLAHOMA - Heavy infestation reported on 80 head of range cows and calves in Payne County. (Howell). Heavy on 60 steers, 40 beef cows and 82 dairy cows checked in Pawnee County. (Young). Light to medium infestations on cattle in Noble and Kay Counties. (Hesser, Hutchinson).

FACE FLY (*Musca autumnalis*) - VIRGINIA - Adults of this species, along with adults of *Pollenia rudis*, are present in some homes in Highland County. Investigation of 2 complaints by homeowners revealed that *M. autumnalis* adults were equal to or exceeded *P. rudis* in number. (Turner, Morris).

CHICKEN BODY LOUSE (*Menacanthus stramineus*) - KANSAS - A flock of laying hens were heavily infested in Riley County. (Knapp).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - LOUISIANA - Infestation reported in Allen Parish for the first time. This new parish record brings to 49 the number of parishes found infested. (Spink, PPC).

SUBTERRANEAN TERMITES - UTAH - Quite a number of Salt Lake County homeowners have reported damage in recent weeks. (Knowlton).

CORRECTIONS

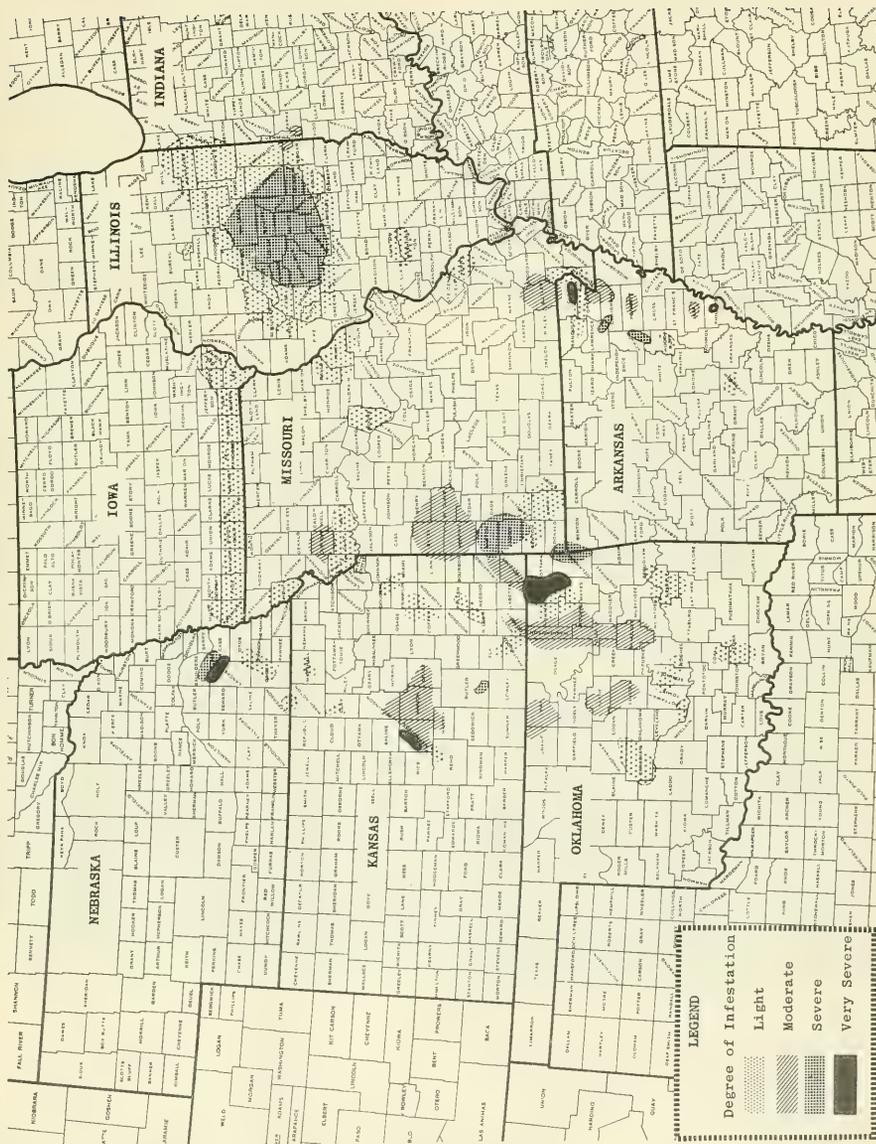
CEIR 9(25):549 - EUROPEAN PINE SHOOT MOTH (*Rhyacionia buoliana*) - MARYLAND - Record of this species in Anne Arundel County should be deleted. The only valid record of this species in Maryland is in Garrett County. Correction should also be made on page 30 of special compilation of "Distribution Maps" issued in December 1959.

CEIR 9(28):623 - A MILLIPEDE (*Pleuronema butleri*) should read A MILLIPEDE (*Pleurolooma butleri*).

LIGHT TRAP COLLECTIONS

	<i>Pseudaletia</i> <i>unipuncta</i>	<i>Feltia</i> <i>subterranea</i>	<i>Prodenia</i> <i>ornithogalli</i>	<i>Agrotis</i> <i>ypsilon</i>	<i>Perid.</i> <i>marg.</i>
FLORIDA					
Monticello 1/12		2	1		
Quincy 1/4	3	4		2	
LOUISIANA					
Baton Rouge 1/8-14	6	2	14	3	
SOUTH CAROLINA					
Clemson 1/9-15	5			7	2
Charleston 1/4-10	6	12		7	1
Charleston 1/11-17	6	22	3	5	

CHINCH BUG SURVEY — 1959



SUMMARY OF INSECT CONDITIONS - 1959

HAWAII

Prepared by Clifton J. Davis,
State Board of Agriculture
and Forestry

Highlights: This was a particularly active year for lepidopterous insects, not only for destructive immigrant and native species, but beneficial introductions as well. ARMYWORMS caused extensive damage to forage grasses and lawns, a GEOMETRID caused much defoliation to leguminous plants in western areas, a native COCONUT LEAF ROLLER destroyed up to 100 percent of the fronds in windward coastal areas on Oahu and beneficial insects introduced for the control of the range pest, Lantana camara var. aculeata, denuded many square miles of this aggressive range weed.

Cereal and Forage Insects: ARMYWORM (Pseudaletia unipuncta) was more abundant than usual on Parker and neighboring ranches, Island of Hawaii, and damaged many acres of kikuyugrass, Pennisetum clandestinum. A LAWN ARMYWORM (Spodoptera mauritia acronyctoides) was very active on Bermuda grass and was recorded from the Island of Hawaii for the first time. Damage to range grasses at lower elevations on Hawaii was not confirmed but highly probable. PEA APHID (Macrosiphum pisi) caused heavy damage to ten acres of alfalfa at Waimea Dairy, Island of Kauai, in January. This was the first record of this pest from this island. It was previously recorded from Ewa and Mokuleia, Oahu, for the first time in 1958. A GEOMETRID (Anacamptodes fragilaria) increased considerably and heavily defoliated Prosopis juliflora and Leucaena glauca. The former is important to the honey industry, while the latter is an important forage crop in some ranching areas.

Forest, Ornamental and Shade Tree Insects: A COCONUT LEAF ROLLER (Hedylepta blackburni) broke out in epidemic proportions and caused widespread damage to coconut fronds in coastal areas. Up to 100 percent of the fronds was destroyed. Devastation as described was not observed for many years and it is one of the few instances of a native insect periodically causing extensive damage in Hawaii.

Beneficial Insects: A NOCTUID (Hypena jussalis), an introduced defoliator for the range pest, Lantana camara var. aculeata, "exploded" on the Island of Maui and denuded hundreds of acres of lantana at Ulupalakua. This beneficial insect was introduced from Diani Beach, Kenya Colony, and Umtali, Southern Rhodesia, in 1957. A NOCTUID (Catabena esula), another lantana defoliator which was introduced from California in 1955, was reported from a number of localities in increasing numbers. A MIRID (Cyrtorhinus lividipennis), an egg predator of corn planthopper (Peregrinus maidis), was recovered at Kapoho, Hawaii, for the first time since its introduction there in 1952 and another MIRID (C. fulvus), an egg predator of a taro leafhopper (Tarophagus prosperina), was present in most infested areas and was one of the main factors in suppressing T. prosperina. A CACTUS BORER (Lagocheirus funestus), introduced in 1951 for the control of cactus, was observed in increasing numbers and corresponding damage was noted at the Parker Ranch, Kamuela, Hawaii.

PHYLLOPHAGA BRUNERI CHAPIN, A MAY BEETLE INTRODUCED FROM CUBA

by

R. E. Woodruff

This report is prepared as an aid to the observer in the field and is not intended as a complete scientific report. Detailed morphological descriptions of the adult and immatures are reserved for later publication. Since this species is difficult to recognize, except by a specialist in the group, this aid is merely a guide and cannot be used to make a final determination. Adults of the genus Phyllophaga are probably familiar to most persons under the common names of "May beetle" and "June Beetle" and larvae are known as "white grubs." They are members of the large family of beetles known as Scarabaeidae which contains such familiar pests as Japanese beetle, Asiatic garden beetle, European chafer and oriental beetle.

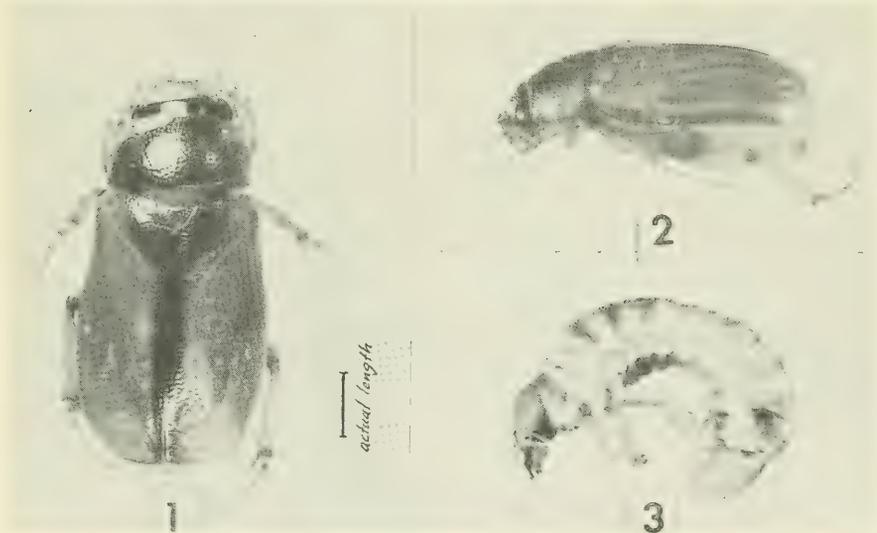


Fig. 1 - Dorsal view of adult

Fig. 2 - Lateral view of adult

Fig. 3 - Lateral view of larva

History - Phyllophaga bruneri Chapin was described in 1932 from a single male specimen collected at Santiago de las Vegas, Havana Province, Cuba, on June 14, 1921. There is no reference to this species in the literature since that time. It was first found in the United States at Miami, Florida, in June 1959 and seems to be well established in that city.

Distribution - In Cuba, this species is known only from the area around Santiago de las Vegas, where it appears to be a rare species. In the United States, it is known only from the city of Miami, Florida. In Miami, this pest has been found over approximately 4 square miles, most of which is in close proximity to the Miami River. This area is bounded on the west by N. W. 42nd Ave., on the east by N. W. 12th Ave., on the south by N. W. 7th St., and on the north by N. W. 54th St. There is one record from Majorca Ave. in Coral Gables, but there is some question regarding this specimen. Initial surveys have not located the beetles in areas outside the one delimited above.

Description - The genus Phyllophaga contains many species which are similar in general appearance and it is necessary to use the genitalia for specific identification. The beetles are relatively small (length approximately 9 mm.) for the genus, and light golden tan in color with a slight metallic lustre, especially at the suture between the wing covers and the head and thorax. The antennae are 9-segmented which is characteristic of all the West Indian species. There is only one known species which occurs in the United States that has 9-segmented antennae (Phyllophaga youngi Cartwr. from Brickell Hammock in Miami); the other United States species have 10-segmented antennae.

Life History and Habits - Practically no information is at hand concerning the life history of this particular species. However, some information can be drawn from the knowledge of related species. The larvae are "C"-shaped white grubs which occur in the soil and feed on the roots of various plants (primarily grasses). This species has been found feeding on the roots of St. Augustine grass in Miami and will probably have a fairly wide host range when more thoroughly studied. Some of the closely related species are known pests of sugarcane in the West Indies. Host preference tests and rearing operations now being carried out will help us to answer some of the questions regarding this species in Miami. There are 42 species of Phyllophaga known from Florida. Most of these have only one generation per year and the adults occur from April to September. Some of the native species require 2 years or more to complete their life cycle, and in the northern United States some require even longer periods. However, we might expect a more rapid development of such a tropical insect, and perhaps more than one generation per year. The adults are attracted to electric lights and can be collected by use of a blacklight trap. They are strictly nocturnal and all feeding is done at night. They are probably strong fliers and might be expected to be attracted to lights some distance from their diurnal resting places. They apparently spend the daylight hours in the soil or under debris on the ground. The adults feed primarily on foliage of broad-leaved trees and shrubs, but occasionally damage flowers (as in some varieties of hibiscus). The feeding signs are characteristic when they are severe, but resemble damage caused by the citrus root weevil (Pachnaeus litus) when only the leaf border is notched. Beetles can become numerous enough to partially defoliate a tree, and severe damage and stunting could result. However, it is not likely that adult beetles could cause death of the plants. The larvae damage roots of grasses and could become very serious pests of turf. There is some indication that larvae of this species feed on roots of at least one tree (Trema mollis (= floridana)).

Hosts - Adults have been found feeding on the following plants:

<u>Scientific Name</u>	<u>Common Name</u>	<u>Family</u>
<u>Bauhinia</u> sp.	bauhinia	Leguminosae
<u>Cassia fistula</u>	goldenshower senna	"
<u>Cassia marginata</u>	senna	"
<u>Castanospermum australe</u>	moretonbaychestnut	"
<u>Gliricidia sepium</u>		"
<u>Gliricidia</u> sp.		"
<u>Tamarindus indica</u>	tamarind	"
<u>Hibiscus rosa-sinensis</u>	Chinese hibiscus	Malvaceae
* <u>Swietenia mahagoni</u>	West Indies mahogany	Meliaceae
<u>Khaya nyasica</u>	nyassa khaya	"
<u>Euphoria longan</u>	longan	Sapindaceae
<u>Melicocca bijuga</u>	mamoncillo honey- berry	"
<u>Calocarpum sapota</u>	sapote	Sapotaceae
<u>Calocarpum viride</u>	green sapote	"
* <u>Chrysophyllum oliviforme</u>	satinleaf starapple	"
* <u>Trema mollis</u> (= <u>floridana</u>)	Florida trema	Ulmaceae

The plants prefixed with an asterisk are native to Florida and the remainder are introduced ornamentals. This list is probably very incomplete but represents all of those found to date. Some plants closely related to some of those above were not attacked at the same locality.

Survey Methods

A PORTABLE REARING CAGE FOR INSECTS ^{1/}

A simple, inexpensive idea for rearing out insects is illustrated below. A one or two-quart, square, waxed, paper milk carton with the inside margin of the top and two sides cut out is placed in a lady's discarded stocking about half-way down. A rubber band is placed around the indentation at the base of the carton to hold the stocking in place and the foot is cut off. The rearing material is then placed in the cage and the excess stocking at the top is tied in a knot and used to suspend the cage.



^{1/} Contributed by Bureau of Entomology, California

Official Business

VOL. 10 NO. 5

JANUARY 29, 1960

SB
823
C77
Ent.

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 of Insect Conditions

BOLL WEEVIL hibernation counts reported from several locations in southern Missouri. (p. 54).

FOREST TENT CATERPILLAR egg survey in Pennsylvania reported. (p. 55).

INSECT DETECTION: New county records reported were sweetclover aphid in San Bernardino County, California (p. 53) and imported fire ant in Craven County, North Carolina (p. 56).

SUMMARY OF INSECT CONDITIONS in some countries in Africa and the Near East for 1959. (Tunisia p. 57, Libya p. 59, Sudan p. 60, Ethiopia p. 62, Iran p. 63, Turkey p. 65).

INSECTS not known to occur in the United States. (p. 67).

Reports in this issue are for the week ending January 22, unless otherwise indicated.

WEATHER OF THE WEEK ENDING JANUARY 25

Temperatures this week averaged much below normal over all sections of the Nation, except along the Pacific coast, in the upper Great Lakes and over New England. A large mass of very cold arctic air, which moved southward through the Great Plains late last week, dominated the weather over most areas from the Sierras and Cascades eastward to the Great Plains, the Ohio Valley, and the Southeastern States throughout this week. Freezing temperatures and frost extended to the extreme southern parts of the Gulf Coast States, and persisted through this weekend in Florida, where growing crops were damaged in varying degrees, with heavy losses to vegetable acreages in the southern half of the State. Persistent midwinter cold, with minimum temperatures near or below zero, extended from the Ohio Valley to the Texas Panhandle and northern New Mexico northwestward to eastern Oregon and Washington. Temperatures near -20° were reported from Iowa and the Dakotas, and readings of near -30° from Colorado to Montana and Idaho on one or more days. Maximum temperatures over the Great Plains and upper Mississippi Valley from central Kansas and Illinois northward remained below 20° during most of the week. Unseasonably warm weather continued in northern New England for the second straight week.

Precipitation was light over all areas, except along the Pacific coast, in the central Great Lakes, and New England. An offshore storm left rainfall totals up to near 2 inches in the northern portion of the central valley and coastal mountains of California and heavy snow and rain in coastal Oregon and Washington. Tatoosh Island, in extreme northwestern Washington, had 3.69 inches of precipitation during the week. Heavy snow early in the week in the Great Lakes left from 4 to 9 inches in Wisconsin and Michigan. A coastal storm on the 19th brought 8 to 16 inches of snow to northern New England, and frequent light snowfalls extended from western New England southwestward to the Ohio Valley and Michigan throughout the week. Light snow, sleet and rain touched scattered areas of the Southern States, but totals in general were below $1/2$ inch. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - ARKANSAS - Found at the rate of 0-10 per foot of row in small grain in Washington County. (Boyer). OKLAHOMA - Counts averaged 9 per linear foot in a field of oats in Choctaw County and populations continued low, less than 5 per linear foot, in most fields of small grain checked in central and south central areas. In one field in Lebanon area, however, populations increased during past month. Counts now average 40 per linear foot. Plants had not been grazed heavily. (VanCleave, Latham, Vinson, Brown, Goin). None noted in fields of small grain checked in Jackson, Beckham, Kiowa, Washita, Caddo and Garfield Counties. (Hatfield, Hudson, Owens).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Present in very limited numbers in 2 fields of small grain checked in Marshall County. Winged and wingless females present in both fields. None noted in the remaining fields checked in south central and central areas. (VanCleave, Latham, Vinson, Brown).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Present in limited numbers, less than 5 per linear foot, in approximately one-fourth of the small grain fields surveyed in central and south central areas. (VanCleave, Latham, Vinson, Brown). None noted in fields checked in southeast, southwest, west central and north central areas. (Goin, Hatfield, Hudson, Owens).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Found in very limited numbers in approximately one-fourth of the fields of small grain checked in central and south central areas. (VanCleave, Latham, Vinson, Brown). None noted in fields checked in southeast, southwest, west central and north central areas. (Goin, Hatfield, Hudson, Owens).

PEA APHID (Macrosiphum pisi) - OKLAHOMA - Counts averaged 15 and 21 per square foot in 2 alfalfa fields in Choctaw County (Goin) and present in light numbers (up to 15 per square foot) in approximately one-half of the alfalfa fields checked in south central and central areas (VanCleave, Latham, Vinson, Brown). Counts averaged 3 per square foot in 3 alfalfa fields in Garfield County. (Owens). ARIZONA - Very light infestations in alfalfa in central and southwestern areas. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - Light, 1-2 per foot in Washington County. (Boyer). OKLAHOMA - None noted in 2 alfalfa fields checked in Choctaw County. (Goin). Present in approximately two-thirds of alfalfa fields checked in central and south central areas. Counts averaged from less than one to 15 per square foot in infested fields. (VanCleave, Latham, Vinson, Brown). Counts ranged 5-10 per square foot (averaged 8 per square foot) in 3 alfalfa fields in Garfield County. (Owens).

SWEETCLOVER APHID (Therioaphis riehmii) - CALIFORNIA - Collected in San Timeteo Creek area of San Bernardino County on white sweetclover by A. E. Gable on December 23, 1959. This is a first record for this county. (Cal. Coop. Rpt.).

FRUIT INSECTS

ORANGE TORTRIX (Argyrotaenia citrana) - CALIFORNIA - Light infestation damaging Meyer lemon in San Anselmo, Marin County. (Cal. Coop. Rpt.).

EUROPEAN FRUIT LECANIUM (Lecanium corni complex) - CALIFORNIA - Light infestation on prune trees in Rutherford area, Napa County. (Cal. Coop. Rpt.).

Citrus Insect Situation in Florida - Mid-January - PURPLE SCALE (Lepidosaphes beckii) activity increased slightly but will remain in the low range during the next month. No high populations are expected. Highest activity is in the Bartow, upper east coast and Indian River districts. FLORIDA RED SCALE (Chrysomphalus aonidum) activity increased slightly; infestations expected to hold near current average level for several weeks. Highest activity is in the Gainesville, Bartow, west coast, Indian River and upper east coast districts. CITRUS RED MITE (Panonychus citri) activity is in an upward trend which will continue into February. Populations are generally below average at present but will soon show increases in most areas. Highest activity is in the Bartow district. CITRUS RUST MITE (Eutetranychus banksi) activity dropped slightly but is expected to increase during the next three weeks. Although most infestations are moderate at present, high populations are building up in many groves, especially in the tree tops. Highest activity is in the west coast, Bartow, upper east coast, Indian River and Ridge districts. (Simanton, Thompson, Johnson (Citrus Experiment Station, Lake Alfred)).

TRUCK CROP INSECTS

BEET ARMYWORM (Spodoptera exigua)*- CALIFORNIA - Causing light damage to cabbage leaves in association with potato aphid (Macrosiphum solanifolii) in the Watsonville area, Santa Cruz County. (Cal. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Infestations decreased slightly in cabbage while increases were noted in broccoli fields in Willacy County. (Deer).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Total of 15 collected on sticky-board traps during the period January 4-18. (Ariz. Coop. Sur.).

APHIDS - GEORGIA - Light infestations on turnips in Colquitt and Brooks Counties. (Johnson).

DARKLING BEETLES - TEXAS - Undetermined species causing some damage to watermelons in Willacy County. (Deer).

TOBACCO INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light infestations in tobacco plant beds in Worth, Colquitt, Brooks, Lowndes and Cook Counties. (Johnson).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - MISSOURI - Examination of surface trash for hibernating weevils was conducted during late November and early December 1959, with the following number of weevils per acre being found at the locations indicated (counties in parenthesis). Malden (Dunklin) - 6,292; Morley (Scott) - 799; Commerce (Scott) - 0; Quin (Butler) - 315; Neelyville (Butler) - 339. The average number of weevils per acre found in 66 samples was 1,283. A recheck of the north Dunklin County area near Malden during January showed a reduction of the overwintering populations to 2,178 per acre. (Arrendorff).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE ENGRAVERS (Ips spp.) - CALIFORNIA - Causing complete kill of ponderosa pine saplings to saw timber in groups of 8 to 40 in a 60-acre stand in the Big Creek area of the Sierra National Forest. Association of western pine beetle (Dendroctonus brevicomis) has not been established. (G. K. Parks). I. confusus

* Zimmerman, E. C. 1958. Insects of Hawaii, Vol. 7 : 339.

is severe in seedlings to mature ponderosa pines in a 40-acre stand in the Covelo district, Mendocino County. Groups of 3 to 40 trees showing top and complete kill. Damage associated with previous logging causing this epidemic. (W. L. Bradley).

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - TEXAS - Remains uncontrolled in 28 spots. Four of these spots have over 100 brood trees, 19 have from 11 to 50 brood trees and the remaining 5 spots have 10 or less brood trees. During 1959, there were 144 spots discovered by aerial reconnaissance, 122 spots ground checked and 116 controlled or being controlled. (Young).

BLACK TURPENTINE BEETLE (*Dendroctonus terebrans*) - ARKANSAS - Reported to be laying eggs in December 1959, in the Ozark region of northwest Arkansas. (Warren).

CYPRESS BARK BEETLE (*Phloeosinus cupressi*) - CALIFORNIA - Infestations of *P. cupressi* and *P. cristatus* heavy on Arizona cypress, *Cupressus arizonica*, in Corte Madera, Marin County. (Cal. Coop. Rpt.).

FOREST TENT CATERPILLAR (*Malacosoma disstria*) - PENNSYLVANIA - Surveys on January 12-14 revealed egg populations to be widespread and light to moderate on South Mountain below Boiling Springs and in the area around Pine Grove Furnace (Cumberland County), and in eastern Adams County. Light to heavy egg mass populations were located along the southern slope of Piney Ridge, just north of Pine Grove Furnace. Light egg populations were observed near Old Forge, Franklin County. Egg deposition was primarily on scarlet oak. (Dowden, McIntyre, Nelson, Drooz).

FALL CANKERWORM (*Alsophila pometaria*) - PENNSYLVANIA - Egg masses were common on oak in Cumberland, Adams and Franklin Counties. (Dowden, McIntyre, Nelson, Drooz).

PINE NEEDLE SCALE (*Phenacaspis pinifoliae*) - MARYLAND - Heavy on white pine at Towson, Baltimore County. (U. Md., Ent. Dept.).

GREENHOUSE PESTS - OKLAHOMA - Light to medium infestations of mealybugs, aphids, scale insects and spider mites were noted in older stock in some greenhouses checked in Tulsa County. (Stiles).

A SCALE INSECT (*Phenacaspis natalensis*) - FLORIDA - Abundant on magnolia at Gainesville, Alachua County; especially on lower leaves of trees valued as ornamentals. (Hetrick).

INSECTS AFFECTING MAN AND ANIMALS

COMMON CATTLE GRUB (*Hypoderma lineatum*) - OKLAHOMA - Counts averaged 20 per animal on mature untreated cows checked in Grandfield area and 21 per head on yearling steers and 14 head checked in Stillwater area. (Kinzer). Counts averaged 15 per animal on 40 head of yearling steers checked in Cleveland County (Frye) and averaged 4 per animal on 23 head of mature cows checked in Jefferson County (Winson). MARYLAND - Cattle gurbs, probably *H. lineatum*, were infesting 3 out of 47 bulls at Ellicott City, Howard County. (U. Md., Ent. Dept., Jan 14).

CATTLE LICE - OKLAHOMA - Medium to heavy on approximately 20 percent of 120 head of untreated beef cattle checked in Marshall County. (VanCleave et al.). MARYLAND - *Linognathus vituli* and *Haematopinus eurysternus* were light on young bulls at West Friendship, Howard County, on January 14. *H. eurysternus* was causing some hair loss. (U. Md., Ent. Dept.).

DOG TICKS - NORTH CAROLINA - Undetermined species active in Wayne County. (Farrier, PPC).

STORED-PRODUCT INSECTS

RICE WEEVIL (Sitophilus oryza) - OKLAHOMA - Heavy, over 200 per quart, in 400 bushels of stored barley and oats checked on a farm in Marshall County. (VanCleave, et al.)

CADELLE (Tenebriodes mauritanicus) - OKLAHOMA - Heavy in 400 bushels of barley stored in a wooden granary on a farm in Lebanon area of Marshall County. (Vinson).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - OKLAHOMA - Heavy, over 50 per quart, in 400 bushels of stored barley and oats checked on a farm in Marshall County. (VanCleave et al.).

BENEFICIAL INSECTS

PARASITES AND PREDATORS - OKLAHOMA - None noted in alfalfa and small grain fields checked in State. (VanCleave et al.).

MISCELLANEOUS INSECTS

AN OTITID (Chrysomya demandata) - OKLAHOMA - Larval infestations in silage causing some concern in Jackson and Grady Counties. (Howell).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - NORTH CAROLINA - Light infestation reported near Harlowe in Craven County; first record in the county. (Farrier, PPC).

FURNITURE CARPET BEETLE (Anthrenus flavipes) - NORTH CAROLINA - Severe infestation in unknown source in Wake County. (Scott, Farrier).

SPIDER BEETLES - TEXAS - Undetermined species annoying homeowners in Grimes and Houston Counties. (Texas Coop. Rpt.).

LIGHT TRAP COLLECTIONS

	<u>Pseudaletia unipuncta</u>	<u>Feltia subterranea</u>	<u>Prodenia ornithog.</u>	<u>Agrotis ypsilon</u>	<u>Laphygma frugiperda</u>
FLORIDA					
Quincy 1/11		1	4		
LOUISIANA					
Franklin 1/15-21		1	2		
Baton Rouge 1/15-21	4	2	16	3	
TEXAS					
Brownsville* 1/14-15	3	4	1	1	20

*Additional collections at Brownsville during same reporting period were 206 Loxostege similalis and 1 Heliothis zea.

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

1959

The summaries of insect conditions that follow have been submitted in the 1959 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, ARS, in accordance with an agreement signed on February 18, 1954, between the U. S. Department of Agriculture and the International Cooperation Administration. At the present time a staff of 10 entomologists are stationed in 6 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. Special attention has been given to survey and plant quarantines. Consequently an increased effort has been made to collect, identify and record the insect species of economic importance. First-hand information on foreign pests should serve to familiarize the entomologist and the pesticide industry of this country with the major pests in the areas reported on. It should lead to better understanding and mutual interest in entomological problems common to the United States and other nations. (E. J. Hambleton).

Summary of Insect Conditions in Tunisia

By E. R. Millet

Cereal Insects: HESSIAN FLY (Phytophaga destructor) infestations were light in wheat in the north. Lack of rain and high temperatures to December had not been favorable for the fly. DURRA STALK BORER (Sesamia cretica) (Det. H. W. Capps) caused severe damage to young corn in plots at the El Bathan Agricultural School. SENN PEST (Eurygaster integriceps) was light at Le Sers and Souk El Arba. There has been no heavy damage from this pest in Tunisia now since 1934. DESERT LOCUST (Schistocerca gregaria) appeared in swarms in the south in December 1958 and January 1959. Although this predicted a heavy season for 1959, it did not materialize, and there was little crop loss. The season ended in July.

Citrus Insects: MEDITERRANEAN FRUIT FLY (Ceratitis capitata), although reported attacking 80 percent of the earliest ripening varieties of oranges in late September in Cap Bon, infested only 3 percent in November. However, in the orange area between Sousse and Sfax, the infestation in November was 20 percent. SCALE INSECTS, notably DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi), CALIFORNIA RED SCALE (Aonidiella aurantii), FLORIDA RED SCALE (Chrysomphalus aonidum) and PURPLE SCALE (Lepidosaphes beckii), were heavy in the Cap Bon and La Soukra areas, 50 percent of the groves being attacked; BLACK SCALE (Saissetia oleae) was also notable on citrus at Soliman, occurring in 60 percent of the groves. (Det. H. Morrison). CITRUS BUD MITE (Aceria sheldoni) (Det. E. W. Baker) was moderate in all lemon groves in the Hammamet area. Other MITES in association with citrus bud mite in the same area were Brevipalpus phoenicis, Tydeus sp.,

Typhlodromus sp. and Tarsonemus sp. (Det. E. W. Baker). A MITE (Tetranychus cinnabarinus) (Det. E. W. Baker) was also found moderately on lemons in the Hammamet area.

Deciduous Fruit Insects: CODLING MOTH (Carpocapsa pomonella) (Det. H. W. Capps) appeared in early May at Tunis on apples. Damage was heavy in 1959, with 80 percent damage at Rades. LEOPARD MOTH (Zeuzera pyrina) (Det. H. W. Capps) caused heavy damage to apple trees at Rades. Practically 100 percent of trees, five years or older, were attacked. MEDITERRANEAN FRUIT FLY damaged 80 percent of late apricots, 70 percent of late peaches, pomegranates and was also found in pears. Larvae of Mediterranean fruit fly were recently reported as occurring in the fruit or berry of a jujuba bush (Zizyphus lotus), but this has not yet been confirmed. GREEN PEACH APHID (Myzus persicae) (Det. L. M. Russell) was heavy on peaches at Sidi Bou Rouis and ROSY APPLE APHID (Anuraphis rosae) (Det. L. M. Russell) was moderate on apples at Sidi Bou Rouis and heavy on pears at Le Sers. PEACH TWIG BORER (Anarsia lineatella) (Det. H. W. Capps) was moderate on peaches at Sidi Tabet. A CAPER FRUIT FLY (Capparimyia savastani) (Det. R. H. Foote) was collected in capers at Sidi Amor. A PTEROMALID (Pseudocatolaccus sp.) (Det. B. D. Burks), possibly parasitic on caper and olive fly larvae, was also collected at Sidi Amor. A PHYCITID (Myeloides ceratoniae), which is important in dates in Tunisia, was very light in 1959; resulting in the best date crop in many years. A MITE (Tetranychus sp.) attacked almonds at Sidi Tabet and an unidentified LACEBUG was heavy in the almond grove at Sidi Tabet.

Olive Insects: A 20 percent OLIVE FLY (Dacus oleae) infestation occurred in irrigated groves at Hammamet in the north, but infestations were much lighter in nonirrigated groves in the hotter and dryer south around Sfax. BLACK SCALE (Saissetia oleae) (Det. H. Morrison) was exceptionally heavy in olive groves at Hammamet and Nabeur. An OLIVE PSYLLID (Euphyllura olivana) (Det. L. M. Russell) was light in the olive groves at the Sidi Bou Rouis Agricultural School and in the olive groves in the south around Sfax. An OLIVE SHOT-HOLE BORER or BARK BEETLE (Hylesinus oleiperda) (Det. W. H. Anderson) was found severe on three to eight-year-old olive trees at Le Sers and a heavy infestation was observed on older unattended olive trees near Sidi Tabet. OLEANDER SCALE (Aspidiotus hederae) was reported heavy on olive fruit on a farm in the center below Kairouan. A BRACONID (Opius concolor) (Det. C. F. W. Muesebeck), which is parasitic on the olive fly, was collected at Ariana.

Truck Crop Insects: NEMATODES were heavy and caused 50 percent damage to tomatoes in fields and parcels where they occurred in Cap Bon. TOMATO RUSSET MITE (Vasates lycopersici) was somewhat less abundant on tomato plantings in Cap Bon this summer. Better control practices can probably account for this. TWELVE-SPOTTED MELON BEETLE (Epilachna chrysomelina) (Det. E. A. Chapin) was found heavy on experimental plantings of melons at Kairouan. A very heavy infestation of MOLE CRICKET (Gryllotalpa gryllotalpa) (Det. A. B. Gurney) was found damaging fruit tree cuttings and vegetables in nursery plots at Thibar. A LEPIDOPTEROUS larva (Lepidechidna acharnias) only caused about 5 percent damage to artichokes this year; the low damage being attributed to the use of new plants and rotation of fields. A WEEVIL, identified as Lixus algirus, was found causing heavy damage to peas.

Household and Miscellaneous Insects: HOUSE FLY (Musca domestica) was not quite so heavy in Tunis this year as in the past year, but still occurred quite heavily in the villages. MOSQUITOES were also less bothersome in Tunis during the summer; one species collected at Hammamet was identified as Culiseta longiareolata (Det. A. Stone). BROWN-BANDED ROACH (Supella supellecillum) was numerous in one house in Tunis. SILVERFISH (Lepisma saccharina) was also observed. A beneficial COCCINELLID (Coccinella 7-punctata) (Det. E. A. Chapin) was recorded occurring in Tunisia during 1959. This coccinellid is particularly beneficial against aphids and has been found quite freely in orange groves in the Cap Bon area.

Summary of Insect Conditions in Libya

By George E. Cavin

DESERT LOCUST (Schistocerca gregaria) was the major agricultural pest in 1959. Controls began in January and extended to July on swarms invading Libya from Algeria and Tunisia. Beginning in October swarms from Chad and Niger territories invaded the oases of the Fezzan causing complete destruction of millet and winter vegetable crops in the Ghat vicinity. These swarms continued northward and by the end of November were widespread along the Mediterranean coast from Tobruck on the east to the Tunisian border.

Cereal and Forage Insects: DURRA STALK BORER (Sesamia cretica) caused extensive damage to corn and sorghum fields in certain localities. The attack began in May and by October practically 100 percent loss of corn had occurred at Wadi Caam. EGYPTIAN COTTONWORM (Prodenia litura) caused extensive damage to alfalfa throughout Tripolitania and widespread control operations were undertaken. A MOLE CRICKET (Brachytrupes megacephalus) caused slight damage to grain and peanuts throughout Tripolitania. APHIDS (Rhopalosiphum maidis, R. padi and Toxoptera graminum) were common throughout the grain-producing area from February to May. A SNAIL (Theba pisana) caused slight damage to grain along the coastal belt.

Fruit Insects: MEDITERRANEAN FRUIT FLY (Ceratitis capitata) was the most important fruit pest in Libya. The attack began in April on apricots, in May on peaches, July on pears and September on citrus. Very little control was undertaken and heavy losses occurred to all 4 crops. A severe attack on apples and pears by CODLING MOTH (Carpocapsa pomonella) occurred in the Suk el Guma, Taguira and Sedi Mesri areas of Tripolitania during April and May. GREEN PEACH APHID (Myzus persicae) caused slight damage to peaches. WOOLLY APPLE APHID (Eriosoma lanigerum) was numerous on apples in some parts of Tripolitania during April and May. CITRUS MEALYBUG (Pseudococcus citri) was prevalent on grapes in the Tripoli area during June, July and August. Citrus was heavily infested in localized areas by SCALE INSECTS (Parlatoria pergandii, P. zizyphus, Icerya purchasi and Chrysomphalus dictyospermi). A heavy infestation of TWO-SPOTTED SPIDER MITE (Tetranychus telarius) occurred on citrus in the Tripoli area during February to May and again in November. BLACK CITRUS APHID (Toxoptera aurantii) caused slight injury to citrus. OLIVE FLY (Dacus oleae) heavily attacked olives in irrigated areas during June and July. On nonirrigated olive plantings, attack was unusually late and did not begin until October along the coastal belt. A BARK BEETLE (Phloeotribus scarabaeoides) was prevalent during May on olives near Ain Zara and a heavy infestation of a SCALE (Pollinia pollini) occurred throughout the year.

Vegetable Insects: SPINY BOLLWORM (Earias insulana) attacked okra in Wadi Caam. This was the first record of this insect in Tripolitania. EGYPTIAN COTTONWORM (Prodenia litura) caused extensive damage to cabbage, cauliflower and other vegetables. On cabbage, CABBAGE BUTTERFLY (Pieris rapae) was widespread and in large numbers throughout the year. A CABBAGE WEBWORM (Hellula undalis) caused some damage at Wadi Caam. CABBAGE APHID (Brevicoryne brassicae) was common in April and May. A BOLLWORM (Heliothis armigera) caused damage to tomatoes in some places. BEET ARMYWORM (Spodoptera exigua)* caused extensive damage to potatoes during October.

Ornamental Insects: SWEETPOTATO or COTTON WHITEFLY (Bemisia tabaci) was heavy on ponsettia, lantana, hibiscus and chrysanthemum during September and October.

Tobacco Insects: A NEMATODE (Meloidogyne incognita) caused slight damage. POTATO TUBERWORM (Gnorimoschema operculella) caused severe damage beginning in May.

*Zimmerman, E. C., 1958. Insects of Hawaii, Vol. 7:339

Stored-product Insects: The following insects were common in most storehouses in Libya: Sitophilus granarius, S. oryza, Oryzaephilus surinamensis, Tenebroides mauritanicus, Tenebrio molitor, Trogoderma granarium, Tribolium confusum, T. castaneum, Rhyzopertha dominica, Anagasta kuhniella, Bruchus pisorum, B. rufimanus and Acanthoscelides obtectus.

Summary of Insect Conditions in the Republic of the Sudan

By A. F. Kaatz in cooperation with Sayed Beshir el Shafie, Sayed Lloyd George, Sayed Gaafar Yahia, and other members of the Plant Protection Division, Sudan Ministry of Agriculture

DESERT LOCUST (Schistocerca gregaria) invaded the summer breeding ranges across the entire width of the Sudan mostly by a west-to-east movement, although some swarms came from the east. Beginning in May and continuing through most of October approximately 216,000 square miles were infested. Most of the locusts were killed by ground control units in the early stages and most fledgling swarms were successfully controlled before they could do damage or fly away. Some fledglings escaped during the last few weeks of the season. No serious damage to cultivated crops occurred. In the winter breeding range, along the Red Sea coast, infestation started in October 1958 and continued until mid-January 1959. Approximately 150 different hatches were successfully controlled by ground control units. Another infestation has started in this area beginning in October and control activities are in progress. TREE LOCUST (Anacridium moestum) appeared in large numbers in December 1958 and continued for several months in 1959. This species also appeared again in September and during the latter part of the year was scattered throughout southern Darfur and Kordofan Provinces in large numbers, attacking gum arabic trees. Controls were initiated. AFRICAN MIGRATORY LOCUST (Locusta migratoria migratorioides) appeared in the central rainlands again in 1959 and attacked the durra crops in the Fung and Gedaref districts. Control action is in progress. SUDAN PLAGUE GRASSHOPPER (Aiolopus savignyi) appeared in many durra fields in the Gedaref district, where slight damage occurred before they were controlled. Other species of GRASSHOPPERS were present in cotton, durra and castor crops, but were unimportant.

Cotton Insects (other than locusts): COTTON JASSID (Empoasca lybica) is the most important cotton pest in the Gezira and White Nile River region having infested cotton fields from Khartoum to Malakal. Fields have been sprayed at least once and some twice to control this pest. SWEETPOTATO or COTTON WHITEFLY (Bemisia tabaci) is the second most important cotton pest due to use of DDT, which has killed the jassid parasites. This species infested approximately the same area as the cotton jassid in 1959. COTTON APHID (Aphis gossypii) attacks in the Fung, Sennar, southern Gezira and Kosti regions were moderate during 1959. Many large fields were sprayed for control. A COTTON THRIPS (Hercothrips fumipennis) attacked the cotton in the seedling stage, causing approximately 25 percent damage to 2,500 acres of cotton in the Semeih Cotton Scheme. Other areas seriously infested were in the Sennar and Fung districts. A FLEA BEETLE (Podagrica puncticollis) was a serious pest of seedling cotton in the Gezira and White Nile regions. A COTTON STAINER (Dysdercus sp.) was a serious pest of American type cotton in the Nuba Mountain region only. Attacks by a BOLLWORM (Heliothis armigera) were sporadic and caused some shedding of buds, but no major damage occurred. No controls were applied. EGYPTIAN BOLLWORM (Earias insulana) infestation was very light during December 1958 and January 1959. PINK BOLLWORM (Pectinophora gossypiella) infestation in 1959 was approximately 5 percent in affected areas. This pest is kept under control by cultural, preventative methods. A RED BOLLWORM (Diparopsis watersi), present only in the Gash and Nuba Mountain regions, was very moderate in 1959 due to cultural methods of control. EGYPTIAN COTTONWORM (Prodenia litura), although present in the Sennar region, is not very serious as the larvae do not survive the heat in the Sudan;

but it attacks vegetables in some favorable areas. Other cotton pests were present but not serious or of economic importance in the Sudan during 1959.

Durra Insects (other than locusts): DURRA STALK BORER (*Sesamia cretica*), usually present in northern Sudan, was light this season. DURRA APHID (*Aphis sorghi*) attacks were very light in the Fung, Sennar and Kostî districts. SORGHUM MIDGE (*Contarinia sorghicola*) was very serious in the Gezira region this year. No controls known. A PENTATOMID (*Agonoscelis pubescens*) was serious in the Dali region of the Fung district and in the Gedaref district and was present in the Gezira, Sennar, Singha and Rufa districts. Annual control campaigns in the dry season only are possible. BEET ARMYWORM (*Spodoptera exigua*) was present in many districts but not serious. ANTS and TERMITES, where not much water is present, were found in durra, peanuts and coffee trees.

Castor Bean Insects: Castor beans are a new crop to the Sudan. A CATER-PILLAR (*Achaea catella*) completely destroyed about 160 acres in the Tokar region. A LEAFHOPPER species was present in several areas.

Citrus Insects: Attacks by TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*), a MEALYBUG (*Phenacoccus hirsutus*), STRIPED MEALYBUG (*Ferrisia virgata*), as well as several scale insect species and a FRUIT FLY (*Pardalapsis* sp.) were light this year.

Date Insects: Attack of TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) on leaves and DATE MITE (*Oligonychus pratensis*) on fruit and a SCALE INSECT were light this year. ALMOND MOTH (*Ephestia cautella*) attacks were light during 1959.

Stored-product Insects: KHAPRA BEETLE (*Trogoderma granarium*) was a serious pest in Port Sudan storehouses and was found in parts of Gedaref, Fung districts and areas in the south. LESSER GRAIN BORER (*Rhyzopertha dominica*), the most important pest of stored grain, was common in all dry areas of the Sudan and attacks were heavy. RICE MOTH (*Corcyra cephalonica*) attacks were light this year. ANGOUMOIS GRAIN MOTH (*Sitotroga cerealella*) was present in many regions but attacks were light. CONFUSED FLOUR BEETLE (*Tribolium confusum*) and RED FLOUR BEETLE (*T. castaneum*) were present in very large numbers and presented a real serious problem in all places where products were stored. A TENEBRIONID (*Laethicus oryzae*) is almost as common as *Tribolium* species. RICE WEEVIL (*Sitophilus oryza*), SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*), *Laemophloeus* sp. and CADELLE (*Tenebroides mauritanicus*) were also common in many parts. PSOCIDS were found in the south where grain is stored in pits. About 22 other insect pests of stored products were found from time to time but were not important.

Insects Affecting Man and Animals: An outbreak of yellow fever during November occurred among the population in the Fung district and was probably transmitted by *Aedes aegypti*. Malaria is present in the Sudan and two of the vectors are *Anopheles gambiae* and *A. funestus*. At least 65 species of TICKS, a number of them disease carriers, are present and are in the following genera: *Argas*, *Ornithodoros*, *Amblyomma*, *Aponomma*, *Boophilus*, *Dermacentor*, *Haemaphysalis*, *Hyalomma*, *Ixodes*, *Margaropus* and *Rhipicephalus*. The last-named genus accounts for about one-third of the ticks in the Republic. Other arthropods found in the area include BLACK FLIES (*Simuliidae*); TABANIDS; SAND FLIES (*Phlebotomus* spp.); TSETSE FLIES (*Glossina palpalis fuscipes* and *G. morsitans*); HIPPOBOSCIDS which annoy camels, dogs, cattle and horses; FLIES; FLEAS and LICE.

Summary of Insect Conditions In Ethiopia

By W. C. Kurtz

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) infestations were light in Eritrea, but heavy in Tigre, Wollo and Harrar Provinces. A heavy, late influx of fledglings appeared, probably from escapees and invasions from Sudan and Saudi Arabia. A STALK BORER, possibly Sesamia sp., was generally distributed on corn and sorghum. An ARMYWORM, known locally as "tempsh", caused widespread damage to teff.

Fruit and Nut Insects: COTTONY-CUSHION SCALE (Icerya purchasi) was common on citrus. MEDITERRANEAN FRUIT FLY (Ceratitis capitata) caused heavy damage to citrus and guava. SPIDER MITES occurred on peaches and quince. Several types of SCALE INSECTS were also present on citrus.

Truck Crop Insects: APHIDS were prevalent on tomatoes, cabbage and lettuce. CUTWORMS were reported affecting tomatoes at Shashamani. BLISTER BEETLE nymphs caused considerable damage to onions at Jimma and FLEA BEETLES were common, being found on beans and corn. Damage to tomatoes by a WHITEFLY was light.

Cotton Insects: SPINY BOLLWORM (Earias insulana) was found on cotton at Wonji Sugar Estate and caused considerable damage in the Awash area. PINK BOLLWORM (Pectinophora gossypiella) was common but the degree of infestation was unknown. LOCUSTS probably caused some damage to cotton. A heavy population of MITES was noticed at Wonji Sugar Estate.

Coffee Insects: A light infestation of a LEAF MINER was noticed at Jimma and Shashamani and was reported elsewhere. APHIDS were common; infestation was light at Jimma and heavy in Asha Tafari area. A PENTATOMID (Antestia sp.) was reported causing considerable damage and a BROWN SCALE was heavy around Asha Tafari. A GREEN SCALE was heavy on young trees at Shashamani and reported heavy elsewhere.

Stored-product Insects: The following pests were found in a shipment of sorghum at Massawa: Sitophilus granarius, S. oryza, Tribolium castaneum, Cryptolestes pusillus, Anagasta kuhniella and GRAIN MITES.

Insects Affecting Man and Animals: FLEAS, FLIES, BED BUGS, COCKROACHES and MOSQUITOES were abundant. Fleas and cockroaches are reported difficult to control. Malaria is common but the government of Ethiopia has started a malaria eradication program with the help of the World Health Organization and the International Cooperation Administration. LICE and MITES were common on livestock and TSETSE FLIES were quite common, generally.

Miscellaneous Insects: TERMITES were common and caused considerable damage to buildings in Addis. A WHITEFLY occurred on a variety of flowers. SPIDER MITES were also common on flowers.

Summary of Insect Conditions in Iran

By R. Q. Gardenhire and R. L. Linkfield

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) infestations were unusual in that invasions of swarms, apparently from Africa, began in late December 1958 and second-generation invasions from Iraq continued until July. A westward moving swarm was reported in extreme southeastern Iran in November. Heaviest infestations occurred in western and southwestern Iran, whereas southern and southeastern areas had much lighter infestations than in 1958. Though intensive control measures were reported on an aggregate of 1,485,000 acres, only limited crop damage occurred. MOROCCAN LOCUST (Dociostaurus moroccanus) infestations assumed a much different geographical pattern from recent years, with the heaviest infestations in northeastern Iran where crop damage occurred. A heavy buildup of population also occurred in northern and northwestern Iran and extensive control is expected to be required in 1960. Populations in southern areas were greatly reduced from previous years and practically no crop damage occurred. Aggregate acreage reported to have been treated totaled 1,406,000 acres. NATIVE GRASSHOPPERS (Calliptamus sp. and Dociostaurus spp.) were general in distribution and infestations were about normal. An aggregate total of 380,000 acres was reported to have been treated. SENN PEST (Eurygaster integriceps) infestations were the heaviest in several years and up to 50 percent damage was observed in some areas of western Iran. Total destruction of the wheat crop was reported in one small area. Acreage reported to have been treated totaled 64,000. DURRA STEM BORER (Sesamia cretica) is still the most important pest of sugarcane in Khuzistan and threatens the success of the 10,000-acre sugarcane plantation being established in that area. Infestations on corn and grain sorghum were also heavy in many areas. ALFALFA WEEVIL (Hypera postica) completely destroyed the first cutting of alfalfa at Heyderabad, and continues to be the most serious pest of alfalfa throughout Iran. SPOTTED ALFALFA APHID (Therioaphis maculata) was generally scarce due to natural enemies, but has now been found in all alfalfa-growing areas of Iran. A PYRAUSTID (Nomophila noctuella) (Det. H. W. Capps) attacked young alfalfa in the Saveh area. CEREAL LEAF MINER (Syringopais temperatella) became increasingly severe in southwestern and southern Iran and much damage to wheat and barley occurred. CORN LEAF APHID (Rhopalosiphum maidis) was very heavy on corn in several areas and attacked barley to a lesser degree.

Truck Crop Insects: BEE T ARMYWORM (Spodoptera exigua) caused severe damage to sugar beets in many areas, even where some control measures were applied. A SUGAR-BEET CROWN BORER (Gnorimoschema ocellatella) severely damaged sugar beets in most areas. SPINACH LEAF MINER (Pegomya hyoscyami) infestation of sugar beets was minor. CABBAGE APHID (Brevicoryne brassicae) heavily infested cabbage, causing deformation and stunting of heads. THRIPS caused severe damage to onions at Karaj and SPIDER MITES were observed on eggplant, causing yellowing and defoliation. An AGROMYZID (Phytobia sp.) (Det. R. H. Foote) was very heavy on watermelon leaves at Varamin and BLACK SCALE (Saissetia oleae) was extremely abundant on the stems of eggplant in the Rudbar area.

Deciduous Fruit Insects: A SCALE INSECT (Lepidosaphes malicola) (Det. H. Morrison) was heavy on apricot trees at Kangavar and BLACK SCALE was very heavy on olive trees in scattered areas at Rudbar. CODLING MOTH (Carpocapsa pomonella) and ERMINE MOTHS (Hyponomeuta spp.) were the two most common pests of deciduous fruits and were generally distributed over most of Iran. Damage was frequently quite severe. PEAR LACE BUG (Stephanitis pyri) was heavy on apple and pear trees, causing chlorosis of leaves in most areas where control measures were not conducted. A LEAF GALL MITE (Eriophyes sp., near pyri) (Det. H. H. Kiefer) damaged plum leaves at Sardrud village near Tabriz.

Citrus Insects: CITRUS RUST MITE (Phyllocoptruta oleivora) caused severe damage to the citrus crop due to improper timing of controls. This condition was general throughout the Caspian area. DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi) continued to be the most common of the citrus scale insects present throughout the Caspian area and COTTONY-CUSHION SCALE (Icerya purchasi) was occasionally heavy in limited areas of the citrus-growing belt along the Caspian. PURPLE SCALE (Lepidosaphes beckii), CHAFF SCALE (Parlatoria pergandii), BROWN SOFT SCALE (Coccus hesperidum), YELLOW SCALE (Aonidiella citrina) and CALIFORNIA RED SCALE (Aonidiella aurantii) were also present on citrus in the Caspian region.

Forest, Ornamental and Shade Tree Insects: AN APHID (Chaitophorus leucomelas) (Det. L. M. Russell) was very heavy on Populus alba at Borujerd and another APHID (Chaitophorus populi) (Det. L. M. Russell) was heavy on Populus nigra at Borujerd. SCALE INSECTS - Chionaspis salicis (Det. H. Morrison) infested willow trees at Sanandaj and C. parastigma (Det. H. Morrison) heavily infested woodland oak trees at Shahabad. A SAWFLY (Pristiphora sp.) (Det. B. D. Burks) was found feeding on poplar tree leaves at Varamin and a WHITEFLY (Aleyrodes cotesii) (Det. L. M. Russell) were very heavy on rose at Borujerd.

Miscellaneous Insects: A PIGEON TICK (Argas reflexus) (Det. F. C. Bishopp) was present on the walls of a local residence in Kermanshah. MITES - Brevipalpus obovatus (Det. E. W. Baker) caused some damage to tea plants at Ramsar on the Caspian Sea and Aceria tristriatus (Det. H. H. Kiefer) caused light damage to walnut leaves in the Tabriz area.

Beneficial Insects: The great value of insect control in Iran by biological means has become increasingly apparent since the advent of more extensive application of pesticides. Several pests that were previously of no economic importance have become major pests due to the destruction of natural enemies. Through the assistance of United States taxonomists, information is being gathered on the indigenous parasites and predators of Iran. SENN PEST PARASITE (Microphanurus semistriatus) rearing was greatly reduced due to low populations of hibernating senn pest in the Isfahan area. Only 14,500,000 parasites were laboratory reared. Parasites reared from various insect hosts were as follows: AN ENCYRTID PARASITE (Blastothrix sericea) (Det. B. D. Burks), from Eulecanium coryli on quince; a BRACONID (Apanteles glomeratus) (Det. C. F. W. Muesebeck), from a cabbage butterfly of the genus Pieris; and an ICHNEUMONID (Campoplex sp.) (Det. L. M. Walkley) and a BRACONID (Rogas sp.) (Det. C. F. W. Muesebeck), from the beet armyworm; an ICHNEUMONID (Campoplex multicinctus) (Det. L. M. Walkley), from Hyponomeuta sp.; a BRACONID (Chelonus contractus) (Det. C. F. W. Muesebeck), from Gnorimoschema ocellatella; an ICHNEUMONID (Exidechthis canescens) (Det. L. M. Walkley), from Ephestia sp.; a BRACONID (Bracon hebetor) (Det. C. F. W. Muesebeck), from Ephestia sp.; a EULOPHID (Coccophagus lycimnia) (Det. B. D. Burks), from Coccus hesperidum; EULOPHIDS - Aspidiotiphagus citrinus (Det. B. D. Burks), from Aonidiella citrina, and Aphytis proclia (Det. B. D. Burks), from Aonidiella orientalis on Arabian jasmine; and a PTEROMALID (Halticoptera aenea) (Det. B. D. Burks), from Phytobia sp. from melon leaves. Parasites found feeding on insect hosts were a SYRPHID (Metasyrphus corollae) (Det. W. W. Wirth), on cabbage aphid, and a CALLIPHORID PARASITE (Stomorphina lunata) (Det. C. W. Sabrosky), on desert locust egg pods. In addition, an ORIBATULID MITE (Liebstadia sp.) (Det. E. W. Baker), was found on Lepidosaphes beckii and Parlatoria zizyphus.

Summary of Insect Conditions in Turkey

By George B. Riley

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) was of no importance in Turkey during 1959. However, MOROCCAN LOCUST (Doclostaurus moroccanus), ITALIAN GRASSHOPPER (Calliptamus italicus) and a NATIVE GRASS-HOPPER (Arcyptera labiata) did warrant control measures. Damage from LOCUSTS and GRASSHOPPERS was minor throughout the country. SENN PEST (Eurygaster integriceps) was widespread through the wheat-growing regions, especially in the east. Depredations by this pest were reduced considerably in the Gaziantep-Hatay area by hymenopterous parasites. PENTATOMIDS (Aelia spp.) were much less abundant than in previous years but occurred in localized infestations sometimes as great as 1000-1500 per square meter. They were confined mostly to the Anatolian Plateau and effective control greatly reduced losses. CEREAL LEAF MINER (Syringopais temperatella) was very abundant in southern Anatolia. Unfavorable weather hampered control efforts and considerable loss of wheat yields resulted. Infestations of CUTWORMS (Agrotis spp., et al.), a SCARABAEID (Anisoplia sp.) and CARABID BEETLES (Zabrus spp.) necessitated control on several thousand acres of cereals.

Cotton Insects: Primary pests of cotton have been a BOLLWORM (Heliothis armigera), SPINY BOLLWORM (Earias insulana), PINK BOLLWORM (Pectinophora gossypiella) and SPIDER MITES (Tetranychus spp.). ONION THRIPS (Thrips tabaci), LEAF FEEDING CATERPILLARS and APHIDS were widespread and caused some damage to cotton.

Grape Insects: VINE MOTH (Lobesia botrana), an ARCTIID CATERPILLAR (Arctia villica) and Theresimima ampelophaga caused considerable damage to grapes. GRAPE PHYLLOXERA (Phylloxera vitifoliae) has been reported but no damage attributable to this insect was observed.

Deciduous Fruit Insects: Infestations of CODLING MOTH (Carpocapsa pomonella) made it difficult to find a "worm-free" apple in Turkey. Lesser damage was apparent on pear and quince. ERMINE MOTHS (Hyponomeuta spp.) caused considerable defoliation of apple and pear, particularly in the Black Sea area. PEAR LACE BUG (Stephanitis pyri), APHIDS (Aphis spp.), a MITE (Cenopalpus pulcher) and a FRUIT TREE MITE (Bryobia rubrioculus) were widespread and of serious concern on apples and pears. PLUM FRUIT MOTH (Laspeyresia funebrana), MITES (Tetranychus telarius, T. atlanticus and T. viennensis) and various LEAFHOPPERS were serious pests of prunes, apricots and peaches. At least two shipments of fresh peaches were rejected by foreign markets because of infestations of ORIENTAL FRUIT MOTH (Grapholitha molesta) and Grapholitha spp. A CHERRY FRUIT FLY (Rhagoletis sp.) caused serious loss of cherry yields. However, infested fruits which ripened were sold. A SCALE INSECT (Pseudaulacaspis pentagona) resulted in considerable reduction in foodstuff for silkworm culture as well as loss of fruits.

Citrus Fruit Insects: MEDITERRANEAN FRUIT FLY (Ceratitis capitata) has caused increased loss of sweet oranges in the Adana-Mersin area along the Mediterranean Sea. CITRUS BUD MITE (Aceria sheldoni), CITRUS RUST MITE (Phyllocoptruta oleivora), CITRUS RED MITE (Panonychus citri) and other SPIDER MITES have been prevalent and caused considerable loss of yield. CHINESE WAX SCALE (Ceroplastes sinensis), HEMISPHERICAL SCALE (Saissetia hemisphaerica), DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi), PURPLE SCALE (Lepidosaphes beckii), Parlatoria sp. and other SCALE INSECTS were the most obvious and apparently detrimental group found on citrus in the Mediterranean and Black Sea regions.

Olive Insects: The coastal olive-producing areas have been beset by severe drought this year which has accentuated insect and disease damage. In the coastal regions, the OLIVE FRUIT FLY (Dacus oleae) appeared at least a month later than last year due to cool weather. Infestations were widespread, with infested fruit counts averaging 20-30 percent throughout the area. OLIVE MOTH (Prays oleellus) occurred in considerable infestations but damage was limited

by effective control. These two species, olive fruit fly and olive moth, were considered the most severe pests of olive this year in Turkey. However, the following appeared to be quite widespread and caused considerable damage to trees as well as weakening and loss of crop: A PSYLLID (Euphyllura olivina), OLIVE SCALE (Parlatoria oleae), BLACK SCALE (Saissetia oleae), Hylesinus oleiperda, Filippia oleae and an OLIVE WEEVIL (Rhynchites sp.).

Nut Insects: Hazelnuts are an important export crop in Turkey, produced principally along the coast of the Black Sea. Production and quality of this crop are perennially reduced greatly by the depredations of the HAZELNUT BORER (Curculio nucum). Pistachio is grown principally in the Gaziantep-Euphrates plateau area of the east. Export potential of this crop in 1959 is estimated at \$15,000,000. Considerable loss is suffered by pistachio growers, due to the attack of the PISTACHIO LEAFHOPPER (Idiocerus stali), SCALE INSECTS (Ceroplastes rusci, Lepidosaphes pistaciae, et al.) and MITES (Tetranychus spp.).

Forest Insects: A severe, extremely widespread infestation of PINE PROCESSIONARY MOTH (Thaumetopea pityocampa) occurred along the coastal regions, attacking Pinus brutia. This infestation has already caused the loss of many millions of board feet of saw timber but has the potential of destroying many thousands of acres of one of Turkey's most important forest species.

Insects Affecting Man: There was a rather severe infestation of CRAB LOUSE (Phthirus pubis) on an oil-well-drilling crew. Control was necessary. BED BUG (Cimex lectularius) caused much annoyance in some homes.

Beneficial Insects: SCALIONID EGG PARASITES (Microphanurus semistriatus, M. vassillieur and Microphanurus sp., apparently a new, undescribed species) were found attacking eggs of senn pest.

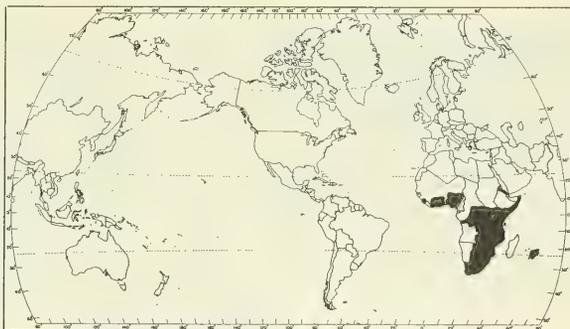
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

FALSE CODLING MOTH* (Cryptophlebia leucotreta Meyr.)

Economic Importance: This olethreutid is widely distributed in Africa south of the twentieth parallel where it is a pest of fruits of many plants, especially citrus and cotton. It has been reported as one of the principal plant pests of Uganda and the Rhodesias. Infestations in neglected Rhodesia citrus orchards may run as high as 70 percent, but observations in orchards of eastern Transvaal over a period of several years showed infestations of about 5 percent in navel oranges and 2 percent in Valencias. In Eritrea, it causes almost as much fruit-fall as the Mediterranean fruit fly. At times the insect is an important pest of cotton in Uganda and southern Belgian Congo, causing damage to partly-grown bolls. Living larvae of this insect have been intercepted at U. S. ports of entry on several occasions in grapefruit, oranges and tangerines.

Distribution: Africa (South Africa, the Rhodesias, Kenya, Tanganyika, Uganda, Zanzibar, Nigeria, Sierra Leone, Italian Somaliland, Nyasaland, Ethiopia (Eritrea), Ivory Coast, Belgian Congo, Ghana, Togoland, Mozambique and Mauritius Island.

Hosts: Attacks fruits of many plants including sorghum, orange, grapefruit, tangerine, walnut, cotton, okra, corn, olive, avocado, guava, plum, peach, apricot, castorbean, oak and litchee.

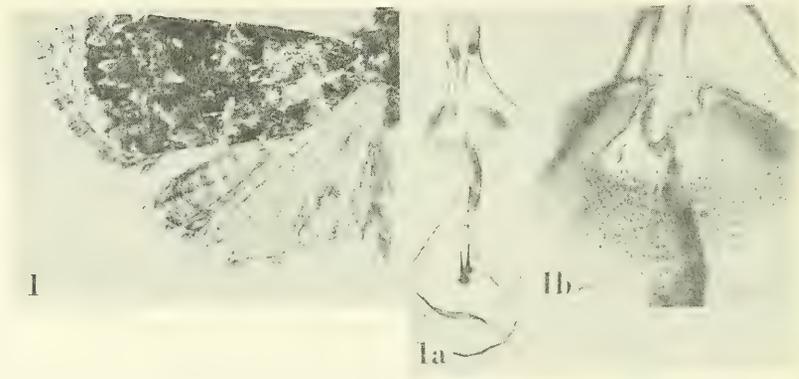


General Distribution of Cryptophlebia leucotreta

Life History and Habits: Cryptophlebia leucotreta resembles the codling moth (Carpocapsa pomonella) in appearance, habits and type of injury; however, it does not attack apple, pear and quince and is reported to cause more premature fruit-drop than C. pomonella. Under South African conditions the life history is as follows: The female, which flies at night, lays about 100 eggs, usually 3-8 per citrus fruit, but only 1-2 larvae survive. Larvae hatch in 4-8 days in summer and 8-14 in winter and enter fruits. The young larvae gnaw through the rind, making burrows about 1 mm. in diameter. Frass thrown out by the insect makes the entrance conspicuous. In oranges the rind surrounding the entrance becomes yellowish to dark brown. The larvae feed for 25-33 days in summer and 35-67 in winter, leave the fruit, then spin cocoons on the soil surface (pupation may occur on the plants in other areas according to reports). The life cycle requires from 45-60 days in summer and 68-100 in winter. There are about 6 generations for a year in this area. Breeding occurs in navel oranges from November to late June and in Valencias from June onward.

*Also called citrus codling moth.
(Olethreutidae, Lepidoptera)

Description: Cryptophlebia leucotreta resembles Carpocapsa pomonella in all stages. ADULT brown, thorax with double posterior crest. Forewings elongate-triangular with prominent dorsal scale projections toward base and beyond middle, which are light brown mixed with white. There is a semioval dark-reddish patch mixed with black and center with white. Hindwings generally lighter grayish-brown but darker toward outer margins. The male has a larger pale-grayish genital tuft, a dense brush of grayish-white hairs on hind legs, and a deep semicircular pocket in the hindwings. EGG translucent white, almost 1 mm. long, flat, oval-shaped with flange around it. LARVA at first yellowish-white with black head, body marked with black spots, each with a short hair. Mature larva about 18 mm. in length, pink above, yellow below. PUPA about 7 mm. long, yellow becoming dark brown, enclosed in white silken cocoon which is normally obscured by adhering particles of soil. (Prepared in Survey and Detection Operations in cooperation with other ARS Agencies and the U. S. National Museum.). CEIR 10(5):1-29-60.



Wings and Female Genitalia of Cryptophlebia leucotreta

Figures (except map): Wings and female genitalia from Clarke, J. F. G. 1958. Catalogue of the Type Specimens of Microlepidoptera in the British Museum (Natural History) described by Edward Meyrick. Vol. 3, 600 pp., London.

Major references: Stofberg, F. J. 1954. Farming in S. Afr. (Pretoria) 29(339): 273-276, 294. Gunn, D. 1921. Union of South Afr. Dept. Agr. Sci. Bul. 21, 28 pp.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business

The background of the page is a light yellowish-tan color, featuring a repeating pattern of various insects in a muted green color. The insects include a large butterfly with distinct wing patterns, several beetles of different shapes and sizes, and a fly. The illustrations are stylized and scattered across the page.

VOL. 10 NO. 6 FEBRUARY 5, 1960

SB
823
C77
Ent

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 of Insect Conditions

Very severe GERMAN COCKROACH infestation reported in Lenoir County, North Carolina. (p. 73).

INSECT DETECTION - A mite (Tuckerella pavoniformis) reported for first time in Florida. (p. 72).

CORRECTIONS. (p. 73).

SUMMARY OF INSECT CONDITIONS - 1959 - ALASKA. (p. 74).

WEATHER BUREAU 30-DAY OUTLOOK

FEBRUARY 1960

The Weather Bureau's 30-day outlook for February calls for temperatures to average above seasonal normals over the northern half of the Nation and also in the extreme Southwest. Below-normal averages are expected along the Gulf Coast and in the Southeast. In remaining areas near normal values are predicted. Precipitation is expected to exceed normal along the Atlantic and Gulf coasts as well as the west coast. Subnormal amounts are predicted for the northern half of the country between the Continental Divide and the Appalachians. In unspecified areas near normal precipitation is 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 FEBRUARY 1

The extremely cold weather of the previous week gradually moderated over most of the Nation this week, and mean temperatures were generally above normal in all sections, except the Southeastern States. Unseasonably mild weather was reported from the Pacific Northwest eastward across the northern Rocky Mountains and Great Plains to the Great Lakes, Ohio Valley, and Middle Atlantic States. Maximum temperatures late in the week reached 40° to 50° levels in most areas of the northern tier of states, and into the 60's in the western Great Plains as far north as South Dakota and Wyoming. Widespread snow melting was reported from most northern areas. Minimum temperatures were below 0° only in the extreme northern Great Plains and in northern New England, and below-freezing readings extended from the central Gulf coast to central Florida early in the week, and into extreme southern Texas on Sunday morning.

Precipitation was heavy in the coastal areas of the Far West and from Mississippi to the Carolinas in the Southeast; generally light to moderate in the Plateau and northern Rocky Mountain States and from the central Mississippi Valley to New England; and very light to absent from Arizona to Oklahoma and northward along the eastern slope of the Rocky Mountains and western Great Plains to the Dakotas, Wyoming, and southern Montana. In western Washington and Oregon, where precipitation was reported on most days, weekly totals ranged from near 2 inches in the extreme south to near 5 inches in northern Oregon and the valleys of western Washington, and to 6 or 7 inches along the Washington coast and in the Cascades. A vigorous storm late in the week brought extensive heavy precipitation and locally strong winds along the Pacific coast. Heavy rainfall on Monday, February 1, was concentrated in central and southern California. General precipitation occurred in the Southeastern States as a cold front moved through the region on Wednesday and a low-pressure area passed slowly eastward across Alabama and Georgia later in the week. Locally heavy rains extended from Mississippi northeastward to the Carolinas, with totals of near 5 inches reported in northern Georgia and South Carolina during the storm period. A coastal storm on Wednesday and Thursday brought general precipitation to the Northeastern States, where 6 to 12 inches of new snow were received in northern New England, 3 to 6 inches in western Massachusetts and northern New York, and moderate rains fell from New Jersey to southern coastal New England. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Approximately one-half of the fields of small grain checked in east central area found infested. Most infested fields were in the Arkansas River bottoms, where counts ranged 2-25 per linear foot and averaged 9 per linear foot. Parasitized aphids were found in approximately one-third of the infested fields. (VanCleave, Owens, Washum). None found in wheat field checked in Fairfax area. (Stiles). Counts averaged 20 per linear foot in field of wheat and vetch and 45 per square foot in field of volunteer wheat in Bryan County. (Vinson). Counts averaged 10 per linear foot in wheat field near Elk City (Burke) and none noted in wheat field in Jackson County (Presgrove).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Counts averaged 0.6 larva per stalk in a field of corn stubble in Bryan County; 100 percent of the stalks had been damaged. (Vinson).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Counts averaged 50 per linear foot in 3 alfalfa fields checked in Roger Mills County and 100 per linear foot in an alfalfa field surveyed in Custer County. (Burke). Counts averaged 2 per linear foot in an alfalfa field checked in Jackson County. (Presgrove).

PEA APHID (Macrosiphum pisi) - ARIZONA - Infestations increasing in Yuma County alfalfa. Counts averaged 6-20 per 10 sweeps. (Ariz. Coop. Sur.).

A SNAIL (Vallonia pulchella) - CALIFORNIA - Heavy infestation occurred in a dichondra lawn in Riverside, Riverside County. (Cal. Coop. Rpt.).

FRUIT INSECTS

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Heavy on citrus in Napa, Napa County. (Cal. Coop. Rpt.).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Heavy in a peach orchard in Escalon, San Joaquin County. (Cal. Coop. Rpt.).

PEACH TREE BORER (Sanninoidea exitiosa) - ARIZONA - Light to medium infestations in fruit trees in Prescott area of Yavapai County. (Ariz. Coop. Sur.).

A RUST MITE - TEXAS - Some activity noted in citrus orchards along the north Hidalgo-Willacy County line. (Deer).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Increases in infestations noted in some fields in the lower Rio Grande Valley, while they declined in other fields. (Deer).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Sticky-board collections during the period January 11-25 were 0 at Mesa, 4 at Kyrene, 1 at Waddell, 20 at Glendale and 1 at Deer Valley. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - Heavy numbers of bags noted on native cedars along highways in central area. A high percentage of eggs were viable. (VanCleave, Latham).

A SNOUT MOTH (Herculia phaezalis) - CALIFORNIA - Light infestation on Colorado blue spruce, Picea pungens glauca, in Corte Madera, Marin County. (Cal. Coop. Rpt.).

A THRIPS (Chilothrips sp.) - CALIFORNIA - Collected from Monterey pine in Pacifica, San Mateo County. (Cal. Coop. Rpt.).

A SPIDER MITE (Oligonychus cunliffei) - FLORIDA - Infesting 25 percent of a 40-acre block of slash pine at High Springs, Alachua County, on January 19. (Murphy).

A BORER - OREGON - Larvae, probably Thamnosphesia scitula, found infesting 2-3 percent of several lots of pink dogwood shipped to a Portland nursery from a southeastern state. The borers were found in and around graft unions. (Eppley, Jan. 17).

A MITE (Tuckerella pavoniformis) - FLORIDA - Found on silk-oak grevillea (Grevillea robusta) at West Palm Beach, Palm Beach County, on December 18, 1959. Determination confirmed by E. W. Baker. (Messec, Long). This is a new State record. (Fla. Coop. Sur.).

SCALE INSECTS - CALIFORNIA - Physokermes piceae and Aspidiotus hederæ are heavy on Colorado blue spruce in San Rafael, Marin County, and Epidiaspis piriicola and Lepidosaphes ulmi are heavy on hawthorn in Napa, Napa County. (Cal. Coop. Rpt.).

CACTUS SCALE (Diaspis echinocacti) - CALIFORNIA - Medium infestation on cactus in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - ARIZONA - Grub counts after 47 days (November 25, 1959) and 80 days (December 28, 1959) on untreated cattle in Pinal County averaged 3.77 and 11.27 per animal, respectively. Counts on treated cattle during same periods ranged 0.08 to 0.70 and 0.24 to 0.85, respectively. (Ariz. Coop. Sur.). OKLAHOMA - Counts averaged 35 grubs per animal on 27 yearling steers checked in Pawnee County. (Young). KANSAS - Of 20 head of cattle checked in Ellis County, 2 were lightly infested. Grub counts in 16 head of cattle in Riley County ranged 0 to 39 per head, with an average of 8.8 per head. (Knapp). TENNESSEE - On January 20, 38 brood cows were checked and none were found infested. However, of 10 yearling heifers checked, 70 percent found infested. One grub out of 12 collected was H. bovis and the others were H. lineatum. (Stanley).

CATTLE LICE - OKLAHOMA - Extremely heavy on 42 calves and heavy on 47 cows and calves in Pawnee County. (Young).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - None noted in fields of small grain in the east central area. (VanCleave, Owens, Washum). Light in alfalfa fields checked in southwestern and west central areas. (Burke, Presgrove).

MISCELLANEOUS INSECTS

GERMAN COCKROACH (*Blattella germanica*) - NORTH CAROLINA - The worst infestation ever observed in private residences by entomologists with the State Health Department was found in a Federal housing project in Lenoir County. Large patches of immatures were found under calendars and a considerable number of adults were taken from a sink where a housewife was washing collards. A nearby storekeeper complained about large numbers of these cockroaches being returned in empty bottle cartons from the residences. (Ashton).

CLOVER MITE (*Bryobia praetiosa*) - NORTH CAROLINA - Invading houses in Wake County. (Jones, Farrier).

A TERMITE - OHIO - Pellets of what were thought to be those of a dry-wood termite, probably *Cryptotermes* sp., were found under an inside door of a residence in Akron. An attempt is being made to secure specimens for specific determination. Det. by T. E. Snyder. (Rings).

CORRECTIONS

CEIR 9(52):1058 - PINK BOLLWORM - ARKANSAS - Should read: "Found in Yell County during November for the first time during this season." This is not a new county record. (PPC).

CEIR 10(2):16 - Under Interceptions of Special Interest, larvae of MEDITERRANEAN FRUIT FLY should read "...and mail (9) destined for California in case of 7 lots,..."

CEIR 10(5):54 - Under Citrus Insect Situation in Florida - CITRUS RUST MITE (*Eutetranychus banksi*) should read CITRUS RUST MITE (*Phyllocoptruta oleivora*).

CEIR 10(5):58 - ROSY APPLE APHID (*Anuraphis rosae*) should read (*Anuraphis roseus*).

LIGHT TRAP COLLECTIONS

	<i>Pseudaletia unipuncta</i>	<i>Feltia subterranea</i>	<i>Prodenia ornithog.</i>	<i>Agrotis ypsilon</i>	<i>Laphygma frugiperda</i>
ARIZONA					
Mesa 1/18-24			10		
LOUISIANA					
Baton Rouge 1/22-28	11	3	1		
SOUTH CAROLINA					
Charleston 1/18-31	5	5	2	17	
Clemson 1/16-29				2	
TEXAS					
Brownsville* 1/14-22	6	9	2	8	47

*Additional collections at Brownsville during same reporting period were 412 *Loxostege similalis* and 2 *Heliothis zea*.

SUMMARY OF INSECT CONDITIONS - 1959

ALASKA

Prepared by R. H. Washburn
and G. L. Downing

Forage Crop Insects: LEAFHOPPERS, APHIDS and PLANT BUGS were all more numerous than in past years but CUTWORMS were not as serious as in 1958. No commercial damage was noted.

Fruit Insects: A CURRANT APHID (Capitophorus sp.) was common on wild currant in the Matanuska Valley.

Truck Crop Insects: ONION MAGGOT (Hylemya antiqua) was extremely destructive to onions, especially in the Haines area of southeastern Alaska. TURNIP MAGGOT (Hylemya floralis) was the most consistently serious problem throughout the State. CUTWORMS were less numerous than in 1958, though in several areas of the Matanuska Valley and at McGrath they were extremely destructive. Black light collections were approximately one-sixth the numbers of 1958. THRIPS, Taeniothrips orionis and others, were destructive in the Tanana Valley to cabbage and to pollen in cucumbers and strawberries. SPRINGTAILS, undetermined species, laid eggs in such numbers in celery stalks and leaves as to make some fields near Palmer unmarketable. They were also destructive early in the season to young crucifers in the Tanana Valley. Feeding by a WIREWORM (Ctenicera lobota) caused 10 percent grade-out of potatoes in some fields in the Matanuska Valley. Normally only seed pieces are damaged. LEAFHOPPERS and APHIDS were numerous enough in irrigated plots at the Matanuska Experiment Station to warrant the first potato insect control program in the State. Leafroll and other disease symptoms were noted on potatoes. STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) was active in the Tanana Valley. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was common in many strawberry patches. A THRIPS (Taeniothrips orionis) was destructive to strawberries in the Fairbanks area. A RASPBERRY FRUITWORM (Byturus sp.) was serious in some areas for the first time in several years and a RASPBERRY CANE BORER (Agrilus sp.) caused more damage than usual. SLUGS and MEADOW SPITTLEBUG (Philaenus leucophthalmus) were severe on strawberries in the southeastern area.

Forest Insects (G. L. Downing): The systematic insect sampling program initiated in 1959 revealed the presence of large numbers of BLACK-HEADED BUDWORM (Acleris variana) working in association with HEMLOCK SAWFLY (Neodiprion tsugae) in the hemlock-spruce stands of the southern portion of southeast Alaska. The heaviest populations were encountered in Cholmondeley Sound but high populations were also noted in Kasaan Bay and Portland Canal. Although these were the only areas sampled, it is likely that most of the stands in this general area harbor increased populations of these two insects. This was the first general buildup since the 1948 to 1955 widespread and damaging outbreak of these two insect pests. During that outbreak, the insect population increase began in the southern end of the panhandle and progressed northward throughout most of the southeastern area. It is too early to tell whether the present situation will follow that pattern. Larval collections from the infested area were reared. Insect parasitism of the BLACK-HEADED BUDWORM was about 20 percent and that of HEMLOCK SAWFLY almost zero. Activities of a SPEAR-MARKED BLACK MOTH (Eulype hastata) were considerably reduced from the widespread epidemic in 1958. Extensive ground sampling indicated only light feeding damage and this was confined to a few areas along the Alaska Highway between Tok Junction and Delta Junction. The almost complete collapse of this outbreak was due mainly to a granulosis virus, assisted by insect parasitism. The more important insect parasites were Meteorus sp. and Aoplus sp. ALASKA SPRUCE BEETLE (Dendroctonus borealis) caused heavy loss of white spruce and Lutz spruce on portions of the Kenai Peninsula.

These losses were known to occur in the northeastern part of the Kenai National Moose Range and within several drainages of the adjacent Chugach National Forest. The losses were fairly high in 1959 and have developed to epidemic proportions. Several thousand trees are believed to be currently infested within the Moose Range. On the more accessible National Forest areas, an estimated 1,000 trees are infested and losses are occurring within recreational areas. Control of the outbreak by salvage logging of infested trees is being considered. Losses during 1960 are expected to continue at an epidemic level unless control is undertaken. SITKA-SPRUCE BEETLE (Dendroctonus obesus) populations remain at a low level. No active infestations were found in 1959. Several young white spruce trees have been killed by an active infestation of ENGRAVER BEETLES (Ips spp.) near the Gerstle River and just off the Alaska Highway. The infestation is believed caused by logging slash in the immediate area. Two small saw-mills in the area also contribute to the high populations. No control is being considered. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was numerous on spruce in some areas.

Ornamental Insects: CUTWORMS were severe on annual flowers and APHIDS were severe on almost all perennial flowers such as larkspur, lupine and columbine. A SCALE INSECT (Lecanium sp.) was recorded on Siberian peashrub, Caragana arborescens, at Fairbanks; first record of a scale insect in Alaska out-of-doors.

Insects Affecting Man and Animals: NORTHERN CATTLE GRUB (Hypoderma bovis) was less troublesome than in 1958. A REINDEER WARBLE (Oedemagena tarandi) ceased egg laying on Nunivak by August 15. Only the first roundup was disturbed in this locality. A TICK (Dermacentor sp.) was recorded on man. TABANIDS were more numerous on cattle than in several years. A SPIDER of the wolf spider group was reported to have bitten a young girl in the Sutton area. A BLOW FLY (Calliphora sp.) and DUNG FLIES were very numerous in barns.

Stored-product Insects: RED-FLOUR BEETLE (Tribolium castaneum) caused numerous complaints in packaged food mixes, as did MEDITERRANEAN FLOUR MOTH (Anagasta kuhniella). A SPIDER BEETLE was very annoying at Aleknagik.

Household Insects: CLOVER MITE (Bryobia praetiosa) was annoying in homes in the Anchorage area and GERMAN COCKROACH (Blattella germanica) was common at a military base and buildings near Anchorage. FIREBRAT (Thermobia domestica) was annoying in a hospital in Palmer and BLACK CARPENTER ANT (Camponotus herculeanus pennsylvanicus) was found tunneling in many buildings of log construction as well as in poles of electrical transmission lines in the Matanuska Valley area. A CLOTHES MOTH (Tineola sp.) was the most numerous in years and CARPET BEETLES were very destructive to untreated rugs at a military base near Anchorage.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business



VOL. 10 NO. 7

FEBRUARY 12, 1960

513

823

C77

Ent.

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 of Insect Conditions

Ten KHAPRA BEETLE infestations recently found in Yuma County, Arizona. (p. 81).

INSECT DETECTION: Imported fire ant recorded for the first time in Orange County, Florida. (p. 81).

CORRECTIONS (p. 82).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1959

Beneficial Insects - (p. 83).

Tobacco Insects - (p. 86).

Stored-product Insects - (p. 87).

INTERCEPTIONS of special interest at U. S. ports of entry. (p. 90).

INSECTS not known to occur in the United States. (p. 91).

MORMON CRICKET adult survey - fall 1959. (following p. 91).

WEATHER OF THE WEEK ENDING FEBRUARY 8

Above-normal temperatures again covered most of the Nation this week, with unusually mild weather for February in the northern Great Plains, where weekly averages were as much as 18° above normal. Generally above-normal readings were reported in all other sections, except in portions of the Southern States and the southern Plateau area, where temperatures were near or slightly below normal. Freezing temperatures extended southward along the Cascades and Sieras into Arizona, and from southwestern Texas eastward to South Carolina and Georgia. Below-zero readings were confined to northern New England and New York, the extreme northern Great Plains, and scattered mountain areas of the Far West.

Along the West Coast, three general storms were experienced during the week. Warm, moisture-laden air brought over 1 inch of rainfall from southern California and northern Nevada northward to Washington. Weekly totals of 3 to 4 inches were recorded in coastal sections of Oregon and northern California, and similar totals occurred as rain at elevations below 6,500 feet in the mountains of northern California.

Moderate to heavy precipitation fell in the southern Rocky Mountains, the central and southern Great Plains, the lower Mississippi Valley, the Ohio Valley, and in the Southeastern States. A large low pressure area moved from the central Rocky Mountains southeastward to northern Texas, and thence northeastward to the St. Lawrence Valley during the week. Snowfall extended from western South Dakota to eastern New Mexico and northwestern Oklahoma, and high winds in southeastern Colorado, the Texas Panhandle, and Oklahoma caused heavy drifting, closing roads in several areas. Squall line activity with locally severe thunderstorms extended from western Texas to the central Gulf coast.

Precipitation totals of over 2 inches were reported from northwestern Oklahoma, scattered areas of Tennessee, Louisiana, Mississippi, Alabama, Georgia and Florida. Areas of excessive soil moisture continue in most of the Southeast. Above-freezing temperatures and only light to moderate precipitation in most Northern States resulted in a generally reduced snow cover. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (*Toxoptera graminum*) - ARKANSAS - Warmer weather has resulted in a slight increase in populations. Both nymphs and adults were observed in Washington and Benton Counties. Counts ranged 3-15 and averaged 9 per linear foot. (Boyer). OKLAHOMA - Populations declined considerably during last few weeks in infested fields in Payne, Logan and Kingfisher Counties. (Wood). Counts averaged 3 and 6 per linear foot in 2 wheat fields in Hennessey area, and none were noted in limited survey in Beckham and Roger Mills Counties. (VanCleave et al.). Counts averaged 4 per linear foot in wheat field in Washita County, but none were noted in 5 other fields checked in Washita and Caddo Counties. (Hudson). Counts averaged 3 per linear foot in wheat field in Grandfield area, and none were noted in 3 other fields checked in Tillman County. (Hatfield). Counts averaged 25 per linear foot in wheat field in Atoka County (Vinson) and averaged 36 per square foot in field of volunteer oats and vetch in Choctaw County (Goin).

ENGLISH GRAIN APHID (*Macrosiphum granarium*) - OKLAHOMA - Counts averaged 10 per linear foot in wheat field in Atoka County, and none were noted in fields of small grain checked in southeast, southwest, west central and central areas. (VanCleave et al.).

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) - OKLAHOMA - Counts averaged 2 per linear foot in wheat field in Atoka County (Vinson) and averaged 0.5 and 3 per linear foot in 2 wheat fields checked in Hennessey area (Owens). None noted in other fields checked in southeast, southwest and west central areas. (VanCleave et al.).

PEA APHID (*Macrosiphum pisi*) - ARIZONA - Infestations continue to increase slightly in Yuma County alfalfa. Counts averaged 15-25 per 10 sweeps in some fields. Infestations lighter in other areas of the State. (Ariz. Coop. Sur.). OKLAHOMA - Counts averaged 0 and 5 per linear foot in 2 alfalfa fields checked in Kingfisher-Garfield County area (Owen) and averaged 20 per square foot in field of alfalfa and rye in Elk City area. None noted in other alfalfa fields checked in Beckham, Roger Mills and Custer Counties. (VanCleave et al.). Counts averaged 4 per square foot in field of alfalfa in Johnson County (Vinson) and averaged 4, 6 and 7 per square foot in 3 alfalfa fields checked in Choctaw County (Goin).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OKLAHOMA - Counts averaged 0 and 20 per linear foot in 2 fields of alfalfa checked in Kingfisher-Garfield area (Owen) and averaged 5-30 per square foot in alfalfa fields checked in Beckham, Roger Mills and Custer Counties. Numbers declined considerably during past few weeks in this area. (VanCleave et al.). Counts averaged 15 per square foot in alfalfa field in Johnson County (Vinson) and averaged 0.1, 0.5 and 0.5 per square foot in 3 alfalfa fields, respectively, in Choctaw County (Goin).

SOYBEAN CYST NEMATODE (*Heterodera glycines*) - ARKANSAS - Three new infestations recently found in southeastern corner of Craighead County. (Ark. Ins. Rpt.).

FRUIT INSECTS

SHOT-HOLE BORER (*Scolytus rugulosus*) - CALIFORNIA - Heavy larval populations in apple twigs in Escondido, San Diego County. (Cal. Coop. Rpt.).

CITRUS FLAT MITE (*Brevipalpus lewisi*) - CALIFORNIA - Light populations found on walnut in the Walnut Creek area for the first time. (E. A. Michelbacher).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - A compilation of interceptions at Florida ports shows that since July 1, 1947, this pest has been intercepted there 27 times. Eleven of these interceptions were made in the last 18 months. Twelve of the interceptions were from material originating in Brazil, 5 in Spain, 4 in Portugal and one each in material from Argentina, Costa Rica, Israel and Italy. In addition, this pest has been intercepted many times at other ports in material destined to Florida. (Plant Quarantine Division, November 30, 1959).

Citrus Insect Situation in Florida - First of February - PURPLE SCALE (Lepidosaphes beckii) activity fluctuated in the low range and will remain low through February in all districts. FLORIDA RED SCALE (Chrysomphalus aonidum) activity during February will change very little, but an upward trend will start in early March. Populations are presently below average with none of the surveyed groves showing heavy infestations. Activity is highest in Gainesville, Bartow and upper east coast districts. CITRUS RED MITE (Panonychus citri) activity increased and will continue upward through February. Although very few heavy infestations exist at present, light infestations are common and will build up rapidly during the next six weeks. Highest activity is in Bartow, Indian River and Brooksville districts. CITRUS RUST MITE (Phyllocoptura oleivora) activity sharply increased and populations are expected to be much higher than usual during the next two months. Infestations on leaves will decrease in March but mites will be above average abundance on fruit until April. Highest activity is in west coast, Bartow, Indian River, upper east coast and Ridge districts. TEXAS CITRUS MITE (Eutetranychus banksi) is present in 20 percent of the groves checked. Populations are expected to increase during February. (Simanton, Thompson, Johnson (Citrus Experiment Station, Lake Alfred)).

TRUCK CROP INSECTS

A SPIDER MITE (Tetranychus cinnabarinus) - ARIZONA - Found occasionally on lettuce in Yuma County. (Ariz. Coop. Sur.).

A CABBAGE ROOT APHID - TEXAS - Several severe infestations of an undetermined species were reported in the lower Rio Grande Valley area. (Deer).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Slight increases were noted in the lower Rio Grande Valley. (Deer).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Sticky-board collections during the period January 25-February 1 were 4 at Mesa, 11 at Kyrene, 3 at Waddell, 11 at Glendale and 3 at Deer Valley. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A FLATHEADED BORER (Anthaxia aeneogaster) - CALIFORNIA - Light populations recorded on native black walnut in Thousand Oaks, Ventura County. (Cal. Coop. Rpt.).

A SPIDER MITE (Oligonychus ununguis) - ARIZONA - Attacking arborvitae in central area. (Ariz. Coop. Sur.).

A BEETLE (Conotelus mexicanus) - CALIFORNIA - Adults are heavy on narcissus blooms in Los Angeles, Los Angeles County. (Cal. Coop. Rpt.).

MELON APHID (Aphis gossypii) - CALIFORNIA - Heavy populations occurring on Pittosporum tobira in Oceanside, San Diego County. (Cal. Coop. Rpt.).

A SOFT SCALE (Coccus sp.) - VIRGINIA - Severely damaging begonia plants at Bowling Green on January 4. (Egar, Amos).

A SCALE INSECT (Leucaspis japonica) - MARYLAND - Infesting boxwood at Gibson Island, Anne Arundel County. Det. by J. A. Davidson. (U. Md., Ent. Dept., Jan. 4).

AN APHID (Aphis coreopsidis) - MARYLAND - Infesting cosmos at University Park, Prince Georges County. Collected September 18, 1959, and determined by M. Leonard on January 24, 1960. This is the first published record received of this species in the State. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - UTAH - Common on February 1 in backs of some herds of cattle in Davis County, especially in some younger animals. (Knowlton). MARYLAND - Ranged 1-15 per beef animal at Flintstone, Allegany County. (U. Md., Ent. Dept., Feb. 1). TENNESSEE - Counts of H. lineatum showed 9 percent infestation of mature cows checked at an elevation of 2000 feet in Cumberland County. Approximately 25 percent of the mature cows checked in Anderson County were infested with an average of 3 larvae per cow. This was at an elevation of 1000 feet. (Stanley). OKLAHOMA - Counts of H. lineatum averaged 16 per animal on 75 head of beef cows checked in Latimer County. (Goin).

CATTLE LICE - OKLAHOMA - Heavy on approximately 60 percent of 75 beef cows checked in Latimer County. (Goin).

A LOUSE FLY - NORTH CAROLINA - Averaged at least one per grouse that was killed in Alleghany County this winter. Species probably Lynchia americana. (Black, Farrier).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - ARIZONA - Ten properties have recently been found infested at Yuma, Yuma County. Volume of 6 of the properties is estimated at 1,330,000 cubic feet. (Ariz. Coop. Sur.). NORTH CAROLINA - Larvae intercepted at Wilmington in bags of nuts from India. (Sessions, Wray).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - ARKANSAS - Only an occasional specimen observed. (Boyer). OKLAHOMA - Counts averaged 0.1-1 per square foot in alfalfa fields in Beckham, Roger Mills and Custer Counties. (VanCleave et al.). Count averaged 0.05 per square foot in alfalfa field in Johnson County (Vinson), and none were noted in other fields of alfalfa and small grains checked in southeast, southwest, west central and central areas (Goin et al.).

NABIDS (Nabis spp.) - ARKANSAS - Only an occasional specimen observed. (Boyer).

HYMENOPTEROUS PARASITES - ARKANSAS - Beginning to appear on warm days. Aphid parasitism is very low at present, however. (Boyer). OKLAHOMA - Counts averaged 0.01 per linear foot in a wheat field checked in Atoka County. (Vinson).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ARKANSAS - Infestations recently found at 4 points outside the treated area in Union County. Delimiting surveys underway. (Ark. Ins. Rpt.). FLORIDA - Reported in Orange County for the first time in January. (Fla. Coop. Sur.).

A WHITEFLY (Trialeurodes abutilonea) - ARIZONA - Specimens collected on wild tobacco, Nicotiana trigonophylla, in Yuma County. (Ariz. Coop. Sur.).

A CHIRONOMID (Tendipes nervosus) - MARYLAND - Apparent in a water distribution system at Baltimore. (U. Md., Ent. Dept., Jan. 28).

CORRECTIONS

CEIR 10(5):58, 59 - OLIVE FLY (Dacus oleae) should read OLIVE FRUIT FLY (Dacus oleae).

DISTRIBUTION MAPS - In the special compilation of "Distribution Maps" that was issued in December 1959, the record for Laramie County, Wyoming, was omitted from hessian fly (Phytophaga destructor) map on page 17 of this compilation. Add this county which is in the lower right corner of Wyoming.

LIGHT TRAP COLLECTIONS

	<u>Pseudaletia</u> <u>unipuncta</u>	<u>Feltia</u> <u>subterr.</u>	<u>Prodenia</u> <u>ornithog.</u>	<u>Agrotis*</u> <u>ipsilon</u>	<u>Heliothis</u> <u>zea</u>
<hr/>					
ARIZONA					
Mesa 1/25-31			43		
FLORIDA					
Monticello 2/2	1	3			
Quincy 2/1	2	1			
LOUISIANA					
Baton Rouge 1/29-2/4	1		1	1	1
Franklin 1/22-28		1	3	1	
Franklin 1/29-2/4		1		1	
SOUTH CAROLINA					
Clemson 1/30-2/5				1	
Charleston 2/1-7	4		2	4	

*Note: Agrotis ypsilon (Rott.) has been changed to Agrotis ipsilon (Hufn.). See Zimmerman, E. C. 1958 Insects of Hawaii, Vol. 7:253.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES ^{1/}

1959

Introduction - The summary of insect conditions that follows in this and several succeeding issues of the Cooperative Economic Insect Report was compiled in Survey and Detection Operations from annual summaries that were submitted by cooperating states. A list of individuals and cooperating agencies responsible for the greater part of the information in this summary will appear after the concluding section of the summary. The summary will be published in a similar manner to that which is used in the weekly issues of the CEIR. However, because of various difficulties, the lesser sections, i.e. Beneficial Insects, Tobacco Insects, Stored-product Insects, etc., will be carried first. In addition, the "Status Report on Forest Insect Conditions in the United States - 1959", which is compiled by Forest Insect Research, U. S. Forest Service, will be reissued in the CEIR after its release by the Forest Service. Since this forest summary is based largely on forest insect conditions, notes on ornamental and shade tree insects are not included or only briefly mentioned. This being the case, special notes covering those insects of ornamental plants and shade trees, as submitted by the various states, will be included in the CEIR summary under a special section. Also, any forest insect conditions not covered in the Forest Service report will be included in an additional special section.

BENEFICIAL INSECTS

LADY BEETLES were of considerable importance in controlling aphids in Nevada, Washington, New Mexico, Arizona and Idaho during 1959. CONVERGENT LADY BEETLE (*Hippodamia convergens*) was the primary species in Arizona and Washington. In Arizona, lady beetles were heavy in corn leaf aphid infestations during late March and April and were also heavy in alfalfa during these same months and light to medium the rest of the year. High populations were present in grain sorghum in October and November in Arizona. The heavy populations, which built up on pea aphid during the winter months in New Mexico, were a major factor in preventing a buildup of spotted alfalfa aphid in southern Dona Ana County. In southwestern Idaho, populations of various species in alfalfa fields severely infested with pea aphid were extremely large. Up to 15 pupae were found on 6-inch alfalfa stems during June. Over 100 per square yard were found in some fields in southwestern Idaho. Elsewhere in Idaho, populations were more nearly normal. Low temperature and rain affected lady beetle activity in Nebraska during the spring and early summer. Populations increased during the remaining summer months in southeastern and south central Nebraska. The highest count recorded averaged 24 larvae and adults per 100 sweeps. Most counts, however, ranged from 4-15 per 100 sweeps. Lady beetles were also important in Louisiana.

Convergent lady beetle was the most abundant species in Nebraska. Populations of convergent lady beetle were common in a variety of crops throughout Oklahoma during most of the year. Temperatures during the spring slowed down the activity of this species and allowed aphids to build up in alfalfa and small grains over most of that State. Heavy populations of convergent lady beetle were reported in scattered alfalfa fields in Oklahoma during the summer months. Counts were generally light during the fall and early winter months. Several species of lady beetles were relatively scarce in clover and alfalfa fields during 1959 in Illinois. With the exception of the week ending May 13, adults never exceeded 80 per 100 sweeps and larvae never exceeded 65 per 100 sweeps, except for the

^{1/} Including all reporting states except Hawaii and Alaska, which were carried in CEIR 10(4):46 and CEIR 10(6):74, respectively.

weeks ending June 10 and July 15. However, adults and larvae were very abundant in some fields of small grain and corn in Illinois that were heavily infested with aphids. In Delaware, adults of Coleomegilla maculata were abundant on alfalfa and clover throughout the State during early May.

Adults of a COCCINELLID (Chilocorus cacti) were very numerous and feeding on a poplar phylloxera at Rosewell, Chaves County, New Mexico.

LACEWINGS were much more plentiful in alfalfa fields that were severely infested by pea aphid in southwestern Idaho than in 1958, but numbers were about normal in other areas of the State. Varying numbers were found throughout Oklahoma after early March, with only light to medium populations being reported and, in general, lacewings were not abundant in Nebraska, the average being about 4 per 10 sweeps. GOLDEN-EYE LACEWING (Chrysopa oculata) adults ranged 0-60 per 100 sweeps and larvae 0-100 per 100 sweeps in clover and alfalfa in Illinois. The first larvae appeared in fields the first week of May, being rather abundant in some small grain and corn fields that were heavily infested by aphids. Adults and larvae of golden-eye lacewing were numerous throughout Delaware most of the season.

SYRPHIDS were common in alfalfa and clover fields throughout Idaho during the summer and larvae were more abundant than usual in Nevada. In Illinois, syrphid larvae were very scarce in clover and alfalfa during 1959; 20 per 100 sweeps being the greatest number found in any one field. Fair numbers were found in some Illinois corn fields which were heavily infested by aphids, but they were scarce in small grain fields even though aphids were abundant. Syrphids were extremely abundant in sweet corn fields in the central area and on the Eastern Shore of Maryland; Mesogramma polita being identified from Baltimore County.

FLOWER BUGS (Orius spp.) were common in alfalfa and other crops in Arizona and were effective predators in cotton fields in Nevada, but were less numerous than in past years in Nebraska. The most activity was noted in alfalfa in Nebraska, with small numbers attacking aphids in corn. Counts ranged 2-20 per 10 sweeps in that State.

DAMSEL BUGS (Nabis spp.) were common in alfalfa and other crops in Arizona, effective predators in cotton in Nevada, and active in alfalfa near Shoshone, Idaho, by early April. During May in Idaho, populations were generally below those of the last few years, but numbers increased to near normal levels by mid-summer. Damsel bugs were probably the second most common predator reported during 1959 in Oklahoma, being common in alfalfa throughout the year and common in fields of small grain during the spring. In Nebraska, near normal numbers were detected throughout 1959; average counts ranging 3-6 per 10 sweeps. Numbers in Illinois ranged 0-80 per 100 sweeps in clover and alfalfa from April to mid-June and increased from then on, with as many as 600 per 100 sweeps being found in early August.

BIG-EYED BUGS (Geocoris spp.) were common in alfalfa and other crops in Arizona, numerous in cotton in Louisiana and appeared to be about average in Idaho. ASSASSIN BUGS were effective predators of cotton insects in Nevada.

An extensive survey of PREDATORS in cotton fields in Arkansas was conducted in 1959, with a total of 172 species representing 32 families and 7 orders, being identified by December 31.

HYMENOPTEROUS PARASITES were of very little value in controlling greenbug and other aphids in fields of small grain in Oklahoma during 1959 because of low temperatures, generally; but the three introduced SPOTTED ALFALFA APHID PARASITES (Trioxys utilis, Apelinus semiflavus, Praon palitans) were present in variable numbers during the spring and summer in Arizona and assisted in reducing infestations of spotted alfalfa aphid in west and central areas of Nevada. Populations were highest during the spring and very low in July and later months in Arizona. P. palitans has become well established in Nevada and aided in control of spotted alfalfa aphid, but was much lighter than in 1958 in New Mexico. Parasitized aphids were quite abundant in alfalfa fields in Chaves and Eddy Counties, New Mexico, during September, however.

A CHALCID (Brachymeria n. sp.) was collected from an olethreutid moth (Anchylopera platanana) at Gainesville, Florida, during August. Specimens of this same parasite had been collected from this host at Blacksburg, Virginia, in 1950. The first clover aphid mummy was found in Washington in a red clover field in Columbia Basin on June 9. The parasite was identified as Aphelinus lapisligni and was credited as aiding in the control of clover aphid by the end of June.

A BRACONID (Apanteles galleriae) wiped out the wax moth population in one beeyard in Polk County, North Carolina, during 1958. This was the first record of this parasite in North America. The determination and report were made in 1959.

A EUROPEAN CORN BORER PARASITE (Lydella grisescens) was found in numbers for the first time during 1959 in Nebraska. Previously, only occasional specimens were collected. In Delaware, 3,400 adults of this parasite were released in several areas of the State in an attempt to recolonize this species in the field. A CICADA KILLER (Sphecius speciosus) was fairly common in New Castle County.

MELYRIDES (Collops spp.) were common in alfalfa and other crops in Arizona and were effective predators in cotton fields in Nevada. CLERID adults were higher in number than in past few years in Valley County, Idaho; Enoclerus spegeus and Thanasimus undulatus were common.

In Idaho, adults of a BUPRESTID (Agrilus hyperici) began to appear at release sites in klamathweed stands north of Coeur d' Alene during mid-July and a KLAMATHWEED BEETLE (Chrysolina gemellata) began emerging during the first week of May in the lower Clearwater River drainage area. By mid-May, adults of C. gemellata were very abundant and severely defoliated host plants in that area. Propagation of a GORSE WEEVIL (Apion ulicis) in Oregon looked more favorable in 1959, with the population at one release site in Coos County at least four times that of 1958. The total area of habitation of this species now covers about one and one-half square miles. One new release site in Lane County, Oregon, was established, with about 1,600 weevils released, and new release sites were also established in Curry County.

ALKALI BEE (Nomia melanderi) emergence was first reported on June 9 in Homedale area of Idaho, began June 13 in Nyssa-Adrian area of Oregon and reached peak during mid-July in Washington. Cool temperatures held the emergence date back in Oregon. The peak emergence date in Washington was timed well with haycutting so that bee activity and alfalfa bloom coincided, resulting in good seed yields. Populations in Pershing County, Nevada, decreased in 1959, but slightly increased in Humboldt County. They were observed pollinating alfalfa in Nye County, Nevada, for the first time. The extensive chemical controls of pea aphid that were applied in southwestern Idaho greatly reduced alkali bee populations in that area. In Oregon the adult population declined sharply about July 25, and by August 25 had reduced to a small fraction of the peak population in the Nyssa-Adrian area.

HONEY BEE (Apis mellifera) - Honey yield was slightly better than average in Kansas and production was estimated at 4,100,000 pounds in Washington, a 10 percent increase over the 1947-56 average. In Georgia, excessive and untimely rains prevented beekeepers from making a good honey crop. The spring crop was a failure in many areas of the State and very little sourwood honey was produced for the same reason. Honey bee did not winter well in 1958-59 in Georgia, primarily because of lack of stores. Demand for package bees and queens from Georgia producers was up, but production was off due to rains. In Washington, pollination of tree fruits and legume seeds was disrupted by cool, windy weather. The main bee poisoning problem encountered in Washington was when first cover, long-residual sprays were applied to fruit trees in the Yakima Valley during a critical foraging time for the bees. Bees may have been killed because of flying several miles to visit limited cover crop blooms. Honey bee losses were the greatest in at least 10 years in the Yakima Valley. In Rhode Island, swarms were few and negligible, with many cases of winter-killed bees being observed in the spring.

Inspection of aparies showed the incidence of American foulbrood to be 0.88 percent in Kansas (a decrease of 1.57 percent), up somewhat in Georgia and present in 350 colonies of 12,186 inspected in Oregon. European foulbrood was not serious in Georgia and was present in 84 of 12,186 colonies inspected in Oregon.

TOBACCO INSECTS

HORNWORM populations (Protoparce spp.) were variable, depending on the area. In Virginia, hornworms were one of the major pests of tobacco, but properly timed and adequate treatments prevented heavy damage, except in a few isolated fields. Infestations on tobacco in Georgia were very light and scattered, and broods in Maryland were about normal in all sections. Light trap records in Indiana indicated that moths of TOBACCO HORNWORM (Protoparce sexta) were considerably more abundant than in 1958 in Tippecanoe County, but were less abundant than in 1958 in Lawrence County. Two generations of tobacco hornworm were reported in Tippecanoe, Lawrence and Jefferson Counties, Indiana, with damage to tobacco being about the same in 1959 as in 1958 in Jefferson County; however, the first-generation injury was more severe in this county in 1959 due to the plants being small at the time of infestation and many growers whose fields were not protected had to apply treatments once or twice during the season. Moths of TOMATO HORNWORM (Protoparce quinquemaculata) were more abundant in 1959 than in 1958 in Tippecanoe and Lawrence Counties, Indiana, with the second generation being about the same as in 1958 and 1957 in Lawrence County. Very few tomato hornworms were found on tobacco in Jefferson County, Indiana, during 1959.

Tobacco fields in North Carolina were examined to determine foliar loss by HORNWORMS (Protoparce spp.) and BUDWORMS (Heliothis spp.). Based on variances of the 1958 data, the optimum number of plants examined for foliar loss was 80 plants following the first brood and 40 following the second brood. Foliage loss in 1959 was nearly one-fifth the loss of 1958, averaging 1.12 dollars per acre of flue-cured tobacco. The number of fields which were uninjured, as found in the survey of 155 fields following the first brood of hornworms and 223 following the second brood, increased from less than one to eight times those in 1958.

Tobacco Fields Sampled Where No Foliage Injury Occurred

	<u>Brood</u>	<u>1958</u>	<u>1959</u>
Hornworms	First	55 percent	64 percent
	Second	25 "	74 "
Budworms	Early	16 "	34 "
	Late	34 "	80 "
Both Hornworms and Budworms	Early	14 "	32 "
	Late	5 "	43 "

TOBACCO BUDWORM (Heliothis virescens) infestations were light to moderate at the time tobacco was in bloom in Georgia, being usually serious at that time of the year. In Maryland, infestations were more than normally abundant on tobacco in St. Marys County. TOMATO FRUITWORM (Heliothis zea) caused light to medium damage to tobacco in Virginia, the damage being about normal. A general outbreak of tomato fruitworm occurred in Calvert and St. Marys Counties, Maryland, about harvest time. The infestations were generally too late to require treatments.

CUTWORMS caused some damage to tobacco in Georgia, but were not a serious problem, while in Wisconsin, cutworms caused considerable damage to tobacco in both the northern and southern areas. CABBAGE LOOPER (Trichoplusia ni) infestations were few and light in Georgia and YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) and POTATO TUBERWORM (Gnorimoschema operculella) larvae were found infesting tobacco at West Palm Beach, Florida.

SOUTHERN GREEN STINK BUG (Nezara viridula) and BROWN STINK BUG (Euschistus servus) infestations on tobacco were very light in Georgia compared with those of 1957-58. Only a few complaints were received concerning difficulty in control. GRASSHOPPERS caused some damage to tobacco in Georgia, but were not a serious problem.

Infestations of GREEN PEACH APHID (Myzus persicae) were generally light throughout Georgia, but this species was one of the major pests of tobacco in Virginia. However, properly timed and adequate controls prevented heavy damage in Virginia, except for a few instances. In Maryland, infestations during July and August necessitated the treatment of over 3,000 acres by aircraft.

WIREWORMS were one of the major pests of tobacco in Virginia, but heavy damage was prevented except in a few isolated instances by controls. Infestations of Conoderus sp., probably vespertinus, were limited to the southern half of the Coastal Plain in North Carolina. The highest infestations of newly set tobacco plants were over 50 percent in untreated North Carolina fields. A WHITE-FRINGED BEETLE (Graphognathus sp.) caused moderate damage to one field of tobacco in Irwin County, Georgia.

VEGETABLE WEEVIL (Listroderes costirostris obliquus) infestations were light to moderate in tobacco plant beds in Georgia and larvae and adults were common in plant beds in Maryland during May. In North Carolina, up to 25 adults per plant were present at night in a tobacco field in Sampson County in early May.

TOBACCO FLEA BEETLE (Epitrix hirtipennis) was destructive to newly set tobacco plants in all sections of Maryland and were more than normally abundant on the crop during August. In Virginia, this pest was one of the major pests of tobacco, but controls prevented heavy damage, generally. Infestations of tobacco flea beetle in Georgia were light to moderate, occurring in plant beds and in the field, but infestations were of no economic importance in Indiana.

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) surveys continued during 1959 in all areas of the United States. Since the beginning of the eradication program, infestations have been found on 227 properties in Arizona, 993 properties in California, 19 in New Mexico and 22 in Texas. As of December 31, 1959, all properties had been treated, with the exception of 3 in Arizona and 4 in California. Negative surveys were made on 637 properties in Oregon and 288 properties in Washington during 1959. Several other Trogoderma species reported during the 1959 surveys were Trogoderma inclusum in South Dakota; T. parabile in Wyoming and Oregon; and T. simplex and T. inclusum in Oregon. DERMESTID populations were considered normal for the year in Nevada and khapra beetle surveys were reported negative.

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) was probably the most abundant insect in grain elevators in Kansas during 1959 and was one of the two most abundant species in stored corn and wheat in Nebraska. This pest was also reported as being one of the three most important pests of grain in Idaho. In addition to being reported as troublesome in Virginia, saw-toothed grain beetle was reported as a pest in New Mexico, South Dakota, Texas, Nevada, Washington, Oregon, Oklahoma, Montana, Ohio and Maryland.

FLAT GRAIN BEETLE (Cryptolestes pusillus) was one of the two most abundant species in stored wheat and corn in Nebraska and one of the three most important pests of stored grains in Idaho. Flat grain beetle was also recorded as a pest in Kansas, Oklahoma, Texas and Oregon.

CONFUSED FLOUR BEETLE (Tribolium confusum) was recorded as light to heavy in stored grain throughout New Mexico and was one of the main pests of stored grain in Texas. This species was one of the most common species present in Oklahoma and was reported infesting many homes in South Dakota. Infestations were common in Montana and were recorded in Oregon and Nevada. RED FLOUR BEETLE (Tribolium castaneum) was one of the three most important pests of grain in Idaho and was common in Montana. In addition, red flour beetle was recorded in Kansas, South Dakota, Nevada, Oregon and Washington.

DEPRESSED FLOUR BEETLE (Palorus subdepressus) was conspicuous in grain dust accumulations from ventilator covers of an elevator at Maumee, Ohio, in September; apparently the first record for the State.

Occasional outbreaks of a GRAIN BEETLE (Ahasverus advena) occurred in Pennsylvania, particularly in moldy grain, and heavy infestations of a LONG-HEADED FLOUR BEETLE (Latheticus oryzae) damaged stored milo at Las Cruces, Dona Ana County, New Mexico. CIGARETTE BEETLE (Lasioderma serricorne) was numerous in cereals and spices in Maryland and DRUG-STORE BEETLE (Stegobium paniceum) infested foods stored in homes in Ohio.

GRANARY WEEVIL (Sitophilus granarius) infestations in corn and grain were about normal in Maryland and common in Montana. This species was also reported from Washington and Oregon. RICE WEEVIL (Sitophilus oryza) was common in stored grain in southern New Mexico and was troublesome in stored grain and cereal products in Virginia. Rice weevil was also one of the major pests of stored grain in Texas and Louisiana during 1959.

CADELLE (Tenebroides mauritanicus) was one of the most common pests of stored grain in Oklahoma and was common in Oregon. RUSTY GRAIN BEETLE (Cryptolestes ferrugineus) was recorded during 1959 in Washington, but there were fewer infestations than during the 1957-58 season due to increased use of controls. This situation was also true of other stored-grain insects in Washington.

LESSER GRAIN BORER (Rhyzopertha dominica) was abundant in Kansas, being the most abundant of the weevils, and was widespread in all types of grain. Heavy infestations were found in stored milo at Las Cruces, New Mexico, and infestations were found in grain establishments in Ontario, Monroe, Harrisburg and Tillamock, Oregon. The records in Oregon were new. This pest was also a major problem in stored grain in Texas.

COWPEA WEEVIL (Callosobruchus maculatus) was reported as a household pest in Oregon and BEAN WEEVIL (Acanthoscelides obtectus) was abundant in stored, dry beans in the Auburn area of Maine during May. Bean weevil was also a household pest in Oregon. The records as household pests in Oregon for these two weevils are unusual. PEA WEEVIL (Bruchus pisorum) was a problem in Washington. Two processors report an increase in Federal Grade weevil dockage in dry edible seed peas from the Palouse region during the last four years; dockage averaged about 0.25 percent in 1957, 1.5 in 1959 (up 2.5 percent for some growers).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) populations in Illinois were most severe in the southern one-sixth of the State, averaging less than 10 percent of kernel infestations in stored ear corn in that area. However, a fall survey of 7 cribs of 1959 ear corn averaged 1.6 percent kernel infestation. The great majority, if not all of this infestation, occurred prior to harvest. This is a higher-than-average level of infestation for newly harvested corn in that area of southern Illinois. Angoumois grain moth populations were heavy again in Maryland and it was considered to be the number one pest of stored corn and small grains in that State. This pest was also a problem, to some extent, in

corn and grain sorghum storage in eastern Kansas and was considered a major pest of stored grain in Texas as well as being troublesome in Virginia.

INDIAN-MEAL MOTH (Plodia interpunctella) was above normal in stored grain during 1959 in Pennsylvania and more requests than usual were received concerning infestations in homes in that State. Indian-meal moth was abundant in flat and elevator storage in Kansas during September and October and was a major pest of stored grain in Texas. Infestations of this pest were numerous in homes in Maryland and Ohio and was common in stored grains in Oregon. Infestations were considered normal in Nevada. MEDITERRANEAN FLOUR MOTH (Anagasta kuhniella) was a problem in stored feed in several areas of New Mexico and was common in stored grain and grain products in Oregon.

Two MITES were found infesting stored products in Oregon. They were Glycyphagus domesticus in Merion bluegrass during May and other stored products during the rest of the year and GRAIN MITE (Acarus siro) in stored grain and other stored products.

MEAL MOTH (Pyralis farinalis) was conspicuous in grain dust accumulations from ventilator covers of an elevator at Maumee, Ohio, in September, and PSOCIDS were a problem in elevator storage in Kansas.

RED-LEGGED HAM BEETLE (Necrobia rufipes) and LARDER BEETLE (Dermestes lardarius) were troublesome in stored meat in Virginia.

A TOBACCO MOTH (Ephestia sp., prob. elutella) was present in stored alfalfa pellets in New Castle County, Delaware, causing slight injury during mid-March.

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

(1959 records unless otherwise indicated)

KHAPRA BEETLE (Trogoderma granarium) 11 times, at Baltimore (1) in ship's stores, Charleston (3) in crude guar gum cargo from India, Cleveland, Ohio (1), in soybean meal in quarters, Houston, Texas (1), Mobile, Alabama (1), New Orleans, Louisiana (1), Portland, Oregon (1), Philadelphia, Pennsylvania (1), and New York, New York (1), in ship's stores from various origins; larvae of ORIENTAL FRUIT FLY (Dacus dorsalis Hend.) (including 2 interceptions of possibly that species) in papaya, guava and coffee berry in baggage at Honolulu, Hawaii, destined for the mainland; larvae of MEDITERRANEAN FRUIT FLY (Ceratitidis capitata (Wied.)) 18 times, at Boston, Massachusetts (4) in fruits in baggage and mail from the Azores, Honolulu, Hawaii (7), in baggage destined for the mainland, Miami, Florida (3), in fruit in airplane stores from Portugal and in baggage from Brazil, New York, New York (2), in baggage from Italy, San Juan, Puerto Rico (1), in airplane stores from Spain and Washington Inspection House, Washington, D. C. (1), in air express from Java for first record from Indonesia; WHITE GARDEN SNAIL (Theba pisana (Mull.)) 11 times, at Charleston, South Carolina (6), with military cargo from Morocco and New Orleans, Louisiana (2), and Norfolk, Virginia (3), with military cargo from France and Morocco; larva and pupa of a TEPHRITID (not Anastrepha, Ceratitidis or Dacus) in orange carried by a passenger at Laredo, Texas, on September 5; larva of MEXICAN FRUIT FLY (Anastrepha ludens) in orange in baggage destined for California on September 27 at El Paso, Texas; larvae of a PHYCITID (Cryptoblabes gnidiella (Mill.)) in peaches in stores from Italy on August 22 at New York, New York; larvae of a WEEVIL (Rhysommatus sp.) (possibly of significance to pigeon peas) in Cajanus bicolor pods in baggage from Panama on March 8 at Brownsville, Texas; four interceptions of a CURCULIONID (Euscepes postfasciatus (Fairm.)) with each of vanda flowers, red ginger flowers, peanuts and pineapple at Honolulu, Hawaii, in baggage and mail destined for the mainland; and a ROOT KNOT NEMATODE (Meloidogyne sp.) (an unusual perineal pattern, possibly undescribed species) on Kaempferia roscoeana plants in cargo from Singapore on October 30 at San Francisco, California. (Plant Quarantine Division, November 30, 1959).

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

A SUGAR-BEET CROWN BORER (Gnorimoschema ocellatella (Boyd))

Economic Importance: This gelechiid is a very important pest of beets in several areas of Europe, North Africa and the Middle East. Damage is most evident from



July to October, when the late generations are more prevalent. During certain outbreak years, up to 100 percent of the crop will be infested. As many as 20-25 larvae per plant have been recorded in Italy. The larvae cause extensive leaf damage as well as considerable damage to the roots. Larval galleries can be found running 3 to 4 centimeters deep into the roots. The inner leaves of the leaves of the plant are destroyed and the weight and sugar content of the roots are greatly reduced. Damage in many instances continues after the crop has been harvested. Larval webbing promotes mold growth and causes concern only in periodic outbreak years. Meteorological factors and parasites seem to be the limiting factors in population development.

Distribution: Recorded in the literature from France, Germany, Italy, Czechoslovakia, Spain, USSR (southern UKSSR, Moldavia, Caucasus, Crimea), Turkey, Iran, United Arab Republic (Egypt) and Morocco. The species is reported to occur throughout all of Europe, but research in Germany indicates that a similar species, P. atriplicella, may replace this species in the more northerly areas.

Damage to Beet

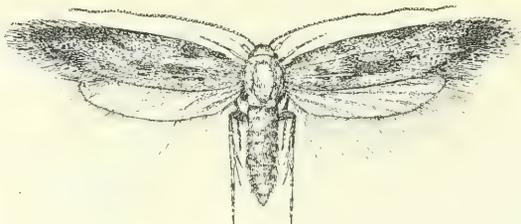


General Distribution of Gnorimoschema ocellatella

Hosts: Beets (Beta cicla, B. vulgaris maritima, B. sacchariera).

Life History and Habits: The biology of the pest as recorded in Italy is as follows: The adults first appear during early May and fly about quickly in search of young plants to deposit their eggs. Larvae, upon hatching, begin feeding on the succulent growth, excavating galleries in the midribs, leaf stalks and the roots. Often, a black, rotting mass is clearly visible on the infested plants due to mold development on the excreta, feeding residue and foreign bodies which are trapped in the silk threads spun by the larvae. Pupation takes place in silken cocoons, which may be rolled-up in the ends of the outer leaves, in chambers made from the central leaves which are tied together, or in feeding galleries. Duration of the life cycle, as well as the number of generations, varies considerably according to climatic conditions. In the northern area, the life cycle lasts 28-30 days and there are 2 generations, but in the central and southern areas, the cycle is completed in 20-23 days and 3-4 generations develop. The various generations overlap, however, and adults, larvae and pupae can be found together in August, September and October.

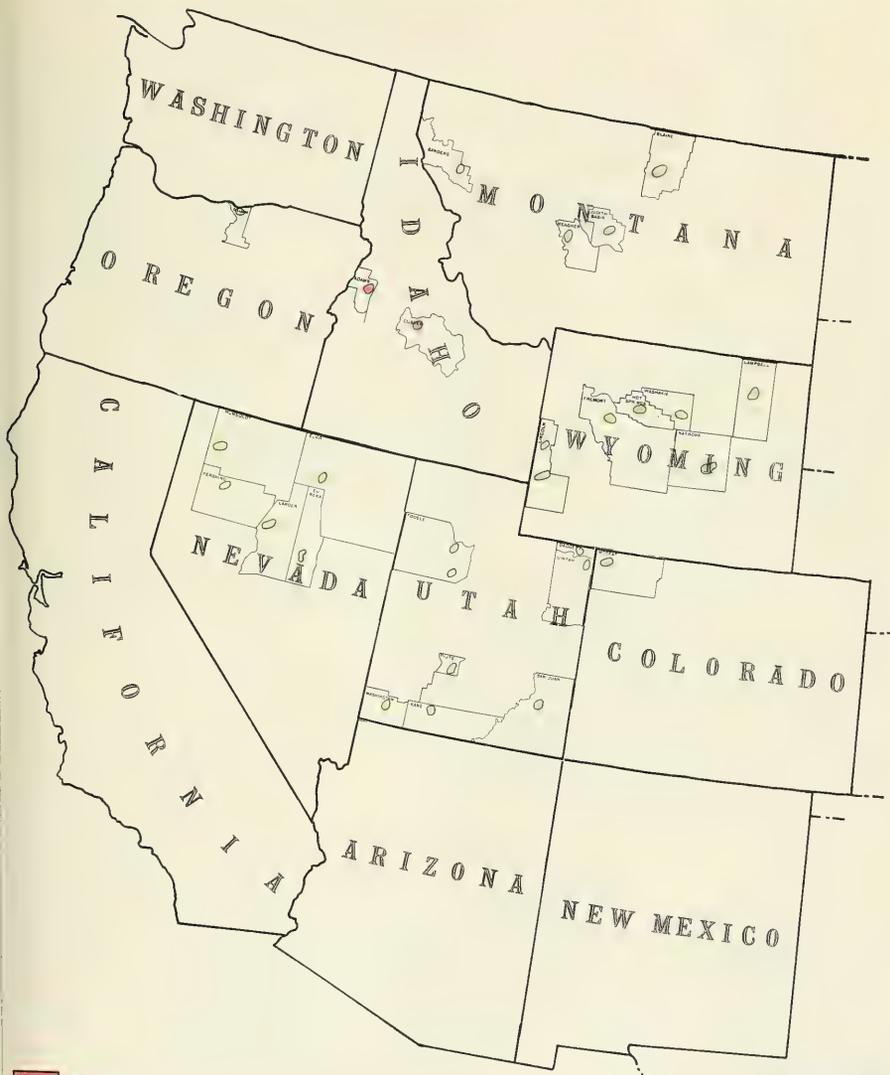
Description: ADULT - Body about 5 mm. long; wing expanse 13-14 mm. Forewings basically gray-brown or gray pale-yellow with small black, more or less distinct, spots surrounded by a light ring. Hind wings gray pale-yellow, with fringe of hairs a little lighter in color. Antennae with a series of yellowish-gray scales around the base and with another series of brown or black scales situated near the extremity. LARVA - Young larvae are more or less light green, changing color as they mature. The changes are as follows: The dorsal region becomes reddish and some rosy longitudinal lines are more or less distinctly expressed, while the ventral region takes on a straw-yellow color. The head, prothoracic segment and last abdominal segment are dorsally darkened. Length of mature larvae is 10-12 mm. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U. S. National Museum). CEIR 10(7):2-12-60



Adult of Gnorimoschema ocellatella

Major reference and figures (except map): Adult and damage from Menozzi, Carlo, 1947. Animali e Vegetali Danannosi Alla Barbabietola da Zucchero e Mezzi per Combatterli, pp. 49-54, Genova.

MORMON CRICKET ADULT SURVEY ——— FALL 1959



 HEAVY
 SCATTERED

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
PLANT PEST CONTROL DIVISION
WESTERN REGION
NOVEMBER 1959

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business



VOL. 10 NO. 8 FEBRUARY 19, 1960

SB

823

C77

E. ent.

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 of Insect Conditions

GREENBUG counts ranged up to 1,000 per linear foot in oats in several Louisiana parishes. (p. 95).

PUMPKIN CATERPILLAR collected in Highlands County, Florida. (p. 96).

INSECT DETECTION: First authenticated report of face fly from Iowa. (p. 97).

CORRECTIONS. (p. 98).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1959

Insects Affecting Man and Animals - (p. 100).

Household Insects - (p. 107).

Miscellaneous Insects - (p. 109).

INSECTS not known to occur in the United States. (p. 111).

WEATHER BUREAU 30-DAY OUTLOOK
MID-FEBRUARY TO MID-MARCH 1960

The Weather Bureau's 30-day outlook for the period mid-February to mid-March calls for temperatures to average below seasonal normals over the eastern half of the Nation except for near to above normal over the Great Lakes Region and New England. For the western half of the country, temperatures are predicted to average above normal in northern portions and near normal in the south except for above normal along the Pacific coast. Precipitation is expected to exceed normal over the eastern third of the Nation and the Southern Plains. Greater than normal amounts are also indicated for the Pacific Northwest. Subnormal precipitation is expected over the far Southwest, the Western Great Lakes, and Northern Plains. In areas not specified 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 FEBRUARY 15

Mean temperatures this week were generally above normal in the northwestern and northeastern quarters of the Nation, and below normal in the Great Plains, Mississippi Valley, and the Gulf States. Two vigorous winter storms over the eastern two-thirds of the Nation highlighted the weather scene this week. The first storm, moving from the central Rocky Mountains across the Great Plains to the Great Lakes and New England, left record low pressure readings over a wide area from Texas into southern Kansas and Missouri on the 9th. Ponca City, Oklahoma, recorded 28.70 inches for one of the lowest readings. A major dust-storm swept across eastern New Mexico, western Texas, and western Oklahoma on wind gusts up to 80 m.p.h. or higher. Temperatures on Tuesday in most of central and southern Texas reached the highest known levels for so early in the year when Rio Grande City reported 102°, Laredo 98°, and Austin 87°, and 80° readings extended northward into Oklahoma and Arkansas. Moderate to heavy snow occurred north of the storm center from Kansas and Nebraska northeastward, and scattered, locally severe thunderstorms and general rains were recorded south and east of the storm center from Texas and Oklahoma to the central Mississippi and Ohio Valleys. Snowfalls of 1 to 4 inches were general in Kansas, 2 to 6 inches in South Dakota, 8 to 15 inches in Michigan, and 18 inches in southeastern Wisconsin. Severe glazing occurred in central Lower Michigan. High winds resulted in widespread local damage and much drifting, which blocked highways over most of the snow area. Cold air moved into the northern Great Plains and Great Lakes behind this storm with below zero readings general over the weekend. General heavy rains and some record high temperatures in New York and New England accompanied the passage of the storm center north of these areas.

The second severe storm center developed in the northwestern Gulf of Mexico on Friday and moved rapidly northeastward along the Atlantic coast into New England by late Saturday. Before the development of the surface low pressure system, light to moderate snow began in the Big Bend region of Texas on Thursday. The snow area moved eastward to south Texas, the coastal plains, and the Central Gulf States on Friday as the storm became organized in the Gulf of Mexico. Snow depths in Texas were generally 3 to 7 inches from the Big Bend to the coastal plains, with record falls of up to 12 inches measured in an area east and southeast of San Antonio. Heavy snow, with some sleet and rain, extended from south Texas, southwestern Louisiana, and central Mississippi northward through Alabama, Georgia, and the Carolinas into the Ohio Valley, and the Middle Atlantic and Northeastern States as the storm moved through these areas. Total snowfalls of more than 1 foot were recorded from areas of Mississippi, Tennessee, North Carolina, Virginia, West Virginia, Pennsylvania, and New York, and totals of more than 6 inches from most

(Continued, p. 99).

CEREAL AND FORAGE INSECTS

CORN LEAF APHID (*Rhopalosiphum maidis*) - OKLAHOMA - Averaged 30 per linear foot in a wheat field surveyed in Jefferson County. (Vinson). None noted in 2 wheat fields checked in Tillman and Jackson Counties. (Hatfield, Presgrove).

GREENBUG (*Toxoptera graminum*) - LOUISIANA - Counts ranged from 0 to more than 1,000 per linear foot of oats in fields in Claiborne, Ouachita, Red River and Natchitoches Parishes. Predators not present in any of the fields and number of parasitized aphids was negligible. (Spink). OKLAHOMA - Counts averaged 1.5 per linear foot in a Jefferson County wheat field and 5 per linear foot in a Bryan County wheat field. (Vinson). None were noted in a wheat field checked in Tillman County (Hatfield) nor in a wheat field checked in Jackson County (Presgrove). TEXAS - Infestations found only in isolated areas, with very little damage noted thus far this season. (Hawkins). KANSAS - Counts were less than one per square foot in a wheat field in Marion County. (Peters).

WINTER GRAIN MITE (*Penthaleus major*) - TEXAS - Infestations have been found only in isolated areas. Very little damage has been noted. (Hawkins). KANSAS - Averaged less than one per square foot in a Marion County wheat field. (Peters).

BEAN APHID (*Aphis fabae*) - CALIFORNIA - Light populations, probably this species, occurring in the Gerber area, Tehama County. (Cal. Coop. Rpt.).

PEA APHID (*Macrosiphum pisi*) - OKLAHOMA - Counts averaged 3 per linear foot in an alfalfa field checked in Bryan County. (Vinson). CALIFORNIA - Very light infestation showing on alfalfa in the El Centro area of Imperial County. (G. D. Peterson). KANSAS - Counts averaged less than one per square foot in an alfalfa field in Marion County. (Peters).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OKLAHOMA - Averaged 3 per linear foot in an alfalfa field checked in Bryan County (Vinson) and 2 per linear foot in a Jackson County alfalfa field checked (Presgrove). CALIFORNIA - Light populations occurring in the Gerber area of Tehama County. (Cal. Coop. Rpt.). NEW MEXICO - Infestations appear to be light in alfalfa fields in southern counties. (N. M. Coop. Rpt.).

AN APHID - ARIZONA - An undetermined species heavily infesting wild mustard growing on the desert in north Pinal County. (Ariz. Coop. Sur.).

A GROUND PEARL - GEORGIA - Infestations of an undetermined species heavy on centipede grass in Dooly County. (Johnson, Feb. 2).

A BILLBUG (*Calendra callosa*) - GEORGIA - Hibernating forms in broomsedge averaged 1 per 3 clumps of grass. (Johnson, Feb. 4).

FRUIT INSECTS

A PEACH TREE BORER - ARIZONA - Heavily infesting peach trees in Cochise County; 80 percent of trees in 4-year-old and older orchards infested with as many as 23 larvae, taken from the base of one tree and soil around it. Apricot trees in same area also infested, but less heavily than peach trees. (Ariz. Coop. Sur.).

Peach Tree Insects in Louisiana - *Sanninoidea exitiosa*, *Synanthedon pictipes* and *Aspidiotus perniciosus* are very abundant in some peach orchards in Lincoln Parish. (Spink).

TRUCK CROP INSECTS

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - GEORGIA - Heavy infestations on turnips in Wheeler County. (Jackson).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light on cabbage in Colquitt County. (Johnson, Feb. 3).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Sticky-board collections during period February 1-8 were 7 at Mesa, 3 at Kyrene, 1 at Waddell, 14 at Glendale and 6 at Deer Valley. (Ariz. Coop. Sur.). CALIFORNIA - Medium on lettuce and heavy on sugar beets in El Centro area, Imperial County. (G. D. Peterson).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - A considerable amount of control has been applied in the lower Rio Grande Valley, particularly in the Starr County area. (Deer).

PUMPKIN CATERPILLAR (Diaphania indica) - FLORIDA - Collected in Steiner trap in orange tree at Childs, Highlands County, January 22. Det. by C. P. Kimball. (Fla. Coop. Sur.).

THRIPS - TEXAS - Light infestations of Thrips tabaci noted on onions in the La Sara area of the lower Rio Grande Valley. (Deer). NEW MEXICO - Seedling onions heavily infested with Frankliniella spp. throughout most of Mesilla Valley. (N. M. Coop. Rpt.).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light infestations were present on tobacco in plant beds in Tift, Berrien, Cook, Colquitt, Lowndes, Tattnall and Bulloch Counties the week ending February 5 and in Worth, Tift, Colquitt and Mitchell Counties the week ending February 12. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Infestations on tobacco in the plant bed were light in Tift, Berrien, Cook, Colquitt, Lowndes, Tattnall and Bulloch Counties the week ending February 5 and light in Worth, Tift, Colquitt and Mitchell Counties the week ending February 12. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A PINE TIP MOTH - ARKANSAS - No emergence has been detected; however, as weather becomes seasonally warmer, activity will begin. Overwintering forms are plentiful in plantings scattered over the State. Prospects are that there will be moderate to heavy infestations in many local areas. (Ark. For. Pest Rpt., Feb.).

A DEODAR WEEVIL (Pissodes sp.) - LOUISIANA - Probably P. nemorensis, heavily infesting loblolly pines in Lincoln, Webster, Claiborne and Bienville Parishes; 3-5 percent of stands 10-30 feet high affected. Thin stands of timber are more seriously affected. (Spink).

IPS BEETLES (Ips spp.) - ARKANSAS - Some activity has been observed. Generally, spots of infestation, even though still local, are larger than at this time in 1959. (Ark. For. Pest Rpt., Feb.).

TURPENTINE BEETLES - ARKANSAS - Some activity occurring. Where heavy cutting has been done, buildup may occur to kill seed trees which are left. (Ark. For. Pest Rpt., Feb.).

PACIFIC FLATHEADED BORER (Chrysobothris mali) - CALIFORNIA - Medium larval infestation in birch tree trunks in Turlock, Stanislaus County. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Male moths numerous around lights, February 7 and 8. (Peters).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Larvae active in mines on American holly at College Park, February 10. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Heavy infestations on calendula in Anaheim, Orange County. (Cal. Coop. Rpt.).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Infesting pachysandra at Pikesville, Baltimore County, February 10. (U. Md., Ent. Dept.).

SAN JOSE SCALE (Aspidiotus perniciosus) - OKLAHOMA - Heavy on some pyracantha checked in the Lawton area of Comanche County. (Hatfield). NORTH CAROLINA - Infesting weeping cherry in Iredell County. Det. H. Morrison. (Plant Dis. Clin.).

LONG-TAILED MEALYBUG (Pseudococcus adonidum) - CALIFORNIA - Medium to heavy infestations on treefern and Chamaecyparis sp. (false-cypress) in Pescadero, San Mateo County, and Oakland, Alameda County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - MARYLAND - Specimens reported in CEIR 10(7):81 as infesting beef animals at Flintstone, Allegany County, determined as H. lineatum by C. Sabrosky. (U. Md., Ent. Dept.). OKLAHOMA - Counts of H. lineatum averaged 7 per animal on 13 mature cows checked in the Wewoka area, Seminole County. (Teakell). NORTH CAROLINA - None were found in 56 head of beef animals and 93 head of dairy cows examined in Wake County. Grubs averaged 15-22 per head in 60 untreated beef cattle imported from mountain area to experimental farm in Rowan County. (Jones). UTAH - Beginning to appear in backs of many Weber County cattle and becoming numerous in backs of untreated cattle in parts of Sanpete and Emery Counties. (Knowlton). KANSAS - Grubs averaged 1.13 per head in 158 head of 2-year-old steers examined in Ellis County on January 29, and 2.3 per head in 22 yearling calves. (Knapp). NEW MEXICO - Have become a problem in several herds in southern counties. (N. M. Coop. Rpt.).

FACE FLY (Musca autumnalis) - IOWA - Collected January 15 in a home at Columbus Junction, Louisa County. Det. J. Laffoon. This is the first authenticated report of the occurrence of this species in the State. (Harris).

BLACK BLOW FLY (Phormia regina) - OKLAHOMA - Of 35 cattle dehorned in Payne County 5 showed larval infestations in the wounds. (Besch).

CATTLE LICE - UTAH - Troublesome in some Cache and Toole County herds; are serious in some herds at Plain City, Weber County, and in parts of eastern Box Elder County; and are common on unsprayed herds in Sanpete and Wayne Counties. (Knowlton).

DOG FOLLICLE MITE (Demodex canis) - NORTH CAROLINA - Three cases reported to the State veterinarian during January. (Zweigart).

SPINOSE EAR TICK (Otobius megnini) - NEW MEXICO - Very numerous in ears of cattle on a ranch near Las Cruces, Dona Ana County. (N. M. Coop. Rpt.).

TICKS - OKLAHOMA - Counts of unspecified species averaged 12 per animal on 40 head of beef cows checked in Le Flore County. (Goin).

STORED-PRODUCT INSECTS

Stored-grain Insects in Oklahoma - Counts in 1,200 bushels of stored oats in a wooden granary checked on a farm in Marshall County averaged as follows: CADELLE (Tenebroides mauritanicus), 4; RICE WEEVIL (Sitophilus oryza), 6; and SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), 2. (Vinson). There have been several reports of INDIAN-MEAL MOTH (Plodia interpunctella) infesting stored-products in homes in the Stillwater area. (Howell).

Stored-grain Insects in New Mexico - Larvae of INDIAN-MEAL MOTH (Plodia interpunctella) were very abundant on sacked grain and in litter in several feed stores and elevators checked. RICE WEEVIL (Sitophilus oryza) was common in feed stores in southern counties and larvae of MEALWORMS (Tenebrio spp.) were found to be very abundant on old sacks and stored grain in several locations in Hidalgo and Dona Ana Counties. Infestations of SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) were light to moderately heavy on stored grain in Hidalgo and Grant Counties. (N. M. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES (Hippodamia spp.) - NEW MEXICO - H. convergens and H. parenthesis abundant and active on warm days in alfalfa fields in southern counties. (N. M. Coop. Rpt.).

HONEY BEE (Apis mellifera) - TEXAS - Honey produced during 1959 is estimated at 13,988,000 pounds by the Texas Crop and Livestock Reporting Service, which is 7 percent above the 13,050,000 pounds produced in 1958. An estimated 269,000 colonies averaged 52 pounds per colony during 1959, compared with 261,000 colonies averaging 50 pounds per colony during 1958. (Gaines).

HYMENOPTEROUS PARASITES - OKLAHOMA - Counts averaged 3 per linear foot in a wheat field checked in Jefferson County. (Vinson).

MISCELLANEOUS INSECTS

A STONEFLY (Allocapnia sp.) - PENNSYLVANIA - Swarming on milkhouse and getting inside of building, contaminating milk cans and other equipment, in Warren County. (Adams, Feb. 1). Swarming on house, trees and fences in Washington County. (Udine, Feb. 4).

CORRECTIONS

CEIR 10(2):15 - LINDEN LOOPER - PENNSYLVANIA - Should read: "...and seen flying in woods in Blain, Perry County..."

CEIR 10(7):90 - On sixth line from the top, Dacus doraslis Hend. should read Dacus dorsalis Hend.

CEIR 10(7):91 - Under Distribution, mention of P. atriplicella should read G. atriplicella.

LIGHT TRAP COLLECTIONS

	<i>Pseudaletia</i> unipuncta	<i>Feltia</i> subterr.	<i>Prodenia</i> ornithog.	<i>Agrotis</i> ippsilon	<i>Peridroma</i> margaritosa
ARIZONA					
Mesa 2/1-7			51		3
FLORIDA					
Quincy 2/8		3			
Gainesville 2/10		2			
Homestead 2/5		6			
LOUISIANA					
Baton Rouge 2/5-11	2		5		
SOUTH CAROLINA					
Charleston 2/8-14	1	2		2	

(Weather continued from p. 94)

other States in the snow belt. In southern and central New England snow changed to sleet and then rain, causing slush and rapid melting. Generally heavy rains occurred in the Southeast, south of the snow area. Strong winds, particularly in the Northeast, caused much severe drifting, and gales produced a damaging storm surge up to 6 feet above normal tides along the southern New England coast.

In the Western States unseasonably mild temperatures were the rule and precipitation was heavy in coastal sections with 3 inches or more general from southern Oregon northward. Most areas of the Central and Northern Plateau States received substantial amounts of precipitation, and light showers were reported from most southern Plateau areas. The snowpack in the mountains of the Western States, the principal source of summer irrigation water, has been increased in recent weeks, but is generally still much below normal for this time of year. (Summary supplied by U. S. Weather Bureau.).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES ^{1/}

1959

INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (*Musca autumnalis*) became abundant and seriously annoying to cattle in several states during 1959. Specimens were collected in 13 states for the first time during the year. The states, in order, according to when they were reported, were Virginia, Ohio, Indiana, Illinois, Pennsylvania, Michigan, Massachusetts, New Hampshire, Delaware, New Jersey, West Virginia, Vermont and Wisconsin.

The pest became quite heavy in western Pennsylvania, although it was present in all parts of the State, and caused much concern to cattle and home producers. In New Jersey, face fly appeared statewide as an annoying pest of dairy cattle, particularly in clustering about the eyes of animals and producing irritation. First collections of face fly were made in August in New Castle County, Delaware, and in Chittenden County, Vermont. Infestations were reported moderate throughout Maine during August, and were heavy on the faces and eyes of cattle during late summer in Bath, Highland and Montgomery Counties, Virginia. Face fly was first reported in Indiana at Randolph on June 3. It spread rapidly and generally over the State and caused extreme annoyance to cattle in the northern half, where it also entered houses. The first record in Illinois was on June 3 at St. Joseph, Champaign County. Since that date, the species was collected in 53 counties in the northern two-thirds of the State. One hundred or more flies per animal were observed in some herds in the eastern portion of the State north of Champaign and also in Whiteside County in the northeast. Much annoyance was caused to cattle, particularly around faces and heads. The introduction, wide distribution and abundance of face fly in Ohio was one of the outstanding features of the season in that State. Adults of this species accumulated on the faces of cattle at Wooster in 1958, but the species was not identified at that time. Early in 1959, specimens were identified in Ohio as *M. autumnalis*. The flies



General Distribution of *Musca autumnalis*

^{1/} Including all reporting states except Hawaii and Alaska, which were carried in CEIR 10(4):46 and CEIR 10(6):74, respectively.

were found to be abundant over Ohio throughout the summer and were extremely annoying to cattle in pasture. Populations of 50 to 100 per cow face were not uncommon. The first identification of this species in Wisconsin was made from collections taken in Dane County during September. Collections in other counties in Wisconsin were negative. (See CEIR 9(31):719 for additional material on face fly).

HOUSE FLY (*Musca domestica*) populations became numerous in several states during 1959, particularly during the late summer and early fall. Those states reporting high populations during that portion of the year were North Dakota, Nevada, Arizona, Utah, Missouri, Delaware and Indiana. In Utah, annoyance and numbers of house fly were excessive over the State, being extremely numerous in cities, towns, on farms, and were very common in food-handling establishments. Populations in Arizona became a problem to poultrymen in the eastern area late in the summer. They were also heavy in many areas of the State during November and a problem around homes. Southern Nevada dairy areas had heavy populations during October and populations were more abundant than usual in many parts of Illinois, moderate to heavy in Georgia, numerous in Texas, heavy around homes and barns in Maryland and very abundant and annoying in Delaware. The pest continued as the primary one of dairy barns and homes in Indiana. Farms in Indiana that did not practice rigid sanitary procedures had enormous populations late in the season. In Missouri, populations were low during the early and midseason but became more numerous in September and October.

FLIES (undetermined species) were more of a problem than they had been for the past two years in barns and on cattle in Wisconsin. Fly control was reported unsatisfactory on some farms as early as June 12. In Minnesota, flies appeared to be heavier than usual generally and persisted somewhat later than usual.

HORN FLY (*Siphona irritans*) populations were abundant and annoying on cattle in Utah, New Mexico, South Dakota, southwestern North Dakota, north central, north-eastern and western Nebraska and in Louisiana. Numbers in Indiana were moderate on untreated cattle, ranging up to 2,000 on bulls early in June and were serious again on dairy cattle in most sections of Maryland. Virginia reported statewide and important populations, while in Georgia infestations ranged from light to moderate, being mostly moderate. Numbers in Arkansas and Nevada remained about the same as in previous years, but they were less numerous than in 1958 in Kansas. Counts in Oklahoma were higher than in 1958 throughout the State.

STABLE FLY (*Stomoxys calcitrans*) populations were more abundant than usual in many parts of Illinois and increased during late August around feed lots in eastern Nebraska. Adults were common and annoying in Delaware in late July and were high in numbers in many localities in North Dakota during late summer. In Utah, annoyance to livestock was common and about average, as were population levels in Nevada. Populations in Kansas were not as plentiful as in 1958.

The SCREW-WORM (*Callitroga hominivorax*) outbreak that occurred in Louisiana was the most serious problem on animals during the year in that State. The first authenticated report of infestation, an interception, was of an infested hog in a shipment from an out-of-state source at the Delta Station in Madison Parish in July. The first positive infestation occurring in Louisiana in 1959 was an infested calf on a farm in Madison Parish. By November, 138 reports from 6 parishes were received. The Louisiana parishes infested were East Carroll, Franklin, Madison, Richland, Tensas and West Carroll. No screw-worm infestations in domestic animals were reported during 1959 in Georgia and no cases were identified in Kansas. Infestations in Nebraska were few, only three being reported in the late summer from Dawes County. Activity in Arizona was reported throughout the spring and summer in the eastern and central range areas and infestations in Texas continued heavy throughout the State. Cases in Nevada were below the 1958 level. One case of nasal myiasis in man was reported in Cushing County, Oklahoma, early in October. Over 100 larvae were removed.

Adults of BLACK BLOW FLY (Phormia regina) were abundant around livestock corrals near Ft. Sumner, De Baca County, New Mexico, during early summer.

A SARCHOPHAGID (Wohlfahrtia opaca) caused an estimated loss of one million dollars on mink and other affected animals in Utah. Some mink growers in Utah consider this the worst year they have ever experienced from injury by this pest. Larvae sometimes attack livestock. Larvae of this pest were recovered from tunnels in the flesh of kittens at Gooding, Idaho, and infestations of another FLESH FLY (W. vigil) resulted in numerous deaths among mink "kits" on several fur farms in Wisconsin.

HORSE BOT FLY (Gasterophilus intestinalis) eggs were extremely numerous on fore-legs and necks of horses in Union, Colfax and Harding Counties, New Mexico, and this and other species of bot flies were common and annoying to horses in various localities in Utah.

CATTLE GRUBS (Hypoderma spp.) continued to cause losses throughout Texas and were somewhat above normal in beef cattle in Maryland. Populations in Nevada remained about the same as in previous years. In North Carolina, a survey made by county agents in January, February and early March revealed the following: In 28 counties, over 3,678 animals were examined and the average number of larvae per animal ranged from 0 to 8.5. In two mountain counties, the average was 2.3 per animal of 32 examined in Avery County and 8.5 per animal of 11 examined in Jackson County. COMMON CATTLE GRUB (Hypoderma lineatum) was present in all parts of Virginia, but was not as prevalent in the northern and southwestern counties (mountainous areas) as it was in the rest of the State. NORTHERN CATTLE GRUB (Hypoderma bovis) was prevalent in northern and southwestern Virginia, but in reduced numbers in other parts of the State. Adults of both species, H. lineatum and H. bovis, caused damage to cattle in Utah. New systemics were tested for grub control, with 4,400 cattle being treated in one area of Sanpete County during October. These two species also remained the major animal pests in Wyoming during 1959 and infestations in Washington averaged 30 per head in herds in Asotin County and 7 to 8 per head in the western area. In South Dakota, H. bovis and H. lineatum continued serious pests in the State. From a herd of 87 untreated calves checked in March, the average number of grubs per head was 26.2, while a herd of 109 cows averaged 0.9 grubs per head.

Common cattle grub populations were lighter than 1958 in Oklahoma and light to moderate in Georgia. The spring surveys in Arizona showed variable infestations occurring in cattle in all areas of the State. Counts in Oklahoma averaged 12 to 18 grubs per animal in yearling steers and 7 per animal on mature cows in Harper and Woodward Counties during January. Adults annoyed cattle in north central Oklahoma during March and fall grub counts were lighter across the State than in 1958. Counts in Arkansas averaged 3.88 grubs per head in 17 counties compared with 2.24 grubs per head in 1958, but all of the same areas were not involved. The average in New Mexico was 15 to 30 grubs per head in cattle during January and February in Union, Harding and San Miguel Counties. The adults began annoying cattle the first week of April in De Baca, Sierra and Torrance Counties, New Mexico, and the first larval specimens were found in the back of a steer during the third week of August. One larva already had made a hole in the skin. Larvae were collected in De Baca, Grant, Hidalgo, Union, Harding, San Miguel and Taos Counties, New Mexico, during 1959. The first infestations appeared a month later than 1958 in Kansas.

TABANIDS were very troublesome to farm workers in the tidewater areas of Maryland during June and July and were reported as pests in Arkansas and Louisiana, where populations were abundant.

HORSE FLIES (Tabanus spp.) were of considerable concern in the east central and southeastern areas of Oklahoma during August and September and were common and annoying to livestock in Utah. Counts in Oklahoma were generally higher than in 1958. Horse flies were below the 1957-58 levels in Nevada except in Clark County where T. productus and T. punctifer were present in above normal numbers and were

extremely annoying to humans. T. atratus was common to numerous in New Castle and Kent Counties, Delaware, during July and T. atratus and T. sulcifrons were extremely abundant in northeastern Indiana during the last two weeks in July and first two weeks in August; counts averaged 25 "strikes" per minute. Tabanus spp. were more abundant than usual in many parts of Illinois and populations in Nebraska were near normal but small areas in the east and southeast experienced increased numbers. Occasional herds of cattle had 8 to 10 Tabanus spp. per head in Nebraska.

DEER FLIES (Chrysops spp.) were common and of average annoyance to livestock in Utah and population levels appeared higher than those of previous years in Idaho, especially in the eastern area. In North Carolina, biting by Chrysops spp. was severe in the coastal counties late in June and early July and they were very common and annoying in Delaware the first part of June.

A TABANID (Hybomitra lasiophthalma) and Chrysops nigra caused considerable annoyance to workers out-of-doors in Wayne County, Ohio, late in May and early June.

MOSQUITOES were serious pests to man and animals in several areas of the Nation, especially along the eastern seaboard from Rhode Island through North Carolina and in inland areas where rainfall was above normal. In the northern areas of the country, Maine reported mosquitoes appearing about May 25, at Penobscot, but dry weather caused many small pools to dry up before emergence could take place. Various species were increasingly numerous and annoying in Rhode Island at Narragansett and South Kingstown in mid-August.

In mid-September in New Jersey, the State experienced for the first time a sharp outbreak of human involvement with eastern equine encephalitis. Although the disease has been recognized as a veterinary problem for decades, human involvement in 1959 was serious. Attention is being focused on several species known to harbor the virus in New Jersey. Culiseta melanura is suspected as a vector of the virus among birds.

Continued expansion of resorts and urban development in New Jersey have increased problems with Culex pipiens and C. salinarius.

In the tidal areas of New Jersey, SALT-MARSH MOSQUITO (Aedes sollicitans) was very abundant in August and caused more annoyance than usual. In the drier upland areas of northern New Jersey, mosquitoes did not become a problem and were less of a nuisance than normal, but as a result of heavy midsummer rains in the south, numerous woodland pool species appeared in the interior of coastal counties and caused unusual difficulties.

Populations of Aedes spp. were some of the heaviest on record on the Eastern Shore of Maryland during the summer and salt-marsh mosquito was a major pest in Kent County, Delaware, this past season. One Dover trap recorded a seasonal high of 3,684 females on July 22. Some nuisance was caused by salt-marsh mosquito in Sussex County, Delaware. The floodwater species of mosquitoes in Delaware were not abundant in New Castle County until late in the fall and overall mosquito abundance was significantly less in Sussex County than in other areas of the State; however, another mosquito, Culex salinarius, was very abundant in Wilmington during June and July and in Delaware City in July and August. The highest numbers of C. salinarius were trapped on July 15 when 1,248 females were caught.

Mosquitoes were important and general in Virginia and salt-marsh mosquito biting was recorded as 150 per minute in mid-July in the coastal areas of North Carolina, an increase of 146 per minute from the 4 per minute recorded in April in the same area.

Floodwater mosquitoes were exceptionally abundant and annoying in northern Ohio from mid-May through June. In one instance in Wayne County, mosquito annoyance caused an approximate 10 percent milk reduction in dairy cows. Of 292 adults collected while attempting to bite during the peak of annoyance, 126 were Aedes sticticus, 86 A. trivittatus, 58 A. vexans and the rest were other species of Aedes.

Mosquitoes were rather scarce in most areas of Illinois, probably due to the dry weather. Where rainfall was fairly heavy in the northern area, populations were abundant. In Wisconsin, mosquitoes were a serious nuisance. In the Madison area, Aedes vexans, A. dorsalis, Mansonia perturbans and Culex pipiens caused most of the annoyance. As early as June 12 mosquitoes were reported keeping cattle from grazing at night in some areas of Wisconsin. Sporadic heavy rains during the summer in Minnesota resulted in abundant populations of mosquitoes in the Minneapolis-St. Paul area. Control was difficult mainly because of the inability to treat soon enough the tremendous number of breeding sites that resulted from floodwater accumulations. The mosquito population over Minnesota appeared about normal, however.

In Missouri, Culex, Aedes and Psorophora became annoying and a problem during the latter half of May. These problem areas continued during the summer in all areas where rainfall was frequent and above normal. Control was applied. Mosquitoes were a nuisance to man and animals in Arkansas. Populations, primarily Psorophora confinnis, were extremely heavy in the spring and early summer during frequent rains and when the rice fields were drained and reflooded.

Several species of mosquitoes were extremely numerous over most of Texas, due partly to the above-normal rainfall, and increased mosquito outbreaks in Nebraska were repeated for the third successive year, predominant species being Culex tarsalis and Aedes vexans in that State. A. increpitus was found in Sioux County, a new record for Nebraska.

Several unspecified mosquitoes were troublesome in Utah during the spring and in several other areas of the State throughout the season, but less general than normal. The pests were at the lowest level in the past three years in Nevada. Numbers remained slightly to moderately below normal in irrigated areas with sufficient water. Mosquitoes were serious pests of livestock and residents in all areas of Wyoming and Aedes spp. were highly bothersome during late May and early June in wetter, northern areas of Idaho. They were also very annoying during the evenings in parts of Jefferson, Bear Lake and Bingham Counties, Idaho, late in July. In Washington, Culex tarsalis was not as common as in previous seasons. No confirmed cases of human encephalitis were reported in Washington during 1959 and very few, if any, horse encephalitis cases.

BLACK FLIES were common in Idaho and in apparently normal numbers throughout the more mountainous portions of the State. They appeared about May 25 in Maine. In Maryland, Simulium jenningsi, annoyed humans in the Great Falls area during May and Prosimulium hirtipes complex was abundant in northern New Castle County, Delaware, in April. S. decorum was reported for the first time in Florida at Gretna, Gadsden County. It was collected December 10, 1958, and reported as biting humans. Severe swelling, inflammation and edema of the immediate area of the bite were noted.

Blue tongue virus disease of sheep was diagnosed in the vicinity of Moses Lake, Washington; the first record in the State. A SAND FLY (Culicoides variipennis), the vector of the disease, was by far the most prevalent of the four species of Culicoides recorded from the Columbia Basin.

SHEEP KED (Melophagus ovinus) was abundant and injurious generally in Utah, especially during the winter and on young lambs in the spring, and was light to heavy on sheep in De Baca, San Miguel, Socorro, Taos and Lincoln Counties, New Mexico, during the spring and early summer. Populations in Nevada were about the same as in previous years.

A SNIPE FLY (Symphoromyia hirta) annoyed man and cattle in several canyons of Utah, especially in the northern portion of the State.

An EYE GNAT (Hippelates collusor) was again present in large numbers in south-eastern Clark County, Nevada, throughout the spring, summer and fall and was heavy in Yuma County, Arizona, during early May and present throughout the remainder of the year in that State. The heaviest concentrations in Arizona were in and around citrus groves. Another eye gnat (H. pusio) was as numerous as usual in the Coastal Plain of North Carolina.

PUSS CATERPILLAR (Megalopyge opercularis) and Norape cretata caused discomfort and hospitalization of a boy in North Carolina.

HORNETS and YELLOW JACKETS were extremely abundant and annoying in several localities throughout northern Idaho late in the summer and were very numerous in the Twin Falls and Moscow areas late in the fall. They were also abundant and annoying in the lake resort areas of eastern Washington and caused many complaints in Rhode Island. In Indiana, Vespula maculata and V. maculifrons increased their nesting activities in residential areas and numerous inquiries were received concerning them. One death at Martinsville, Indiana, was attributed to multiple stings.

A LEAFHOPPER (Deltocephalus flavicosta) was reported biting people in Wilson County, North Carolina, and ASSASSIN BUGS were reported extremely numerous and biting humans in mines in Nevada. MASKED HUNTER (Reduvius personatus) was unusually abundant in Moscow, Idaho, and assassin bugs and Triatoma sp. caused concern in houses in southern and western areas of Texas. Seven BED BUG (Cimex lectularius) infestations were reported in Athens, Georgia, and surrounding area from July to October (5 being in new homes) and a few infestations were reported in Utah and Delaware.

A CHIMNEY SWIFT BUG (Cimexopsis nictalis) was recorded from Rush County, Indiana, during the summer. This was the first record of this species in the State, although it is very likely that it has been present for some time.

FLEAS were troublesome on cats, dogs and humans in most sections of Maryland and continued to be pests in Texas and North Dakota. HUMAN FLEA (Pulex irritans) was heavy in a farmyard in Spink County, South Dakota. Ctenocephalides spp. became particularly troublesome in Rhode Island in mid-August, were numerous in late summer in New Jersey and heavy in July in the Lincoln area of Nebraska around homes. CAT FLEA (Ctenocephalides felis) was a pest of minor importance in Ohio and was a pest in Indiana and Pennsylvania. DOG FLEA (C. canis) was also recorded as a pest in Pennsylvania.

CATTLE LICE severely infested many herds of cattle in Utah and caused the usual extensive damage throughout the State. Ranchers in New Mexico reported light to severe infestations on cattle and infestations remained about the same in Nevada. CATTLE TAIL LOUSE (Haematopinus quadripertusus) was observed on a herd of cattle in East Baton Rouge Parish, Louisiana, during September and SHORT-NOSED CATTLE LOUSE (H. eurysternus) was observed at scattered localities in Kansas. CATTLE BITING LOUSE (Bovicola bovis) continued a problem on some cattle herds in Wyoming but excellent control was obtained with systemic insecticides. HOG LOUSE (H. suis) and SHAFT LOUSE (Menopon gallinae) infestations were scattered throughout Kansas.

BLACK WIDOW SPIDER (Latrodectus mactans) was frequently found in homes and farm buildings in Utah, especially in the fall. Four persons were reportedly bitten in the Ogden area during a three-week period in October; the first was hospitalized for four days. Much concern developed throughout Utah following wide publicity about the first person that was bitten. Populations in Nevada were about normal and an infestation was found in a home in Walworth County, South Dakota. A BROWN SPIDER (Loxosceles reclusa) was of special concern to house-holders over most of Kansas, especially in the eastern half of the State.

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) populations in Idaho during April, May and June were much above those recorded in the past few years in rangelands of the southwestern area. Extremely heavy infestations were noted in bands of sheep south of Marsing during April and up to 200 ticks per head were recorded on sheep in the Homedale area. This species was also heavy on sheep in parts of Elmore County, Idaho, during April. In northern Idaho, they were reported abundant on cattle near Nez Perce, and in one herd of 40 animals four head were paralyzed by ticks. In Washington, Rocky Mountain wood tick was much more abundant than usual in the southeastern area late in the spring, and was numerous during the spring on cattle and horses on rangelands in Utah, also attacking persons in that State.

Populations of AMERICAN DOG TICK (Dermacentor variabilis) were heavier than in the past three years in Oklahoma, severe in the eastern edge of South Dakota, severe at several places in Grand Forks and Ramsey Counties, North Dakota, numerous during early summer in Indiana, about normal in Maryland, abundant throughout Delaware by mid-May and abundant in Rhode Island. This species first appeared in April in Rhode Island and Delaware.

BROWN DOG TICK (Rhipicephalus sanguineus) was heavy in homes in Arizona throughout the year, heavy on dogs in south central Texas, numerous during early summer in Indiana and numerous in homes in Maryland. In addition, this species was reported for the first time in Arkansas in Washington and Pulaski Counties.

LONE STAR TICK (Amblyomma americanum) was heavier than during the past three years in Oklahoma and EAR TICK (Otobius megnini) caused local damage in several counties in Utah.

FOWL TICK (Argas persicus) caused abnormal molting of chickens at a poultry farm near Deming, New Mexico, and was abundant in a chicken house in Baltimore, Maryland, during October.

The presence of a SCAB MITE (Psoroptes ovis)* in Gove, Clark and Seward Counties, Kansas, resulted in a State quarantine being established in these three counties as in Meade and Finney Counties on January 31, 1959. Positive cases were not identified from all counties, however. The quarantine has been removed from all but Gove County and will probably be lifted from this county in the near future. Sheep scab mites were prevalent and common in sheep wherever they were raised in Virginia. Many flocks have to be treated every year in this State.

TROPICAL RAT MITE (Ornithonyssus bacoti) was found in some local rural areas of Tillman County, Oklahoma, during February. The mite caused a dermatitis to some humans. Reports of NORTHERN FOWL MITE (Ornithonyssus sylviarum) were received from scattered localities throughout Kansas and a HARVEST MITE from stored oats was reported attacking people in Pike County, Georgia.

An extremely large number of cases of DOG FOLLICE MITE (Demodex canis) were reported by the North Carolina State Veterinarian during July.

CHICKEN MITE (Dermanyssus gallinae) was a pest of minor importance in Ohio and an unusual invasion into a third floor apartment in Providence, Rhode Island, was reported late in June, being associated with pigeons.

*Sweatman, G. K., 1958. Canad. Journ. Zool. 36(6):905-929.

HOUSEHOLD INSECTS

A number of pests were troublesome to homeowners during 1959. The pests most often mentioned were ants, cockroaches, termites, carpet beetles, clover mite, boxelder bug and earwigs. A number of other pests were also reported, but to a lesser extent.

The most commonly reported pests of residences in Ohio during 1959 were various species of ANTS. The majority of ants submitted for identification in that State were BLACK CARPENTER ANT (Camponotus pennsylvanicus) and, less frequently, PAVEMENT ANT (Tetramorium caespitium). Lasius umbratus and Crematogaster cerasi were each confirmed from one locality in Ohio. In Virginia, ants were a major household problem and pavement ant was abundant in homes in New Jersey. Black carpenter ant continued to be serious in Rhode Island, with complaints of swarming generally during June and July, and pavement ant caused many complaints in northern Rhode Island during late June. In Idaho, winged adults of Camponotus spp. became common in the Moscow area during early May, but population levels were considerably below those of 1958. Large numbers of adults migrated into homes in the Weiser area of Idaho early in September.

Four species of COCKROACHES were major household pests during 1959 in Virginia. BROWN-BANDED ROACH (Supella supellectilium) increased its distribution and abundance in Washington since it was first recorded in that State at Seattle in 1943 and at scattered localities throughout the State by 1954. In 1959, it was especially noted in the Puget Sound region. This species was also a major pest of homes in Oregon and became more widespread during the year. Infestations were moderate in York and Cumberland Counties, Maine, and several homes in northern New Castle County, Delaware, were reported infested. This cockroach was also a pest in Ohio and Maryland.

GERMAN COCKROACH (Blattella germanica) was recorded as a household pest in Maryland, New Jersey, Ohio, Indiana and Washington. However, resistance to chlorinated hydrocarbons was encountered at Bremerton, Washington, and in New Jersey and Indiana. In the latter two States, this species is reported becoming more important because of the resistance problem. ORIENTAL COCKROACH (Blatta orientalis) was reported troublesome in Delaware and Ohio.

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) flights were heavy during the spring in New Jersey and were noted as early as March in Rhode Island. Some large swarms were noted in mid-June in Delaware and unseasonal swarming during mid-August was also reported in Rhode Island. This termite caused considerable concern in Maryland and is a very serious problem in Rhode Island. New infestations were not unusually abundant in Delaware, however, and populations were not considered as numerous as in 1957 and 1958 in Ohio. Inquiries concerning the species were numerous in Indiana, most of them concerning remedial measures, but there seems to be a slight increase in the interest of the general public concerning preconstruction treatments in Indiana.

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) was recorded as a major pest in Oregon, and was reported infesting homes in southwestern and south central Idaho and at Bremerton, Washington. An undetermined SUBTERRANEAN TERMITE again damaged many homes and other buildings in various parts of Utah. Damage by TERMITES is becoming more extensive each year in Utah. A DAMPWOOD TERMITE (Zootermopsis angusticollis) was a major pest of homes in Oregon during 1959.

CARPET BEETLES were quite abundant during 1959 in Pennsylvania, more troublesome than usual in Ohio, serious in homes in Maryland, household pests in Virginia and reported many times in Indiana. The species most often reported in Pennsylvania, Ohio and Indiana was BLACK CARPET BEETLE (Attagenus piceus). In New Jersey, CARPET BEETLE (Anthrenus scrophulariae) and black carpet beetle were abundant, while in Oregon VARIED CARPET BEETLE (Anthrenus verbasci) was the dominant carpet beetle around homes. FURNITURE CARPET BEETLE (Anthrenus flavipes) was also common in several homes in New Castle County, Delaware, during the first of March.

EUROPEAN EARWIG (Forficula auricularia) adults became active during mid-April in Twin Falls and Moscow, Idaho, and populations were larger than they had been the last several years in the Parma area, with severe damage occurring in home gardens in that area. In Utah, the usual widespread annoyance about homes and in home gardens was reported, and complaints were about average in Nevada. This species has spread several hundred yards on each side of the original site found infested in Clmmaron Canyon, Colfax County, New Mexico, in the fall of 1958. European earwig was of negligible importance in Rhode Island, becoming evident in early June. Reports of EARWIGS invading homes in southern Louisiana were very numerous during January and February and again in the fall. Specimens were identified as Labi-dura riparia. Those earwigs infesting homes in Richmond, Putnam, Wilcox and Decatur Counties, Georgia, were identified as Forficula sp.

BOXELDER BUG (Leptocoris trivittatus) was a nuisance around homes at Albuquerque, New Mexico, during April and May and was very abundant during March and April in Delaware and Maryland. This pest was also a nuisance during October in Ohio and late in the fall in Maryland, and was reported as a major household pest in Virginia during the year.

CLOVER MITE (Bryobia praetiosa) was unusually heavy in homes in Rhode Island early in May and moderately troublesome in November. Invasions were also numerous in homes in New Jersey, Delaware and Virginia. Clover mite caused less annoyance in Ohio during 1959 than in 1957 and 1958. Complaints were about average in Nevada. Several reports were received during April in Idaho, of its being more abundant than the last few years in southwestern and south central counties.

CRICKETS were the earliest fall invaders of many homes in Rhode Island. Heavy populations entered basements and houses during the first week of September in Barrington and Narragansett Counties. In Oklahoma, invasions by Acheta sp. in stores were reported in several towns in the central area during September. A small brown cricket, Nemobius sp., was very numerous late in July and throughout August in Indiana, and caused many complaints. Motels were especially troubled by the nocturnal invasions of this cricket.

OLD HOUSE BORER (Hylotropes bajulus) infestations were numerous in Maryland and the species was the most important powder-post beetle in Virginia. In Florida, larvae of this species were found feeding in the coniferous plywood bottom of a cedar jewelry box at Gainesville. The box was at least 6 years old and eggs had apparently been laid in the plywood before construction. A FALSE POWDER-POST BEETLE (Hadrobregmus gibbicollis) caused considerable damage to old buildings in U. S. Naval installations in Washington at Clallum Bay, Tatoosh Island, Neah Bay and Lapush, Clallum County; Ilwaco, Pacific County; Kingston, Kitsap County; and Oak Harbor, Island County.

Invasions of MILLIPEDES caused complaints in Louisiana and Ohio. FALSE CHINCH BUGS (Nysius spp.) were a nuisance in houses in many areas of New Mexico and were especially abundant in the Klamath Falls and Medford areas of Oregon. Larvae of a PYRALID (Aglossa caprealis) were reported in Jacksonville and Pensacola, Florida, homes. They were found in carpets and migrating up pine-panelled walls to pupate in cracks. A severe infestation of a FUNGUS BEETLE (Typhaea stercorea) was found in Turner, Maine, during August. Heavy populations were finding access into a home attached to a barn. ELM LEAF BEETLE (Galerucella xanthomelaena) was a major household pest in Virginia and was quite troublesome in Indiana.

Other insects reported as a nuisance to homeowners during 1959 were as follows: SILVERFISH (Lepisma saccharina) in all sections of Maryland; a JAPANESE WEEVIL (Calomycterus setarius) in many homes in Dane and Sauk Counties, Wisconsin; FIREBRAT (Thermobia domestica) in Twin Falls area of Idaho during April; CLUSTER FLY (Pollenia rudis) in Utah during the fall; SOLPUGIDS in Nevada; a GRASS BUG (Arhyssus barberi), a BOSTRICHID (Stephanopachys substriatus), WEEVILS (Brachyrhinus ovatus, B. sulcatus and Trachyploeus bifoveolatus) and WHITE-MARKED SPIDER BEETLE (Ptinus fur) as major pests of homes in Oregon; and T. bifoveolatus invaded homes at localities in King and Kitsap Counties, Washington.

MISCELLANEOUS INSECTS

The JAPANESE BEETLE (Popillia japonica) trapping program was expanded during 1959 in Minnesota, with the emphasis once again being placed on transportation centers. During 1959, 565 traps were placed throughout Minnesota, an increase of 303 over 1958. The Twin City and Duluth areas were more intensively trapped than in past years. No beetles were found in Minnesota. Adult Japanese beetles were first noted on July 17 in Portland, Maine. A check of traps for this pest at various air fields in the east central and central areas of Oklahoma was negative.

IMPORTED FIRE ANT (Solenopsis saevissima richteri) has been found in ten states since the pest was first reported in the United States in 1930 at Mobile, Alabama. States in which infestations have been found are Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Texas. Since the cooperative program was started in 1957, more than one million six hundred thousand acres have been treated in nine states. All infestations in Tennessee were eradicated prior to the current program. As of November 30, some treatment work was underway in 83 infested counties and all known infestations had been treated in 75 counties. By the end of the year, all treatments had been completed in the States of North and South Carolina.

DANCE FLIES and MIDGES caused a problem during the summer in Rhode Island that cost a textile processing plant at least ten thousand dollars in damaged products and control measures. The case involved insects being crushed on cloth that was being rolled and causing stains, necessitating reprocessing. MAYFLIES appeared in such tremendous numbers in the Bedford area of Indiana that they caused several highway accidents.

At Lafayette, Indiana, a XIPHYDRIID (Xiphydria maculata) was especially numerous and oviposition was heavy in storm-damaged limbs of silver maple and hackberry, while HACKBERRY ENGRAVER (Scolytus muticus) emerged in numbers from storm-damaged hackberry. PIGEON TREMEX (Tremex columba) was more numerous than in past years in Indiana, especially at La Porte, where it was observed on dead and dying sugar maple and American elm. Dead FLIES of various species and families were quite numerous in Indiana, being killed by the fungus Entomophthora muscae.

In Maryland, THREE-LINED POTATO BEETLE (Lema trilineata) was destructive in all stages to jimsonweed in the central and southern areas during July, and a PSOCID (Ectopsocopsis pumilis) was found on used poultry crates at Landover and new wood milk boxes at Gaithersburg.

SPRINGTAILS appeared on the outside of buildings in New Castle County, Delaware, in unusually high numbers the first of July, and BANDED WOOLLYBEAR (Isia isabella) was very common during early September in that State.

A CARPENTER BEE (Xylocopa sp.) caused moderate damage and produced an unsightly condition due to fecal streaks below each nest hole in several rustic buildings at a summer camp in Hopkinton, Rhode Island. HAG MOTH (Phobetron pithecium) and SADDLEBACK CATERPILLAR (Sibine stimulea) were observed in unusual numbers during August in Rhode Island.

Maggots of an OTITID (Chrysomya demandata) were found in silage in Hughes County, South Dakota, while in New Mexico, thousands of adults of a BLISTER BEETLE (Pyrota akhurstiana) were attracted to lights above a swimming pool at Radium Springs, Dona Ana County, on the nights of July 30 and 31.

A TENEBRIONID (Cynaesus angustus) was conspicuous in grain dust accumulations from ventilator covers of an elevator at Maumee, Ohio, in September, and another tenebrionid (Cnemeplatia sericea) was recorded in a house at Ritzville, Adams County, Washington.

A BOSTRICHID (Heterobostrychus aequalis) adult and larvae were found boring in a mahogany boat at Winter Haven, Polk County, Florida, on May 18. This is the second Florida Plant Board report of this species in Florida; a previous report was from Apalachicola in mahogany boards imported for use in boat building. The specimens found on May 18 were in a 16-foot mahogany boat which was built in Port Orange, Florida.

WHARF BORER (Naccerdes melanura) was found severely infesting greenhouse benches at Bowling Green, Ohio. This is an unusual record of occurrence.

An ANT (Prionopelta sp.) was collected in soil at Juniper Springs, Marion County, Florida, on August 28. This is the first species of the genus to be found in the United States, but it has not been identified specifically.

A COCKROACH (Eurycotis lixa) was collected at Key West, Monroe County, Florida, during August. This is the third record for the species from Key West and seems to be the only confirmed locality. It was described from a specimen taken at New York, New York, on a banana boat from Jamaica, although no subsequent specimens have been collected in Jamaica. Another COCKROACH (Parcoblatta americana) was recorded for the first time in Washington, being found in a home in Klickitat County.

A SCARAB (Hoplia floridana) was collected at Gainesville, Alachua County, Florida, on April 25. The types of this species were from Lake Wales, Florida, and no specimens have been reported since the original description.

In New Mexico, a MICROPEZID (Micropeza sp.) was collected at Deming, Luna County, and an EARWIG (Vostox sp.) was collected in a light trap at Virden, Hidalgo County. Micropeza sp. is possibly a new species and Vostox sp. is probably a new species.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES¹

BLACK PARLATORIA SCALE (Parlatoria zizyphus (Lucas))

Economic Importance: This scale insect has been reported as one of the major pests of citrus in southern Europe and China. Heavy populations have also been reported from Thailand, India, Burma, Philippine Islands and Malaya. Although this species is not prolific, it is regarded as a serious pest because of its resistance to insecticides, being one of the most difficult of all scale insects to control. Parlatoria zizyphus was reported from Mississippi in 1937; however, it is believed that this record represented an interception and not an established infestation as no additional reports have been made. This species is frequently intercepted at U. S. ports of entry.

Distribution: Southern Europe, U.S.S.R. (Caucasus, Asiatic), Morocco, Union of South Africa, Iran, India, Burma, Thailand, Malaya, China, Japan, Formosa, Libya, Philippine Islands, Okinawa, Micronesia, northern Australia, Hawaii, British Guiana, West Indies and Argentina.

Hosts: Citrus. Also reported in a few cases from Ligustrum, Carissa, and Severinia buxifolia.



General Distribution of Parlatoria zizyphus

Life History and Habits: In spite of its name, this species does not occur on jujube. It occurs almost entirely on citrus. The insects become established on leaves and fruit and may form a black crust when abundant. In such cases, the leaves turn yellow and defoliation occurs. Very heavy infestations cause stunting of the fruit but in light attacks the growth of the fruit is not noticeably distorted. All stages of the insect can be found in some areas throughout the year. There are about 4 or 5 generations annually. Females lay from 10-20 oval violet eggs, which are arranged in the folds of a ventral covering in two parallel rows. The eggs do not hatch for a long period.

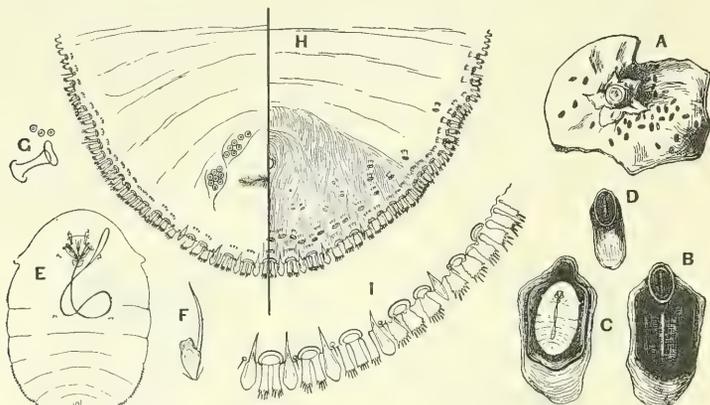
(Diaspididae, Hemiptera)

No. 109 of Series

¹Except the State of Hawaii

Description: Scale of female rectangular, flat, composed almost entirely of the opaque black, molted skin of the second stage and with a narrow white or brownish supplementary secretion, which at the posterior extremity is sometimes extended. The dorsum has two or three longitudinal ridges. Length about 1.6 mm. Scale of male elongate, whitish or brownish in color with larval exuvia black. Less than 1 mm. Key to this species according to Morrison is as follows:

"No duct tubercles on anterior portion of body, opposite anterior spiracles, or before these; eyespot large and conspicuous; submarginal dorsal tubular ducts very few, probably not exceeding 15 on each side of body; no dorsal intermediate macroducts; microducts, if present in this area, very few and inconspicuous. With duct tubercles on body margin between anterior and posterior spiracles, opposite posterior spiracles, and on first abdominal segment, but these small and inconspicuous; eyespot large but set at apex of a conspicuous globular to somewhat elongated projection of body margin; fully developed pygidial lobes distinctly notched laterally; fourth lobe represented by a stout and conspicuous sclerotized spur."



Figures of *Parlatoria zizyphus*: A - Scales with host. B - Female (dorsal view). C - Female (ventral view). D - Male (dorsal view). E - Female (ventral view). F - Antenna of female. G - Anterior parastigmatic glands of female. H - Pygidium of female. I - Margin of female.

Major references:

1. Morrison, H. 1939. U. S. Dept. Agr. Misc. Pub. 344:26-29.
2. Ebeling, W. 1959. Tropical Fruit Pests. 436 pp., Los Angeles. (pp. 234-235).

Figures (except map) from Kuwana, I. 1925. The Diaspine Coccidae of Japan, I. Dept. of Finance, Japan, Tech. Bul. 1, 18 pp.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business



VOL. 10 NO. 9 FEBRUARY 26, 1960

SB
823
C77
Ent.

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 of Insect Conditions

Several species of BARK BEETLES causing top and complete kill of ponderosa pines in areas of California (p. 117) and BLACK TURPENTINE BEETLE activity has increased in areas of Florida (p. 118).

Number of KHAPRA BEETLE-infested properties in California reported in CEIR 10(7):87, should be corrected to 340. (p. 120).

INSECT DETECTION: Mexican fruit fly trapped for the first time in Starr County, Texas. (p. 116). Imported fire ant found for the first time in Pamlico County, North Carolina, during January. (p. 120). Second specimen of an ichneumonid (Carinodes havanensis) collected in Dade County, Florida. (p. 120).

CORRECTIONS. (p. 120).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1959

Cotton Insects - (p. 121).

Reports in this issue are for the week ending February 19, unless otherwise indicated.

WEATHER OF THE WEEK ENDING FEBRUARY 22

Temperatures in most sections of the Nation averaged below normal this week. Near normal readings were reported, however, along the Pacific coast, and unusually mild weather was experienced from the upper Great Lakes to New England on several days. Weekly averages were 6° to 12° above normal throughout New England and northern New York and in the upper Great Lakes. Cold arctic air covered the northern Great Plains most of the week, and unusually cool temperatures persisted across much of the southern half of the Nation. Weekly averages were 9° to 12° below normal over the central Great Plains from eastern Colorado to South Dakota and Iowa, in the Kentucky-Tennessee area, and from eastern Oklahoma and Texas eastward to Georgia and central Florida. Louisiana reported the coldest week of the winter there. Below-zero temperatures were general as far south as southern Nebraska and Iowa late in the week, reaching below -20° in areas of the Dakotas on Friday morning. Below-zero readings were also recorded as far south as eastern Kentucky in the Appalachians. Frost and freezing temperatures extended as far south as Arizona, southwestern Texas, and scattered areas of the Everglades in Florida. In Florida no significant damage to crops was attributed to freezes early and again late in the week.

Precipitation was generally light west of the Rocky Mountains, except in coastal sections from northern California northward, and local areas in the Sierras. Scattered snow over the northern Great Plains and upper Great Lakes was locally moderate to heavy as a low-pressure area moved eastward on Tuesday and Wednesday, but water equivalents were generally below 0.50 inch.

The major precipitation-producing storm of the week developed in Texas on Wednesday, moved eastward along the Gulf coast to Mississippi, then northeastward to New England by early Saturday. Strong winds and heavy rain or snow accompanied the storm throughout its journey. Precipitation totals were generally 1 to 2 inches. Snow was reported as far south as central Mississippi and Georgia, and was unusually heavy over an area from the Cumberland Plateau in Tennessee and Kentucky northeastward to central Maine. From 10 to 15 inches of snow were reported in Tennessee and Kentucky, up to 22 inches in West Virginia and western New York, and 20 inches in southwestern and central Maine. Severe, drifting snow blocked highways in Pennsylvania and New York. Moderate to heavy rain extended from Louisiana and northwestern Florida through the Atlantic Coastal States to southern New England. Precipitation again covered the mid-section of the Nation over the weekend, following the passage of a low-pressure area from the Pacific coast through western Texas, Oklahoma, and Missouri to the lower Great Lakes. In the central Great Plains and middle Mississippi Valley locally heavy snow was accompanied by strong winds and followed by much colder temperatures, while heavy rains fell in the central Gulf States. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Populations have decreased during past few weeks in most infested fields of small grain checked in Kingfisher, Logan, Payne, Pawnee and Noble Counties; however, counts have increased considerably in one Payne County field checked and now average 100 per linear foot, with winged forms common. (VanCleave, Stiles). Counts averaged 0.5, 1.0 and 10 per linear foot in 3 fields of wheat checked in Kingfisher and Garfield Counties (Owens), ranged 2-6 per linear foot in 2 fields of wheat in Blaine County and none were found in 2 fields in Custer County (Hudson). None noted in 4 fields of small grain in Tillman County. (Hatfield). Populations increasing and becoming more common in south central area; counts ranged 4-80 per linear foot (averaged 23 per linear foot) in 6 fields checked in Bryan, Johnston and Marshall Counties; and none were noted in another field checked in Bryan County (Vinson).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Averaged 100 per linear foot in a limited area of one field of wheat checked in Pawnee County and none were noted in other fields of small grain checked in Payne, Noble, Logan and Kingfisher Counties. (VanCleave, Stiles). Averaged 5 per linear foot in a Kingfisher County field of wheat and none were found in 2 other fields checked in Kingfisher and Garfield Counties. (Owens). None were noted in 4 Tillman County fields checked (Hatfield) and counts averaged 2, 15 and 20 per linear foot in 3 fields of wheat in Marshall County, with none noted in 4 other fields checked in the south central area (Vinson).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Averaged 3 per linear foot in 2 fields of oats checked in Bryan and Marshall Counties, with none being noted in 5 other fields of small grain checked in south central area. (Vinson).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Populations averaged 6 per linear foot in a field of wheat checked in Marshall County. None were noted in 6 other fields checked in the south central area. (Vinson).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - In 2 fields of wheat checked in Payne and Noble Counties, counts averaged 3 and 25 per linear foot, respectively. (VanCleave, Stiles).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Populations building up in several fields of alfalfa in Eddy and Chaves Counties. Many growers preparing to apply controls as soon as weather is warmer. (N. M. Coop. Rpt.). OKLAHOMA - Averaged 0, 3 and 20 per linear foot in 3 fields of alfalfa checked in Kingfisher, Payne and Garfield Counties, respectively (Owens); 8, 17 and 32 per linear foot in 3 fields of alfalfa in Tillman County (Hatfield); and 16 per square foot in a field of alfalfa in Johnston County (Vinson). Counts ranged 1-5 per linear foot in a field of alfalfa checked in Murray County. (Meharg).

PEA APHID (Macrosiphum pisi) - NEW MEXICO - Light to moderately heavy infestations present in Chaves, Eddy and Lea Counties. (N. M. Coop. Rpt.). OKLAHOMA - Counts averaged 0, 3 and 5 per linear foot in 3 fields of alfalfa checked in Kingfisher, Garfield and Payne Counties, respectively (Owens); averaged 12 per square foot in a Johnston County field of alfalfa checked (Vinson); and ranged 3-6 per linear foot in a Murray County field checked (Meharg). ARIZONA - Light to medium infestations present in central and southwest area alfalfa. (Ariz. Coop. Sur.).

A CRANE FLY (Tipula sp.) - CALIFORNIA - Heavy in lawns and grassy areas in San Luis Obispo, San Luis Obispo County. (Cal. Coop. Rpt.).

FRUIT INSECTS

Citrus Insect Situation in Florida - Mid-February - PURPLE SCALE (Lepidosaphes beckii) is holding in the low range and will continue low during the next month. A few moderate infestations have been seen in the Indian River and Ridge districts. Cold weather has caused FLORIDA RED SCALE (Chrysomphalus aonidum) activity to decrease to a low level. It will remain below average for several weeks. Moderate activity is present in the Ridge and Indian River districts. CITRUS RED MITE (Panonychus citri) activity has shown little change in February. An upward trend is expected soon which will continue through March. Although population over the State is low, all districts have a few groves with moderate to heavy infestations. Highest activity is in the upper east coast and Brooksville districts. Activity of CITRUS RUST MITE (Phyllocoptruta oleivora) reached the high range during the past 2 weeks. It is expected to continue above average during February and trend downward in March. Infestations on both leaves and fruit are presently much higher than normal for this time of year. Highest activity is in the Bartow, west coast, Indian River and Ridge districts. (Simanton, Thompson, Johnson (Citrus Exp. Sta., Lake Alfred)).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Surveys were conducted in the chemical control and free zones in the States of Tamaulipas, Nuevo Leon, Sonora and Baja California during January, with a total of 70,337 citrus trees being inspected on 3,768 properties. Thirteen trees were found lightly infested on 8 properties. The infested properties are located as follows: 3 with 4 infested trees in Municipio Allende, Nuevo Leon; 4 with 6 infested trees in Municipio Hidalgo, Tamaulipas; and one with 3 infested trees in Hermosillo, Sonora. The infested trees in Allende and Hidalgo were handpicked of infested leaves and placed under observation. On January 31, a rather heavy infestation was found near Allende, Nuevo Leon. A delimiting survey was begun. In the Matamoros district, adjacent to the lower Rio Grande Valley of Texas, inspections were made of 34,530 citrus trees on 2,722 properties, with negative results. Results of inspections made in Tijuana, Baja California, also were negative. Spot checks in the biological control zone in Tamaulipas indicated good general control by parasites. Within the Victoria zone of Tamaulipas, releases of a parasite (Prospaltella opulenta) by municipio were as follows: Guemez - 36,400; Hidalgo - 6,100; Padilla - 12,500; Victoria - 79,700. Application of insecticides continued in Nuevo Leon. (PPC, Mex. Reg., Jan. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - One adult male trapped in Starr County on January 22. This is the first find of this species in that county, which is outside the regulated area. In addition to the Starr County collection, A. ludens was trapped as follows: 8 in Hidalgo County, 6 males and 2 females; 2 in Cameron County, 1 male and 1 gravid female; and 1 male in Willacy County. Traps were also placed in operation during January in La Salle, Zavala and Frio Counties. As of the end of January, a total of 16 adults have been trapped during the 1959-60 season in Texas. Grove inspections for possible larval infestations in those properties where gravid females were trapped have been negative.

OYSTERSHELL SCALE (Lepidosaphes ulmi) - CALIFORNIA - Heavy populations occurred on apple trees on a property in Eureka, Humboldt County. (Cal. Coop. Rpt.).

AN APHID (Thoracaphis umbellulariae) - CALIFORNIA - Light population present on olive in Nipomo, San Luis Obispo County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Continues to be of concern on lettuce and cabbage in the lower Rio Grande Valley. (Deer).

DIAMONDBACK MOTH (Plutella maculipennis) - GEORGIA - Light infestations present on cabbage in Colquitt, Lowndes and Brooks Counties. (Johnson).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Infestations on cabbage are light in Colquitt, Lowndes and Brooks Counties. (Johnson).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Infestations are still very light on lettuce in all areas. Sticky-board collections during the period February 8-15 were 3 at Mesa, 2 at Kyrene, 1 at Waddell, 9 at Glendale and 3 at Deer Valley. (Ariz. Coop. Sur.).

ONION THRIPS (Thrips tabaci) - TEXAS - Light infestations continue to cause damage to onions in the lower Rio Grande Valley. (Deer).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Light infestations on potatoes in Yuma County. A majority of individuals are winged forms. (Ariz. Coop. Sur.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - ALABAMA - New infestations found in Coffee County, which was released from regulation several years ago, and in Houston and Mobile Counties. GEORGIA - New infestations found in Brooks, Cook and Ware Counties. MISSISSIPPI - New infestations found in Greene, Covington and Forrest Counties. LOUISIANA - Total of 28 new infestations found in 8 parishes. (PPC, So. Reg., Jan. Rpt.)

A SPIDER MITE (Tetranychus cinnabarinus) - ARIZONA - Medium infestations in some fields of sugar beets in the central area of the State. (Ariz. Coop. Sur.).

A LEAF MINER (Phytomyza sp.) - CALIFORNIA - A medium infestation, possibly P. atricornis, present on artichoke in the Santa Cruz area of Santa Cruz County. (Cal. Coop. Rpt.).

A STRAWBERRY APHID - CALIFORNIA - An infestation of what is probably Pentatrichopus fragaefolii is severe on 40 acres of strawberries in Downey, Los Angeles County. (Los Angeles Co. Farm Advisor).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Infestations on tobacco in the plant bed are light in Tift, Berrien, Lanier, Cook, Colquitt, Lowndes and Brooks Counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light infestations present on tobacco in the plant bed in 7 tobacco-raising counties. (Johnson).

SPRINGTAILS - GEORGIA - Infestations on tobacco plant beds are light to moderate in Cook and Colquitt Counties. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - CALIFORNIA - Dendroctonus brevicomis, D. monticolae and Ips spp. causing complete kill of ponderosa pine in small groups in the Omo Ranch-Somerset-Fairplay area on private land in El Dorado County. (G. C. Hill, W. O. Cotter). Also caused complete kill of 32 large ponderosa pines in one group 12 miles east of Placerville; many scattered trees showing flagging, windthrows and fire damage in fall of 1959 probably responsible. (Van Johnson). These three beetles causing top and complete kill of ponderosa pines in small groups in a 160-acre area in the Big Creek area and in 5,000 acres of mixed ownership in the Westfall-Miami districts. Treatment of infested trees contemplated. (D. Flohr, L.E. Ballew).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - FLORIDA - Activity increased markedly in January after high water receded. Trees so weakened by flooding and beetle attacks on many acres that considerable mortality has already occurred. Salvage and sanitation logging have been recommended in those areas where operable cut can be made and where logging conditions are not difficult because of mud and water in Hernando and Pasco Counties. (V.F. McCowan).

A REPRODUCTION WEEVIL (Cylindrocopturus eatoni) - CALIFORNIA - Causing complete kill of 5 to 6-year-old ponderosa pine seedlings in the 4,400-acre Allen Ranch Burn Plantation in El Dorado County, near Georgetown. Damage mostly confined to porcupine-damaged and suppressed trees. Drought conditions during the year severe in this area. (D. W. Jones).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Scouting of positive trap sites in upstate New York has continued during January. No infestations were located within the eradication areas in that portion of the State. In the central area, only one small infestation in Deerfield Township was reported. In Otsego County, small infestations were located in 6 townships, one of these being in Morris Township within 3 miles of the quarantine line. Observations in Otsego County indicate existence of a sprinkling of infestation in the Cherry Valley section and a somewhat similar condition, although limited in extent, to the southwest of Otsego Township. In Herkimer County, infestations were located around trap sites in 5 townships. Continued checking of infestations in the Capital region revealed 2 areas of heavy populations in Schenectady County, one containing 1,000 egg masses per acre over 15 acres and the other containing 2,000 egg masses per acre over 20 acres. NEW JERSEY - No egg masses were found in surveys of Morristown National Park, Montague-Minisink Island area, Lewis Morris Park, Morristown and a section of Parvin State Park at Bridgeton during January. PENNSYLVANIA - Scouting in Perry County was negative. VERMONT - No large areas of infestation observed in northwestern area, but light infestations were found at places where no infestation had been observed in several years, indicating that there may be some heavily infested areas not yet located. CONNECTICUT - In the vicinity of Middlebury and Oxford, an infestation that involved more than 2,000 acres in 1959 and had an egg count of less than 50 per acre, now has an egg count of several thousand per acre. Heavy defoliation is indicated unless the area is treated. At Wallington, a 30-acre stand of woodland was found to have between 800 and 1,000 egg clusters per acre, while at Meriden a 5-acre stand has 50 to 100 clusters per acre. Egg clusters ran between 800 and 1,000 per acre on several hundred acres in the vicinity of Durham, Higganum and Middletown. (PPC, East. Reg., Jan. Rpt.). INDIANA - Surveys for egg masses on 13 properties and in Johnny Appleseed Park, Allen County, were negative. (PPC, Cent. Reg., Jan. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - FLORIDA - Collected on wild plum (Prunus sp.) at Gainesville, Alachua County, on February 8. Collected and determined by L. A. Hetrick. Egg mass hatching as of this date. Very few egg masses present this year. (Fla. Coop. Sur.).

A SYCAMORE BORER (Ramosia resplendens) - CALIFORNIA - Heavy infestation in sycamore in Escondido, San Diego County. (Cal. Coop. Rpt.).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - Damaging geraniums in Dos Palos, Merced County. (Cal. Coop. Rpt.).

APHIDS - NEW MEXICO - Populations of Cinara tujafilina are building up rapidly in southern counties on arborvitae. (N. M. Coop. Rpt.). OKLAHOMA - Light to medium infestations of several species noted on a variety of plants in 2 greenhouses checked in the north central area of the State. (Stiles, VanCleave, Young).

SCALE INSECTS - CALIFORNIA - Medium infestations of Odonaspis ruthae present on Bermuda grass in Sacramento, Sacramento County, and infestations of Aspidiotus lataniae are heavy on black walnut in Santa Paula, Ventura County, and on pyracantha in Rancho Santa Fe, San Diego County. (Cal. Coop. Rpt.).

A BOSTRICHID (Dinoderus minutus) - CALIFORNIA - Heavy infestation present in bamboo stalks in Concord, Contra Costa County. (Cal. Coop. Rpt.).

AN ORIBATID MITE - CALIFORNIA - Heavy infestations of an undetermined species occurring on cymbidium plants on a property in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - NEW MEXICO - The number of H. lineatum grubs per animal in untreated cattle in 6 herds checked during December 1959 and January 1960 averaged 30.4 and 12.3 in 2 herds in Union County, 13.9 and 19.5 in 2 San Miguel County herds, and 9.7 and 9.1, respectively, in one herd each in Harding and Dona Ana Counties. (N. M. Coop. Rpt.). UTAH - Present in backs of untreated cattle in the Ephraim-Chester area of Sanpete County and have been troublesome for several weeks in warmer parts of Washington County. (Knowlton). OKLAHOMA - H. lineatum counts ranged 3-10 per animal on 8 beef cattle checked in Johnston County. (Vinson).

CATTLE LICE - UTAH - Moderate to severe on herds in Washington County (Knowlton, Hughes); common on cattle throughout Beaver County, being severe in some herds (Knowlton, Esplin); and common on untreated cattle in the Ephraim-Chester area of Sanpete County (Knowlton). OKLAHOMA - Heavy on a bull and a few cows checked in a herd of beef cattle in Johnston County. (Vinson).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Counts averaged 9 per animal on 62 beef cows and 12 per animal on 16 yearling calves checked in Pushmataha County. (Goin).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - MEXICO - Inspections in Baja California, Sonora, Jalisco and Chihuahua during January were negative. No infestations have been found in the country since a collection was confirmed in May 1959 from Baja California. TEXAS - A reinfestation was found in the Union Stock Yards at El Paso in early January. The buildings were fumigated during the month. States in the United States where negative inspections were made during January were as follows: Alabama, Arkansas, Colorado, Connecticut, Florida, Idaho, Maryland, Massachusetts, Mississippi, New Mexico, New York, North Dakota, Oklahoma, Oregon, Pennsylvania, Tennessee, Washington and Wyoming. (PPC).

Stored-product Insects in New Mexico - A CARPET BEETLE (Attagenus sp.) and DARK MEALWORM (Tenebrio obscurus) were found to be abundant on feed sacks at several farms in Hidalgo and Grant Counties. (N. M. Coop. Rpt.).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - TEXAS - Light infestations were observed in stored rice in Liberty County. (Turney).

LESSER MEALWORM (Alphitobius diaperinus) - MARYLAND - Adults abundant in litter of a brooderhouse at Mt. Vernon, Somerset County. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

HYMENOPTEROUS PARASITES - OKLAHOMA - Counts averaged 0.02, 0.02 and 0.05 per linear foot in 3 fields of small grain checked in Johnston and Marshall Counties. (Vinson).

CONVERGENT LADY BEETLE (*Hippodamia convergens*) - OKLAHOMA - Very limited numbers present in alfalfa and small grain fields in Kingfisher, Garfield and Payne Counties. (Owens). An occasional adult noted in a few alfalfa fields checked in Tillman County. (Hatfield).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (*Solenopsis saevissima richteri*) - NORTH CAROLINA - Found for the first time in Pamlico County during January. (PPC, So. Reg.).

AN ICHNEUMONID (*Carinodes havanensis*) - FLORIDA - Collected at Miami, Dade County, in combination dry trap in calamondin tree (*Citrus mitis*), November 17, 1959. (C. M. Grannis, D. H. Alexander). This is the second specimen in the State Plant Board collection; the other is from Lake Worth. (Fla. Coop. Sur.).

TERMITES - UTAH - Damaging many homes in Washington County. Subterranean termites are involved in most cases. (Knowlton).

BROWN SPIDER BEETLE (*Ptinus clavipes*) - CALIFORNIA - Medium infestation present in a house in Mira Loma, Riverside County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 9(40):903 - Note on EUROPEAN FRUIT SCALE (*Aspidiotus ostreaeformis*) should be deleted, as it involves a misidentification. The species should be Aspidaspis arctostaphyli. No new State record is involved.

CEIR 10(7):87 - KHAPRA BEETLE line three should read: "... , 340 properties in California,..."

LIGHT TRAP COLLECTIONS

	<u>Pseudaletia</u> <u>unipuncta</u>	<u>Feltia</u> <u>subterr.</u>	<u>Prodenia</u> <u>ornith.</u>	<u>Agrotis</u> <u>ippsilon</u>	<u>Peridroma</u> <u>margaritosa</u>
ARIZONA					
Mesa 2/8-14			5		1
SOUTH CAROLINA					
Charleston 2/15-21	2	2	1	3	
FLORIDA					
Gainesville 2/16		3			
Homestead 2/12		4			
Monticello 2/11		3			

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES ^{1/}

1959

COTTON INSECTS

Several pests were important on cotton during 1959. Those reported as causing heavy damage in certain areas were bollworms, boll weevil, beet armyworm, cotton leaf perforator, salt-marsh caterpillar, cotton square borer, cutworms, lygus bugs, thrips and spider mites. Only bollworms, and to some extent boll weevil, appeared to cause widespread damage, however.

BOLL WEEVIL (*Anthonomus grandis*) infestations were reported heavy during the season in Georgia, Virginia and in Texas, while those in Oklahoma were considered higher than in 1958. In Virginia, the insect became a serious problem during late July and August and reduced yields to a varying extent. Infestations in Georgia were very heavy in the southern portion of the State but were more moderate in middle and northern portions. Frequently, rains in late May and early June in this State prevented many farmers from applying controls on schedule. Infestations in Texas built up considerably late in the season. Areas heaviest hit in Oklahoma were the southeast and east central. Highest infestations were in the southwest counties, the major cotton-producing area of the State.

Boll weevil infestations in Arkansas were somewhat more general than in 1958 from the standpoint of seasonal development; however, cotton in 1959 was about two weeks earlier than in 1958. Low rainfall in late June and early July helped hold down infestations. In the hill section and the upper Arkansas River Valley areas of Arkansas, infestations were heavy throughout the season, but maximum production was obtained by proper treatments. The percent of punctured squares during the last week of July, August and the first week of September (weekly averages) was 8, 10, 15, 19, 24, 29 and 24, compared with 6, 9, 11, 14, 17 and 22 for the same weeks in 1958.

Light boll weevil infestations were found during May in Tensas Parish, Louisiana, and in June in East Baton Rouge Parish, Louisiana. First-generation weevils appeared in southern Louisiana in mid-June and in the north by July 1. Some treatments were being made by the third week of June. Heavy emergence of third-generation weevils were observed about mid-August in Louisiana. In Mississippi, the percent of squares infested by boll weevil for the weeks ending June 27, July 4 and July 11 was 17, 16 and 14, respectively, and infestations ranging above 50 percent were fairly common in some areas by the end of July. A heavy egg deposition by second-generation weevils was also observed during late July.

No boll weevils survived the winter in hibernation cages in Missouri, nor were any live weevils recovered from ground trash collected during the early spring. Punctured squares were first detected in Missouri the last week in July. Number of weevils increased rapidly during late August and September in that State. Due to the early maturity of the crop, however, very little loss of the top crop occurred.

Infestations of boll weevil began appearing in cotton fields of southeastern Oklahoma early in June. By late June, counts in some fields in that section averaged as high as 30 percent punctured squares. Similar counts were reported in the east central and south central areas by mid-July. Surveys for the boll weevil in Nevada during 1959 were negative.

Collections of surface trash samples (two square yards per sample for hibernating boll weevils) were made in eight states during the fall of 1959. Counts appeared to be generally higher in all states sampled, except Georgia. Of special interest

^{1/} Including all reporting states except Hawaii and Alaska, which were carried in CEIR 10(4):46 and CEIR 10(6):74, respectively.

in this regard were the surveys in Missouri, where hibernating weevils were recovered from ground trash for the first time in northern Dunklin, Stoddard and Butler Counties. The highest recovery was 6,292 weevils per acre in northern Dunklin County. Details of these surveys can be found in CEIR 9(52):1061; 10(1):4; 10(3):26; and 10(5)54. The averages per acre based on area or district surveyed are tabulated below.

Fall Surface Trash Examinations for Hibernating Boll Weevils

State	Area or District	Number of Live Weevils Per Acre	
		1958	1959
Georgia	Northwest	774	145
	North central	2,178	1,186
	East central	387	823
	South	145	242
Louisiana	Northeastern	5,786	8,097
Mississippi	Lower delta	4,242	4,215
	Central delta	4,909	8,513
	North delta	2,960	4,787
	Hill section	3,057	2,991
Missouri	Dunklin, Scott, Butler Counties		1,283
North and South Carolina	South central section of South Carolina	995	1,318
	Coastal plains of North Carolina and South Carolina	4,625	5,082
	Piedmont section of North Carolina and South Carolina	2,635	4,383
	North central North Carolina	968	834
Tennessee	McNairy County	1,214	1,882
Texas	Central		6,631

FLEA BEETLES (*Systema* spp.) heavily infested bracts of squares in Yuma County, Arizona, in early July, and PALE-STRIPED FLEA BEETLE (*S. blanda*) was heavy in cotton fields in Clark County, Nevada, during the same month. Infestations in Nevada caused light to moderate damage. The fruit was not noticeably damaged in Arizona, however. Pale-striped flea beetle became very numerous in scattered cotton fields in Missouri, but feeding was largely confined to the cotyledons and control was not necessary. In Arkansas, *S. frontalis* was found throughout the season in research plots at Kelso, where scars from feeding on leaves, bracts and bolls were noticeable, but damage was not economic even though numbers were heavy in some fields.

BEETLES of the genus *Colaspis* appeared in numbers in cotton fields in Arkansas during the summer and fed fairly heavily in most instances on cotton in that State. They also began moving into cotton fields in Missouri during late June and early July, feeding on the square bracts and on the leaves. Some treatments were applied in Missouri, but it is doubtful if control efforts returned the application costs. Infestations in Arkansas were noneconomic and disappeared in July.

BLISTER BEETLES damaged cotton in local areas within the fields in Lea County, New Mexico, and a WEEVIL (*Anthonomus* sp.) was light along edges of a few Pinal County cotton fields during November.

BOLLWORMS (*Heliothis* spp., et al.) were major pests of cotton during the 1959 season in several areas. Infestations in Georgia ranged light to heavy, but were mostly light to moderate. In Virginia, bollworms were a serious problem during July and August, reducing yields to varying extent. Bollworms first appeared in late May in Georgia, an early appearance date.

Bollworms reached two peaks in Missouri; the first occurred in early July when about 45 percent of the scouted fields were infested and the second occurred about mid-August. Only a few infested fields required control during the first peak. The second infestation of bollworms occurred throughout all cotton-growing counties in Missouri and damage and loss ranged from 16 to 22 percent in untreated fields, compared with 2 to 7 percent in treated fields. At the peak of the second infestation, control was rather difficult to obtain with any and all of the chlorinated hydrocarbons. Subsequent investigation showed this to be a combination of factors, with no actual resistance being found. Predators and parasites were below normal this season in Missouri, although a fungus disease became very common during the latter part of the outbreak.

Infestations of *H. zea* and *H. virescens* in Arkansas were somewhat comparable to those of 1958 except for the heavier early infestations in 1959. Beneficial insects cleaned up early infestations, however. Bollworms remained under control of beneficials until late July in Arkansas when a breakthrough occurred in some fields due to a high percent of egg hatch during a period of high humidity and scarcity of predators. In Louisiana, a few eggs and small larvae were noted in Madison Parish during mid-June. Infestations remained general and light in Louisiana until the middle of August at which time egg deposition began to increase. By the end of August, egg deposition by bollworms had become quite heavy. Treatments kept larval populations under control. Bollworms were generally moderate in Mississippi.

Bollworms continued to cause damage throughout Oklahoma and caused heavy damage throughout the cotton-growing areas of Texas. Overall damage in Oklahoma was probably slightly less than recorded in 1958 but some untreated fields in central Oklahoma suffered extensive damage.

Bollworms were generally light to moderate in the cotton area of New Mexico, with occasional heavy infestations requiring treatments. Several times there were buildups almost to the point where controls were needed, but rain, predators or other factors made controls unnecessary. In Arizona, counts of bollworms were 4 to 6 per 100 terminals in Yuma County during mid-June and caused considerable damage to the squares. These infestations in Yuma County were brought under control by early July treatments and by predators. Infestations in the central and southeastern areas of Arizona were spotty and generally light, although occasional fields suffered considerable damage.

Infestations of bollworms in Nye County, Nevada, were the heaviest since the inauguration of cotton as a crop in the area. The number of infested bolls was three times greater than the previous high.

PINK BOLLWORM (*Pectinophora gossypiella*) infestations were generally more common in Oklahoma, but considerably lighter than those reported during 1958. Infestations in Texas were not a problem during 1959, but heavy infestations developed in the southwestern corner of Dona Ana County, New Mexico, during August, September and October. The first pink bollworm larvae were collected from rosette blooms in southwestern Dona Ana County during the latter part of June.

In Arizona, approximately 75,000 acres of cotton were treated beginning at the appearance of squares as part of the cooperative program to eradicate this pest from the central area of the State. Most acreage found infested during 1959 was light. A summary of the 1959 infestations in Arizona is tabulated below.

Pink Bollworm Infestations in the 1959 Arizona Cotton Crop

County	Number of Localities	Number of Properties	Number of Acres
Central Area			
Maricopa	18	47	1,993
Pima	1	1	80
Pinal	11	51	2,572
Santa Cruz	<u>1</u>	<u>1</u>	<u>16</u>
Totals	31	100	4,661
Eastern Area			
Cochise	5	10	661
Gila	1	1	23
Graham	11	64	2,308
Greenlee	<u>2</u>	<u>3</u>	<u>42</u>
Totals	19	78	3,034
GRAND TOTALS	50	178	7,695

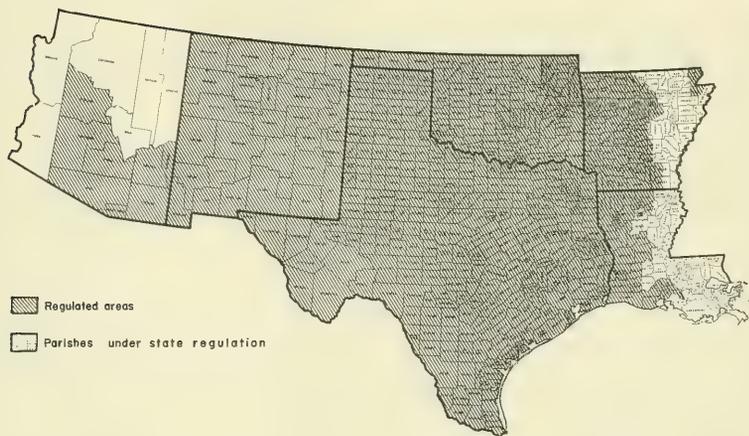
Table submitted in February 1960,
by Arizona Cooperative Survey

Pink bollworm larvae were found during the fall in Caddo, Clairborne, De Soto, Lincoln, Natchitoches, Rapides, Sabine and Union Parishes, Louisiana, and 12 larvae were recovered in Arkansas in 1959, compared with 319 in 1958 and 2 in 1957. The 1959 survey in Arkansas was the most extensive survey of gin trash of any year since the pest was first found in the State. No larvae were recovered in the delta section, whereas larvae were recovered in 4 delta counties in 1959. A total of 47,983 bushels of gin trash was collected and examined in Arkansas compared with 32,297 bushels and 24,537 bushels in 1958 and 1957, respectively.

Pink bollworm larvae were collected in hibiscus blooms at Plantation Yacht Harbor, Monroe County, Florida. Insecticidal treatments were immediately put into effect. Surveys during 1959 in Nevada were negative.

A pink bollworm map showing the areas under regulation as of January 1, 1960, is shown on the following page.

PINK BOLLWORM REGULATED AREAS JANUARY 1, 1960



COTTON LEAFWORM (*Alabama argillacea*) did not appear, as usual, in most of the cotton-growing areas until late in the season. Most infestations were light or noneconomic, but the pest did cause considerable "ragging" of cotton leaves at St. Landry and Acadia Parishes, Louisiana, during September. Infestations in Texas were noted only in local areas and light infestations were reported in widely scattered areas of Oklahoma, with only the Payne-Pawnee County area reporting marked defoliation due to this species.

Cotton leafworm infestations in New Mexico were minor and light infestations occurred in some fields in southeastern Arizona in late August and September. Infestations in Missouri were not a problem and they were noneconomic in Arkansas even though cotton leafworm was common in some areas of that State in October. The first cotton leafworm moth was taken on July 13 in Arkansas. The pest first appeared in southwestern Georgia in early August and then moved north and east to the vicinity of Cordele, Crisp County.

CABBAGE LOOPER (*Trichoplusia ni*) infestations were light to moderate in Georgia and New Mexico, present in Arizona, caused damage to a few Oklahoma cotton fields, and were less numerous than in 1958 in Arkansas. Infestations in Texas were generally light but there were several isolated heavy infestations. Infestations in Arizona were held down by a disease.

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) damaged seedling cotton locally, in Louisiana, but was severe enough to require treatments and EUROPEAN CORN BORER (*Pyrausta nubilalis*) populations were lower than during the past several years in Missouri, with only an occasional cotton plant being damaged.

BEE T ARMYWORM (Spodoptera exigua)* was generally light or absent in Arizona during the young stages of cotton growth in the spring. A few areas in the central part of the State had medium infestations. Heavy damage was caused by this pest in some areas of Maricopa and Pinal Counties during July and August, however. Larvae stripped the plants of squares and small bolls as well as foliage.

Some central and southwestern areas of Arizona became heavily infested with COTTON LEAF PERFORATOR (Bucculatrix thurberiella) between mid and late August. Plantings on poorer soils were infested first and heaviest, being almost completely defoliated in most cases. Infestations declined rapidly during early October.

The first appearance of the characteristic "flag leaf", caused by SALT-MARSH CATERPILLAR (Estigmene acrea), was noted in the central and southwestern areas of Arizona in late August. Infestation buildups of this species were gradual in Arizona but became heavy by mid-September, with considerable migration between fields. Defoliation was heavy in most areas of Arizona but it was considered too late to affect the yield of cotton. Compared with conditions in Arizona, only one small infestation was reported in New Mexico, that being in a field near Roswell, Chaves County.

COTTON SQUARE BORER (Strymon melinus) caused much concern throughout Texas and occasional larvae were found on cotton in Eddy, Lea, Dona Ana, Otero, Chaves and Luna Counties, New Mexico. This pest was not a problem during 1959 in Missouri.

In Missouri, heavy infestations of CUTWORMS, mainly VARIEGATED CUTWORM (Peridroma margaritosa), in alfalfa, red clover and pastures began to migrate to cotton during late May. The migrating larvae caused light to heavy damage to the marginal rows of cotton in nearly all fields that bordered a host legume. STALK BORER (Papaipema nebris) was also a pest in Missouri, being present in a few widely scattered fields, mainly in southern Dunklin County, and causing light injury to marginal rows of cotton (2-3 percent).

GARDEN WEBWORM (Loxostege similalis) damaged seedling cotton locally, in Louisiana, but was severe enough to require treatments. This species was not a problem in Missouri during 1959.

A LEAF ROLLER (Platynota stultana) was rather common on cotton in Arkansas during the early part of the season but was not of economic importance. Light infestations were present in cotton throughout the summer in Arizona, however.

LYGUS BUGS (Lygus spp.) were a major problem of cotton in Arizona, New Mexico and Nevada during 1959. In Arizona, infestations began increasing as cotton began to square heavily in early June. Fields located near alfalfa were hit first, especially where alfalfa was cut. Counts averaged 15 to 40 per 100 sweeps in untreated fields through July, August and early September. Average counts in Arizona were highest and damage heaviest during mid and late summer, especially during the period when water was kept off alfalfa. Infestations of lygus bugs caused considerable drop of young squares and bolls in cotton fields of southern New Mexico and numbers were light to heavy beginning in July in Nevada, with most fields requiring several treatments to reduce populations.

TARNISHED PLANT BUG (L. lineolaris) infestations required control in the delta of Mississippi during June and early July. This species was considered the number one pest of cotton in that area of the State at that time. However, infestations were generally light in Louisiana. Another lygus bug (L. neglectus) was collected on cotton in one Arkansas county in 1959; the first record of this species on cotton in the State.

*Zimmerman, E. C., 1958, Insects of Hawaii, Vol. 7:339.

Infestations of COTTON FLEAHOPPER (Psallus seriatus) were of much concern again during 1959 in Texas. Damage was heavy in local areas of Texas and feeding by this species caused losses in many cotton fields in Luna, Dona Ana, Hidalgo, Eddy, Chaves and Otero Counties, New Mexico. Infestations were generally light in Oklahoma and Arizona, but in the latter continued longer into the summer than did Spanogonicus albofasciatus. Cotton fleahopper and other plant bugs were of minor importance in Arkansas.

Infestations of a FLEAHOPPER (Spanogonicus albofasciatus) increased to heavy numbers in cotton in Arizona during early May before squaring began. Counts of 20 to 40 per 100 sweeps continued through June but began to decrease in early July. Counts in Yuma County, Arizona, were lower than in the central and southeastern areas. Small numbers were found in Nevada throughout the season. This species was officially recorded in Nevada for the first time during 1959.

A PLANT BUG (Neurocolpus nubilus) was observed in cotton in all twenty-one counties surveyed in Arkansas and a FALSE CHINCH BUG (Nysius raphanus) damaged one cotton field near Las Cruces, Dona Ana County, New Mexico, where 40 to 50 nymphs per cotton seedling were common.

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) was observed feeding on cotton in Irwin County, Georgia, and BROWN STINK BUG (Euschistus servus) was light to medium on cotton in some areas of Arizona where it caused some damage to squares and small bolls.

LEAFHOPPERS caused considerable alarm to growers in Missouri during the latter half of July when Oncometopia undata and other species were found in moderate numbers, one to two per plant, in cotton fields in the northern cotton-growing counties. Economic damage could not be detected and controls were not necessary.

A WHITEFLY (Trialeurodes abutilonea) was light to medium in some central areas of Arizona during late April and May and whiteflies were fewer than in 1958 in Arkansas.

COTTON APHID (Aphis gossypii) was a problem in areas of Georgia, Texas and Nevada. Populations were light to moderate in Georgia, with some fields requiring controls, and seedling cotton required treatment during May in Nye County, Nevada. Populations in Texas built up during the season, with heavy infestations reported on the south plains. Infestations in Oklahoma were generally light, with some heavy populations being reported in several fields in the southwest during July, and populations were very low in Arkansas and light in Louisiana. Cotton aphid was not a problem in Missouri. COWPEA APHID (Aphis medicaginis) infestations were spotty and light to moderate in Dona Ana, Luna and Hidalgo Counties, New Mexico.

THRIPS were a problem in young cotton in several states during 1959. Infestations were generally heavy in May in northern Louisiana, light in the central area of Louisiana and generally light in Arkansas. However, during mid-June in Missouri, a heavy migration of thrips from small grain fields occurred and late-planted cotton fields, as well as spots in retarded fields, were heavily damaged to the point of loss of all leaves. Some treatments were applied, but even the untreated fields had completely recovered by early July and no apparent loss of cotton yield was evident.

Infestations of Frankliniella spp. were generally light in Oklahoma and variable in Texas, with heavy populations being recorded in the north central and central areas of that State. Frankliniella spp. caused less damage and required less control than in 1958 in Nevada.

Thrips infestations in Arizona were light, generally, on seedling cotton in all areas and damage was not significant in most cases. Infestations did build up in a few isolated areas of the State but this occurred after the cotton had reached at least the four-leaf stage and damage was not severe. In New Mexico, many growers applied early season controls to rid cotton of heavy infestations.

SPIDER MITES caused damage to cotton in several states during 1959. The area of greatest concern appeared to be Missouri. Here the spider mite outbreak, mainly STRAWBERRY SPIDER MITE (Tetranychus atlanticus), ranked second only to that of 1956 in that State and would have surpassed 1956 had it not been for the prompt, repeated and wise use of the newer, recommended miticides. Damaging spider mite populations were also recorded in Nevada, where the highest populations yet encountered were recorded in Nye County. Over ten times as many acres were treated as in 1958 in that county. The mite problem in Missouri began in May when cotton was in the four-to-six-leaf stage and grew steadily worse until early in mid-August. At the height of the problem, approximately two-thirds of the scouted fields had infestations requiring controls. Generally speaking, however, premature defoliation and loss of lint quality was held at a minimum through the widespread use of miticides.

Spider mite populations were generally light in Louisiana, Texas, New Mexico and Arizona while a few light to medium infestations were recorded in the central and southwestern areas of Arizona during the summer and fall. T. cinnabarinus was the primary species recorded in Arizona.

Spider mite infestations in Arkansas were more common in July than at the same time in 1958. Infestations in August in that State were comparable for 1958 and 1959, while late infestations in late August and September were somewhat lower in 1959 than in 1958. Infestations, as usual, were more common in the north-eastern area than in other areas of Arkansas; however, mites were more common in the southern area than in most years. T. atlanticus, T. lobosus and T. schoenel were the species reported in Arkansas.

Infestations of TWO-SPOTTED SPIDER MITE (T. telarius) were mostly moderate in Georgia, but ranged from light to heavy, while infestations of DESERT SPIDER MITE (T. desertorum) were light to heavy, with most being moderate, in Georgia.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business



VOL. 10 NO. 10

MARCH 4, 1960

SB
823
C77
Ent.

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 of Insect Conditions

PEA APHID infestations continue to increase in alfalfa in Yuma County, Arizona, and ALFALFA WEEVIL larvae averaged 2-3 per alfalfa terminal in Richmond County, North Carolina. (p. 131).

Outlook for BEET LEAFHOPPER in the Intermountain Region calls for light movement into crop areas. (p. 132).

CATTLE LICE are heavy and troublesome in areas of Oklahoma, New Mexico and Utah. (p. 134).

INSECT DETECTION: Juniper webworm collected at Daytona Beach, Volusia County, Florida, is a new State record. (p. 134).

CORRECTION (p. 136).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1959

Fruit Insects - (p. 137).

INSECTS not known to occur in the United States. (p. 151).

Now Available on Request

"Insects Not Known to Occur in the United States," Volume 9, 1959. This is the third volume in a series combining all foreign pest releases (numbers 73-105) that were issued in the CEIR during 1959.

Also Available

Insects Not Known to Occur in the United States, Vol. 7, 1957
Insects Not Known to Occur in the United States, Vol. 8, 1958
Survey Methods - 1958
Distribution Maps - 1959

Please order by specific title and year.

Reports in this issue are for the week ending February 26, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MARCH 1960

The Weather Bureau's 30-day outlook for March calls for continued wintry weather over much of the Nation with temperatures averaging below seasonal normals over all areas except the extreme northeast and southeast. Coldest weather is predicted for the western half of the country. Precipitation is expected to exceed normal over the entire southern half of the Nation and also in the Northeast, with more snow than usual for March. Subnormal amounts are predicted for the Pacific Northwest and Northern Plains. In unspecified areas near normal precipitation is 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 FEBRUARY 29

Winter ruled supreme over the Nation this week. Temperatures in all sections except the North Atlantic States, southern Florida, and the upper Great Lakes averaged below normal. Unusually severe and persistent cold extended from the Far Western States and the Rocky Mountains to the Southeast. Arctic air swept southward over the Great Plains, the Mississippi Valley, and the Southeastern States, bringing freezing temperatures as far south as the lower Rio Grande Valley in Texas and in northern Florida, and below zero to the High Plains of Texas, where -13° was recorded at Muleshoe. In the central and northern Great Plains minimum temperatures were generally well below zero on most days and maximum temperatures above freezing were rare from Kansas northward throughout the week. Temperatures averaged more than 15° below normal from the Dakotas, Montana, and Utah to southern Texas and Arkansas, and more than 25° below normal over eastern Colorado and Wyoming, and western Kansas, Nebraska, and South Dakota.

Precipitation was very light along the usually rainy northern Pacific coast, and in other sections west of the Rocky Mountains only light to moderate snowfall was reported. Scattered light snow flurries extended from the northern Rockies to the upper Great Lakes. Low pressure systems, developed over the southern Rocky Mountain and Plateau States and in the western Gulf of Mexico, moved eastward and northeastward during the week, providing widespread precipitation in the south and eastern quarters of the Nation. Moderate to heavy snow extended from eastern Colorado and New Mexico and central Arkansas to the lower Great Lakes, the Tennessee and Ohio Valleys, and New York and New England. Up to 16 inches of snow were recorded in Kansas, 6 to 8 inches in Oklahoma, 5 to 12 inches in Arkansas, and 4 to 8 inches in Illinois, Kentucky, Pennsylvania, and Ohio.

Moderate to heavy rain fell over central Florida and along the coast from the Carolinas to southern New England. Snow changed to rain from New Jersey northward during the passage of a storm center to the west on Thursday and Friday. (Summary supplied by U. S. Weather Bureau.)

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Light numbers common in clumps of volunteer small grain plants throughout northeastern area. However, none were noted in fields of fall-seeded grain in this area. (VanCleave). Populations continued low in fields of wheat checked in the Hennessey area of Kingfisher County, averaging 0, 8 and 10 per linear foot in 3 fields. (Owens). Counts ranged 1-4 per linear foot in a field of wheat checked in Washita County, with none noted in 4 other fields checked in Washita and Beckham Counties (Hudson), nor in 2 fields of wheat in Tillman County (Hatfield). Counts ranged 25-50 per linear foot in a field of small grain checked south of Ada, Pontotoc County (Young), and ranged 4-60 per linear foot (averaged 25 per linear foot) in 4 fields of small grain checked in Marshall and Love Counties, with none noted in another field in Love County (Vinson). Counts averaged 0, 1 and 10 per linear foot and 32 per square foot in 4 fields checked in Choctaw County; heaviest counts were noted in field of volunteer plants. (Goin).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - None noted in fields of small grain checked in northeastern area. (VanCleave). Counts averaged 0, 3 and 3 per linear foot in 3 fields of wheat checked in the Hennessey area of Kingfisher County (Owens) and none were noted in 2 fields of wheat checked in Tillman County (Hatfield). Counts averaged 0.5, 6 and 10 per linear foot in 3 fields checked in Marshall and Love Counties, with none being noted in 2 other fields in the same area. (Vinson).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Averaged 4, 15 and 35 per linear foot in 3 fields of small grain surveyed in Marshall and Love Counties, none being noted in 2 other fields in the same area. (Vinson). ARIZONA - Light infestations present in barley in the central portion of the State. (Ariz. Coop. Sur.).

Small Grain Insects in Arkansas - A limited survey in the eastern portion of Arkansas showed most fields of small grain to be free of GREENBUG (Toxoptera graminum). Although present in a few fields, this pest averaged less than one per linear foot. Only an occasional APPLE GRAIN APHID (Rhopalosiphum fitchii) was found. (Ark. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Found in only one of 3 alfalfa fields surveyed in the Kingfisher-Garfield County area, averaging 15 per square foot of crown area in the infested field. (Owens). Counts averaged 8 per square foot in a field of alfalfa checked in Marshall County (Owens) and 0, 0.2, 1.0 and 8 per square foot in 4 fields of alfalfa surveyed in Choctaw County (Goin). TEXAS - Light, spotted infestation on alfalfa in the Brazos River bottoms. (Randolph). ARIZONA - Infestations are very light in alfalfa, statewide. (Ariz. Coop. Sur.). NEW MEXICO - Cold, damp weather appears to have slowed down buildup in alfalfa fields in southern counties. (N. M. Coop. Rpt.).

PEA APHID (Macrosiphum pisi) - OKLAHOMA - Counts averaged 0, 0.5 and 5 per square foot of crown area in 3 fields of alfalfa checked in the Kingfisher-Garfield County area. (Owens). Counts per square foot in alfalfa averaged 0.5 in a field checked in Marshall County (Vinson) and 2, 8, 25 and 32 in 4 fields surveyed in Choctaw County (Goin). ARIZONA - Infestations continue to increase in Yuma County alfalfa, with medium populations present. Infestations are light in other areas. (Ariz. Coop. Sur.). ARKANSAS - None found. (Ark. Ins. Sur.).

ALFALFA WEEVIL (Hypera postica) - NORTH CAROLINA - Larvae averaged 2-3 per terminal on alfalfa in Richmond County. Some larvae about half grown. (Jones, Campbell).

FRUIT INSECTS

SCALE INSECTS - MARYLAND - Eggs of Chionaspis furfura observed on apple at Baltimore, February 19. (U. Md., Ent. Dept.). CALIFORNIA - Heavy infestations of Aonidiella aurantii present on lemon trees and other citrus, along with A. citrina, in Sacramento, Sacramento County, and A. aurantii light on citrus and grapefruit in San Luis Obispo, San Luis Obispo County. Coccus hesperidum present in a medium infestation on citrus in Nipomo, San Luis Obispo County. (Cal. Coop. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - Trapping in Tijuana, Tecate, Ensenada and Mexicali, Baja California, and San Luis, R. C., Sonora, was negative. In Tijuana, inspections of fallen fruit on 8 properties were also negative. (PPC, Mex. Reg., Jan. Rpt.). ARIZONA - Trapping in Nogales and Yuma areas was negative. CALIFORNIA - Trapping for adults and fruit cutting for larvae were negative in San Diego County, and trapping in Imperial County was also negative. (PPC, West. Reg., Jan. Rpt.).

TRUCK CROP INSECTS

STRAWBERRY APHID (Pentatrachopus fragaefolii) - CALIFORNIA - Heavy populations of this species and of a leaf roller (Clepsis peritana) present on strawberry in El Cajon, San Diego County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Light on sugar beet plantings in the Yolo-Woodland areas of Yolo County. (V. Strombler).

Beet Leafhopper Conditions in the Southern Desert Areas of Southern Utah and Nevada, Southeastern California, and Central Arizona - 1960

The beet leafhopper spring movement from the southern desert breeding areas to the cultivated districts of central Arizona and southwestern California is expected to be light; the movement to central and southern Utah and southern Nevada is expected to be light; and the movement to northern Utah and western Colorado is expected to be light. It should be emphasized, however, that this report concerns only the beet leafhopper populations present in the far southern desert breeding areas, and does not have reference to populations that may be in local breeding areas in northern and eastern Utah.

Time of Movement: It is to be understood that this statement is based on present conditions. Movement of the leafhopper into cultivated areas of central and southern Arizona and southeastern California is expected to start by late February to early March, movement to cultivated areas of southern Nevada and Utah is expected to start by late March to early April, and movement to central Utah and western Colorado is expected to start by late April. Weather conditions during the next two months will have a bearing on the amount of the leafhopper population that moves from the desert areas to cultivated districts.

Southern Desert Breeding Ground Conditions: Beet leafhopper movement is expected to be light this year. Plant cover at present is favorable for leafhopper buildup in the southern desert but leafhopper populations are low over most of this area, possibly due to prolonged drought conditions in the fall which may have caused considerable mortality among the overwintering leafhopper population before the annual desert host plants were germinated by rains occurring the first part of November and during December. Host plants were found at 113 of the 211 stops made, or in about 53% of the 50,000-square-mile area represented in the survey. In the 26,500-square-mile area where host plants were present at the time of the February survey, the population averaged 0.014 leafhopper per square foot this season, in comparison with 0.05 leafhopper per square foot where 5,000 square

miles had host plants in 1959, and with 0.66 leafhopper per square foot where 35,000 square miles had host plants in 1958. It will be necessary to check the southern desert area later in the season in order to determine possible leafhopper movement from desert areas in northern Mexico across the borders of Arizona and California. However, during the February survey this season the beet leafhopper populations averaged 0.17 per square foot north of the 34 degree parallel and 0.11 per square foot in the portion of the area south of this line, at the stops checked.

Viruliferous Content of the Beet Leafhoppers: Leafhoppers from representative stops in the area checked during the February survey have been caged on susceptible beet plants but test readings will not be available until a later date.

Summary: The estimated beet leafhopper population in the southern desert areas is about 8.6 billion in comparison with about 3.0 billion in 1959 and 5.3 billion in 1957, the latter two years in which light leafhopper movement occurred into cultivated areas of Utah and western Colorado, resulting in only light curly-top damage to susceptible crops.

Life History of Beet Leafhoppers: The beet leafhopper is more or less of a desert insect. Its preferred environment is one of annual succulent plants growing in an area of high temperatures and low humidities. All stages, except the adult females, usually die during the fall or early winter. In the far southern portion of the southern breeding grounds the first generation matures by late January or early February. The leafhoppers from the early broods shift to more succulent host plants in the breeding grounds or to the north where plants are not so far advanced as at the lower elevations. Two or three broods may develop with a movement after each has matured. (Blakemore, Dorst).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - GEORGIA - Light infestations present on tobacco plant beds in Worth, Tift, Irwin, Coffee, Bacon, Wayne and Tattnall Counties. (Johnson).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - GEORGIA - Light to moderate infestations present on tobacco plant beds in 7 tobacco-raising counties. (Johnson).

SPRINGTAILS - GEORGIA - Moderate infestation on tobacco plant beds in Bulloch County. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SOUTHERN PINE BEETLE (*Dendroctonus frontalis*) - TEXAS - Control efforts still seriously hampered by inaccessibility due to wet ground in Hardin and Liberty Counties. Two small spot infestations were controlled but 31 known spot infestations are uncontrolled, 5 of these containing more than 100 brood trees. The large spot infestations are increasing. Scattered single brood trees found infested by checkers on the ground. (Young).

AN IPS BEETLE (*Ips plastographus*) - CALIFORNIA - Heavy on Monterey pines on the California Polytechnic campus in San Luis Obispo, San Luis Obispo County, and in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

AN ARCTIID (*Halisidota argentata*) - CALIFORNIA - Heavy larval infestation occurred on pine in Menlo Park, San Mateo County. (Cal. Coop. Rpt.).

TEXAS LEAF-CUTTING ANT (*Atta texana*) - TEXAS - Reported to have defoliated loblolly pine seedlings in Harrison County. (Young).

JUNIPER WEBWORM (Dichomeris marginella) - FLORIDA - Collected on Irish juniper (Juniperus sp.) at Daytona Beach, Volusia County, January 27, 1960, by E. B. Smith and L. W. Holley. Det. H. W. Capps. The species is not represented in the National collection or in ARS records from Florida, nor does the State Plant Board of Florida have any previous record for the State. This is apparently the first record of this webworm from Florida. (Fla. Coop. Sur.).

TOBACCO BUDWORM (Heliothis virescens) - CALIFORNIA - Light infestations occurring on ornamentals in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - CALIFORNIA - Heavy adult populations occurred on ornamentals and weeds in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Heavy on albizzia and acacia in Belmont, San Mateo County. This psyllid is becoming more widespread and damaging within the State. (Cal. Coop. Rpt.).

A WAX SCALE (Ceroplastes sp.) - MARYLAND - Overwintering females of C. ceriferus (of Southeastern United States author) noted on Chinese holly at Hyattsville, Prince Georges County, February 17. (U. Md., Ent. Dept.).

SCALE INSECTS - TEXAS - Aspidiotus hederæ causing damage to pyracantha plants in Eastland County (Texas Coop. Rpt.) and Fiorinia theae causing considerable damage to citrus trees and camelia plants in Orange County (Turney, McKenzie). CALIFORNIA - Heavy populations of A. hederæ making privet unsightly in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

SOUTHERN RED MITE (Oligonychus ilicis) - MARYLAND - Injury to leaves of American holly noted at Bel Air, Harford County. Eggs and cast skins present. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - MARYLAND - H. lineatum averaged 3 larvae per animal in 6 infested dairy heifers of 23 animals examined in Howard County, February 19. (U. Md., Ent. Dept.). UTAH - Grubs ranged 2-30 per animal in unsprayed cattle in the Loa area, Wayne County, and 0-4 in cows. Untreated cattle in the Gunnison-Mayfield area ranged 1-19 grubs per young animal, with many still showing no grubs. (Knowlton).

CATTLE LICE - OKLAHOMA - Unspecified species heavy on 30 percent of 80 head of yearling steers checked at El Reno, Canadian County. (Kinzer). NEW MEXICO - Several cattle herds in Sierra and Grant Counties reported heavily infested. (N. M. Coop. Rpt.). UTAH - Troublesome to unsprayed cattle throughout Sanpete and Wayne Counties, often being severe in Wayne County. Also common throughout Emery County and parts of Davis and Sevier Counties. Severe infestations also reported on cattle in the Uintah Basin. (Knowlton).

SHEEP KED (Melophagus ovinus) - UTAH - Numerous in Sanpete County farm flocks. (Knowlton).

EAR TICK (Otobius megnini) - UTAH - Common and sometimes serious in cattle running on desert ranges in Wayne County. (Knowlton, Hall).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - NEW MEXICO - Larvae and adults abundant in feed storerooms checked in Dona Ana, Hidalgo and Grant Counties. (N. M. Coop. Rpt.).

BENEFICIAL INSECTS

PARASITES AND PREDATORS - OKLAHOMA - Counts of hymenopterous parasites averaged 0.02, 2 and 2 per linear foot, respectively, in 3 fields of small grain checked in Marshall and Love Counties. (Vinson). No hymenopterous parasites were noted in other fields of small grain surveyed in the State and no predators were noted in the fields of alfalfa and small grain surveyed throughout the State. (VanCleave et al.). CALIFORNIA - A braconid (probably Trioxys sp.) and a lacewing (Chrysopa sp.) were present in association with heavy populations of strawberry aphid and a leaf roller on strawberry in El Cajon, San Diego County. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

A BEE MITE (Acarapis dorsalis) - UTAH - Examination of 772 honey bees (Apis mellifera) from 22 colonies at Logan, Cache County, showed 152 bees (19.2 percent) with evidence of infestation in the scutal fissure. All stages of the mite were present, as well as large numbers of cast skins. Eighteen of the colonies showed infestation. Highest infestation in an individual colony was 15 infested bees of 43 examined. (Jaycox). This mite is noneconomic.

CLOVER MITE (Bryobia praetiosa) - NORTH CAROLINA - Invading a house in Catawba County. (Giles, Farrier). ARIZONA - Light to medium infestations in and around homes are a problem in several areas of the State. (Ariz. Coop. Sur.). UTAH - Entering some homes at Salt Lake City. (Knowlton).

STONEFLIES (Allocapnia spp.) - PENNSYLVANIA - Reported in CEIR 10(8):98 as Allocapnia sp., has now been determined by H. H. Ross as 2 species. The one reported from Warren County was determined as A. recta, and the one from Washington County as A. vivipara. (Pepper).

SPRINGTAILS - MASSACHUSETTS - Numerous inquiries received during past two weeks in Plymouth and Bristol Counties. (Tomlinson).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - RHODE ISLAND - First alate forms of season observed in residence in Providence, February 24. (Mathewson).

TERMITES - MASSACHUSETTS - Unspecified species swarming in slab constructed house at Sagamore Beach, Barnstable County, February 11. (Tomlinson).

LIGHT TRAP COLLECTIONS

	<i>Pseudaletia unipuncta</i>	<i>Feltia subterranea</i>	<i>Prodenia ornithogalli</i>	<i>Agrotis ippsilon</i>
ARIZONA Mesa 2/15-21			5	
FLORIDA Homestead 2/16, 18		6	4	
LOUISIANA Baton Rouge 2/19-25				1
SOUTH CAROLINA Charleston 2/22-28	3	1	4	3
Clemson 2/20-26	1			
TEXAS Brownsville 2/8-19	8	3		12

CORRECTION

CEIR 10(3):30,31 - The number of European corn borer larvae per 100 plants in Iowa for 1959 should read 50 rather than 99 as indicated on the fourth line on page 30 and in the last column of the table on page 31.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES 1/

1959

FRUIT INSECTS

Deciduous Fruit Insects: CODLING MOTH (*Carpocapsa pomonella*) activity during 1959 was variable, according to the area. Generally speaking, the greatest amount of damage occurred where climatic conditions were favorable and treatments were not adequate. Damage was severe in south central Kansas, even in some well-sprayed orchards, and losses were greater in 1959 than in 1958 in Maryland. In Vermont, an unusual outbreak of the second brood occurred because of the unseasonably warm weather in the summer and increases ranging from light to serious were reported throughout the Hudson Valley of New York. Population levels appeared to be lower than usual in Massachusetts, Connecticut and New Jersey and they were reported light in Delaware, Virginia and Georgia. Bait trap collections in Maine during mid-August were much higher than in previous years. Activity of the codling moth in the Central States was as follows: Good control was reported in Ohio, with a few orchards being severely damaged, and light populations were generally noted in Indiana. In Illinois, however, a rapid buildup was experienced in late August in which a heavy third brood appeared, indicating a high carryover in 1960. Wisconsin rated this species as one of the major apple pests of the season. Reports of "wormy" apples were widespread in this State. Less damage occurred in the northeast area of Kansas than for several years, although there was some buildup during the prolonged rainy period in September. Damage in some south central Kansas areas was severe.

Codling moth damaged apples and pears in the Stillwater area of Oklahoma during July and infestations affected the yield of these two fruits in Colorado; however, the major reduction of apples in Colorado was due to the light fruit set. Well-sprayed orchards in Utah were sometimes as high as 5 to 40 percent or more infested and poorly sprayed orchards were often 100 percent "wormy". In Wyoming, nearly all apples grown in the State were damaged, largely because most trees are not treated. "Wormy" apples averaged 2 to 15 percent at packing sheds in northern New Mexico and most unattended and improperly treated orchards had from 50 to 98 percent infested fruit.

Codling moth populations remained at normal levels in Nevada and populations were lower than normal in Washington. Samples from 8 orchards in the Yakima area showed fruit injury about one-twentieth and "wormy" fruit about one-fiftieth of that which occurred in the excessive damage year of 1958.

Other pertinent data that were reported on codling moth are as follows: Maine - Recoveries from trunk bands in June showed light numbers overwintered in a test orchard. Mortality due to disease and predation was low. Adult flight began about June 8 and continued through July. Low catches were recorded from most bait traps. Cage emergence at Highmoor Farm reached peak numbers from July 1 to 13. Delaware - Scarring first noted during first week of June but populations were very low. Adults from spring brood emerged in mid-July. Wisconsin - Pupation was observed in Door County on May 14 and adults emerged about June 6. Larval entries in Crawford County apples occurred earlier in June than expected. Entries were first noted in Door County apples on June 18. Emergence of second brood began in mid-July in Crawford County and adults were observed July 24 in Door County. A partial third brood was also observed in Door County. Kansas - Adults first emerged in south central area on May 7 and in the northeast on May 18. Illinois - A light carryover of the overwintering generation was recorded but the second generation showed up in larger numbers. A high carryover is expected in 1960. Oregon - First-tagged egg hatched May 27

1/Including all reporting states except Hawaii and Alaska, which were carried in CEIR 10(4):46 and CEIR 10(6):74, respectively.

in Jackson County and May 26 in Willamette Valley. The first adults of the season appeared in bait pots at Hood River on May 22. Initial emergence dates over the State were more uniform than in 1958. New Mexico - Overwintering larvae were very abundant during February and March in many Sandoval and Bernalillo County orchards.

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) was an important pest in several areas. An unusual, late outbreak was recorded in Connecticut and this species was late and more numerous than in past years in Massachusetts. The species was an important fruit pest in Pennsylvania during 1959, and severe injury to late apples by the third-brood larvae was recorded in Delaware, but little injury from second brood was sustained. Numbers were normal in Maryland and New Jersey and were not a problem in Virginia. The second brood was much more abundant in the Hudson Valley of New York than in 1958 but probably no more than usual. The first brood decreased from average levels in Orange and other counties in New York and all broods decreased in Rockland County. An increase in the third brood was noted in Orange County, being favored by the long season and warm fall.

Red-banded leaf roller was generally light in Ohio except in the northeastern area where third-brood infestations were severe in several orchards, and a high carryover in some orchards in Illinois led to considerable damage by the first generation. The later generations caused little damage in Illinois, although some damage was showing up at harvest. In Kansas, the species was a problem in the northeast area and continued so all season. At harvest, 25 percent of fruit was injured in some orchards. The species has not developed as a problem in the south central fruit-growing section of Kansas. This pest reduced pear yields in Colorado and appeared in a few new orchards in Bernalillo and Sandoval Counties, New Mexico. Proper control methods were effective in New Mexico.

Some appearance records and other biological data on red-banded leaf roller were reported as follows: Delaware - Adults and egg masses first observed on April 10, with larval feeding becoming noticeable by mid-May. Mature larvae were present in mid-July and adults were observed in orchards July 20. Young second-generation larvae present in apples in early August. North Carolina - First adults of the season found in bait pails in Wilkes County on April 8. Wisconsin - Eggs numerous in many Door County orchards on May 15. Hatching of second brood observed July 25.

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) continued to appear over Illinois and caused severe damage to unprotected early apples and young plantings. Populations appeared in Doniphan County, Kansas, during May, and during September and October in south central Kansas. The pest was also present in apple orchards in Delaware, but disappeared in New Jersey.

FRUIT TREE LEAF ROLLERS were present in large numbers in some orchards in the Hudson Valley of New York although overwintering eggs were scarce, apparently migrating from nearby woodlands. FRUIT TREE LEAF ROLLER (Archips argyrospila) infestations were moderate to heavy and damaged apple foliage in Taos County, New Mexico. In Wisconsin, egg hatch was first observed May 15 in Door County, pupation on June 18 and adults emerged during first week of July. The overwintering eggs of a LEAF ROLLER (A. rosana) began hatching April 11 in the Willamette Valley of Oregon, about the same time as in 1958.

EYE-SPOTTED BUD MOTH (Spilonota ocellana) larvae were numerous in both old and young trees in many Door County, Wisconsin, orchards on May 15. Pupation was observed on June 12 and adults emerged on June 29. Overwintering larvae were feeding on cherry and apple leaves on July 19. This pest was one of the most important pests of cherries in Door County and its 1959 population was the highest in the past four years. Populations of BUD MOTHS in New Hampshire were very low.

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) populations were higher than any year since 1948 on peaches in Ohio and gradually increased in Illinois. Some crops in the fruit-growing area of Lake Erie, Ohio, were not harvested because of the extensive larval infestation at harvest and partially sprayed orchards in Illinois were severely damaged. The third brood caused heavy twig damage to some young trees in Illinois. Low numbers of the pest were present in Indiana except for a few orchards in Knox County and twig damage was general throughout the peach-growing area of Kansas, with some "wormy" peaches evident in the south central area.

The occurrence of oriental fruit moth on peach varieties ripening after Alberta varieties was unusual in Connecticut. Populations were decreased from average levels in Rockland County, New York, and moderate damage occurred in late peaches in Maryland. In North Carolina, the first adults of the season were trapped in bait pails in Wilkes County on April 10. The pest was less abundant than usual in Georgia, but occurred in large numbers on pears in East Baton Rouge Parish, Louisiana.

The trapping program for oriental fruit moth in Oregon indicated the population to be somewhat more reduced. Of 131 properties trapped in that State, 150 specimens showed up only in the Salem area. The first adult was taken April 27. Populations in Washington were very low due to the cool spring, with practically no moths trapped. Only one report of fruit injury at harvest was reported in Washington.

PEACH TREE BORER (*Sanninoidea exitiosa*) continued heavy in many peach orchards in Georgia and examination of peach trees during September in Louisiana revealed heavy infestations. This pest is now considered the number one insect problem of peaches in Georgia. Damage in Kansas was less severe in the Arkansas River Valley than in previous years but increased in the northeast area around Wathena, Doniphan County. Damage to stone fruits was general in Utah and light in Ohio, Oklahoma and Texas.

WESTERN PEACH TREE BORER (*Sanninoidea exitiosa graefi*) caused general damage to stone fruit orchards in Utah and a PEACH TREE BORER (*Sanninoidea* sp.) caused light to heavy losses to peach orchards in New Mexico.

LESSER PEACH TREE BORER (*Synanthedon pictipes*) was heavy in some peach orchards in Georgia, but the general infestation appeared to be somewhat less than in recent years. This may have been due to less winter tree injury during 1959. More reports of damage by this pest were received than usual in New Jersey and infestations were observed in all commercial peach orchards in Ohio, being severe at several localities. Adult emergence in Lincoln Parish, Louisiana, was approximately three-fourths complete by mid-May and heavy infestations were observed in trees in September. Infestations in eastern Texas were generally light.

Infestations of PEACH TWIG BORER (*Anarsia lineatella*) were somewhat heavier than previous years in Texas and caused losses to peaches in Colorado. In New Mexico, this species killed the majority of trees in a 2-year-old peach, plum and cherry orchard near Alamogordo and was a problem in many peach orchards, generally. Above average damage to fruits and twigs was quite general in Utah and a greater amount of injury to peach, prune and plum than for several years was recorded in Oregon, with poorly treated orchards having as much as 20 to 50 percent loss of fruit. In Washington, damage to stone fruits was moderate, being a greater problem than usual in Chelan County during May. In early June, this species was abundant and hard to control in Washington. For several years orchardists in this State have had to apply more, and use better timing of, treatments to get satisfactory control.

TOMATO FRUITWORM (Heliothis zea) caused slight damage to small peach fruits in northeast Arkansas and infested peaches were numerous at Wichita, Kansas, on July 25. GREEN FRUITWORM (Lithophane antennata) decreased from average levels in Rockland County, New York.

FALL CANKERWORM (Alsophila pometaria) and SPRING CANKERWORM (Paleacrita vernata) decreased from average levels in Rockland County, New York, during 1959, and AMERICAN PLUM BORER (Euzophera semifuneralis) was recorded from Ohio for the first time at Doylestown where it caused minor injury to peach trees. This species also damaged fruit and nut trees in Washington County and pecan trees at Toquerville, Utah. FALL WEBWORM (Hyphantria cunea) was the heaviest in years on apple, pear and cherry trees in the Willamette Valley of Oregon.

PLUM CURCULIO (Conotrachelus nenuphar) infestations were a problem in several areas of the country during 1959. In the New England States, populations were unusually high in Massachusetts, caused moderate damage on inadequately protected fruit in Rhode Island, as well as moderate to severe damage to apples in the Springvale area and moderate damage locally in the Sanford area of Maine. A slight increase was noted in Dutchess County, New York, and a normal amount of damage was reported in New Jersey. Injury was severe only in untreated trees in Delaware and local damage was reported in Virginia.

Infestations of plum curculio in Georgia were not generally heavy in 1959, although some individual peach orchards were heavily infested; one Fort Valley orchard had 43 percent of drops infested. Except for 1958 and 1950, this was the heaviest drop infestation since 1947. Enforcement of controls showed very good results throughout the season in most cases. The hibernating adult population in the peach belt of Georgia during the winter of 1959-60 is heavier than for an average year.

Plum curculio infestations in other areas were reported as follows: Normal in Kansas and Illinois, generally low in Minnesota, present in west central and south central South Dakota on untreated plums, light in Texas, and generally not severe on apples in Ohio though the insect was more abundant on peaches in 1959 than in 1958. Adults of this species began laying eggs in Door County, Wisconsin, about June 6 and continued until late May. This species became important in cherry orchards in Wisconsin. Adults were numerous on native plums in Clairborne and Webster Parishes, Louisiana, during April, and were first jarred from peach trees on April 10 in Delaware. The severe winter temperatures at Wooster, Ohio, (reaching -14°F.) had little effect on this pest.

CURCULIONIDS decreased from average levels due to better controls in Connecticut and the high temperatures of 10 days' duration that followed calyx stage in New Hampshire were ideal for activity of these pests. Growers in this State who did not get sprays on at the beginning and during this period suffered considerable injury to their fruit.

PLUM GOUGER (Anthonomus scutellaris) larvae and pupae were collected from wild plums at Rinconado, Rio Arriba County, New Mexico. Reared adults were determined as this species, a new record for the State.

SHOT-HOLE BORER (Scolytus rugulosus) was evident in devitalized, weak or diseased trees in neglected orchards in Georgia, caused average, local damage in Utah and was a problem on apricot, peach and plum trees in New Mexico.

Several SCARABAEIDS were reported as pests of fruit trees in 1959. Macroductylus uniformis was heavy in the tops of trees in late July in Arizona and did considerable damage before being controlled. Cotinus texana was a serious problem on peach trees in New Mexico. Adults of Pleocoma minor began emerging in two irrigated apple orchards near Hood River in Washington by September 15.

A FLEA BEETLE (Altica foliacea) caused considerable damage to apple foliage in orchards in Dona Ana, Valencia and Lincoln Counties, New Mexico, during May and defoliated a grape vineyard in Dona Ana County. WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata) caused some injury to ripened peaches in Oregon.

PACIFIC FLATHEADED BORER (Chrysobothris mali) became a more severe problem than normal in many parts of Oregon, especially in the fruit-growing sections of the central Willamette Valley, Umatilla and Klamath Counties.

CALIFORNIA PRIONUS (Prionus californicus) larvae occasionally damaged fruit tree roots in Utah and larvae were taken from living cherry tree at Clarkston, Asotin County, Washington, in January.

Several APHIDS were important pests of fruit trees during 1959. Of those species reported, apple aphid appeared to be the most widespread and damaging. Aphid infestations in Utah were generally above normal and the unusual late outbreak in Connecticut caused some black smudging of fruit. However, the predator activity on early-season aphids was probably greater than normal in Connecticut.

APPLE APHID (Aphis pomi) infestations were heavy during various periods of the spring and summer in the Eastern States. Populations in Maine were heavy and damage was severe at numerous locations during July, and they were more serious than for several years in New Hampshire, especially in trees that were headed back and where there was new sucker growth. Populations in Massachusetts and Rhode Island were unusually high and the period of activity and migration of winged forms longer than usual. The rainy weather and high temperatures provided favorable conditions for the pest in these areas. In New Hampshire, it was reported that this was one year that controls would have been worthwhile on apples. In New Jersey, infestations caused a normal amount of damage and they were heavy on new terminals in Delaware by late May and on fruit in early June.

In the Central States, apple aphid conditions were as follows: Severe on some plantings of nursery stock in Ohio and damaging, but not severe, in most orchards; abundant in late March and late May in Indiana, with several infestations in Vincennes area needing control; and serious on apples in Door County, Wisconsin. Wet, cool weather was responsible for conditions in Indiana.

In the Western States, apple aphid affected yields of apples in Colorado, damaged apples in many localities of Utah, became abundant in many neglected orchards in southwestern Idaho during early April, built up during the spring in Washington and was especially abundant in nurseries and on ornamental crab apple in Oregon. Eggs of apple aphid hatched during March in the Wenatchee area and during mid-April at Pullman, Washington. The buildup in Washington declined in midsummer, however, and remained low for the remainder of the season. In Idaho, populations were drastically reduced by late May, probably as a result of predator and parasite activity.

ROSY APPLE APHID (Anuraphis roseus) was more of a problem in the Western States than in the East. The species was particularly abundant and severe throughout Utah; moderately heavy in several apple orchards in San Juan and Taos Counties, New Mexico; present in greater-than-normal abundance on apples in Oregon; and caused localized outbreaks during the early season in Washington. The records of damage in Washington were practically the first in the eastern area of that State in 12 years. This pest was also recorded at Riverton, Wyoming, but no damage was observed.

In the East, very little, if any, rosy apple aphid damage was observed in Ohio, Indiana, Virginia and Delaware. A high overwintering egg population and good hatch were recorded in Illinois, but the threat was largely handled by predators and treatments. The first nymphs were present in late March in Delaware.

APPLE GRAIN APHID (Rhopalosiphum fitchii) was generally light in Delaware, Minnesota and Wisconsin. Nymphs first appeared in March in Delaware and were general during early June in Door County, Wisconsin. By July 3, however, populations were heavy in most orchards in Wisconsin, but decreased by July 25 except on young, actively growing terminals.

GREEN PEACH APHID (Myzus persicae) was a problem in orchards in several western states. Heavy infestations were reported throughout New Mexico during the spring and early summer on peaches. The pest was general on fruit trees in Nevada, more abundant than usual on peaches by early June in Washington (the most severe in 12 years in the Wenatchee area), and by early May was general on peach and apricot trees in the upper Snake River Valley of Idaho, with populations being higher than those of 1957 and 1958 in that State. Fairly heavy infestations were also recorded in Canyon County, Idaho. Eggs began hatching in eastern Idaho about April 1 and stem mothers were producing young by early May. By late June, movement of spring migrants in the upper Snake River Valley was nearly complete. In Washington, some controls failed in many orchards in the central area during May.

BLACK CHERRY APHID (Myzus cerasi) was more widespread than normal in Oregon and much more severe infestations occurred than in 1958. Populations began decreasing rapidly in mid-July, however, due to heavy parasitism on untreated trees and by chemical controls where they were practiced. In Idaho, severe infestations developed in neglected orchards in the southwestern area during May and moderate infestations continued into late June because of cool weather in the Wenatchee area of Washington. The species was reported as a general pest of fruit in Nevada.

BLACK PEACH APHID (Anuraphis persicae-niger) was heavy and damaged peach trees at Rinconado, Rio Arriba County, New Mexico.

WOOLLY APPLE APHID (Eriosoma lanigerum) was damaging in several states during the year. Infestations were more abundant than usual in apple orchards in Oregon, low in the Yakima area of Washington but greater than normal in the fall, damaging in many localities of Utah, affected yields of apples in Colorado and medium on apples in central Arizona during spring and summer. The aphid was a general pest in fruit trees in Nevada, very common in apple orchards during spring and early summer in New Mexico and heavy in some apple orchards in central and east central Oklahoma from June to August. Reports of the pest in North Carolina were confined to the mountains. WOOLLY PEAR APHID (E. pyricola) was usually only a pest in nurseries in Oregon, but was noted damaging a commercial pear orchard near Independence.

MEALY PLUM APHID (Hyalopterus arundinis) infestations were heavy on plums in the Yakima area of Washington by July, but light on plums generally throughout Ohio.

A LEAF-CURL APHID (Anuraphis helichrysi) caused damage in many localities of Utah and was abundant on prune trees in the Willamette Valley of Oregon, an unusual occurrence in that State. The species was also general in fruit trees in Nevada.

PEAR PSYLLA (Psylla pyricola) was light to moderate on apples in the Monmouth area of Maine, with damage being light up to May 30, and light to moderate damage was reported in the Leeds area in June. This pest was also troublesome in home plantings during early August in Providence County, Rhode Island. Populations in Oregon were greater than normal in the Willamette Valley and required control through July, while in Washington the first-generation adults reached a peak during early June, with infestations becoming serious in many central area orchards. Resistance to certain chlorinated hydrocarbons was first noted in 1958 in Washington and became widespread in both Wenatchee and the Yakima areas. By the second cover, most growers in Washington applied new insecticides and little late season damage occurred. The first brood of pear psylla hatched March 30 at Medford, Oregon, much later than in 1957 or 1958, and the first

eggs were found March 13 at Wenatchee, Washington. The first newly hatched nymphs at Hood River, Oregon, were detected on April 10 and the first generation was in the first and second instar by late April at Wenatchee, Washington.

PERIODICAL CICADA (Magiccada septendecim) was present in the southern two-thirds of Illinois and was very abundant in some localities. Some severe damage was reported in Johnson County and from Calhoun County northward to Nauvoo. Emergence began in early to mid-May in Missouri. The populations were heavier in central, east central and south central Missouri and egg laying began the latter part of May.

APPLE MEALYBUG (Phenacoccus aceris) was heavy on apples in the Wilton area of Maine in May and June, but low in the South Bridgeton area in July. Infestations in the Wilton area were under control in July, however. This species was found in Bennington County, Vermont, a new record for the State. GRAPE MEALYBUG (Pseudococcus maritimus) was found infesting pear trees in Jackson County, Oregon, the first report of such damage in this area, and infestation of pears occurred for the first time in several years in the Wenatchee area of Washington.

SAN JOSE SCALE (Aspidiotus perniciosus) was a problem, locally, in several states. The general infestation was less than that of 1958 in Georgia and heavy infestations were reported during September in Louisiana. States reporting occasional damaging infestations, usually in untreated orchards, were Washington, Oregon, Utah, New Mexico, Oklahoma, Ohio, Maryland, New York and New Hampshire. The first crawlers were observed June 19 in Washington and crawlers were still active near Corvallis, Oregon, in mid-October.

Several other SCALE INSECTS were recorded as pests in 1959, including Chionaspis sp. on apple in Randolph County, North Carolina; white peach scale (Pseudaulacaspis pentagona) on peach in Houston County, Georgia; European fruit lecanium (Lecanium corni) on peach in the Clyde area of Ohio; and Forbes scale (Aspidiotus forbesi) in Sandoval County, New Mexico, and throughout Indiana.

LEAFHOPPERS varied from numerous to abundant on apple, plum and prune in Utah and were a problem in many areas of New Mexico on backyard fruit trees. BOXELDER BUG (Leptocoris trivittatus) caused normal amount of damage to ripe fruit in northern and central Utah.

Several CATFACING INSECTS were important during the year. In Georgia, deformed and gnarled peaches were more abundant than usual, especially in Dooly County, and above normal damage was noted in Utah. TARNISHED PLANT BUG (Lygus lineolaris) caused considerable damage to peaches in Maine, much heavier than in previous years, and injury to apples was much above that of 1958 in the southern part of the State. Tarnished plant bug populations were also very high on peaches during bloom in Illinois and this species and stink bugs were plentiful on south central Kansas peaches. Catfacing insects on peaches were below normal in Ohio except for GREEN STINK BUG (Acrosternum hilare). Other states reporting damage by catfacing insects were Texas, Colorado, Illinois and Virginia.

LEAF-FOOTED BUG (Leptoglossus phyllopus) caused considerable damage to plums in East Baton Rouge Parish, Louisiana.

APPLE MAGGOT (Rhagoletis pomonella) was a major problem during the year, particularly during the latter part of the season in New England and other areas. The infestations of this species were severe and caused heavy fruit injury by mid-September in Maine, were unusually numerous during the last half of the season in New Hampshire, continued a problem in September and October in Massachusetts and were especially severe in home plantings in Rhode Island. In these New England states, weather conditions appeared to be a major factor regarding lack of good control in that area. Apple maggot was also serious in several other eastern states. Severe infestations of apples were also recorded in Washington County, Maryland, and on many orchards where late sprays were omitted in Pennsylvania. The species was considered more serious than usual in New Jersey.

In the Central States, reports of injury by apple maggot were noted in several states. In Wisconsin, the pest continued to be one of the major apple pests and infestations were heavy on untreated apples throughout the State. Populations were also extremely high in neglected orchards in Minnesota and considerable damage was recorded in east central and southeast South Dakota, where up to 100 percent of the fruit was infested. Good control of Minnesota infestations was achieved only in commercial orchards where treatments were applied through the end of August. Numerous reports of injury from home growers in Ohio were recorded, with some injury in several commercial plantings of apples noted. Several plantings of Italian plums were also infested in Ohio.

Some biological data on apple maggot for 1959 as submitted by the states were as follows: Maine - Emergence began July 13 in cages at Highmoor and peak emergence appeared to take place July 31. Bait trap captures indicated that emergence slowed down sooner than in past years and activity was generally terminated much earlier than in the past. The trap captures in September were well below those of 1958. Indiana - Emergence was prolonged. Wisconsin - First adults trapped at Madison on July 2. Emergence occurred during first week of July in Door County and egg laying continued into August.

MAGGOTS of undetermined species were unusually heavy in fruit orchards in Connecticut, with flies being present as late as the first week of October, and the greatest activity in August.

WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) was recorded for the first time in Wenatchee, Washington, area proper on June 20 and infestations were at approximately the same levels as in 1958 in Idaho. The adult emergence data for 1959 were reported as follows: Oregon - Emerged May 28 at The Dalles, May 29 at Hood River, June 6 in Willamette Valley and June 1 in Medford area. Washington - First adult trapped in Yakima Valley, May 23. The latest emergence in 11 seasons because of cool weather. Idaho - First adults taken from sticky-board traps at Weiser on May 19.

In Florida, a FRUIT FLY (Anastrepha nigrifascia) was collected in a McPhail trap at Key West, Florida, on June 6 (apparently the first record since 1936 in the State) and PAPAYA FRUIT FLY (Toxotrypana curvicauda) was common during the spring months wherever papayas are grown, with about 60 percent of dooryard plantings being infested in Palm Beach County during May.

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) was recorded for the first time in Rhode Island. Nearly mature larvae were collected in small apple fruit from the Hopkinton area on June 3 and from the Kingston and North Scituate areas during the next two weeks. The species did not reach pest proportions in any commercial orchards. Undetermined SAWFLIES decreased from average levels in Connecticut due to better controls. GIANT HORNET (Vespa crabro germana) was reported feeding on apple fruit during early September in Yancey County, North Carolina.

PEAR-SLUG (Caliroa cerasi) damaged fruit trees in several states. In Oregon, this species was abundant on cherries, prunes and pears in Benton County by mid-October. Populations of the pest were about normal in Nevada and lower than 1958 in Wyoming, although cherry trees were damaged throughout the State in 1959. Infestations of pear-slug in Utah were moderate on cherry, pear and plum foliage, caused considerable damage to plum foliage in Rio Arriba and Taos Counties, New Mexico. This species also defoliated many cherry trees in Lake County, South Dakota. In the East, this species was found early in June in Delaware, feeding on pears and cherries, and the second-generation larvae caused severe damage to pear and cherry trees in the Pawtucket and North Providence areas of Rhode Island during late August. CALIFORNIA PEAR-SLUG (Pristiphora californica) reached noticeable numbers on pears in the Medford area of Oregon during mid-April.

GALL MIDGES again produced galls which ruined chokecherry fruits in several areas of Utah and two other MIDGES were reported causing damage in Oregon and Maine. In Oregon, Dasyneura pyri appeared in greater numbers than for several years in scattered districts of the Willamette Valley, and D. mali was generally moderate to heavy in orchards throughout Maine.

PEAR THRIPS (Taeniothrips inconsequens) was common in cherry, apple and pear orchards during the spring in Utah and a peak emergence of this species occurred the week ending March 28 in Oregon, approximately the same date as 1958. Populations in Oregon were low and below economic levels. RED-BANDED THRIPS (Selenothrips rubrocinctus) was more abundant than in 4 or 6 years on mango at Goulds in Dade County, Florida, on November 20. About one percent of the nursery stock was losing leaves.

Several pests of currants were reported in Utah. CURRANT APHID (Capitophorus ribis) caused above normal injury to red currant foliage. CURRANT FRUIT FLY (Epochra canadensis) infestations in black and yellow currants were general and a CURRANT PSYLLID was common but rarely severe.

EUROPEAN RED MITE (Panonychus ulmi) was a serious pest of orchards in several states during the year. Those states that reported the heaviest damage during the season were Delaware, Maryland, New Jersey, Ohio, Illinois, Kansas and Oregon.

In the Atlantic States, outbreaks of this species occurred in Delaware, Maryland and New Jersey, and an increase was noted in the Hudson Valley of New York. Infestations in Maine were generally light, with a rapid increase noted in July, a recovery from the wet weather of June. The outbreak that occurred in Delaware and Maryland was favored by the dry, hot weather after mid-June. Infestations on apples in Georgia were light, but could have been serious except for excellent control practices.

In the Central States, European red mite was rated as the number one pest of apples in Ohio and caused considerable damage on apples and some on peaches in Illinois. Infestations in Indiana were dominant until late June. Counts in Wisconsin averaged 14 per leaf on July 7 and reached a peak of 42 per leaf by the middle of July on untreated trees. Severe infestations arose early in the season in Ohio and were controlled only with difficulty. The species was moderately abundant in most peach orchards in this State and reached pest proportions in a number of orchards. In Kansas, heavy populations of this pest occurred on apple foliage in the northeastern area during July and August.

In the Western States, infestations of European red mite were about normal in Utah, but caused severe damage to poorly treated fruit trees in the Willamette Valley of Oregon during mid-October. In Washington, light to heavy populations occurred on stone fruits near Wenatchee by August, but were about normal on apples and pears in the central area. Eggs and recently hatched nymphs were abundant in southwestern Idaho during early April and populations during July were severe, but spotted, on fruit trees in the Idaho Falls area.

Some biological notes on European red mite during the 1959 season were as follows: Delaware - Nymphs numerous on apple leaves by April 21. North Carolina - Eggs were hatching on apple on April 6 in Wilkes County and had completed one generation by beginning of petal fall. Illinois - Overwintering egg populations extremely variable, as usual. Wisconsin - Present in both larval and nymphal stages in Door County on May 22. By June 12, the first summer-generation eggs were hatching. Oregon - Began hatching from overwintering eggs April 17 in Hood River Valley and on April 15 in Medford area. Idaho - Eggs hatched by early April in southwestern area. By late May, populations that were heavy in early April had dropped, apparently as a result of predacious mite activity.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was an important pest of orchards in several states. In the Eastern States, infestations were reported as being important in Pennsylvania, considerably above normal and causing extensive damage in Maryland, causing above normal damage in New Jersey, resulting in an outbreak on apple and peach trees in northeastern Connecticut during late May, increased somewhat in the Hudson Valley of New York and were less numerous than usual in Massachusetts and Vermont. Infestations on apples in Georgia were generally light, but could have developed into a serious problem if controls had not been adequate.

Infestations of this species in the central areas of the country were reported as being serious on peaches and apples from the first week of July on in Indiana, but infestations in Ohio and Illinois were generally not serious. Populations were moderately abundant in peach orchards in Ohio, however. In Kansas, heavy populations developed during July and August in the northeastern area on apple foliage.

Infestations of two-spotted spider mite in the Western States were reported as being light to heavy on stone fruits in the Wenatchee area of Washington by August, heavier than usual on pears in the Medford area of Oregon and affected the yield of apples, pears and peaches in Colorado. The pest was observed going into hibernation by October 13 in Medford area of Oregon.

FOUR-SPOTTED SPIDER MITE (Tetranychus canadensis) appeared early on fruit trees and in litter in Illinois and was destructive over most of the State. The species also infested many orchards in Utah. Another SPIDER MITE (T. mcDanieli) appeared earlier than usual and in greater numbers in Washington, especially on apples in the north central area. Egg laying by this species was heavy during late spring and severe injury to apples occurred by August, possibly the worst in 10 or 12 years. T. mcDanieli was about normal in the Yakima Valley of Washington on pears and stone fruits, but populations of this species appeared to show some resistance and were a serious problem in the central area. T. mcDanieli was also highly injurious in many apple and sour cherry orchards in Weber and Box Elder Counties, Utah, and caused light to severe damage to red currants in a number of counties in that State.

YELLOW SPIDER MITE (Eotetranychus carpini borealis) was found in the Springvale and Monmouth areas of Maine in May. One heavy infestation was found in the Leeds area in June, but damage was negligible.

A FRUIT TREE MITE (Bryobia rubrioculus) was the most serious pest in untreated apple and peach orchards during the early summer in New Mexico, with heavy infestations severely damaging foliage of host trees throughout the fruit-growing areas of that State where improper controls were used. In Oregon, this species was noticeably abundant on sweet cherries in the Willamette Valley late in the season and after fruit harvest. The pest did cause losses to peaches in Colorado, but numbers were below average in Utah and it was not a serious orchard pest in Washington.

PEAR LEAF BLISTER MITE (Eriophyes pyri) was severe on pear in South Kingston and Warwick, Rhode Island, during late May and continued to be a pest of Baldwin apples in some orchards in New Hampshire, especially in the northern apple areas of the State. The species reduced the pear yield in Colorado and was at least normally damaging in Utah, particularly in Weber and Utah Counties. In Oregon, this species had not moved from blisters on green pear leaves as of October 20 in the Medford area.

PEACH SILVER MITE (Vasates cornutus) caused losses to peaches in Colorado and was about average in Utah. APPLE RUST MITE (V. schlechtendali) was not a problem in Washington during 1959, but V. fockeui was moderate to heavy on cherries in the Wenatchee area by August and was moderate on prunes in the lower Yakima Valley.

ORCHARD MITES of undetermined species were also reported as pests of fruit trees in several states. Several species were commonly severe in apple and pear orchards and moderately severe on raspberry and red currant crops in Utah; generally light in Minnesota; unusually heavy in late July and early August in Rhode Island; high in Indiana; were favored by the hot, dry weather in the Hudson Valley of New York; and were not considered a problem in Virginia. SPIDER MITES (Tetranychus spp.) appeared three weeks later than 1958 in Utah and severely damaged several orchards in Lincoln, Bernalillo and Sandoval Counties, New Mexico; however, infestations in New Mexico were not as serious as in 1957 and 1958. The infestations of Tetranychus spp. in Nevada were more numerous than in 1958 and were reported from more areas than in previous years. In Delaware, Tetranychus spp. were noted on apple trees in mid-July, but never in the proportions of European red mite, and in North Carolina these mites were unusually severe in many plantings in the southeastern counties because heavy rains prevented treatments.

Nut Tree Insects: WALNUT CATERPILLAR (Datana integerrima) damage was lighter than 1958 in Oklahoma and very light during 1959 in Texas when compared with severe infestations of 1958 that occurred in that State. In Louisiana, this species caused some damage to pecan in the greater New Orleans and Baton Rouge areas.

FALL WEBWORM (Hyphantria cunea) infestations were light to moderate on pecans in Georgia, being less important than in previous years. Larvae first appeared on pecans in Louisiana during late May in most of the State and by September infestations were general. In Oregon, the pest was noticeable on walnut trees in the northern Willamette Valley, with 8 to 10 webs per tree common in untreated orchards. Adults began emergence in the Salem area of Oregon on May 6.

PECAN NUT CASEBEARER (Acrobasis caryae) caused heavy losses to the pecan crop in Texas and the damage was heaviest in south central Oklahoma during the year. Damage gradually decreased in central and north central Oklahoma and a few localized areas in other sections of the State reported medium to heavy infestations during the late spring. In Florida, larvae damaged new growth of pecan grafts and both larvae and pupae were found in twigs on bearing pecans on April 13. Damage to twigs was unusually heavy in Florida and was estimated at 25 to 50 percent on some varieties of pecans. The first moths emerged on May 1 in this State. The species also caused losses in Martin County, North Carolina, in August.

PECAN LEAF CASEBEARER (Acrobasis juglandis) was widespread on pecan in the northern Coastal Plain of North Carolina in early May and was reported feeding on new growth of pecan in April in Florida, where the pest was also reported to have heavily damaged Mahan pecans during May. Larvae of another casebearer, A. caryvorella, also damaged new growth of pecan buds and grafts in a commercial nursery in Florida. Pecan leaf casebearer and PECAN CIGAR CASEBEARER (Coleophora caryae-foliella) were both heavy on pecans in some southern areas of Georgia. Some pecan trees in Ware County were 60 to 90 percent defoliated.

HICKORY SHUCKWORM (Laspeyresia caryana) was common in most pecan groves in Oklahoma throughout the late summer and early fall, was heavy on pecan in Franklin Parish, Louisiana, and caused heavy losses of pecans in Texas and Georgia.

Larvae of a NOCTUID (Catocala palaeogama) caused considerable damage to shoots and small nut clusters of pecan in one locality in the south central area of Oklahoma during June. NAVEL ORANGEWORM (Paramyelois transitella) reported for the first time from Utah on almonds in Washington County. FILBERTWORM (Melissopus latiferreanus) emerged July 2 in the Willamette Valley of Oregon. Abundance was somewhat less than in 1958 in this State.

PECAN WEEVIL (Curculio caryae) infestations were light on pecans in Georgia, but caused losses in Martin County, North Carolina, during August. MAY BEETLES (Phyllophaga spp.) were heavy on pecan trees in some central Georgia areas.

WALNUT HUSK FLY (Rhagoletis completa) has spread in Utah and was generally damaging throughout Weber and Davis Counties, as well as infesting additional walnut-growing locations in the Provo and Salt Lake City areas. Larvae of this species were found in English walnut at Prosser, Washington, on October 2; the only previous distribution record was at Yakima, being first recorded there in 1954. The trapping program for this pest in Oregon was negative.

PECAN PHYLLOXERA (Phylloxera devastatrix) nymphs began migrating to unfolding buds of pecan in late March in Louisiana, and a SPITTLEBUG (Clastoptera achatina) was light to moderate on pecans in the Monticello area of Florida.

BLACK PECAN APHID (Melanocallis caryaefoliae) and BLACK-MARGINED APHID (Monellia costalis) infestations were light to moderately heavy and damaged pecan trees in Dona Ana, Chaves and Eddy Counties, New Mexico, and black-margined aphid heavily infested pecans in Clark County, Nevada. APHIDS of undetermined species were reported severely infesting pecan in Washington County, Utah, and black walnuts in Utah, Salt Lake, Weber, Davis and Box Elder Counties, Utah. Aphid numbers were moderate elsewhere in Utah on nut trees, being usually light on English walnut foliage in Weber, Davis, Utah, Washington and Grand Counties. Monellia sp. was common in most pecan groves throughout Oklahoma during the late summer and early fall. A FILBERT APHID (Myzocallis coryli) was moderate, about general, on filbert foliage in Utah; and infestations in Yamhill County, Oregon, were heavier than in 1958 and in general heavier than all filbert-growing areas of the State. Some Oregon orchards showed nearly 100 percent of leaves infested.

WALNUT BLISTER MITE (Aceria erinea) heavily infested early walnuts near Dundee, Oregon, during the week of August 31.

Citrus Insects: A SCARAB (Phyllophaga elizoria) was found feeding on foliage of citrus nursery stock at Avon Park, Polk County, Florida, on April 1. This species is rare, but has been reported at least three times as a pest of citrus nursery stock in the Avon Park area. The last report was in 1950.

FLORIDA WAX SCALE (Ceroplastes floridensis) averaged 50 adults per leaf on citrus in Plaquemines Parish, Louisiana, and COTTONY-CUSHION SCALE (Icerya purchasi) was light and localized in Maricopa and Yuma Counties, Arizona. CITRICOLA SCALE (Coccus pseudomagnoliarum) was heavy in one citrus grove near Peoria in Maricopa County, Arizona, during April and May, and CITRUS WHITEFLY (Dialeurodes citri) was heavily infesting satsuma trees in Plaquemines Parish, Louisiana, during September.

In Arizona, CITRUS THRIPS (Scirtothrips citri) was heavy in citrus when in full bloom in late March and early April. The infestation was heavier than normal for that time of the year and continued heavy on through the spring in untreated groves or where treatments were not successful. Considerable damage was caused to young fruit in some groves in both Yuma and Maricopa Counties. GRACILARIIDS (Mamara spp.) were medium in one grapefruit grove in Maricopa County.

CITRUS RED MITE (Panonychus citri) averaged 50 adults per leaf on citrus in Plaquemines Parish, Louisiana, and CITRUS FLAT MITE (Brevipalpus lewisi) was light to medium and a problem throughout the year in groves in Yuma County, Arizona.

Other Fruit Insects: AVOCADO RED MITE (Oligonychus yothersi) was much less abundant in avocado groves near Homestead, Florida, on December 31, 1958, than for over a decade. A CURCULIONID (Heilipus squamosus) was found under bark of avocado at St. Petersburg and Homestead, Florida, during the year.

GALL MIDGES (Itonida sp., Lasioptera vitis) were locally common in vineyards in South Kingston, Rhode Island, during early June. LEAFHOPPERS (Erythroneura spp.) increased on grape in late March in Arizona and were a problem throughout the spring. Fall infestations were very light. Undetermined LEAFHOPPERS have been a problem on grapes in New Mexico during the year.

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) became heavy on home yard grapes in Arizona during June, but were of little importance in commercial vineyards. In Utah, this species was again completely controlled by insect parasites and predators in Washington County. The pest was found for the first time in Nevada (in a one-acre vineyard in Clark County) during the year but additional surveys in adjacent areas were negative.

GRAPE BERRY MOTH (Paralobesia viteana) damaged grapes in a few Washington County, Utah, vineyards and backyard growers in Rhode Island were troubled by this pest.

GRAPE MEALYBUG (Pseudococcus maritimus) was found more widespread in grape-growing areas of the Yakima Valley in Washington than in any previous year. Many instances of partial failure of controls were reported. GRAPE SCALE (Aspidiotus uvae) infested 20 acres of grapes severely in McDowell County, North Carolina.

A BLUEBERRY THRIPS (Frankliniella vaccinii) was generally moderate on blueberries in most areas of Maine during May. Damage was moderate in Knox County and severe in Hancock County. In June, damage was moderate to heavy in the Knox-Lincoln County area and light to moderate in Washington County. In August, a light, late season infestation was found in a previously clean, new-burn field in the Jonesboro area of Maine.

BLUEBERRY MAGGOT (Rhagoletis pomonella) began to emerge June 30 at Jonesboro, Maine, reached peak flight on July 8 and 9 and ended on July 31. Only stragglers were recovered in cages in Maine from July 20 on.

BLACK-HEADED FIREWORM (Rhopobota naevana) damaged huckleberries in widely separated areas of western Washington. The adults were reared during the first half of July.

BLACK ARMY CUTWORM (Actebia fennica) infestations were found in many blueberry-producing areas of Maine during May. Severe damage was noted in the Knox-Lincoln County area and in the Cutler area of Washington County where it was estimated that 50 percent of the crop was damaged. This pest appeared to be increasing in several Maine localities. In June, infestations and injury were severe in the Cutler area, five growers being affected. Infestations were light in the Jonesboro area.

GARDEN SYMPHYLID (Scutigera immaculata) caused severe damage to 40 acres of blueberries in Thurston County, Washington, during the early spring and also damaged this crop in the western area of the State during May and June.

CLIMBING CUTWORMS caused less than usual damage to fruits in Box Elder, Grand, Salt Lake and Weber Counties, Utah.

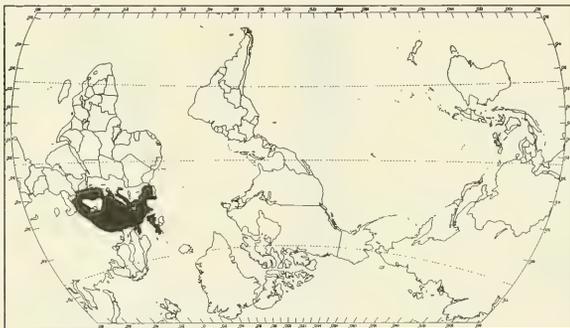
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

CORN GROUND BEETLE (Zabrus tenebrioides (Goeze))

Economic Importance: This carabid causes serious losses to small grains in several areas of Europe. During 1931-32, larvae infested more than 40 districts in the Ukraine (USSR) and completely destroyed or severely injured crops over areas of about 18 and 27 square miles. More recently (1947-52), in Vojvodina, Serbia and eastern Croatia, Yugoslavia, 18,251 acres of wheat, barley and rye were destroyed. Up to 109 larvae per square foot were recorded in samples taken in the infested areas. Upon emergence in the spring, adults cause additional damage by feeding on the small grains before the grains ripen.

Distribution: Recorded in Spain, France, England, Belgium, Holland, Denmark, Germany, Austria, Czechoslovakia, Poland, Hungary, Rumania, USSR, Italy, Yugoslavia, Bulgaria, Greece and Turkey.

Hosts: Small grains (wheat, barley, rye, oats) appear to be the most important cultivated crops. Has also been recorded on corn and beets, however.

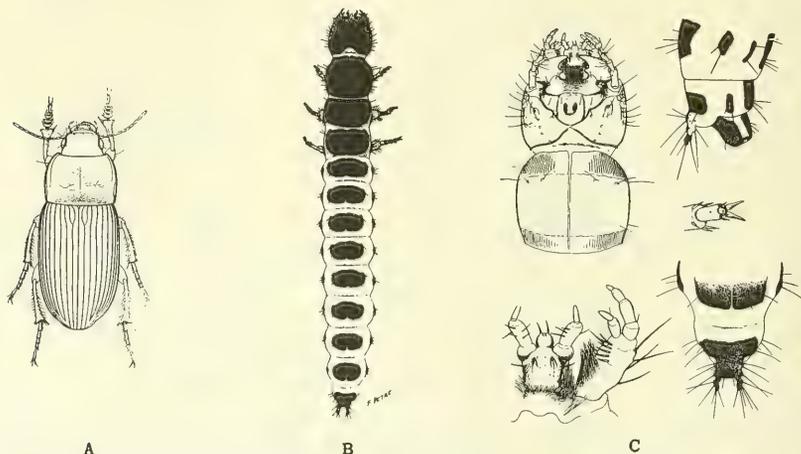


General Distribution of Zabrus tenebrioides

Life History and Habits: Life history and habits as recorded in Yugoslavia are as follows: Oviposition begins as early as August, the date depending on soil humidity. Eggs are laid singly in small chambers in the upper 7 inches of soil, averaging from 40-80 per female. The oviposition period is extended because eggs do not all mature at the same time. Larvae hatch in 8-17 days, or longer at temperatures below 60.8° F. Larvae may survive for 30-50 days without food. Larval feeding and development begin in late September and last for about 86 days in the laboratory, but up to 7 and one-half months in the field. Most larvae overwinter in first or second instar, ceasing to feed but continuing to molt. Pupation takes place in oval chambers in the soil in April or May and lasts for 12-20 days, depending on the temperature. On emergence, adults come to the surface and feed on wheat grains in "milky" stage until mid-June, when feeding ceases and they disperse to other grain fields. Maturation feeding then takes place, followed by an aestivation period lasting 1½-3 months. Pairing occurs during August and September. Although adults were reported to be nocturnal feeders in Yugoslavia, records from other countries indicate that they may feed on young

plants during daylight hours. Spring-sown crops are also preferable to fall-sown crops. Infestations, though severe, are limited since the adults fly very little, if any.

Description: ADULT (from Fowler) - Convex, deep black, occasionally with a feeble metallic tinge; antennae and palpi ferruginous; thorax transverse, slightly narrowed in front, sides almost straight behind, posterior angles blunt right angles, base rather broader than extreme base of elytra, coarsely and strongly punctured in front and behind, disc much wrinkled; elytra broad, parallel, with strong punctured striae; femora black, tibiae and tarsi reddish. Length 14-16 mm. Mature LARVA reaches 30 mm., is narrow, elongated, flattened, distinctly segmented, yellowish-white color, except the head and the 3 segments of the thorax which are more leathery and chestnut color; abdomen is tapered to the extremity and ends in two appendages; each of its segments bears on its dorsum a reddish transverse leathery plate. Larva has stout mandibles and 3 pairs of well-developed legs terminated by a hard brownish hook. The small-size of the urogomphi on the ninth abdominal segment is characteristic of the genus Zabrus. (see illustration). These organs are almost one-half as long as the segment. They are chitinized and laterally bidentate. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 10(10):3-4-60.



Figures of Zabrus tenebriodes : A - Adult. B - Larva. C - Details of Larval Head and Ninth Abdominal Segment.

Major references: Bjegovic, P. 1957. Inst. Plant Prot. Mem. No. 5, 104 pp., Belgrade. Fowler, W. F. 1887. The Coleoptera of the British Islands Vol. 1, pp. 58-59. Beffa, G. D. 1949. Gli Insetti Dannosi all'Agricoltura e i Moderni Metodi e Mezzi di Lotta. 978 pp., Milan. (pp. 493-495).

Figures (except map) and additional reference: Balachowsky, A. and Mesnil, L. 1935. Les Insectes Nuisibles aux Plantes Cultivees. Vol. 1, 1137 pp., Paris.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business



VOL. 10 NO. 11

MARCH 11, 1960

SB
823
C77
Ent.

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 of Insect Conditions

Overwintering BEET LEAFHOPPER population in southern breeding areas calculated to contain 0.18 billion infective individuals. (p. 155).

Several MOSQUITO species active in Nevada. (p. 158).

INSECT DETECTION: A conifer sawfly (Zadiprion rohweri) collected in Clark County, Nevada, in August 1959, is a first record for the State. (p. 158).

ADDITIONAL NOTES. (p. 158).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1959

Truck Crop Insects - (p. 160).

INSECTS not known to occur in the United States. (p. 179).

WEATHER OF THE WEEK ENDING MARCH 7

Severely cold weather continued to be the dominant feature over most of the Nation this week. An extensive mass of arctic air, centered over the Great Plains throughout the week, spread into all portions of the country, bringing the coldest week of the winter to most areas with the weekly average temperature generally more than 15° below normal from the Southeastern States to the Pacific Northwest. Record low minimum temperatures for so late in the season were reported at numerous stations from the Rocky Mountain and Plateau States to the Great Plains, the Mississippi and Ohio Valleys and the Southeastern and Middle Atlantic States. Temperatures below zero were general over the Great Plains from the Oklahoma Panhandle northward and -20° or colder were reported from northwestern Kansas to Wisconsin and Montana.

The major storm of the week first developed in the northwestern Gulf of Mexico on Tuesday, moved into the central Gulf States on Wednesday and weakened in the Ohio Valley as a new center formed off the Carolinas on Thursday, intensified rapidly, and moved northeastward off the coast of New England by early Friday. Rain, freezing rain, sleet and snow spread from the southern Great Plains to encompass most of the eastern half of the Nation as these weather systems developed. Severe glazing from Texas and Arkansas to Alabama, Georgia, South Carolina and Tennessee left large areas covered with 1 inch or more of ice, caused extensive damage to communication lines, timber and other property. Farther north, heavy snows, driven by persistent strong winds which reached hurricane force in gusts in coastal New England, paralyzed normal activities from the southern Appalachians to New England. Total falls ranged up to 20 to 30 inches in southeastern New England and Long Island, 4 to 22 inches in New Jersey, New York and Pennsylvania, 2 to 5 inches in Tennessee, eastern Virginia, North Carolina and Maryland and 10 to over 20 inches in the Appalachians.

Along the Pacific Coast, unusually cold weather covered Oregon and Washington and unseasonably heavy snow was reported in sections of these States, while in California temperatures were near normal and moderate to heavy precipitation occurred in some northern and southern sections.

Much-below-normal temperatures early in the week in the Plateau States, including some coldest readings for so late in the season in Utah, moderated rapidly, with highest readings for so early in the spring recorded in areas of Arizona over the weekend. (Weather supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Although persistent inclement weather limited the number of reports, sampled populations of this species were smaller than during the period February 21-27. In the extreme south, counts in wheat ranged 0.02-6 per linear foot in Love and Tillman Counties (Hatfield, Vinson) and a survey of 8 fields of wheat in the Kingfisher-Logan-Garfield County area gave counts of 0-15 per linear foot on February 22 (Owens).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - None found in most fields of wheat sampled in Tillman and Love Counties; a single field in Love County yielded 1.5 aphids per linear foot. (Vinson, Hatfield).

WINTER GRAIN MITE (Penthaleus major) - CALIFORNIA - Occurring as a general light infestation on oats, primarily Palestine oats, in the Collinsville area of Solano County. (Dr. W.H. Lange).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Populations showed some decrease in the southern parts of the State, the only areas in which sampling is currently possible due to snow. Counts in a single field in Love County averaged 1.5 per square foot of crown area. (Vinson). Counts during the week of February 22 in the Kingfisher-Garfield County area ranged 0-30 per square foot of crown area (Owens, Hatfield), and for the same period numbers found in the Stillwater area of Payne County averaged 15 per square foot (James). NEW MEXICO - Light to nonexistent in Dona Ana County. Moderate to heavy infestations present in several alfalfa fields in Eddy and Chaves Counties. (N. M. Coop. Rpt.).

PEA APHID (Macrosiphum pisi) - OKLAHOMA - Populations in Love County remained low, 0.02 per square foot of crown area. (Vinson).

FRUIT INSECTS

WOOLLY APPLE APHID (Eriosoma lanigerum) - DELAWARE - Found on roots of 15-year-old apple trees at Lewes, Sussex County. Six trees (dead) pulled up and the entire plantation of approximately 15 acres shows signs of heavy infestations (poor growth). Exact causal factors complicated by pronounced symptoms of crown gall. (Kelsey, Heuberger, Feb. 18).

A SPIDER MITE (Tetranychus sp.) - NEW MEXICO - Light infestations of overwintering forms found under bark on apple trees in Hondo Valley. (N. M. Coop. Rpt.).

TRUCK CROP INSECTS

BEAN WEEVIL (Acanthoscelides obtectus) - CALIFORNIA - Adults heavy in seed beans in Salinas, Monterey County. (Cal. Coop. Rpt.).

BEET LEAFHOPPER (Circulifer tenellus) - The overwintering population in the southern breeding areas (reported in CEIR 10(10):132-133) was calculated to contain 0.18 billion infective beet leafhoppers. This compares with 0.32 billion in 1957 and 0.06 in 1959 which resulted in light migrations to the cultivated districts in those years. In 1958, a 74.5 billion infective overwintering population resulted in an extra heavy migration. In 1952, a 3.15 billion infective overwintering population resulted in a moderate migration to the cultivated districts. (Dorst, Blakemore).

POTATO PSYLLID (Paratrioza cockerelli) - CALIFORNIA - Heavy populations occurring on native plants (not identified) in San Ysidro, San Diego County, and on wolfberry (Lyium sp.) in the Niland area of Imperial County. (Cal. Coop. Rpt.).

SWEETPOTATO WHITEFLY (Bemisia tabaci) - CALIFORNIA - Heavy populations on mahonia in Woodland, Yolo County. (Cal. Coop. Rpt.).

FLOWER THRIPS (Frankliniella tritici) - NEW MEXICO - Light infestations found in several Dona Ana County onion fields. (N. M. Coop. Rpt.).

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) - OREGON - Larvae found infesting 5 percent of plants in a commercial field at Silverton Hills, Marion County, February 29. (Rosenstiel).

VARIEGATED CUTWORM (Peridroma margaritosa) - TEXAS - Populations noted in Harris County. (Texas Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WHITE-PINE WEEVIL (Pissodes strobi) - WISCONSIN - Reports of damage to plantations in Sauk County showed 3 locations 100 percent infested, and 3 locations were 62, 44 and 31 percent infested, respectively. One location in Marquette County was 4 percent infested. The importance of these assessments is indicated by the facts that southern plantings are involved, infestation was continuing on trees 30 feet tall and those trees suffering 3 weevil attacks were numerous. (Wis. Coop. Sur.).

A PINE LOOPER (Semiothisa sp.) - DELAWARE - Larvae and adults, probably S. bisignata, collected in late July and August 1959, on white pines in southern New Castle County. Determination confirmed by E. L. Todd, February 5, 1960. (Burbutis, Mason).

PINE LEAF APHID (Pinus pinifoliae) - COLORADO - Heavy infestation in forestry nursery greenhouses at Fort Collins, Larimer County. (Colo. Ins. Sur.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - Medium infestation in Chinese elms in Buena Park, Orange County. (Cal. Coop. Rpt.).

ORANGE TORTRIX (Argyrotaenia citrana) - OREGON - Larvae found infesting approximately 100 rhododendron plants in a Portland nursery in mid-February, began emerging as adults March 1. (Larson).

A PLUTELLID MOTH (Argyresthia sp.) - OREGON - Infesting 70-80 percent of several thousand arborvitae and cypress cuttings in Portland area greenhouses and outdoor plantings. Late-instar larvae present in tips examined March 3. (Wieman).

APHIDS - OKLAHOMA - Light infestation of Cinara tujafilina on arborvitae in lathe-houses in Stillwater, Payne County. (Stiles). TEXAS - Unknown species attacking ornamentals in Tom Green County. (Texas Coop. Rpt.). CALIFORNIA - A heavy infestation of Aphis gossypii occurred on buddleia in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.). NEW MEXICO - Light infestations of unspecified species reported on rose bushes in southern counties. (N. M. Coop. Rpt.).

SCALE INSECTS - CALIFORNIA - A medium infestation of Aonidiella aurantii occurred on euonymus in Porterville, Tulare County. Aspidiotus lataniae was medium on netbush (Calothamnus asper) and apple; and Diaspis coccis infested cocos palm on a property; both in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.). MARYLAND - Fiorinia externa heavily infesting hemlock at Baltimore, February 29. (U. Md., Ent. Dept.).

GRAPE MEALYBUG (Pseudococcus maritimus) - CALIFORNIA - A heavy infestation occurred on Daphne odora in Berkeley, Alameda County. (Cal. Coop. Rpt.).

PSYLLIDS - CALIFORNIA - Heavy populations of *Psylla uncatoides* occurring on *Acacia* spp. in Belmont, San Mateo County. This pest severely damaged acacia in the Bay region of northern California and in San Diego and adjacent counties in the summer of 1959. (Cal. Coop. Rpt.). IDAHO - Adults of *Pachypsylla* sp. emerging from galls formed on hackberry in the river area above Lewiston, Nez Perce County. (Clark, Williamson).

HOLLY LEAF MINERS (*Phytomyza* spp.) - DELAWARE - Two species are involved; one is *Phytomyza* n. sp. and the other is either a new species or a secondary life cycle (or second generation) of *P. ilicicola*. Both are on native American holly. The former species was very abundant during December, January and February in several different areas of the State as partially grown larvae, apparently feeding during warmer periods and forming the common blotch mines. The latter species was rather scarce and most were pupae in linear blotch mines. (Burbutis, Kelsey). MARYLAND - *P. ilicicola* heavy on 2 American holly trees at Clinton, Prince Georges County. (U. Md., Ent. Dept.).

SOUTHERN RED MITE (*Oligonychus ilicis*) - MARYLAND - Eggs heavy on American holly at Lothian, Anne Arundel County. (U. Md., Ent. Dept.).

STORED-PRODUCT INSECTS

ALMOND MOTH (*Ephestia cautella*) - DELAWARE - Very heavy infestations were observed during December 1959 in soybean meal pellets contained in 5 and 10-pound plastic bags at the University Farm. Most of the soybean pellets had been very thoroughly worked over by the larvae. (Burbutis, Mason).

NAVEL ORANGEWORM (*Parameylois transitella*) - CALIFORNIA - Heavy population in stored walnuts and nut meats. Many reports over the State from homeowners finding the insect in homes where there are walnuts or almonds. (Cal. Coop. Rpt.).

KHAPRA BEETLE (*Trogoderma granarium*) - CALIFORNIA - A light infestation occurred on a farm property in El Centro, Imperial County. This is a possible reinfestation, as this property was fumigated in 1956. This is the only known infestation currently occurring in the State. Preparations for fumigation are underway. (Cal. Coop. Rpt.).

SAW-TOOTHED GRAIN BEETLE (*Oryzaephilus surinamensis*) - NORTH CAROLINA - Infestation present in a house in Wake County. (Harkema, Farrier).

A HUMPBACED FLY (*Megaselia* sp.) - DELAWARE - Several dead pupae found on the inside of a can of mushrooms. These flies are known as important pests of cultivated mushrooms. (Burbutis, Mason, Nov. 28-March 4).

BENEFICIAL INSECTS

LADY BEETLES (*Hippodamia* spp.) - OKLAHOMA - Several noted in alfalfa fields in Tillman County. (Vinson). None found in alfalfa fields in northern counties or in fields of small grains, generally. (Owens, Vinson, Hatfield, James, Stiles, Henderson).

MISCELLANEOUS INSECTS

BROWN-BANDED ROACH (Supella supellecillum) - DELAWARE - Many homes in one housing development in New Castle County appear to be heavily infested with this pest. Control efforts by several of the occupants failed. (Burbutis, Mason, Dec.-Jan.). CALIFORNIA - Occurring as a household pest in Fallbrook, San Diego County. (Cal. Coop. Rpt.). UTAH - This species and Blatta orientalis were more commonly encountered in the State during 1959 than was the case 5 or more years ago, and Blattella germanica was less troublesome. (Knowlton).

COCKROACHES - WISCONSIN - Reports and inquiries indicate cockroaches to be more of a problem than during this same period in 1959. (Wis. Coop. Sur.).

BROWN SPIDER BEETLE (Ptinus clavipes) - CALIFORNIA - Heavy population of adults occurred in a home in Oroville, Butte County, causing considerable annoyance. (Cal. Coop. Rpt.).

CIGARETTE BEETLE (Lasioderma serricornis) - NORTH CAROLINA - Numerous in a house in Edgecombe County. (Perry, Farrier).

SOUTHERN LYCTUS BEETLE (Lyctus planicollis) - NORTH CAROLINA - Infesting a hardwood floor in Guilford County. (Jones, Farrier).

A PHYCITID (Ephestia sp.) - MARYLAND - Observed on new milk cartons at Westminster, Carroll County, February 26. (U. Md., Ent. Dept.).

ANTS - NEW MEXICO - Winged forms of unspecified species causing a nuisance in homes at Las Cruces, Dona Ana County. (N. M. Coop. Rpt.). TEXAS - Camponotus sp. invading homes in Navarro County. (Burleson). MARYLAND - Winged forms of Acanthomyops interjectus interjectus noted in a home at College Park, Prince Georges County, on February 28. Det. M. R. Smith. (U. Md., Ent. Dept.).

TERMITES - DELAWARE - Several infestations of undetermined species noted during the winter in homes in New Castle and Kent Counties. (Burbutis, Mason, Nov. 28-March 4).

CLOVER MITE (Bryobia praetiosa) - DELAWARE - Large population present in a house in New Castle County, January 14. (Burbutis, Mason). COLORADO - A problem in newly constructed homes in Larimer County. (Colo. Ins. Sur.).

ADDITIONAL NOTES

NEVADA - Adult activity of ALFALFA WEEVIL (Hypera postica) has been negligible to March 4 in most counties due to cool temperatures and wind; practically no spraying has been done. This is in sharp contrast to 1959 when adults were active early in February and much of the spraying was completed or underway on March 4. (Bechtel, Gardella et al.). Larvae of a SAWFLY (Zadiprion rohweri) were collected in trace numbers from Pinus monophylla at Mountain Springs Summit, Clark County, in August 1959. Determined by B. D. Burks. This is the first record of this species in the State. BLACK WIDOW SPIDER (Latrodectus mactans) infestation heavy in a home in Reno, Washoe County. (Bechtel). CLOVER MITE (Bryobia praetiosa complex) common on warm or sunny days and invading homes. (Coop. Rpt.) MOSQUITOES - Aedes campestris, A. dorsalis and A. niphadopsis larvae of all instars, mostly first and second instars, averaged 35 per dip at Gerlach, Washoe County; and in the Fallon-Hazen areas, these species, mostly third and fourth instars, averaged 10-15 per dip. A. niphadopsis larvae averaged 30-50 per dip at Wabuska, Lyon County; and larvae of this species and A. campestris gave variable counts north of Genoa, Douglas County. Culex erythrothorax averaged 10-15 per dip at Fallon, Churchill County; Gerlach, Washoe County; and Schurz, Mineral County. Larvae of Culiseta inornata were present in all the above areas also. (Chapman).

LIGHT TRAP COLLECTIONS

	<i>Pseudaletia unipuncta</i>	<i>Prodenia ornithogalli</i>	<i>Agrotis ippsilon</i>	<i>Heliothis zea</i>
LOUISIANA				
Baton Rouge 2/26-3/3	3	1	1	1
Franklin 2/26-3/3			2	

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES ^{1/}

1959

TRUCK CROP INSECTS

General Truck Crop Insects: CABBAGE LOOPER (*Trichoplusia ni*) was a major pest of several crops, primarily crucifers, in several states, but the most serious damage appeared to be in New Jersey, Delaware, Maryland, Georgia and Louisiana.

Damage by cabbage looper was recorded as serious in New Jersey where the pest was not controlled late in the season, moderate during August in the Monmouth area of Maine, troublesome throughout the season in Maryland and heavy during August in Delaware. In Virginia, damage to truck crops in the State was not as much as in 1958. A polyhedrosis virus disease again reduced populations to a large extent during September and for the balance of the season. Damage to tomatoes, potatoes and peppers was also recorded in Delaware.

Moderate to heavy infestations of cabbage looper occurred on cabbage and collards in Georgia and the species was the most destructive pest of cabbage again during 1959 in Louisiana where treatments were not applied. The infestations in that State ranged as high as 100 percent in some cabbage fields and some damage to tomatoes was noted in Bossier Parish during May. Damage to cabbage and lettuce was also reported in southern Texas, with light damage observed on the high plains.

Cabbage looper was about normal in Ohio, except late in the season, when populations became much higher than normal. Populations in southeastern Wisconsin were light in early July, increased to high levels in several counties in early August, but were completely destroyed by a disease by the end of August.

Cabbage looper was light in lettuce during the spring in New Mexico and in areas of Cochise and Maricopa Counties, Arizona; but in the fall the pest became very serious in New Mexico. Most growers in the Mesilla Valley had difficulty in controlling the pest during September. The fall infestations in lettuce did not develop or were easily controlled in Arizona, although the egg counts of this species were high throughout the season. Injury was normal in Utah and populations were much less than in 1958 in Oregon.

TOMATO FRUITWORM (*Heliothis zea*) was serious on several truck crops in various areas of the country during 1959. In the Eastern States, heavy damage was recorded in New Jersey, Delaware, Maryland, Virginia and Georgia. Outbreak numbers appeared from the first week of August through mid-September in New Jersey, with extremely heavy damage occurring to many late season crops. Extensive lima bean acreages suffered serious loss of yield and damage to beans in the pod. Larvae of this pest also caused moderate to heavy damage to beans in late season in Maryland. In Delaware, larval damage was heavy on tomatoes during early August in Kent County, caused considerable damage to lima beans in early September and were of some economic importance in late September and early October on pepper pods in Kent and Sussex Counties. The pest was also common to prevalent on squash, turnips and beets in Delaware in late September and early October. Tomato fruitworm was somewhat higher than usual in Virginia, causing heavy damage to tomatoes and peppers, but only light damage to beans. Infestations in Georgia were generally light to moderate on tomatoes, but became heavy near harvest.

^{1/} Including all reporting states except Hawaii and Alaska, which were carried in CEIR 10(4):46 and CEIR 10(6):74, respectively.

Populations of tomato fruitworm were below normal in Ohio and not serious on tomatoes in Indiana, although the moths were present in sizeable numbers through the late summer in that State. The pest was very abundant in Illinois and was severe in south central Kansas during June and July on tomatoes, however. The pest was light in northeast Kansas although a large moth population was present into October.

Tomato fruitworm caused less damage in 1959 than in 1958 in Arkansas due to the more effective controls used rather than lighter infestations which were comparable for the two years. Slight damage to strawberries was also reported in Arkansas. Damage to tomatoes during May was light in Louisiana, but increased considerably in June, resulting in serious damage in St. Bernard and Plaquemines Parishes. Peppers in Tangipahoa Parish, Louisiana, were also damaged during June, and various crops throughout Texas received economic damage from this pest.

Damage by tomato fruitworm was very low in Utah and New Mexico, but light trap collections in the lower Yakima Valley of Washington were over 3 times any previous year since 1954, except 1958. Damage was as heavy as in 1958 in Washington, if not more. Controls were fair with ground equipment in that State.

YELLOW-STRIPED ARMYWORM (*Prodenia ornithogalli*) damaged tomatoes, crucifers and cucumbers in Virginia, but was not as extensive as the cabbage looper. In Delaware, the pest was generally present to fairly common on beans, peppers, cantaloup and pumpkin throughout the growing season and during late August larvae became very abundant in a large asparagus field in Kent County, causing severe defoliation. WESTERN YELLOW-STRIPED ARMYWORM (*P. praefica*) damaged tomatoes, beets and home gardens in a few northern and some central localities in Utah.

FALL ARMYWORM (*Laphygma frugiperda*) appeared in August and September in New Jersey, but damage was lighter than usual, and the species was present, but not a problem, on cole crops in the eastern and southeastern areas of Virginia. In Texas, spotted, local infestations occurred in various parts of the State.

ALFALFA LOOPER (*Autographa californica*) was scarce in the Walla Walla area of Washington during the spring, with almost none recorded on spinach in the fall nor on peas in the northwestern area. Infestations in the Milton-Freewater area of Oregon were much less than in 1958.

GARDEN WEBWORM (*Loxostege similalis*) damaged crucifers, tomatoes, peppers and cucumbers in Virginia, but not as extensively as cabbage looper; and larvae caused light damage to pepper foliage in mid-August in New Castle County, Delaware. The pest was also common to abundant and caused moderate feeding injury during October to beets in Delaware.

EUROPEAN CORN BORER (*Pyrausta nubilalis*) larvae caused considerable feeding injury to potato vines throughout the season in Delaware, with the greatest damage occurring in June. In mid-June, larvae were prevalent in Delaware, causing heavy feeding injury on lettuce in Kent County, and from late August to September, larvae were abundant in most unsprayed peppers in Kent and Sussex Counties. Larvae were also fairly common in beans in late June and early October in that State. Damage to pepper plants in Maryland during late season was heavy, but not as serious as in 1958. In Virginia, potatoes and peppers were among the most heavily damaged crops. The incomplete, limited fall survey in North Carolina revealed 56 forms per 100 stalks in areas previously with high infestations in potatoes in Pasquotank County, with over 7 percent pupated. Moth flight began April 21 in the Coastal Plain, 10 days after first blossoms of lily-of-the-valley in Raleigh.

STALK BORER (Papaipema nebris) was locally troublesome on peppers and tomatoes in South Kingstown, Rhode Island, during early July and on beans and other garden plants in West Barrington area in early August. The pest was quite a problem in strawberries in southeastern Virginia and in the Eastern Shore counties, and damaged tomatoes and sweet corn in the northeast and east central areas of Kansas.

CUTWORMS were damaging to truck crops in several states during the year. Damage in Maine was recorded as follows: Moderate on tomatoes in Twin County in May; moderate to severe on crucifers, beans, tomatoes and peas in several gardens at Presque Isle in June; light on lettuce at Cape Elizabeth in June; light in Jonesboro area in June; moderate in Cumberland County and in Orrington area; severe on cabbage; moderate on all garden crops in Orono area; and severe on tomatoes (500 of 800 plants destroyed in June) in Harrison area. In Virginia, VARIEGATED CUTWORM (Peridroma margaritosa), BLACK CUTWORM (Agrotis ipsilon), Feltia sp. and several undetermined species damaged crucifers, cucurbits, peppers, tomatoes and sweetpotatoes in many parts of the State.

An undetermined cutworm caused considerable damage to pimento pepper in Troup County, Georgia, and GRANULATE CUTWORM (Feltia subterranea) damaged sweetpotato seedlings in St. Landry Parish, Louisiana. Variegated cutworm caused minor damage to gardens and potatoes in localized areas of Arkansas and spotted, cutworm infestations occurred throughout Texas. Damage by cutworms was spotted and locally severe in Illinois and was moderate, generally, during the spring in Utah. Cutworms also became a problem in several Dona Ana County, New Mexico, lettuce fields during March and were heavy on sugar beets in Churchill County, Nevada, where they caused 10 percent loss. In Oregon, black cutworm and variegated cutworm were abundant on beans and sweet corn in the Willamette Valley, requiring control measures about June 12.

POTATO LEAFHOPPER (Empoasca fabae) was a problem on truck crops in some areas of Virginia, was troublesome on beans and potatoes on the Eastern Shore of Maryland during May (somewhat above normal) and was generally common on potatoes, beans, peppers and pumpkin in Delaware. In Indiana, commercial potato growers had to repeat control at weekly intervals to obtain control and serious damage to garden beans was also observed. Populations in Ohio were higher than normal on untreated potatoes but were of no importance when controls were applied. In the Dakotas, the first specimens were reported from Brooking County, South Dakota, during the first week of June and on June 12 at Fargo, North Dakota. The initial migration appeared heavier than normal in North Dakota. Adults were easily recovered in most crops on June 15 in that State and population development in potatoes was gradual and reached peak on August 2. Counts were 1-3 per sweep during the peak period in North Dakota and severe "hopperburn" occurred in home gardens and some commercial fields not protected. Populations remained quite high during the growing season in North Dakota and medium densities remained until frost. In South Dakota, populations were light throughout the year and very little "hopperburn" damage appeared in potato fields.

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) was common on carrots during July and August in Delaware, causing no appreciable feeding injury, and a leafhopper, believed to be this species, caused generally light to moderate injury to untreated potato fields in Maine during August.

Six-spotted leafhopper caused very little damage to crops susceptible to aster-yellows virus in Ohio, but the incidence of aster yellows was higher in 1959 than in 1958 in Wisconsin. This species was a serious pest in South Dakota, even though counts were lower than in 1958, and relatively high populations that appeared in late May and early June did not develop in Minnesota. In North Dakota, populations of the insect were mostly light in the northern Red River Valley counties but a rather high incidence of purple-top virus did occur in some areas. The first migrants of six-spotted leafhopper were caught in Middleton, Wisconsin, on April 26 in a blacklight trap and migrations were first noted on May 11 in southeastern North Dakota. The center of the early migrations in Wisconsin was

between Madison and the Mississippi River. At least one percent of the first migration was capable of aster-yellows virus transmission. In mid-June, populations were low in potatoes in southeastern area of Wisconsin but fairly high in the Oneida County area. Aster yellows began appearing in late June in southeastern Wisconsin. In Washington, aster yellows appeared strong in cultivated asters by mid-July but none were found in potatoes.

INTERMOUNTAIN LEAFHOPPER (*Empoasca filamenta*) and six-spotted leafhopper caused moderate damage to vegetable crops in local areas of Utah, and *E. filamenta* increased to heavy populations on potatoes in Nevada. Intermountain leafhopper also caused some leaf spotting in potato fields in southeastern Idaho during August and became extremely abundant in many fields in Bingham and Power Counties, Idaho, during mid-August.

In Maine, undetermined leafhoppers were reported as feeding generally in the Monmouth area during May and causing moderate damage to potatoes in Cumberland County and at Monmouth in June, as well as causing moderate damage to lettuce in June.

LYGUS BUGS (*Lygus* spp.) were numerous, 3 to 4 per square foot, in cultivated fields around Hermiston, Oregon, on March 16, but were of no more economic importance than usual with proper controls. Several species were abundant on sugar beets in crops in southern and northern Utah and controls were applied to seed beet plantings. They also caused losses to cabbage in Colorado. TARNISHED PLANT BUG (*L. lineolaris*) was abundant on a great variety of truck crops in Delaware, being similar to the conditions in 1958 in that State. The heaviest infestations occurred on lima beans during late August and early September and on turnips through October. In Maine, this insect caused generally light to moderate injury to untreated potatoes in the Aroostook area in August.

A FALSE CHINCH BUG (*Nysius* sp.) severely damaged radishes, lettuce and, to a lesser extent, tomatoes in the Kansas River Valley of Kansas during June. CONCHUELA (*Chlorochroa ligata*) infestations were spotted and local in various parts of Texas, and GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) was a problem on truck and garden crops in some areas of Virginia.

GREEN PEACH APHID (*Myzus persicae*) was a serious pest of several truck crops during 1959. Those states reporting heavy infestations were Rhode Island, New Jersey, Delaware, Maryland, Virginia, Florida, Arizona and Washington.

In the Eastern States, *M. persicae* was severe on untreated potatoes by July 9 in Rhode Island; was very numerous on potatoes, tomatoes, spinach, lettuce, Chinese cabbage and other vegetables in New Jersey; became abundant by the first of August and remained so until late September on pepper and potato foliage in Delaware, as well as being abundant on spinach during October in that State; required treatment on peppers in northern Worcester County, Maryland; was important on spinach and lettuce in Virginia; and heavily infested potatoes during late December 1958, in Florida. The infestations on pepper were first noted June 20 to 26 in Delaware and the pest first appeared December 13, 1958, in Dade County, Florida. By February, infestations had nearly disappeared in Florida, however. The treatments for this pest were more than normal in New Jersey.

In the Central States, green peach aphid was unusually abundant on a number of vegetable crops in Ohio, especially potatoes, and was reported infesting potatoes in Indiana.

In Arizona, flights of green peach aphid were extremely heavy in the Yuma area during early March. Infestations of lettuce and most host crops were kept low by controls in all major areas of the State during the spring. Sugar beets were heavily infested in some central Arizona areas, but fall infestations in lettuce were very light, generally. Infestations were reported in Colorado on potatoes.

In the Northwestern States, migration of green peach aphid from peaches started the last week of April in eastern Washington. Propagation of the species was slow on potatoes in May in Washington but was very rapid in June, with foliage 100 percent infested in the Yakima Valley and Columbia Basin localities by late June or early July. The buildup of the species was steady in Klamath Falls area of Oregon, with a 6 to 16 percent infestation on July 20, and the populations of this pest were generally light in potato fields in Canyon County, Idaho, during July. Population counts became higher in the eastern area of Idaho, particularly in the Ashton area, by mid-July. By late July, up to 50 percent of the plants in some potato fields in eastern Idaho showed symptoms of leafroll virus disease. The unseasonably hot weather, starting about mid-July, in Washington, reduced aphids to near zero, but not before some fields of potatoes had been heavily damaged. Control was good in Washington but the spread of virus diseases was greater than normal in Whatcom County. Populations in Oregon continued to multiply throughout the season in nontreated plots.

An intensive survey of wild and escaped roses in the central and western areas of Washington showed these plants not to be overwintering hosts for green peach and potato aphids.

POTATO APHID (Macrosiphum solanifolii) activity was first observed in Kingston, Rhode Island, area on June 15. The pest built up to severe infestations on untreated potatoes in South Kingstown by July 9 in Rhode Island; colonies were found throughout Delaware on spinach, potatoes, tomatoes and pumpkins and in Virginia it was an important pest on potatoes and tomatoes. As in 1958, the insect never reached injurious proportions in Delaware; however, it did become numerous in pumpkin fields by late September. Potato aphid was reported on potatoes in Indiana, Colorado and Idaho, with populations in the latter State being very low throughout the season and never more than two per leaf in all potato fields in the eastern area.

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) adults were present to common on a large number of crops in Delaware but were not serious on any one crop in that State during the year. The pest became exceptionally abundant in Indiana and Illinois where it caused considerable damage to various cucurbits and other plants. Infestations on cucurbits were also light to heavy in Georgia and abundant in South Dakota, and susceptible crops and flowers were moderately damaged in southern Utah.

Heavy infestations of another CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) in New Mexico damaged melon plants at Virden, Hidalgo County, and at Los Lunas, Valencia County, and also caused minor damage to young lettuce in Hidalgo, Dona Ana and Eddy Counties.

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata) was reported damaging beans in the Hillsboro area and tomatoes in the Willamette Valley of Oregon. Damage to tomatoes was caused when fruit touched the ground. Larvae were active in the Springfield area of Oregon as late as October 23.

BANDED CUCUMBER BEETLE (Diabrotica balteata) defoliated beans and peas in the Miami, Florida, area in July and was more widely prevalent than for many years on tomatoes, avocados and beans in May in the Homestead area of that State. The pest did not seem to respond to control measures. In Louisiana, sweetpotatoes were severely damaged by larvae near Arnaudville.

STRIPED CUCUMBER BEETLE (Acalymma vittata) adults were abundant and caused damage to cucurbits in Delaware and on the Eastern Shore of Maryland during May and June; but the pest was not as abundant in Duplin County, North Carolina, as in previous years. Light to heavy populations of the species occurred on cucurbits in Georgia and the species was common early in the season in Indiana, but below normal in Ohio. Populations were abundant on cucurbits throughout the season in South Dakota and numbers were large enough to require control in a commercial pickle area in Arkansas. The pest also caused moderate damage to susceptible crops and flowers in the southern portion of Utah.

GARDEN FLEAHOPPER (*Halticus bracteatus*) adults were generally common throughout the season on beans, cucurbits, potatoes, tomatoes, peppers and beets in Delaware, although injury was not apparently serious on any one crop. YELLOW-MARGINED LEAF BEETLE (*Microtheca ochroloma*) was heavy locally in Louisiana on turnips in January and on mustard and peppers in April.

FLEA BEETLES required treatments on tomatoes, potatoes and cole crops in Maryland; were a major problem in many instances in crucifers, beans, potatoes, tomatoes and cucumbers in Virginia; and were abundant on potatoes in Indiana where repeated treatments were necessary. In Delaware, a flea beetle (*Phyllotreta cruciferae*) was present on radishes in Sussex County in early May and common on mustard in Kent County until early June. *Phyllotreta* spp. damage was generally moderate in gardens in Utah, with an occasional potato field being severely damaged, and *Systema* sp. infested sugar beets in some areas of Colorado.

PALE-STRIPED FLEA BEETLE (*Systema blanda*) adults were common on peppers and snap beans during the first half of June in Sussex County, Delaware, causing moderately heavy feeding injury. Adults also became common on lima beans in August in Delaware and were reported on pumpkins. The pest was recorded on potatoes in Colorado and what was thought to be this species caused heavy losses to turnips in late October in central Indiana.

A STRIPED BLISTER BEETLE (*Epicauta* sp.) infestations were light to moderate on tomatoes in several southern counties of Georgia (usually not a pest of tomatoes in that State); frequently caused damage to vegetables in gardens in central and southern Nebraska during August; and defoliated beets in East Baton Rouge Parish and some potatoes in Caddo Parish, Louisiana. BLACK BLISTER BEETLE (*Epicauta pennsylvanica*) frequently caused damage to vegetable gardens in central and southern Nebraska during August, and MARGINED BLISTER BEETLE (*E. pestifera*) was present on potatoes in early July and caused heavy damage to beets and lima beans during late July and early August in areas of Delaware.

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) was heavy on pimento pepper which followed mustard in Spalding County, Georgia; attacked newly set lettuce in New Hanover County, North Carolina, in early February; and was heavy locally on turnips in January and on mustard and peppers during April in Louisiana. WHITE GRUBS (*Phyllophaga* spp.) were moderate to heavy in Portage, Eau Claire, Waushara, Winnebago, Brown, Monroe, Calumet, Jackson, Sauk, Price, Taylor and Kewaunee Counties, Wisconsin.

WIREWORMS (various species) were generally higher than in previous years in Idaho. Heavy infestations in some potato fields in Fremont County were as high as 20 larvae around a single seed piece during June. They also caused some damage to sugar beets in Franklin County, Idaho. *Ctenicera* sp. damaged potatoes in San Juan County, Washington, and fields which were soil treated as long as 10 to 12 years ago in Wisconsin have not had to be retreated for wireworm control in most cases.

SEED-CORN MAGGOT (*Hylemya cilicrura*) was light to moderate in Maine, causing light injury to spinach in the Gray area in June and moderate injury to lima beans in the Monmouth area in July. In New Mexico, adults were abundant in Hidalgo County lettuce fields during May; and the pest damaged onions in Colorado, less so than plant disease, however. The insect caused more than normal damage to beans and sweet corn seedlings in the Willamette Valley of Oregon, and was present throughout the past winter in Washington. The peak in Washington was about December 30, 1958. Many gravid females were present in the Walla Walla area in February and the first spring brood occurred during mid-March in that area of Washington, but later in March at Pasco. Heavy flights occurred in May and June. Large numbers of flies that were killed by a fungus disease (probably *Entomophthora muscae*) were found on potato foliage in the Yakima Valley during June. ROOT MAGGOTS were very prevalent in vegetable-growing areas of Illinois and caused considerable damage.

LEAF MINERS were very abundant in the Redlands area of Dade County, Florida, on December 31, 1958, on beans, potatoes and tomatoes. They were also abundant enough to become serious in February, being more abundant than for about 3 years. A leaf miner (*Liriomyza* sp.) was also reported as a problem on truck and garden crops in some areas of Virginia and caused noticeable foliage injury to tomatoes, squash and cucumbers in various sections of Maryland.

GARDEN SPRINGTAIL (*Bourletiella hortensis*) and other springtails damaged 300 acres of vegetable plantings during May in the Puyallup Valley of Washington.

GARDEN SYMPHYLID (*Scutigerella immaculata*) was present on most vegetables in the Willamette Valley of Oregon, about the same number as in 1958, and the pest destroyed early plantings of onions and spinach in Whatcom County, Washington, as well as corn, beans, raspberries and strawberries in the western area of Washington during May and June. Garden symphylid also infested sugar beets in some areas of Colorado.

A THRIPS (*Haplothrips clarisetis*), which was reported for the first time in the United States during 1959 in Riverside County, California, was also found for the first time in New Mexico during the fall of 1958, but was not identified until the spring of 1959. The pest killed young lettuce plants in several lettuce fields in Dona Ana County, New Mexico, during March 1959. Other thrips (*Frankliniella* spp.) also caused considerable damage to lettuce fields in Dona Ana and Eddy Counties, New Mexico, and *Sericothrips variabilis* adults were present to common in beans in Kent and Sussex Counties, Delaware, but they never reached economic levels on this crop during the year. Undetermined thrips were favored by dry weather in July in Maryland and were abundant on beans, cucumbers, onions and peppers.

GRASSHOPPERS damaged garden and truck crops in Rio Arriba, Taos, Curry, Roosevelt, San Miguel and Lea Counties, New Mexico, and *Melanoplus* sp. infested sugar beets in some areas of Colorado.

SPIDER MITES were high in nearly all areas on strawberries in Minnesota; heavy on strawberries in Delaware in mid-April; caused light to severe damage to raspberry in a number of counties in Utah; and were pests of truck crops and home gardens, especially cabbage, beans and tomatoes, in Virginia. MITES were also the most numerous and common pests of vegetable gardens in Nevada.

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) was serious on melons in southern Indiana in mid-July and was abundant on mint grown on lighter soils in early August. This species also damaged tomatoes in eastern Kansas and complete defoliation of tomatoes occurred in northeastern Kansas. Populations of this species temporarily increased on vegetables in southeastern Nebraska during July, causing moderate to severe damage. The pest was generally light in Ohio, however, and caused some damage to beans in Utah.

In Idaho, two-spotted spider mite populations were much higher than in previous years on beans and potatoes in the southwestern area and many fields required controls. Some bean fields in the Twin Falls area received extensive injury during early August and severe damage to a commercial sugar beet field during late September was reported.

Infestations of this species on potatoes in Washington started in the Quincy area in June, but was not seen near Moses Lake until July. The pest was damaging to potatoes for the third consecutive year in the Quincy area in August and September and was abundant and required controls on both mint and potatoes in the Yakima Valley. In Oregon, the mite was heavy on pole beans east of Independence in August and light to moderate during the late summer on hops around Salem, Brooks and Ontario.

Another SPIDER MITE (Tetranychus cinnabarinus) built up to heavy infestations in the central area of Arizona on sugar beets during April and was extremely heavy in late April and May.

SLUGS were damaging in several states during the year. Limax flavus was active on vegetables and flowers in Dare County, North Carolina, during May; and Agriolimax agrestis and Arion ater were very damaging to ripe strawberries in the western area of Washington, with up to 75 percent of the first pickings being lost during May and June. GRAY GARDEN SLUG (Deroceras reticulatum) was also injurious to seedling carrots, beans and strawberries in Oregon during May. Damage continued high in the Willamette Valley of Oregon, especially during the late summer and fall, and became serious on commercial strawberries.

Insects Attacking Solanaceous Crops: Populations of POTATO PSYLLID (Paratriozia cockerelli) were present on potatoes and tomatoes in Colorado and in the western area of Nebraska during 1959. In the latter State, they varied from light to moderate throughout the season, with as many as 32 adults per 100 sweeps being taken in some fields in the western area during August. The distribution of the pest did not follow the pattern of 1958 in Wyoming. Potato psyllid was found at Pine Bluffs, Torrington, Wheatland and Powell-Cody in Wyoming in 1959. Counts per 100 sweeps at various locations in that State were as follows: June 10 - 1.67 at Torrington on lycium; July 3 - up to 74 on lycium at Wheatland, 12 to 15 at Torrington on potatoes; July 17 - one or less at Powell-Cody; August 7 - 2.2 at Powell-Cody. Counts dropped rapidly in all locations in Wyoming after August 10 and only traces of damage were observed throughout the State. Controls were effective.

For additional information on potato psyllid during 1959, see the special notes on pages 215, 284, 384, 459, 512, 576 and 625 of the CEIR which covers the special surveys of overwintering hosts and the five surveys in the summer breeding areas.

The potato aphids in Maine were summarized as follows: Migration of POTATO APHID (Macrosiphum solanifolii) began in late May in the Aroostook area and BUCKTHORN APHID (Aphis abbreviata), GREEN PEACH APHID (Myzus persicae) and FOXGLOVE APHID (M. solani) began to migrate in early June, with spring migration of all four species nearing completion near the end of June. Populations were very small in June, increasing through July, although numbers were still relatively small, and then began to decline in August. Infestations were spotty and variable. Potato aphid predominated during the season, followed in decreasing order by buckthorn aphid, green peach aphid and foxglove aphid. The fall migration of potato aphid began August 21. Predators, parasites and fungus diseases were important in depressing aphid populations.

LEAF-FOOTED BUG (Leptoglossus phyllopus) averaged 10 per potato terminal in Tangipahoa Parish, Louisiana, in April and did considerable damage. The pest was also light on tomatoes in May, but by mid-June averaged 60 per 100 sweeps, and was present in large numbers on peppers in several areas of Louisiana.

POTATO TUBERWORM (Gnorimoschema operculella) caused considerable damage to fall potatoes in Accomack and Northampton Counties, Virginia; and damaged two potato fields at Beryl, Iron County, Utah, during harvest. In Arizona, light infestations of larvae were found in tubers in Yuma County in June; the first known occurrence of larvae infesting potato tubers in the State. Moths are normally picked up each year in Arizona but not until after potato harvest is completed.

Spotted, local infestations of TOMATO PINWORMS occurred in various parts of Texas.

HORNWORMS (Protoparce spp.) were about normal on tomatoes and peppers in Maryland, with a few heavy infestations requiring controls. In Delaware, eggs were found on pepper foliage in mid-June and by early July larvae were abundant in small plantings and present to common in some large plantings in the State. In late August, larvae were again abundant in untreated pepper fields in Delaware and larvae were

present in most tomato fields. Infestations in Georgia were light on tomatoes but became serious on pimento pepper in Henry County.

The second generation of TOBACCO HORNWORM (Protoparce sexta) was abnormally high in southeastern and south central Indiana on tomatoes; and larvae of TOMATO HORNWORM (P. quinquemaculata) were common in untreated tomato fields in Tippecanoe County, Indiana, late in the season but not as abundant as tobacco hornworm. Parasitism of tobacco hornworm in Indiana by Apanteles congregatus ranged from 50 to 100 percent. Damage to tomatoes by tobacco hornworm was severe in Tippecanoe County, both from the viewpoint of fruit injury and defoliation. Tomato hornworm was active over Kansas during the season as indicated by light trap collections.

Infestations of hornworms were normal on tomatoes and potatoes in Utah, present in Colorado on tomatoes and a minor problem in tomato and chili fields in New Mexico where adequate controls were used.

SALT-MARSH CATERPILLAR (Estigmene acrea) caused moderate damage to potatoes in the Buxton area of Maine during August.

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) infestations in the Eastern States were light to moderate on tomatoes in Georgia; generally under control in large commercial plantings of tomatoes and potatoes in Delaware but were very destructive to small plantings from the first of June to the end of August; light to moderate on commercial plantings of tomatoes and potatoes in Maryland; and a minor problem on potatoes and tomatoes in Virginia. The first adults were observed during the first week of May on potatoes and tomatoes in Delaware and the last week of May in Rhode Island, with larvae becoming abundant the week of June 22 in Rhode Island.

Infestations of Colorado potato beetle in Texas were spotted and local, as was the damage in Weber and Davis Counties, Utah. In North Dakota, infestations were generally light, with slight increases over 1958 noted in Pembina County. Some late-treated potato fields in Grand Forks, Walsh and Pembina Counties, North Dakota, were seriously damaged.

Unusually large numbers of Colorado potato beetle adults overwintered in Washington. Emergence started the last of April in the eastern area of that State and extensive larval feeding damaged potatoes from late May until mid-September. In Idaho, unusually large populations developed in potato fields in the south central and eastern areas during June and July, with severe damage being reported in some areas. Populations in Latah County were much higher than noted in previous years.

THREE-LINED POTATO BEETLE (Lema trilineata) caused considerable concern and some damage locally in potato fields in Rhode Island; and adults of the species were present on potatoes in Sussex County, Delaware, in early May but they never reached economic proportions in the State during the year. The buildup in Rhode Island has been continuous over a period of time since the discontinuance of DDT in the insecticide program on potatoes. During 1959, adults of the species first appeared during the week of May 25 in Rhode Island and by June 10 many eggs were evident although no hatching had occurred. The hatch began during the week of June 15, with larvae locally abundant until the first pupae was observed July 7. New generation adults first appeared on untreated potatoes July 20.

POTATO FLEA BEETLE (Epitrix cucumeris) adults caused economic damage in several areas. In Rhode Island, adults were abundant and severe on untreated potatoes during late May and early June; and adults became very abundant in some potato fields in New Castle County, Delaware, in June. Adults were also present on tomatoes, beans and peppers in Delaware. Populations were generally light in Ohio, but they became extremely high in North Dakota where counts of 10 to 30 per sweep were common in untreated fields on August 8. Tuber damage from second-generation larvae occurred in some fields of North Dakota. Adults, of what was believed to be potato flea beetle, were light on tomatoes and cucumbers

in Maine during May and were present in only trace numbers during August in the Aroostook area. No reports of appreciable numbers or feeding injury were received in Maine.

TOBACCO FLEA BEETLE (Epitrix hirtipennis) adults were present to common in potato fields during May and early June in Delaware, and populations were below those of 1958 in Nevada even though some defoliation occurred in several fields in Lyon County.

WESTERN POTATO FLEA BEETLE (Epitrix subcrinita) appeared in light to moderate numbers throughout the Willamette Valley of Oregon; and numbers of the species were generally low throughout southern Idaho, with the exception of one potato field in the Parma area where severe damage occurred to potato tubers during August.

TUBER FLEA BEETLE (Epitrix tuberis) appeared in scattered localities in Oregon, being abundant on some potatoes near Corvallis; and second-brood larvae of the species caused extensive damage to potatoes at Yakima, Washington, in July. The pest was also recorded on potatoes in Colorado during the year. The species has yet to be recorded in the Columbia Basin of Washington.

Adults of IMBRICATED SNOUT BEETLE (Epicaerus imbricatus) were very abundant on potatoes in Kent County, Delaware, during early May, causing moderate feeding injury; and they were also present on strawberries in New Castle County.

Moderately heavy infestations of BLISTER BEETLES caused some damage to tomato plants in Lea County, New Mexico, during June.

PEPPER MAGGOT (Zonosemata electa) caused the usual damage to peppers in southern New Jersey.

VINEGAR FLIES (Drosophila spp.) were extremely troublesome at tomato canneries late in the season in Maryland and became abundant in tomato and pepper fields in Sussex County, Delaware, the latter part of August. D. melanogaster ranged from extremely low about August 10 to extremely high by September 7 in tomato fields in Indiana. Considerable damage occurred in some tomato fields in Indiana, with the additional factor of grasshopper feeding scars being excellent oviposition sites for Drosophila spp. D. melanogaster populations in Utah tomato fields were about the same as in 1958, with the heaviest populations originating near orchards in mid-September and early October where substantial fruit drop occurred or culled fruit was discarded. Populations normally decreased in Utah after cool fall weather.

FIELD CRICKETS (Acheta spp.) were reported killing young tomato plants during May near Deming, Luna County, New Mexico.

TOMATO RUSSET MITE (Vasates lycopersici) was encountered in only one field during 1959 in Utah, but losses were reported in tomato fields in Luna County, New Mexico; the first year that the species has been serious in the county.

Insects Attacking Cucurbits: MELON APHID (Aphis gossypii) became numerous in watermelon and cantaloup in Sussex County, Delaware, during mid-August but did not appear to be injurious. Counts were high in home gardens in east central South Dakota and damage to cucumbers, squash and cantaloups was normal in Utah.

SQUASH BUG (Anasa tristis) was present in several squash and pumpkin fields in Delaware, but did not build up to serious numbers. The pest was reported general but less than normal in Utah; and it caused severe damage to melons and squash in Clark, Lincoln and Nye Counties, Nevada. HORNED SQUASH BUG (A. armigera) adults were present to fairly common on watermelon, squash and cantaloup in Kent and Sussex Counties, Delaware, during July and early August.

A FLEAHOPPER (Spanogonicus albofasciatus) was collected from melons in Churchill, Clark and Nye Counties, Nevada, for the first time in 1959. Though this species may have been present in the State for some time, it was not officially reported. In Churchill County, growers attributed excess blossom and young melon drop of cantaloup to this pest.

MELONWORM (Diaphania hyalinata) and PICKLEWORM (D. nitidalis) damaged an estimated 90 percent of the untreated cucumbers in Tangipahoa Parish, Louisiana. Three melonworm adults were taken in argon light traps in Imperial and Riverside Counties, California, in the Colorado River desert area in the late fall. Survey on wild gourds disclosed three larval infestations in the Bard Valley of Imperial County.

PUMPKIN CATERPILLAR (Diaphania indica) was identified from material collected in light traps at Bradenton, Manatee County (1955); Siesta Key, Sarasota County (1957); and Homestead, Dade County (1958). These collections represented the first record of this species in the United States. See CEIR 9(47):1012 for additional information on this pest.

Insects Attacking Crucifers: IMPORTED CABBAGEWORM (Pieris rapae) infestations were general in Delaware, Maryland and Virginia. The pest was numerous to abundant on cabbage in Delaware, causing moderate to heavy feeding injury during late July and again in early October in New Castle and Kent Counties. Damage in Virginia was not as extensive as that caused by cabbage looper, however. In Maine, moderate infestations caused light damage in the Monmouth area in July and in August the pest caused moderate damage to cabbage. Infestations were heavy on cabbage in several southern Georgia counties but about normal in Ohio.

Moderate numbers of imported cabbageworm adults, eggs and larvae were present in southeastern Wisconsin on cabbage in early July. In Columbia County, 72 percent of the insect larvae found on cabbage was this species. Some Outagamie County cabbage fields had high populations ranging from newly hatched to mature larvae and this same condition existed in Racine and Kenosha Counties, Wisconsin, in early August. At the end of August, however, populations were completely destroyed by disease.

Infestations of imported cabbageworm were recorded as heavy on cabbage at Corrales, Sandoval County, New Mexico, during September; normal in Utah; consistent on broccoli and cauliflower in Oregon; and not a problem in northwestern Washington. The populations were slightly more abundant than in 1958 in Oregon and controls were indicated in most Willamette Valley broccoli fields the week of August 17.

SOUTHERN CABBAGEWORM (Pieris protodice) was reported heavy on turnips at Shongaloo, Louisiana; apparently the first record of the species in the State.

DIAMONDBACK MOTH (Plutella maculipennis) infestations were light to moderate on cabbage in Georgia and they damaged cucurbits in Virginia but not as extensively as did cabbage looper. Larvae of this species were very common to fairly abundant in Delaware and caused light to moderate feeding injury to turnips, horseradish and cabbage in Kent County toward the middle of June. In Columbia County, Wisconsin, about 12 percent of the insect larvae found on cabbage was this species. The pest was also reported as being present in relatively low numbers in Oregon but slightly more abundant than in 1958 in the Willamette Valley, and diamondback moth was light on cabbage and cauliflower during February and March in Arizona but not heavy enough to require controls.

HORSERADISH FLEA BEETLE (Phyllotreta armoraciae) adults were abundant and caused heavy feeding injury to horseradish foliage in New Castle County, Delaware, the first of July. In Maine, what was believed to be CABBAGE CURCULIO (Ceutorhynchus rapae), caused light injury to cabbage in the Boothbay area in July; and CABBAGE SEEDPOD WEEVIL (C. assimilis) was damaging to untreated fields in Washington. This latter pest has remained stable in Washington since the current chemical controls started in 1948.

HARLEQUIN BUG (Murgantia histrionica) was numerous and became a problem in several states west of the Mississippi River during the year. Heavy populations on cabbage and related crops were reported in eastern and southeastern Arizona; throughout New Mexico, especially Valencia and Lea Counties; the Winter Garden area of Texas; and southeastern Nebraska. Populations in Oklahoma were the heaviest in several years and caused extensive damage to home gardens during May and June. The pest was also unusually heavy in Kansas during July and was reported being present in gardens in South Dakota, as well as causing losses to cabbage in Colorado. The pest was recorded in Minnesota for the first time in 1959 and was also recorded in Wisconsin during the year.

CABBAGE APHID (Brevicoryne brassicae) infestations ranged light to heavy on cabbage in Georgia and were important on cabbage, kale and collards in Virginia. Colonies were very abundant in a few cabbage fields during May in Sussex County, Delaware; and during early July and early August, colonies ranged from present to fairly abundant on cabbage and broccoli in Kent and New Castle Counties. In Wisconsin, populations were heavy on some plants in Jefferson County and numbers were light to moderate in Racine and Kenosha Counties in late August.

In the southwestern area of the country, light to moderately heavy cabbage aphid infestations damaged cabbage in Bernalillo, Otero, Sandoval and Lea Counties, New Mexico; and infestations were medium to heavy during late March in the central and southwestern areas of Arizona on cole crops. The populations remained heavy in Arizona until the hot summer weather.

In the Northwestern States, infestations of this aphid were not a problem in northwestern Washington and adults were scattered over new transplantings of broccoli and cauliflower in the Woodburn area of Oregon in late July.

TURNIP APHID (Rhopalosiphum pseudobrassicae) was important on turnip and mustard during 1959 in Virginia.

CABBAGE MAGGOT (Hylemya brassicae) infestations were moderate and damage light in the Monmouth area of Maine in July; and the species was reported to have destroyed 50 to 75 percent of the untreated cabbage, turnip and radish plantings in Illinois. Much of this damage in Illinois could have been averted by timely use of controls. Some growers reported poor control with insecticides. Field observations in Illinois indicate possible resistance to recommended chemicals in some areas. Damage in Wisconsin was about as severe as in any year in the last decade. The larval stage was present on June 1 in southeastern Wisconsin. In Washington, large acreages of turnips, rutabagas, cabbage and cauliflower were totally destroyed in King County despite soil treatments and multiple sprays with chlorinated hydrocarbons. A tremendous adult population was present in September in Washington and a high level of resistance has developed to both chlorinated hydrocarbons and organic phosphates.

Insects Attacking Beans and Peas: PEA APHID (Macrosiphum pisi) was most important in the pea-producing State of Wisconsin during 1959. In this State, it was first observed in peas on May 20 in Sauk County. Counts were low in peas in southern areas of the State on June 12 and none were found in St. Croix and Polk Counties; however, on this date average counts were higher in Kewaunee, Sheboygan and Manitowoc Counties, where some control was necessary. Populations increased markedly in late peas during early July in Wisconsin and control became general in the southern area. Treatments were at a higher level in 1959 than in 1957 or 1958. Aphid parasites were noted in many instances.

In the Eastern States, pea aphid was about normal on peas in Maryland, being well controlled on commercial acreages; and never reached economic proportions on peas in Delaware even though a buildup began in May. Infestations of peas in Virginia were important, however.

In the Western States, pea aphid injury to canning peas was light in Utah and populations were generally much below those of 1958 in the northern pea fields of Idaho. In Oregon, infestations in the eastern area were light on commercial peas during May, but they became increasingly numerous during the season along with other aphids in the State. Pea aphid began to leave alfalfa during May in Washington but few had entered pea fields by mid-May. Populations in Whitman County peas were low during June, with less treatment than in the previous five years. Most late peas in the Walla Walla area were treated and all peas in Skagit County were treated, with infestations being severe where skips were made in the fields. Very little incidence of virus was observed in the Walla Walla area. Pea aphid began to appear abundantly in pea fields near Ruebens, Idaho, during July, but damage was not extensive since predators and parasites appeared to keep populations under control.

BEAN APHID (*Aphis fabae*) colonies were found in early June on snap beans in Sussex County, Delaware, and by mid-June colonies were fairly common. In early July, very heavy infestations were found on beans and in mid-August infestations remained heavy in some lima bean fields. In Oregon, infestations appeared earlier than normal, with numbers far above normal on beans. The insect became abundant shortly after the first of June, but was then held back by a fungus disease. Extensive infestations were again noted in late June and July in Oregon, especially in Washington County, with colonies building up steadily in central and southern Willamette Valley. In Washington, new summer colonies developed rapidly on weeds during May in the Puyallup Valley and became abundant on garden beans and other crops by mid-July, some of which required controls.

GREEN CLOVERWORM (*Plathypena scabra*) larvae were fairly common but not serious on beans in Sussex County, Delaware, during September. Larvae also caused noticeable feeding injury to lima beans in the southern area of that State during August.

BEAN LEAF BEETLE (*Cerotoma trifurcata*) adults were more abundant than in 1958 in Delaware, with considerably more damage to several truck crops being observed. In general, adults were common and caused moderately heavy damage to beans during mid-June in Delaware. In the other Eastern States, adults caused moderate to heavy foliage damage to beans on the Eastern Shore of Maryland; were of minor importance on beans in Virginia; and caused noticeable injury on beans in early May in North Carolina which was earlier than ever before in the southeastern counties of that State. In Kansas, bean leaf beetle caused severe injury to beans in the northeastern areas, and spotted, local infestations of this pest occurred in various parts of Texas. Damage to garden beans in Nebraska was moderate to severe in the north central counties in June.

MEXICAN BEAN BEETLE (*Epilachna varivestis*) damaged beans in several areas during the year, appearing to be more abundant than usual in Delaware, Maryland and Utah and causing heavy damage in several other states.

In the Eastern States, moderate infestations of Mexican bean beetle caused light injury to beans in the Monmouth area of Maine during June and July; and the pest was a problem locally in gardens in Rhode Island, building up severely on beans at Smithfield on September 9. Adults and larvae were slightly more numerous than in 1958 in Delaware, with adults common to abundant during early June on beans in Kent and Sussex Counties and larvae being common by late June. Until mid-September, adults and larvae caused moderate injury to beans throughout Delaware, especially in Sussex County. In Maryland, the insect was heavier than usual on commercial and home plantings of beans, and the species caused varying degrees of damage to beans in Virginia. The first adults were seen in Granville County, North Carolina, on April 29, by which time they had already caused severe damage in Duplin County; and infestations of the pest in Georgia ranged from light to heavy on beans but not as damaging as in 1958. Infestations in Ohio were below normal.

Heavy Mexican bean beetle infestations caused damage to bean foliage in San Juan, Torrance and Bernalillo Counties, New Mexico; and the insect was a major pest of beans in Colorado during the year. Damage was above normal in a number of northern and central Utah counties but not as severe as in 1958 in Wyoming, causing an estimated 5 percent loss in 1959 in that State. The pest was found the week of July 3 in southeastern Wyoming (averaging 10 per 100 sweeps) and developed slowly, with counts averaging 2 adults and 29 larvae per 100 sweeps by July 31.

COWPEA CURCULIO (*Chalcodermus aeneus*) infestations in field peas were moderate to heavy in Georgia but more scattered than general. Adults of this species caused one to five spots per pod on untreated green beans in Wake County, North Carolina, by late June.

PEA WEEVIL (*Bruchus pisorum*) required control on canning peas in Utah and has been more abundant but more difficult to control in Washington since 1957 than the 10 preceding years. Mild winters and poor weather during control operations probably helped to cause this situation in Washington. Weevils actively entered fields on warm days June 11 and 12 in Whitman County, Washington, about 5,000 acres being border treated during June. Peas bloomed late in that county during 1959. Movement into hibernation started the first 2 weeks in September in Washington.

PEA LEAF WEEVIL (*Sitona lineata*) populations have been very low for the past 3 years on peas in northwestern Washington, corresponding to the use of weedicide on young plants. The pest first caused noticeable leaf injury to bush beans in the Willamette Valley of Oregon during 1959. Damage was not generally serious, however.

A NITIDULID (*Meligethes nigrescens*) emerged from overwintering quarters about April 3 in Oregon and built up slowly at first. By the end of July, numbers were far above normal, as high as 12 per blossom in many fields of bush beans in central Willamette Valley.

Insects Attacking Beets: BEET WEBWORM (*Loxostege sticticalis*) was a major pest of sugar beets in several of the Great Plains States during 1959. Controls were applied in North and South Dakota, Minnesota, Montana and Colorado. In North Dakota, the infestation was the heaviest experienced in many years in that State. Nearly all beet fields were treated at least once and some three times. The total sugar beet acreage treated was estimated at 72,000 acres in North Dakota. Controls were also applied to 10,000 acres of other crops. In Minnesota, populations of beet webworm were down from those of 1958 but still high enough to require control on most sugar beet acreages; and the heavy infestations of this pest in the western areas of South Dakota required considerable control. In Montana, the species was common in many Yellowstone Valley fields; and controls were applied while larval numbers were generally low in sugar beets throughout Idaho, with damage from feeding relatively minor. Spotted, abundant populations were recorded in Power County, Idaho, during July, however. The expected infestation did not develop in Wyoming, although several flights of moths were noted as well as larvae at scattered locations. A few fields were treated in Wyoming, but the pest was not generally a serious problem as it was in 1958 in that State. In Colorado, this species was a major pest of sugar beets, with three and a partial fourth generation appearing. This pest was also the major insect on lettuce in the San Luis Valley of Colorado during 1959; however, loss to that crop was due to disease rather than insects. The first adults of the season in Idaho were collected May 26 at Parma.

BEEET LEAFHOPPER (*Circulifer tenellus*) appeared to be generally light during 1959, as was the incidence of curly top in beets. The late winter populations and host plant area were low in northern Mexico, southwest Arizona, southeast California, southern Nevada and southern Utah. A statement of outlook was issued in February, and substantiated in April, that the expected movement in late April and May would be approximately one two-hundredth as large as the severe 1958 movement. In Utah, the population on sugar beets averaged 0.2 per row by May 20. Damage to tomatoes, sugar beets, potatoes, beans, cucumbers for pickles, squash and other susceptible crops was light.

Infestations of beet leafhopper and incidence of curly top were relatively light in Texas, with some economic damage on the high plains; and they were the lowest in the last three years in Nevada. In New Mexico, beet leafhopper was present at 60 percent of the stops sampled during the March survey and averaged 11 per 40 square feet. The species was found to be more abundant east and north of Carlsbad, Eddy County, to Clovis, Curry County. Incidence of western yellow blight was much lower than in 1958 in New Mexico. The pest did infest sugar beets in Colorado but was not found in Wyoming during the year.

In Idaho, beet leafhopper populations were generally low in the southwestern counties during early June until the spring migration of adults began to concentrate in sugar beet fields. Adult populations then increased noticeably during July throughout the southern area but numbers appeared below those of previous years. The 1959 spring survey in Oregon was conducted from mid-March to May 6 in Morrow and Umatilla Counties. Observations indicated populations in the Hermiston area to be below normal. Natural host plants were found scarce due to dry conditions, which may have been a big factor in bringing about the low incidence of overwintering forms. The mean population on host plant-plots sampled in Oregon was 0.092 per square foot on the basis of 140 square foot samples. The mean population on sugar beets in that State during early May was 0.117 per linear foot on the basis of 90 linear foot samples. In Washington, an early spring survey of overwintered females gave a mean of 0.02 per square foot, less than one-tenth of the mean found in 1957 or 1958. Beet leafhopper was found at 5 Washington locations and overwintering host plants were scant and a predator (*Geocoris pallens*) was prevalent.

SUGAR-BEET ROOT APHID (*Pemphigus betae*) was numerous in some northern Utah beet fields, reducing the stand and yield in some instances; and scattered infestations in sugar beets ranging from light to heavy occurred in the northern Red River Valley of North Dakota during mid-September, with root injury severe in a few fields.

SUGAR-BEET ROOT MAGGOT (*Tetanops myopaeiformis*) damaged sugar beets for the first time in two or three years in North Dakota in an early planted, treated field near Forest River, Walsh County. Advanced growth of the beets prevented serious yield reduction. Damage by this pest was also reported in the Yellowstone River drainage of Montana.

SPINACH LEAF MINER (*Pegomya hyoscyami*) adults were common to abundant in sugar beet fields in southern Idaho during early June, with oviposition noted about June 15 in the Idaho Falls area. Larval feeding injury was common in most fields sampled, but as usual, the plants generally outgrew the damage. In Ohio, oviposition by this species was heavy on sugar beets in the Milan area of Erie County. Early control measures were effective in preventing an important buildup. Moderate infestations of what was believed to be this species caused severe damage to beets in Cape Elizabeth, Maine, during June.

Insects Attacking Onions: ONION MAGGOT (Hylemya antiqua) destroyed untreated onion fields in Illinois but was very low in Indiana, a usual condition in that State. In Wisconsin, adults were numerous in Racine in late May, with eggs being found near volunteer onion plants. Damage occurred early in that State, severely injuring some untreated fields. A majority were in the pupal stage by June 10 in Wisconsin and adults were observed in mid-July. This species also damaged onions in Colorado during 1959, but disease caused more loss than insects to this crop.

In the Western States, onion maggot was generally light except in Nevada where populations and damage were above the 1957 and 1958 levels. In some Washoe County fields, damage was as high as 15 percent. In Oregon, larval activity started late, being noted during late May and early June in the eastern area, and being extremely light in both the eastern and Willamette Valley areas.

In Washington, spring-brood adults of onion maggot began emerging during the first week of April in the Walla Walla area. Adults were numerous in the Puyallup Valley of Washington during June, with heavy damage noted in the untreated and chlorinated hydrocarbon-treated fields. Adults were much less numerous than in 1957 or 1958 in Washington and no damage to mature onions was noted in the Walla Walla area by harvest, but severe damage to seedling bunching onions and light damage to winter onions was noted. No adults were recovered in insecticide-treated fields in the Columbia Basin where they were numerous in fields planted in onions in 1958. Populations throughout Washington were wiped out by a fungus disease (Entomophthora muscae).

In Idaho, onion maggot populations were very low in the Wilder-Parma area during late May. Onion losses attributable to larvae were estimated below one percent during May. The first-generation pupae were noted on May 25 and first-generation adults emerged by June 2. By late June, approximately 80 percent of the first generation had pupated and onion losses were estimated at below 5 percent in Idaho due to larval attack. Second-generation larvae began appearing in early July but feeding damage was minor. A major factor contributing to the decline of this pest in southwestern Idaho was an abundance of a fungus disease (Entomophthora muscae) which killed large numbers of adults in the field.

ONION THRIPS (Thrips tabaci) damage to onions was reported as being light in Ohio; light to heavy in Winter Garden area of Texas; average in Utah; light to moderate in Lyon and Washoe Counties, Nevada; and requiring control in early July in many onion fields in southeastern Idaho. Infestations also damaged onions in Colorado and a thrips, probably this species, was present in all onion-growing areas of Arizona, averaging 1 to 5 per plant, from mid-February until harvest.

A LESSER BULB FLY (Eumerus strigatus) damaged onions in Colorado; and CLOVER MITE (Bryobia praetiosa) was abundant on the edge of an onion field in Sussex County, Delaware, in mid-May.

Insects Attacking Asparagus: ASPARAGUS BEETLE (Criocerus asparagi) numbers were heavier than usual on commercial and home asparagus plantings in Maryland and were more damaging than usual in 1958 in New Jersey, but not as heavy as in previous years in the latter State. Damage was light to asparagus in the Orono area of Maine during June and similar conditions were present in the Norridgewock area of that State in July. In Delaware, adults were found in late April on young asparagus spears and caused heavy feeding injury. The first larvae were found in mid-May and by mid-June adults were very abundant and caused moderate feeding injury to the ferns in that State. Adults and larvae remained common to abundant in Delaware on asparagus ferns through mid-October in all counties.

Asparagus beetle damage to asparagus in Utah was below normal in the northern and some central counties. Egg deposition was noted in Canyon County, Idaho, during late May and in the northern area of the State in early June. Adult numbers were about equal to those of recent years, with the exception of the American Falls area where adults became extremely numerous in home gardens during August.

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) adults were heavy on asparagus in East Greenwich, Rhode Island, in mid-May; and the pest was more damaging than in 1958 in New Jersey, but populations were not as heavy as in previous years in that State. In Delaware, adults were generally common on asparagus. Damage in Utah was below normal in the northern area and in some southern counties; and moderate defoliation of asparagus was noted in home gardens in Latah County, Idaho, during early July. Adults of this pest also became abundant on asparagus in home gardens in American Falls, Idaho, during August.

ASPARAGUS MINER (Melanagromyza simplex) larvae were common in asparagus from mid-May to early June in Delaware, causing noticeable feeding injury but never in serious proportions.

Insects Attacking Lettuce: BEET ARMYWORM (Spodoptera exigua)* was consistently present in lettuce during the fall in Arizona and required control from September through the November harvest. Counts in untreated fields in Yuma County averaged about 2 larvae per plant in mid to late October. Counts in the central and southeastern areas were generally lower.

An APHID (Nasonovia ribis-nigri) was reported very abundant on lettuce in the Missoula, Montana, area during September and October. This is the first report of the species in the State.

Insects Attacking Sweetpotatoes: SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) infestations are known to occur in Alabama, Florida, Georgia, Louisiana, Mississippi, South Carolina and Texas. New infestations were down 71 percent from 1958 and active infestations were 60 percent less than in 1958 within the control or eradication areas of the infested states. Only Texas and southern Florida are not in the control or eradication work area. Within Texas, spotted, local infestations were reported in various areas during 1959. Inspections in Oklahoma during the year were negative. The actively infested properties within the control or eradication area as of December 31, 1959, were as follows: Alabama - 97; Florida - 468; Georgia - 72; Louisiana - 601; Mississippi - 160; South Carolina - 11.

A WEEVIL (Rhyssomatus palmicollis) was found infesting a limited number of sweetpotatoes in some fields in the east central and southeastern areas of Oklahoma during October and in one county in Arkansas, the first record of this species in Arkansas since 1926. One-third of the sweetpotatoes on one farm were damaged by both adults and larvae in Arkansas.

Limited surveys were conducted for SWEETPOTATO WHITEFLY (Bemisia tabaci) during 1959 in Alabama, Florida, Mississippi, North Carolina, Oklahoma, South Carolina and Texas. Specimens from Texas and Florida were identified as this species. All specimens submitted from the other states surveyed were negative.

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) severely damaged sweetpotatoes near Arnaudville, Louisiana.

*Zimmerman, E. C., 1958, Insects of Hawaii, Vol. 7:339

Insects Attacking Carrots: CARROT RUST FLY (Psila rosae) control in Washington was obtained during 1959 with one of the newer phosphate insecticides; resistance to some other materials was first noted in 1958 and now involves 500 acres in the Sammamish Valley. CELERYWORM (Papilio polyxenes asterius) remained a minor pest of carrots in Delaware, causing very light injury in New Castle County. TULIP BULB APHID (Anuraphis tulipae) was present in carrots throughout the early spring in Arizona and became very heavy during April in the central area of the State.

Insects Attacking Mint: Populations of a MINT LOOPER (Rachiplusia ou) were quite low during the summer in Indiana, with a few fields being damaged somewhat in mid-July, about a month later than normal.

Insects Attacking Hops: HOP APHID (Phorodon humuli) appeared 3 weeks earlier than in 1958 in Oregon and was well distributed in Marion County hop yards. OMNIVOROUS LEAF TIER (Cnephasia longana) was found in hops in Marion County, Oregon, in May.

Insects Attacking Small Berry Truck Crops: ROSE STEM GIRDLER (Agrilus rubicola) damaged a number of raspberry patches in Utah, Box Elder, Salt Lake and Davis Counties, Utah; and RED-NECKED CANE BORER (A. ruficollis) attacked raspberry in Wake County, North Carolina, with Latham variety being the most susceptible variety.

RASPBERRY ROOT BORER (Bembecia marginata) injured raspberry plants in the Boonsboro area of Washington County, Maryland, during June; and the pest damaged a number of raspberry patches in Utah, Box Elder, Salt Lake and Davis Counties, Utah. In Oregon, the species was present in normal numbers, with 14 percent of the eggs hatching by October 25 and 46 percent by November 8 in Marion County.

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) larvae killed some new raspberry plants in Utah and also damaged a large number of red currant canes at Huntington, Emery County; and the pest infested many dewberry and raspberry canes at Providence, Cache County, Utah. The species was not abundant this year in Oregon and was of no particular problem.

STRAWBERRY LEAF ROLLER (Ancylics comptana fragariae) was quite a problem in strawberries in the southeastern area and on the Eastern Shore of Virginia during 1959; and the pest caused damage where control measures were not applied in Kansas. The species was common in eastern Montana, and this pest was one of several species that caused above normal injury in north central Utah communities. In Idaho, populations averaged near normal in strawberry plantings throughout the State during the year, except in the Grace area where many plants were severely damaged during late June; and strawberry leaf roller was severe in small plantings in Whitman County, Washington. Pupation occurred the last week of June and adults emerged the second week in July in Washington. OBLIQUE-BANDED LEAF ROLLER (Archips rosaceana) was not a general problem in Oregon, having been present in noticeable numbers in only one or two untreated raspberry fields.

STRAWBERRY WEEVIL (Anthonomus signatus) was a problem on strawberries in several states. Damage was normal in New Jersey, but the species was above normal in abundance on the Eastern Shore of Maryland and was a problem in the southeastern and Eastern Shore areas of Virginia. The pest was also a problem in old strawberry plantings in Minnesota. Large numbers of ALFALFA WEEVIL (Hypera postica) adults were observed feeding on strawberry fruit in Orange County, North Carolina, during early May.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) populations have been very low in Washington since soil treatments were started commercially in 1953 and the species was not a pest during 1959 in Oregon, being adequately controlled by growers using the approved methods. Damage to strawberries in Idaho was near normal in 1959 except at Middleton where heavy infestations caused considerable damage to a small patch late in May. BLACK VINE WEEVIL (B. sulcatus) was of no importance in Oregon and populations have been very low in Washington since soil treatments were started commercially in 1953. In Utah, a strawberry weevil (B. rugosotriatus), and sometimes black vine weevil, frequently damaged untreated strawberry patches in the central and northern areas of the State, with local injury to roots of raspberry, some other fruits and occasionally roses. Black vine weevil killed out many stone fruit trees in an experimental greenhouse at Logan, Cache County, Utah. Another WEEVIL (Nemocestes incomptus) is getting worse in northwestern Washington on strawberry, with the first serious infestation being reported in Skagit County. Soil fumigants gave control, however. A ROOT WEEVIL (Sciopithes obscurus) was also found injuring a strawberry field in Columbia County, Oregon, in June.

Larvae of a BEETLE (Colaspis sp.) were reported killing strawberries in a field in Wake County, North Carolina, in late July. A SAP BEETLE (Lobiopa insularis) started moving into strawberry fields from hibernation areas in mid-March in Louisiana and by the end of April large populations were present in some fields in Tangipahoa Parish.

ROSE LEAFHOPPER (Edwardsiana rosae) was about normal on blackberries in Washington, but MEADOW SPIITLEBUG (Philaenus leucophthalmus) populations were the highest for the past four years in Door County, Wisconsin, strawberries. An unusual outbreak of WHITEFLIES was reported on strawberries in Connecticut during the year. NEGRO BUGS were abundant in strawberry fields in Tangipahoa Parish, Louisiana.

Several APHIDS were reported on strawberries or raspberries during the year. Amphorophora sensoriata infested raspberry plantings in Allegany County, Maryland, in early July. Myzus ascalonicus was not a problem in western Oregon in 1959 but scattered light populations of this species were recorded in Skagit, Snohomish and Whatcom Counties, Washington, during mid-May. M. ascalonicus was first noted on strawberries April 23 in Washington. STRAWBERRY ROOT APHID (Aphis forbesi) was found on strawberries in mid-May in Delaware, and STRAWBERRY APHID (Pentatrichopus fragaefolii) was present in unusually large numbers in the Willamette Valley of Oregon. The peak abundance of this species was observed from May 25 to June 15 in Oregon, with no winged forms noted after about July 15. FOXGLOVE APHID (M. solani) was also locally abundant on strawberries in the northern area of Oregon in mid-April.

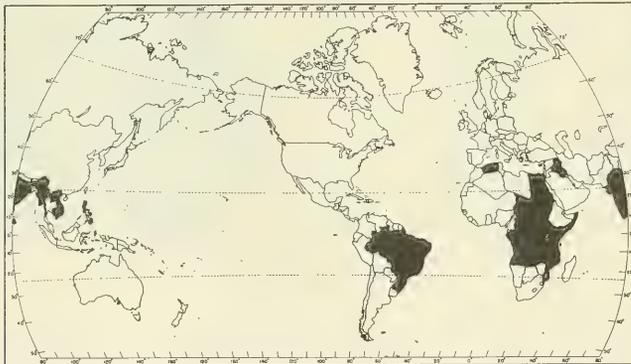
CYCLAMEN MITE (Steneotarsonemus pallidus) was generally light to moderate on strawberries throughout Maine in June, with light to moderate damage. Good control was obtained in cases where insecticides were applied in the fall of 1958. A moderate to outbreak level was also reported in all areas of Twin County, Maine, in July, with moderate damage. In Wisconsin, mites and their damage were present on a large percentage of the strawberry acreage. This species was troublesome in Washington but effective controls kept damage low. The buildup began in mid-August in untreated strawberry fields in Marion and Yamhill Counties, Oregon, but although 7 new infestations were found, the buildup was considered much less than in 1958 by the end of September. A spider mite, probably STRAWBERRY SPIDER MITE (Tetranychus atlanticus), was quite a problem in strawberries in southeastern and Eastern Shore areas of Virginia during the year.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

COTTONSEED BUG (Oxycarenus hyalinipennis Costa)

Economic Importance: This lygaeid attacks the seed of cotton in the field as the bolls open. Weight loss in cottonseed in Egypt has been estimated at 2.5 to 15 percent, annually. Severe infestations in that country may cause loss of vitality in as much as 3/4 of the seed. Staining of the lint also occurs. Populations build up to high levels in Egypt and the Sudan. Several other African countries report the insect as being of some economic importance. In Brazil, observations indicate the insect is generally a minor pest of cotton, but it can become a nuisance problem in stored unginned cotton. O. hyalinipennis has been occasionally intercepted at U. S. ports of entry.

Distribution: Africa (Tanganyika, Sudan, Algeria, Angola, Belgian Congo, Egypt, French Equatorial Africa, Somaliland, Kenya, Nyasaland, Mozambique, Northern Rhodesia, Uganda), Cyprus, Brazil, Burma, Ceylon, India, Indochina, Iraq, Philippines.

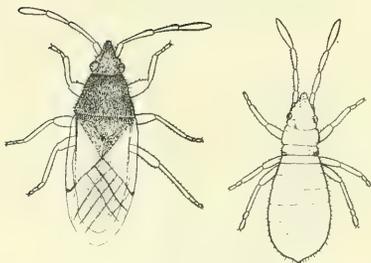


General Distribution of Oxycarenus hyalinipennis

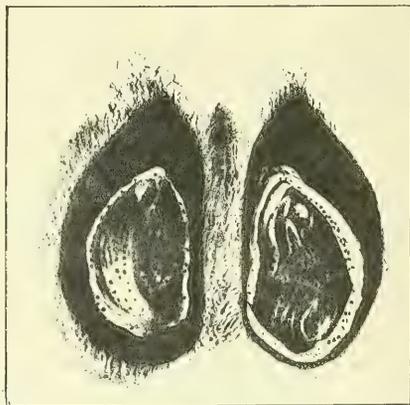
Hosts: Cotton, abutilon, kenaf, okra, hollyhock, hibiscus and other Malvaceae. Also recorded on Brachychiton populneus.

Life History and Habits: In Egypt copulation and oviposition commence when the first cotton bolls open. Eggs are laid usually in the lint, sometimes on green bolls. Each female lays about 20 eggs. Hatching occurs in about 4 days. All stages feed on the seed. The life cycle may be complete in 20 days. There are 3 to 4 generations annually. The insect hibernates in the adult stage in grass and weed or other such shelter. Although the overwintered adults appear in young cotton, breeding does not take place until the bolls are ripe. In heavy infestations, populations build up to enormous numbers. As many as 749 adults and nymphs have been recorded in a single boll.

Description: Newly emerged ADULT pale pink but rapidly turns black. Length of male about 3.8 mm., female 4.3 mm. Male abdomen terminates in round lobe, while that of female is truncate. The insects have three tarsal joints and a pair of ocelli. Hemelytra are hyaline, clavus and base of cuneus and embolium denser than rest. Setae of 3 different types; more or less erect, stiff hairs, blunt at tip terminating in 4 to 7 small teeth; normal straight tapering hairs; and very thin curved flat-lying tapering hairs. Head and thorax of NYMPHS brownish-olivaceous, abdomen pinkish. Fourth instar darker brown on head and thorax, wing-buds distinct, overlapping sides of white metathorax. EGG oval 0.95 x 0.28 mm., striated, pale yellow becoming pink. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 10(11):3-11-60.



Adult and Nymph of
Oxycareus hyalinipennis



Severely Attacked Cotton Seed

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE



VOL. 10 NO. 12

MARCH 18, 1960

SB
823
C77
Ent.

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 of Insect Conditions

PEA APHID infestations medium to heavy on alfalfa in areas of Arizona; and EGYPTIAN ALFALFA WEEVIL infestations medium in alfalfa on Yuma Mesa in Arizona and in El Centro area of California. (p. 183).

GREEN PEACH APHID troublesome on several truck crops; being reported in Florida, Arizona, California and Louisiana. (p. 185).

WESTERN PINE BEETLE and *Ips* spp. causing severe damage on ponderosa pine in Sierra foothills of California. (p. 185). A PINE MIDGE (*Retinodiplosis inopis*) damaging pines in areas of California; and FOREST TENT CATERPILLAR is expected to be serious in 1960 on American sweetgum and water tupelo in Baldwin and Clarke Counties, Alabama. (p. 186).

ADDITIONAL NOTES. (p. 189).

INSECT DETECTION: Smaller European elm bark beetle recorded for the first time in Washoe County, Nevada (p. 187); and olive scale recorded in Tehama County, California, for the first time (p. 184).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1959

Cereal and Forage Insects

Grasshoppers - (p. 191).

Corn and Sorghum Insects - (p. 195).

INSECTS not known to occur in the United States. (p. 207).

WEATHER OF THE WEEK ENDING MARCH 14

Record late season cold weather persisted from the Great Plains to the Atlantic coast this week. Weekly temperature departures were much below normal over all sections of the Nation, except small areas of northern New England and southern Texas, and from the Pacific coast through the Plateau States to the central and southern Rocky Mountains and extreme western Great Plains.

Weekly average temperatures more than 15° below normal were recorded in the large area from the Dakotas and Kansas to New Jersey and Georgia, as extremely cold air covered this region for the fourth or fifth consecutive week. Record low temperatures for so late in the winter were reported from Michigan, Indiana, Kentucky, the Virginias, and the Carolinas, and low temperature records for specific dates were set at numerous stations in several other adjacent states. Minimum temperatures have been below freezing every day in March as far south as North Carolina, and freezing temperatures extended southward to scattered areas near Lake Okeechobee in Florida early in the week. In contrast, average temperatures were much above normal from Arizona and southern Nevada to extreme western Texas, with maxima reaching above 80° on most days.

Along the Pacific coast substantial precipitation fell as far south as northern California with heavy rains along the coast late in the week following earlier rain and snow. Precipitation in the central and northern Plateau States was generally light to moderate with some locally heavy snows in the mountains slowly reducing the moisture deficit. Moderate to heavy precipitation, generally falling as snow, extended from the central Missouri Valley southeastward to the Ohio and central Mississippi Valleys and portions of the Southeastern States. The heaviest March snow of record for Kentucky left 14 to over 20 inches of new snow in southern sections, 12 to 16 inches in the central portion, and 4 to 8 inches in the north, while parts of Tennessee received 10 inches or more; an average of 13 inches fell in southern Indiana, and several inches of new snow fell in western North Carolina and Virginia where unofficial totals of near 3 feet of snow have been reported this month, isolating several communities. Frequent snowfall in the central Great Plains and Mississippi Valley brought weekly totals of over 10 inches to scattered areas from South Dakota and Iowa to Kansas and Missouri. Snow extended southward to Arkansas, northern Georgia, and South Carolina and eastward into the Middle Atlantic States, with 3 to 14 inches of new snow in Maryland and 2 to 4 inches in southwestern Pennsylvania and Ohio. New York recorded the lowest weekly precipitation since the last week in December and precipitation was very light in New England, except for moderate to heavy snow in central and eastern Maine. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - LOUISIANA - Populations not large enough to obtain counts per foot in 4 fields of oats in East Baton Rouge Parish. However, counts ranged 0-3 per 10 sweeps with an average of less than 1 per 10 sweeps. (Spink). OKLAHOMA - Light to medium infestations continue to be noted in southeastern and south central areas. Counts averaged 80 per square foot in field of volunteer oats in Choctaw County. (Goin). Counts ranged 1.5-80 per linear foot (averaged 22 per linear foot) in 5 of 6 fields of small grain in the south central area. (Vinson). None noted in 3 fields of small grain checked in Blair area of Jackson County. (Presgrove). Populations remain relatively unchanged in infested fields in Payne County despite persistent inclement weather during past 2 weeks. (VanCleave).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Infestations medium and increasing in central and southwestern area barley. (Ariz. Coop. Sur.). OKLAHOMA - Counts averaged 2.5, 2.5 and 3 per linear foot in 3 fields of oats in south central area. (Vinson). Medium infestation (50 per linear foot) noted in a field of oats in Tillman County. (Hatfield).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Populations, although light, were apparently unaffected in the State despite inclement weather during the past 2 weeks. Counts ranged from 0.5-15 per linear foot (averaged 5.6 per linear foot) in 4 of 6 fields of small grain checked in the south central area. (Vinson). Counts continued at approximately the same level as those recorded 2 weeks ago in a wheat field checked in Payne County. (VanCleave). None noted in 3 fields of small grain checked in Jackson County. (Presgrove).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Counts averaged 2 per linear foot in a wheat field in Marshall County. (Vinson).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Light to moderate infestations in alfalfa in southern Eddy County. (N. M. Coop. Rpt.). OKLAHOMA - Populations continued at a noneconomic level in 3 alfalfa fields checked in Choctaw County. (Goin). None noted in alfalfa field checked in Jackson County. (Presgrove).

PEA APHID (Macrosiphum pisi) - ARIZONA - Infestations medium to heavy in Yuma County alfalfa and medium in some central Arizona fields. (Ariz. Coop. Sur.). OKLAHOMA - Light populations (less than 5 per square foot) continued to be noted in 3 alfalfa fields checked in Choctaw County. (Goin). None noted in alfalfa field checked in Jackson County. (Presgrove).

ALFALFA WEEVIL (Hypera postica) - COLORADO - None found as of March 10. (Colo. Ins. Sur.).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Medium to heavy infestations damaging alfalfa on the Yuma Mesa in Yuma County. Counts of larvae and adults average 3 to 4 per sweep. (Ariz. Coop. Sur.). CALIFORNIA - General heavy infestations on alfalfa in the El Centro area, Imperial County. (G. D. Peterson).

CLOVER LEAF WEEVIL (Hypera punctata) - CALIFORNIA - Light infestations in alfalfa in Chico, Butte County. (Cal. Coop. Rpt.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - LOUISIANA - Averaged 10 adults per 100 sweeps in clover in St. John the Baptist Parish. (Spink).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Heavy infestations present in some Yuma County alfalfa fields, particularly on the Yuma Mesa. (Ariz. Coop. Sur.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - FLORIDA - Surveys of 113 sites in Manatee, Sarasota and Sumter Counties in the central area during February were negative. (Fla. Coop. Rpt.).

FRUIT INSECTS

APHIDS - UTAH - Eggs extremely numerous in home orchards at Corinne and moderately numerous near Brigham City on apples, Box Elder County. (Knowlton).
NEW MEXICO - Eriosoma lanigerum heavy on apple trees at Mimbres, Grant County. (N. M. Coop. Rpt.). COLORADO - Eggs of Myzus persicae ranged 0-2 per 100 buds on peach trees. (Colo. Ins. Sur.).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Heavy infestation on avocado trees in Reedley, Fresno County. (Cal. Coop. Rpt.).

OLIVE SCALE (Parlatoria oleae) - Heavy infestation on prune trees in Richfield; the first record in Tehama County. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - TEXAS - Light infestations reported in Erath County. (Garner).

A FRUIT TREE MITE (Bryobia rubrioculus) - NEW MEXICO - Eggs very abundant on underside of branches of apple trees along Mimbres River in Grant County. (N. M. Coop. Rpt.).

HICKORY SHUCKWORM (Laspeyresia caryana) - TEXAS - Heavy infestations pupating in pecan shucks in Coryell County. (Garner).

Citrus Insect Situation in Florida - End of February - PURPLE SCALE (Lepidosaphes beckii) activity and populations are very low throughout the State and will continue to be low through March. FLORIDA RED SCALE (Chrysomphalus aonidium) activity is holding at a low level and will remain in the low range through March. Populations will increase in April but will generally be below normal during the spring. All districts are below average in activity at the present time. CITRUS RED MITE (Panonychus citri) - February rains have been a factor in keeping activity at a low level. Although an increase is expected the latter part of March, populations generally will continue below average during March and April. All districts have a few groves where mites are abundant. Moderate activity is present in the Bartow, upper east coast and Brooksville districts. CITRUS RUST MITE (Phyllocoptruta oleivora) activity dropped out of the high range during the last week of February but is still well above average for this time of year. A gradual decrease is expected during March. Highest activity is in the Bartow, west coast and Ridge districts. Groves should be checked in all districts and controls applied where rust mites are numerous. TEXAS CITRUS MITE (Eutetranychus banksi) is present in 18 percent of groves checked. Less than one percent have heavy infestations. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) has been observed in 9 percent of the groves, which is near the average percentage for this time of year. (Simanton, Thompson, Johnson (Citrus Exp. Sta., Lake Alfred)).

FRUIT FLIES - FLORIDA - During the month of February, 7,572 combination and 463 MEXICAN FRUIT FLY (Anastrepha ludens) traps were in operation in 45 counties in Florida. No specimens of fruit flies of economic importance were trapped during the month. One specimen of MEDITERRANEAN FRUIT FLY (Ceratitis capitata) was caught aboard a ship while in the port of Tampa on January 29, by Plant Quarantine Division, ARS, personnel. Fruit fly trapping was intensified in this particular area as soon as advised of the positive find. (Fla. Coop. Rpt.).

ROSE SCALE (Aulacaspis rosae) - CALIFORNIA - Medium infestation of berry vines in Orange Cove, Fresno County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Populations have been abundant this season on potatoes in south Dade County. They were more abundant over a shorter period of time in 1959, perhaps. They seem fewer this season but linger longer. (Wolfenbarger, Mar. 3). ARIZONA - Infestations becoming heavy in central area sugar beets. Light infestations also present on lettuce statewide and large numbers of winged forms in the air in all areas. Sticky-board collections during the period February 29 to March 7 at various locals were as follows: Mesa - 69; Kyrene - 39; Waddell - 3; Glendale - 49; Deer Valley - 39. (Ariz. Coop. Sur.). CALIFORNIA - Low populations on sugar beets and spinach in Yolo County. Growers treating border rows of spinach adjacent to sugar beet plantings. (V. Stompler, Cal. Pac.). Severe on sugar beets in El Centro area, Imperial County. (G. D. Peterson). LOUISIANA - Light to moderate infestations occurred on collards in St. John the Baptist Parish. (Spink).

APHIDS - ALABAMA - Damage to turnips heavy in Mobile County during February. Species probably Pemphigus populi-transversus, (Lockhart, Seibels). LOUISIANA - Light to moderate infestations of Rhopalosiphum pseudobrassicae occurred on turnips in St. John the Baptist Parish. The turnips were in process of being harvested. (Spink). CALIFORNIA - Building up on strawberries sufficiently to require controls; principally Pentatrachopus fragaefolii. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Infestations serious in Orange County, especially in strawberry fields planted in August of 1959. Plantings made in November and December 1959 are still free of mites. (R. E. Campbell).

A MITE (Tyrophagus dimidiatus) - CALIFORNIA - Light populations now occurring in scattered areas in many fields of spinach. This mite built up to damaging populations in 1959 on spinach in the Delta region. (V. Stompler, Cal. Pac.).

A SPIDER MITE (Tetranychus cinnabarinus) - ARIZONA - Light infestations present on sugar beets in central area and on young tomatoes in Yuma County. (Ariz. Coop. Sur.).

A LEAF ROLLER (Platynota stultana) - ARIZONA - Light to medium infestations of larvae and adults present in some central area sugar beet fields. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - FLORIDA - Present on potatoes, cabbage and other crops in south Dade County. (Wolfenbarger, Mar. 3). LOUISIANA - A field of new cabbage in St. John the Baptist Parish appeared to be in excellent condition. No insects found and less than 1 percent of plants showed insect damage. (Spink).

A SERPENTINE LEAF MINER (Liriomyza sp.) - FLORIDA - Infestations present on potatoes, tomatoes, etc., at Homestead, Dade County. This species has been about as abundant as usual. They appear to be dying out now, due perhaps to enemies. (Wolfenbarger, Mar. 3).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - ALABAMA - Damage to turnips severe in Mobile County during February. (Lockhart, Seibels).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - This species and Ips spp. are causing severe damage in 6 specific outbreaks in Nevada, El Dorado and Placer Counties on ponderosa pine in the Sierra foothills. Groups up to 25 completely killed and many such groups scattered through the areas. (Placer Ranger Unit, D. Dotta, H. Meyer).

CALIFORNIA FIVE-SPINED IPS (Ips confusus) - CALIFORNIA - Causing between 2-4 percent mortality of Coulter pine crowns in the Trobucko Canyon area along Indian Canyon Ridge in Orange County. (Cal. Coop. Rpt.).

BARK BEETLES - ARKANSAS - The destructive ice storm which occurred across the southern half of the State can result in a potentially dangerous situation when Ips spp. and Dendroctonus terebrans activity begins. Some D. terebrans activity has been reported and an increase in activity may be expected in roots and stumps of severely damaged trees. (Ark. For. Pest Rpt., Mar. Rpt.).

BLACK PINE LEAF SCALE (Aspidiotus californicus) - CALIFORNIA - Severely damaging single trees in one township in Yola Bolla district of Shasta County. This species was active in several districts in 1959 and became quite severe to the extent that some trees were killed outright. (C. Lewis).

AN APHID (Cinara ponderosae) - CALIFORNIA - Heavy population occurring on pine trees on a property in Porterville, Tulare County. (Cal. Coop. Rpt.).

DOUGLAS-FIR TWIG WEEVIL (Cylindrocopturus furnissi) - CALIFORNIA - Young Douglas-fir in a 12-acre Christmas tree planting in Sonoma County showing top kill and flagging. (W. D. Shaw).

A PINE MIDGE (Retinodiplosis inopis) - CALIFORNIA - Causing considerable terminal kill on pine trees in the Prairie area in Jackson State Forest and Mendocino County. (Cal. Coop. Rpt.).

FLATHEADED BORERS - CALIFORNIA - Heavy larval infestations of Chrysobothris sp., probably C. texana, on Arizona cypress in Middletown, Lake County, and Chrysobothris sp. larvae heavy in mountain ash in Chico, Butte County. (Cal. Coop. Rpt.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - ALABAMA - Egg surveys in Baldwin and Clarke Counties on February 8 and 9 showed 10 or more egg clusters per top in large trees of American sweetgum and water tupelo in the S. Carlton oil field area on the Alabama River, north of Stockton on the Tensaw River and across from Fort Stoddard on the Mobile River. Complete defoliation is expected again in 1960. This is part of an area of 80,000 acres which was seriously defoliated in 1958 and 1959. Important growth losses have resulted. (Morris, So. For. Exp. Sta.).

A CLEAR WING MOTH (Ramosia sp.) - CALIFORNIA - Heavy larval infestation in oak tree bark in Santa Barbara, Santa Barbara County. Species probably R. resplendens. (Cal. Coop. Rpt.).

GROUND MEALYBUG (Rhizoecus falcifer) - CALIFORNIA - Heavy ground population in Aptos, Santa Cruz County; and Rhizoecus sp. heavy and infesting commercial African violets in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

GREEN SHIELD SCALE (Pulvinaria psidii) - TEXAS - Light infestation reported in a greenhouse in Tarrant County. (Garner).

AN ARMORED SCALE (Parlatoria camelliae) - CALIFORNIA - Heavy population on camellia in Corning, Tehama County. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - OKLAHOMA - Medium infestation noted on some flowering quince checked in Stillwater. (Drew).

A POWDER POST BEETLE (Trogoxylon prostomoides) - CALIFORNIA - Heavy adult populations occurring on bamboo in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Calacarus adornatus) - CALIFORNIA - Heavy populations occurred on camellia in Oroville, Butte County. (Cal. Coop. Rpt.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEVADA - Specimens now emerging in the laboratory from elm collected in Reno, Washoe County, in the fall of 1959 are this species. This is the first record of this species in Washoe County and the second in the State. The other known infestation is in Las Vegas, Clark County. (Bechtel, Lauderdale).

FALL WEBWORM (Hyphantria cunea) - OREGON - Adults are emerging and causing concern to home owners in the Salem area. An unusually heavy infestation of this insect in 1959 resulted in some caterpillars finding their way into homes, and apparently pupating there. (Larson).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE LICE - UTAH - Some cattle infested in Bear River City-Corinne area of Box Elder County; cattle rubbing devices common. Infestations severe in some Kane County ranch herds; moderate to severe in Duchesne and Uintah County herds; and cattle rubbing in some northern Davis County areas. (Knowlton).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Counts averaged 6 grubs per animal on 7 infested mature cows of 75 checked in a community sales barn in Bryan County. (Vinson).

CATTLE GRUBS (Hypoderma spp.) - NEVADA - Greatly reduced over previous years, with untreated animals averaging 1 or 2 per head. (Lauderdale).

SHEEP BOT FLY (Oestrus ovis) - TEXAS - Averaged 25 larvae in each sheep in a control experiment conducted at Texas Agricultural and Mechanical College on 5 sheep. (Galvin).

STORED-PRODUCT INSECTS

Stored-grain Insect Survey in Mobile County, Alabama - Survey was made at different intervals during February. ANGOUMOIS GRAIN MOTH (Sitotroga cerealella), INDIAN-MEAL MOTH (Plodia interpunctella), RICE WEEVIL (Sitophilus oryza), FLOUR BEETLES, CADELLE (Tenebroides mauritanicus) and CIGARETTE BEETLE (Lasioderma serricorne) were common in all areas inspected. Large numbers of two unidentified specimens of BEAN WEEVILS were found in sacks of crushed alfalfa. SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), a SPIDER BEETLE and BLACK CARPET BEETLE (Attagenus piceus) were also common. (Seibels, Lockhart, Wallace).

Stored-grain Insect Survey in Grant County, New Mexico - MEALWORMS (Tenebrio molitor and T. obscurus) were light to abundant in old stored grain and old sacks at several properties; CADELLE was light in several grain bins; GRANARY WEEVIL (Sitophilus granarius) was moderately heavy in 2 locations; and SAW-TOOTHED GRAIN BEETLE was light in one location. (N. M. Coop. Rpt.).

KHAPRA BEETLE (Trogoderma granarium) - FLORIDA - Twenty-two inspections were made in 10 counties, principally in the central area, by State Plant Board and PPC personnel in February. Six collections of grain insects were submitted for identification but all were negative. (Fla. Coop. Sur.).

DERMESTIDS (Trogoderma sternale, T. simplex) - CALIFORNIA - Eating honeycomb in Fresno, Fresno County; medium infestation. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

HYMENOPTEROUS PARASITES - OKLAHOMA - Found in very limited numbers in one field of oats in the south central area. (Vinson). None noted in remaining fields of small grains checked throughout the State. (Goin, Vinson, Hatfield, Presgrove, VanCleave).

PREDATORS - OKLAHOMA - None noted in fields of alfalfa and small grain checked in the State. (Goin, Vinson, Hatfield, Presgrove, VanCleave).

MISCELLANEOUS INSECTS

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Heavy population invading a building and annoying people in Siskiyou, Siskiyou County. (Cal. Coop. Rpt.).

A POWDER POST BEETLE - OKLAHOMA - Infesting several new homes in the Payne County area. (Howell).

A PSYCHID (Apterona crenulella) - UTAH - Large numbers attached to walls and below cornices of houses in one area of North Logan, Cache County. (Knowlton).

BROWN-BANDED ROACH (Supella supellectilium) - UTAH - Quite common in Salt Lake City area and present at St. George. (Knowlton). IDAHO - Reported abundant in a home in Twin Falls. (Gibson).

CIGARETTE BEETLE (Lasioderma serricorne) - OKLAHOMA - Infesting several homes in the Payne County area. (Howell).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Total of 5,632 inspections for the period were made in 28 counties. Extensions were found in known infestations in most areas. Initial infestations identified during February involving new townships were found in the following previously infested counties: Gadsden, Manatee, Pasco and Seminole. (Fla. Coop. Sur.).

A WEB-SPINNER (Oligotoma saundersii) - FLORIDA - Adult and immature stages found at High Springs, Alachua County, on March 2 and March 8 by E. M. Collins, Jr. This is a very interesting record and the first State Plant Board record of an embiid infestation in a feed mill. This species feeds chiefly on dead and decaying vegetable matter. (H. V. Weems, Jr.).

A SCALE INSECT (Aonidomytilus hyperici) - FLORIDA - Found on St. Andrews cross (Ascyrum hypericoides) at Glen St. Mary, Baker County, on March 1 by E. W. Holder, Jr. This is the third State Plant Board record of this scale and is also a new host record. This scale was collected for the first time in Florida on Hypericum sp. in Macclenny, Baker County, in November 1922. The second collection was on Hypericum sp. at Monticello, Jefferson County, in December 1939. (Fla. Coop. Rpt.).

LIGHT TRAP COLLECTIONS

	<u>Pseudaletia unipuncta</u>	<u>Feltia subterr.</u>	<u>Prodenia ornithog.</u>	<u>Agrotis ippsilon</u>	<u>Peridroma margaritosa</u>
<u>ARIZONA</u>					
Mesa 2/22-28			20		1
Mesa 2/29-3/6			17		9
<u>FLORIDA</u>					
Gainesville 3/2		2	4	1	
Homestead 3/2		7			
Monticello 3/8	1	1			
Quincy 2/29	3	2			
<u>LOUISIANA</u>					
Baton Rouge 3/4-10	6				
<u>SOUTH CAROLINA</u>					
Charleston 2/29-3/6				1	1

ADDITIONAL NOTES

NEVADA - A medium infestation of POTATO APHID (Macrosiphum solanifolii) occurred on iris in Reno, Washoe County. (Bechtel, Lauderdale).

OREGON - A heavy infestation of SHALLOT APHID (Myzus ascalonicus) was found on sprouting tops and roots of onions in storage at Harbor, Curry County, on March 4. Previously, this aphid was observed on Easter lily and chickweed in the same general area. (Doucette).

GEORGIA - ALFALFA WEEVIL (Hypera postica) larvae infesting alfalfa at 1 to 3 per plant in Oconee County. One larva per plant on alfalfa in Hancock County. Alfalfa 2 inches high. VEGETABLE WEEVIL (Listroderes costirostris obliquus) and TOBACCO FLEA BEETLE (Epitrix hirtipennis) light to moderate on tobacco in the plant bed in Worth, Grady, Thomas, Brooks, Lowndes, Lanier, Atkinson, Ware, Wayne and Tattnall Counties. (Johnson).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES ^{1/}

1959

CEREAL AND FORAGE INSECTS

Grasshoppers: Generally in 1959, grasshoppers were far from the problem they were in 1958. However, there were some localized infestations in several of the states generally concerned with these pests that required either controls or at least surveillance for a period of time early in the season. Except for a small threatening area and a severe threatening area, grasshopper infestations were slight to noneconomic in Illinois. Infestations were noneconomic to light throughout Indiana and statewide grasshopper populations in Minnesota were generally the lowest since 1954. Populations in Wisconsin were not as high or as extensive as in 1958. Grasshopper infestations were noneconomic in North Dakota during 1959 although scattered threatening to severe populations developed in several counties. In South Dakota, grasshoppers were of economic importance by June 26 in many areas. Numbers were down in Montana during 1959 and several species infested less than two percent of reported crop-range acreage in Colorado. The State of Wyoming applied controls to some 230,000 acres in six counties.

Crop and range losses due to grasshoppers were estimated at \$53,000 in Utah, while grasshoppers were a very serious problem on rangeland and cropland in eastern and northern counties of New Mexico. Although egg survival was high in eastern and southeastern rangeland areas of Arizona during the winter, weather conditions during the remainder of the year were not conducive to the development of outbreak populations. There was no grasshopper problem in Kansas during 1959. Heavy hatches from high numbers of egg pods that were present in the panhandle and central areas of Nebraska, along with ideal weather, indicated the necessity of a control program, which was initiated in three panhandle counties. The presence of only low nymphal numbers in June resulted in the cancellation of this program, however. Infestations in the eastern part of Nebraska were noneconomic. Grasshopper populations in Oklahoma were generally light, as predicted.

Grasshoppers were somewhat lower in Arkansas during 1959 than in 1958 and are not expected to be a problem in 1960, and in Texas infestations did not develop into a general outbreak. Grasshoppers were generally very low in Oregon, but discovery of an infestation in northern Baker County was too late for controls to be effective in 1959. Numbers were sufficiently heavy in this area to be a potential threat in the spring of 1960, however. Populations were far below economic levels in Nevada, and high numbers of one species were found in one parish in Louisiana and populations of another species were high in Vermont. For information on the grasshopper adult survey conducted in the fall of 1959, see the map following page 38 (CEIR 10(3):3-4-60). The distribution of HIGH PLAINS GRASSHOPPER (*Dissosteira longipennis*), based on the 1959 adult survey in New Mexico, Colorado, Oklahoma and Texas, is indicated in the map on page 194.

Grasshoppers were common throughout Illinois and abundant in some localized areas. The fall survey showed noneconomic populations in the extreme north sections and in the southern quarter of the State. Infestations were slight in the remainder of Illinois, except for a small area in Wabash and Edward Counties that had moderate populations and an area centered in Marshall County with abundant numbers. Populations were approximately 92 percent RED-LEGGED GRASSHOPPER (*Melanoplus femur-rubrum*). *Melanoplus* spp. caused light to moderate damage in marginal rows of a few corn fields and marginal rows of soybeans near hatching beds.

^{1/} Including all reporting states except Hawaii and Alaska, which were carried in CEIR 10(4):46 and CEIR 10(6):74, respectively.

Infestations were noneconomic to light throughout Indiana, with crop damage only in extremely localized areas. Red-legged grasshopper was the principal species involved.

In Minnesota, cool spring weather delayed egg hatch of some species, particularly TWO-STRIPED GRASSHOPPER (Melanoplus bivittatus) and DIFFERENTIAL GRASSHOPPER (M. differentialis), while above normal, early summer temperatures accelerated egg hatch of red-legged grasshopper and a later hatch of the same species. Grasshopper egg hatch was completed by late June. Generally, statewide grasshopper populations were the lowest since 1954 in Minnesota. Economic infestations were present in a few fields in two small southwestern areas of the State and adult and egg surveys indicate that these areas may have threatening populations in 1960. Instances of economic infestations in some fields in other areas of Minnesota were very scattered and localized. An estimated 177,000 acres of a possible 6,663,000 hay and grassland acres were infested by sufficient grasshopper numbers to cause economic losses. Populations are expected to be light to noneconomic over the remainder of Minnesota in 1960, with no large areas of heavy or severe infestations anticipated. However, local concentrations may develop under favorable weather conditions even in areas of light populations.

In Wisconsin, first hatch of red-legged grasshopper began June 5-12 in Marquette County. Nymphal counts of 0-10 per sweep occurred in light soil areas in the central district in late June. Populations were as high as 30-40 nymphs per square yard, but decreased 30 percent in mid-August. This decrease was associated with rains and high humidity. Adult fall surveys showed highest grasshopper numbers to be concentrated in central Wisconsin, but populations were not as high or as extensive as in 1958.

Grasshopper infestations were noneconomic in North Dakota in 1959 although scattered threatening to severe cropland infestations developed in Divide, Burke, Renville and Pierce Counties; two-striped grasshopper was the dominant species, followed by red-legged grasshopper and MIGRATORY GRASSHOPPER (M. bilituratus). Controls were applied to an estimated 210,000 acres. Fall surveys showed the grasshopper infestation to be more widespread than in 1958. Light to moderate populations were present in croplands in eastern North Dakota, where there was little or no infestation in 1958. M. femur-rubrum and M. bivittatus were the dominant species in this area. A severe rangeland infestation developed in several areas of Golden Valley, Slope and Billings Counties in western North Dakota, with Aulocara elliotti the dominant species. Controls were applied to 12,352 acres in these counties through a cooperative program. The fall rangeland survey indicated possible continuous grasshopper troubles in western counties. Controls may be required on 78,000 acres of private range and 21,700 acres of Federal rangeland in 1960.

In South Dakota, two-striped grasshopper began hatching about mid-May in the southeast and west central areas, and M. bilituratus in the west central area. Hatches of differential and two-striped grasshoppers were heavy in margins and roadsides by the second week of June. Melanoplus confusus was noted in the Black Hills area the following week, when nymphs were not too numerous in Clark, Spink, Faulk, Edmunds and Brown Counties. By June 26, grasshoppers were of economic importance in many areas of South Dakota. Many acres of forest land were sprayed under a Federal program in the Black Hills area and there was a cooperative program in the range area adjacent to the northeast edge of the Black Hills, where there was a severe migratory grasshopper outbreak. The fall adult survey indicated many light to moderate populations, with scattered moderate to abundant populations in the north central, northwest and Black Hills areas of the State. Approximately 2,695,680 acres were involved.

Grasshopper numbers were down in Montana during 1959, with scattered infestations occurring in Rosebud, Big Horn, Cascade, Chouteau, Blaine, Phillips and Sanders Counties. Controls were probably applied to less than 95,000 acres; about 50,354 acres of this by a Federal program. The State of Wyoming applied controls for rangeland species to a total of 236,361 acres in Johnson, Park, Goshen, Sheridan, Hot Springs and Fremont Counties. Some controls were applied to cropland by owners. Several species of grasshoppers, including two-striped, migratory, red-legged and differential grasshoppers and M. occidentalis infested less than two percent of reported farm and ranch rangeland acreage in Colorado. Loss value was approximately \$376,816; cost of control, \$173,000; and the estimated saving was \$683,350. Infestations of migratory, red-legged and differential grasshoppers in wheat were localized, with negligible damage in most areas. Migratory and differential grasshoppers infested alfalfa and red-legged grasshopper was present in barley. Infestations were localized in this crop and major loss was due to a combination of insects and weather.

Utah crop and range losses, due to grasshoppers, were estimated at \$53,000; and controls carried out on croplands largely by owners, resulted in an estimated saving of \$840,000. The most damaging species were migratory, two-striped, red-legged, Packard and clear-winged grasshoppers and M. bruneri, M. borealis and Aulocara elliotti. Federal spraying on forestlands controlled grasshoppers over an 89,104-acre area, protecting an estimated 173,000 acres in Sanpete and Utah Counties.

Grasshoppers were a very serious problem in New Mexico on rangeland and cropland in eastern and northern counties. Cooperative rangeland programs were carried out in areas of Roosevelt, Curry and Colfax Counties on a total of 275,383 acres, while a voluntary program on about 110,000 acres of cropland was also carried out in Curry County. Egg survival was high in eastern and southeastern rangeland areas of Arizona during the winter. Hatching began March 10-15, earlier than normal, because of low winter and early spring rainfall, which resulted in sparse growth of annual plants. Weather conditions during the remainder of the year were not conducive to development of outbreak populations.

In California, early indications of heavy to severe grasshopper infestations did not materialize later in the season. Heaviest populations occurred from the Tehachapi Mountains north and in local areas in San Diego County. Controls were applied to some 73,197 acres in 24 counties for grasshoppers in 1959 to protect adjacent croplands. A fungus, Entomophthora grylli, became active early in the season and was probably responsible for mass reduction of grasshopper populations.

Grasshopper egg hatch in Missouri began the first of May in the southeast and was prolonged by cool, wet weather in May and June. No economic populations developed, with scattered, light populations of migratory, red-legged, differential and two-striped grasshoppers being confined to wasteland, road ditches and fence rows. Kansas had no grasshopper problem during 1959, except in a few localized areas, and there were no cooperative control programs; only a small amount of individual control. Cool, dry weather shortly after the main hatch was probably instrumental in reducing populations to a very low level. The predominant crop species were red-legged, two-striped and migratory grasshoppers. Counts were generally of noneconomic importance, being in the moderate range only in a few western areas of the State during the adult summer survey.

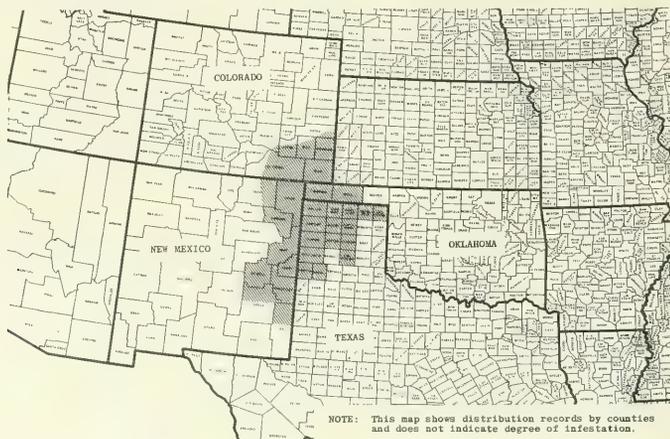
The 1958 fall egg survey in Nebraska revealed high numbers of egg pods in the panhandle and central portions of the State, which were under close surveillance during the spring of 1959. Heavy hatches, along with ideal weather conditions, indicated the necessity of a control program. Controls were initiated on 183,000 acres in Morrill, Garden and Cheyenne Counties, where counts ranged 100-300 nymphs per square yard. The dominant rangeland species were Ageneotettix deorum, Boopedon nubilum, Aulocara elliotti and Phlibostroma quadrimaculatum.

June surveys revealed only low numbers of nymphs remaining, probably due to the prevailing rain and snow over the general area during the week of May 18. The control program was thus cancelled. Development of cropland species in the central area of Nebraska was spotty, migratory and two-striped grasshoppers being dominant. Nymphs of these two species ranged 10-25 per square yard. Control by individuals was carried out wherever required. Infestations in eastern Nebraska were light and noneconomic.

As predicted, grasshopper populations in Oklahoma were generally light, with only localized infestations causing damage or concern. Populations were heavy only in isolated west central and northwestern localities, mainly on idle or soil bank land. Controls were applied in a few instances to crops in these areas, but no cooperative program was undertaken in rangeland areas of Oklahoma in 1959. Grasshopper counts in Arkansas were somewhat lower in 1959 than in 1958, and grasshoppers are not expected to be a problem in the State in 1960, other than in a very few local spots. In Texas, infestations of several species did not develop into a general outbreak, only isolated areas reporting damage.

Grasshoppers in Oregon, predominantly red-legged and migratory grasshoppers, were very low, with no economic infestations evident during 1959 in the Willamette Valley. *Melanoplus borealis*, *M. repetinus* and *Bradynotes* sp., near *caurus*, were discovered in a 10,000-acre rangeland area in northern Baker County in numbers sufficiently heavy to be a potential threat in the spring of 1960. Although damage to range fescue forage was estimated at about 90 percent, discovery was too late for controls to be effective in 1959.

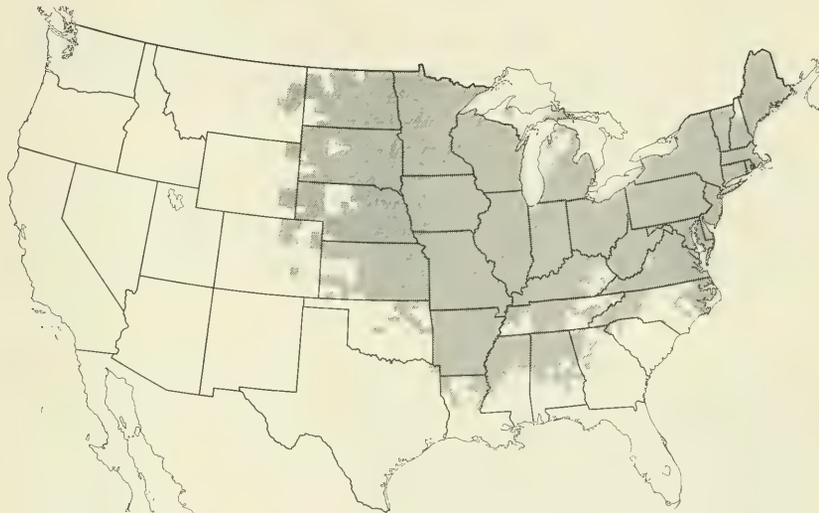
Grasshopper populations in Nevada were far below economic levels and no control programs were carried out during 1959. In Louisiana, differential grasshopper averaged 128 per 100 sweeps in Caddo Parish alfalfa, and in Vermont, populations of red-legged grasshopper were high.



Distribution of *Dissosteira longipennis*
(Based on 1959 Survey)

MORMON CRICKET (*Anabrus simplex*) was baited and controlled on 8,542 acres in Utah, the program being carried out as a federally-financed project on lands in San Juan, Daggett and Uintah Counties. Controls were done largely in time to prevent economic losses, protecting at least 85,420 acres. Damage before control was estimated at \$10,400 and saving from control at \$55,750. Populations of Mormon cricket in Nevada were far below economic levels, with no control programs in 1959. Infestations in Montana were also down, with one infestation being present and controlled in Sanders County.

Corn and Sorghum Insects: The spread of EUROPEAN CORN BORER (*Pyrausta nubilalis*) was much more limited during 1959 than during 1958. During 1959 only 13 counties in 7 states reported its presence for the first time, compared with 58 counties and parishes in as many states during 1958. The report from Bowie County, Texas, during 1959, was the first record for that State. A distribution map of the species is included below.



Distribution of European Corn Borer

European corn borer damage in North Dakota was generally light except for a few scattered pockets in southeastern counties. The overwintering population, the highest ever recorded in the State, produced a slow-developing first brood. Weather conditions and slow plant development during June hampered egg laying and borer survival. Infestations ranged 0-60 percent by August 7, with an average of 11 percent of plants infested. First-generation pupation in North Dakota ranged 0-40 percent August 19. Weather conditions again interfered with moth flight and egg laying and no economic second generation was produced. Spring surveys in South Dakota indicated winter survival percentages of approximately 82 in northeast, 76 in east central and 70 in southeast areas, for European corn borer. Pupation began the first week of June in the southeast, with a very small amount of emergence by June 19. The first-brood population was light. Second-brood moth emergence occurred in mid-August, with the second-brood population being higher than the first.

Overwintering European corn borer numbers in Minnesota were the lowest in many years, overwintering mortality averaging 27 percent. The first generation in 1959 was low, as expected, except in the southwest district. Only small numbers of second-generation eggs were found; however, the fall abundance survey showed a larger population than expected. In Wisconsin, winter survival ranged from 91 percent in Manitowoc County to 25 percent in a Grant County field, and averaged 69 percent in southern and eastern counties. Parasitism was determined at 20 percent, with *Lydella grisescens* the principal parasite. First moths were

trapped May 30-June 9. First European corn borers were found in Dane and Grant Counties the week of June 19 and third-instar larvae in Rock, Iowa and Grant Counties by July 3. Second-brood moths had emerged by August 7 in Dane County. Corn planting in eastern Nebraska was delayed because of rain during most of May. Pupation of overwintering borers reached 96 percent by the first week in June. Peak European corn borer moth emergence occurred during mid-June, with total flight much less than in 1958. Egg masses averaged 200 or more per 100 plants on corn planted in early May and early corn in the southeastern portion of Nebraska was 70-100 percent infested. Second-brood moths emerged in Nance and Merrick Counties by July 25. Second-brood infestation was light to moderate in southeastern areas. The survey during July in Hall and Cuming Counties revealed 1,785 and 3,066 borers per acre, respectively, less than half that of the 1958 surveys. Damage by European corn borer in Kansas was reduced about one-half in 1959, from that which occurred during 1958.

First European corn borer moth emergence in Missouri was noted in early May in the southeast area. The 1959 larval population was lower than that for the last several years, while the highest first-brood egg mass counts were 75 per 100 stalks compared with over 400 for 1958. The highest percent feeding scars recorded was 65, which is below the level for treatment. Of all European corn borer larvae found in Illinois in late March, 54 percent were still alive. This is lower than the average shown in past years. First-generation populations in the State were light and very few fields required controls. The second generation was heavier than in 1958, however, and treatments were justified in some northern and western corn fields.

The number of European corn borer first-generation moths caught in Tippecanoe County, Indiana, light traps was about the same as in 1958; but infestation in early sweet corn was twice as great in 1959. August and September moth collections were about twice as large in 1959 as in 1958. There were two distinct moth flight periods in 1958, namely May 30-July 2 and July 31-September 3. In 1959, 3 distinct flight periods were apparent; May 24-June 17, July 16-August 13 and August 27-September 30, which appear to indicate 3 generations in Tippecanoe County during 1959. In Lawrence County, Indiana, about 2 times as many European corn borer moths were collected in 1958 as in 1959, and there appeared to be 3 generations each year. Midsummer larval populations of the pest were extremely low in northwestern Ohio, averaging about 1.8 per 100 plants in Van Wert County. This followed a severe winter in which a high larval mortality was indicated.

European corn borer was taken in the remaining 6 uninfested Arkansas counties during 1959, making all 75 counties in the State now infested. As in past years, infestations were more severe in late corn than in early corn. Although infestations of European corn borer continued light in Oklahoma, populations were higher in the Bixby area of Tulsa County than have been noted during the past 5 years. No new county distribution records were noted. European corn borer was noneconomic in Louisiana during 1959, and surveys in parishes not previously recorded as infested were negative.

Overwintering survival of European corn borer in Delaware was 46 percent, or 1.7 borers per infested stalk, which was twice that of 1958. Pupation of overwintering borers began in all areas of the State by the second week of April and was well completed by the first week in May. Abundant adult activity and egg deposition occurred the second and third weeks of May, the first 2 weeks of July and the last week of August and first 2 weeks of September. Infestations were very heavy in field corn, and wheat fields in the Greenwood area of Sussex County were very hard hit. The fall infestation survey showed an all-time high for Delaware, since records were started in 1936. European corn borer damage in New Jersey increased in 1959 over that of 1958 and light trap collections indicated a third brood of moths during August and September. Moderate infestations of European corn borer in the Monmouth area of Maine during July and August caused moderate damage to corn. In Pennsylvania, there was a moderate increase of European corn borer during 1959, compared with 1958.

First-generation damage by European corn borer in Maryland was moderate to heavy to early planted sweet and field corn on the Eastern Shore. The fall survey showed the second highest population on record, the greatest numbers being on the Eastern Shore. Considerable damage to wheat occurred in southern sections of the State. Infestations of the insect were heavy and generally scattered over Virginia in various crops, field and sweet corn and wheat being the most heavily damaged. Infestations were not as heavy in field corn as in 1958. European corn borer infestations in Georgia were less important during 1959 than in 1958. Surveys in previously infested counties revealed only one infestation each in Walker and Chattooga Counties.

The European corn borer 1959 fall abundance survey showed that populations were generally lower in the central portion of the Nation during 1959, decreases being noticeable in Iowa, Kansas, Missouri, Nebraska and North Dakota. Slight decreases were evident in Illinois and South Dakota, but increases, although only slight, were noted in Indiana, Minnesota, Ohio and Wisconsin. Populations in the eastern part of the country were generally up over those of 1958, with Virginia an exception. Substantial increases were noted in Delaware and New Jersey, while populations were only slightly higher in New York, Pennsylvania and West Virginia. For the states reporting, based on comparable districts or counties surveyed, the average number of borers per 100 plants decreased from 106 in 1958 to 99 in 1959. (The figure 99 is a corrected total from the 102 shown in Table 1 of CEIR 10(3):31). A summary of the 1958 and 1959 European corn borer surveys may be found in CEIR 10(3):29-38, January 15, 1960.

CORN EARWORM (*Heliothis zea*) populations and damage were variable over the Nation, depending upon area and crop involved. Corn earworm was very heavy in Minnesota during 1959, being present on corn earlier than usual; before tassel or ears appeared. Whorl feeding was also general. Moth flights continued into September, causing concern to sweet-corn growers, particularly canners. Market sweet corn in Minnesota had upward to 50 percent of ears infested. The first major corn earworm moth flight recorded in Wisconsin was during the last week of July in Platteville and other localities. Poor flight conditions prevented the expected buildup of light trap catches in early August, but catches increased late in the month. Infestations were high in late-planted sweet and field corn in Wisconsin, with some sweet-corn acreage being treated for control. In 5 European corn borer districts of the State, 12.3 percent of corn ears was infested or showed earworm damage at time of the fall European corn borer survey.

Corn earworm was very abundant on sweet corn in Illinois but relatively light in field corn. Light trap collections in Tippecanoe County, Indiana, indicated corn earworm moths were 5 times as numerous during 1959 as they were in 1958. A total of 3,636 moths were collected in a single light trap during the period June 12 to September 20, 1959, compared with 752 for the same period in 1958. Peak collections in both years occurred September 4-10; 2,307 moths collected in 1959 and 368 in 1958. Sweet corn silking during early September was very heavily attacked by corn earworm, with 90 percent infested ears. In Lawrence County, Indiana, corn earworm moths were about 2.5 times more abundant in 1959 than in 1958. However, only about one-tenth as many moths were collected as in Tippecanoe County. Fall survey of field corn in Indiana showed a 60-percent increase over 1958, with an average infestation of 28 percent. The heaviest infestations, up to 71 percent, occurred in the southern tier of counties. Corn earworm also severely infested grain sorghum in Indiana, with evidence of damage in most heads examined in Knox County. Corn earworm damage to early sweet corn in central and southern Ohio was slight, but higher than usual in northern counties. Late plantings, in general, over the State experienced extremely high populations of corn earworm, even where usually effective controls were employed. Field corn surveyed at harvest showed an unusually high amount of damage.

From mid-August until early October, grain sorghum in southwest and west central Missouri that still had soft grain was infested with 45-190 corn earworm larvae per 100 heads, the higher infestations being in the tight-headed varieties. From early to mid-June, infestations of corn earworm working in whorls of corn, ranged 2-6 percent in southwest, central and north central areas of Missouri. First and second plantings of sweet corn in the southeast area of the State were extensively damaged. Regardless of timing of controls, materials used or frequency of applications, infestations ranged 10-40 percent. Controls applied to third, fourth and fifth plantings were quite effective, with only 2-10 percent damage. In Arkansas, the use of loose-headed varieties of grain sorghum appears to prevent some damage to that crop by corn earworm. Infestations in corn were general throughout Louisiana, appearing first about mid-May in Acadia and St. Landry Parishes. Infestations on sweet corn ranged 60-85 percent in St. Bernard Parish in May. Larvae of this species averaged 1.5 per head on grain sorghum in Caddo Parish.

Most southern and eastern Nebraska area corn fields were lightly to moderately infested with corn earworm from early July until cold weather. Only an occasional larva was observed on sorghum heads and most damage was light. Corn earworm populations and damage in Kansas were higher during 1959 than for several years. In addition to damaging corn, corn earworm also attacked sorghums to a small degree. Corn earworm built up in corn fields in Oklahoma by early June and infestations continued in corn and late grain sorghums until fall, with no noticeable increase in damage over 1958. Corn earworm infestations severely damaged corn and grain sorghum in all sections of Texas where these crops were grown.

Corn earworm heavily infested field corn throughout New Mexico, while medium to heavy infestations in Arizona attacked young corn and grain sorghum as budworms during May and June. Infestations during the peak period in Arizona ranged 35-100 percent of stalks infested, with 1-4 larvae per stalk. Corn earworm contributed to losses in shelled, ensilage and sweet corn in Colorado, while damage was light to moderate to sweet and field corn in northern Utah, being more damaging in the southern portion of that State. Infestations were light on early market and canning corn in Utah, especially in northern and central areas. Damage by corn earworm to field corn in Nevada continued to be severe and was the limiting factor in production in central and southern areas of that State. Corn earworm damage in Idaho during 1959 was considerably below that of 1958. Checks in late August revealed an average of 25 percent of sweet corn ears infested in the southwestern area of the State, with 60 percent infestation in an occasional field. The pest caused extensive damage to sweet and field corn in eastern and northeastern Oregon areas, with 90-95 percent of ears infested in fields examined. Corn earworm adults appeared in light traps in Salem July 3 and in the Dayton area the week of August 24. More damage was noted on sweet corn in the Corvallis area of Oregon than in past years. Based on seventeen 100-ear samples taken near Dayton, 37 percent of sweet corn ears contained larvae. Corn earworm infestations were general in corn over California, with some areas developing heavy infestations.

Corn earworm infestations in field corn in Delaware were rather heavy, being most abundant during late July and August, especially in Sussex County where injury was the most severe. In Maryland, numbers were about normal in early and late corn. The pest heavily damaged sorghum and field and sweet corn in Virginia, infestations being heavier than in the past 5 years. Damage to field and sweet corn and sorghum was somewhat higher than usual. Corn earworm was a problem on sweet corn in Georgia, but controls were successful in most areas.

ARMYWORMS in general were no problem during 1959 on corn and sorghum. FALL ARMYWORM (*Laphygma frugiperda*) first appeared in Maryland late in July; thereafter, infestations were generally spotty in late field and sweet corn. However, treatment was required on some late sweet corn on the Upper Shore. Outbreaks of this pest occurred in corn, millet and grain sorghum in one or more of 9 Virginia counties. Fall armyworm was of little economic importance in Indiana and was very

scarce throughout the season in Illinois during 1959. Light trap catches were low in Indiana and there was little or no infestation of field corn. However, late home garden sweet corn in Tippecanoe County was severely infested.

Fall armyworm infestations developed on late-planted corn in a few areas of Kansas, but were generally noneconomic. This pest appeared in corn fields in the Stillwater area of Oklahoma in early July and populations over the State were generally lighter than they were in 1958. Only a limited number of damaging infestations occurred on a variety of hosts during late summer and fall. Populations were heavy on corn and grain sorghum in Texas, while the use of loose-headed varieties of grain sorghum in Arkansas appears to prevent some larval damage to this crop. Fall armyworm infestations were a problem in Georgia, but controls were successful in most instances. In Florida, fall armyworm and BEET ARMYWORM (*Spodoptera exigua*)* infested about 40 acres of corn in the Zellwood area of Orange County, the first-named pest feeding on the silk, shuck and kernels and the latter one on the silk. Fall armyworm damaged about 30 percent of the stalks examined in a corn field near Crowley, Louisiana, and, with beet armyworm, caused considerable damage to a young field of corn in Bossier Parish in July. Eighteen percent of grain sorghum plants examined in a field in East Baton Rouge Parish was damaged by fall armyworm.

ARMYWORM (*Pseudaletia unipuncta*) was not generally a problem on corn in 1959. Infestations were light in corn over Delaware during June and spring populations were light in Maryland, although a moderate outbreak occurred in late corn in the southern area and on the Eastern Shore during August. Field corn, millet and sorghum were heavily damaged in several counties in Virginia, there being a spring outbreak and a late summer or fall outbreak.

Several species of CUTWORMS were more than normally destructive to young corn in all sections of Maryland and several species were common in Indiana during the spring, with significant losses reported to corn. Larvae attacked corn in scattered locations of Bottineau and Pierce Counties, North Dakota, with severe damage in infested fields. Larvae averaged 4-5 per linear foot in some fields. Cutworms were reported in the light soil of central Wisconsin by May 28 and necessitated the replanting of 3,000 acres of corn in the southern part of the State. Lowered plant populations were observed in many fields planted on spring-planted sod.

BLACK CUTWORM (*Agrotis ipsilon*)** was extremely abundant and destructive in many areas of Illinois, destroying thousands of acres of corn with much replanting necessary. Some fields were replanted 2-3 times. Controls were applied to thousands of acres. Black cutworm was the principal species of cutworm on corn in Indiana, being reported from many sections. Corn planted directly in newly plowed clover fields was the most seriously damaged and control in early cultivated corn was relatively difficult. Corn seedlings were damaged in several north central Ohio fields, necessitating considerable replanting. Black cutworm caused unusually late and severe damage in localized areas of southeastern Nebraska counties, mostly to corn, with damage causing 10-70 percent reduction in stands. This pest was abundant on sweet corn in the Willamette Valley of Oregon, requiring control measures about June 12. Scattered, light infestations also occurred on corn throughout Missouri, with most damage appearing in northeast and north central areas. Black cutworm was more than normally destructive to young corn in all sections of Maryland.

DINGY CUTWORM (*Feltia subgothica*) and VARIEGATED CUTWORM (*Peridroma margaritosa*) occurred in scattered, light infestations in corn throughout Missouri, with most damage in the northeast and north central areas of the State. In late May, variegated cutworm larvae, migrating from alfalfa, red clover and grassy areas, caused severe injury to marginal rows of corn in Missouri; and moth emergence was high in the southeast in early June. Variegated cutworm was more destructive to young corn in all sections of Maryland than normally.

* Zimmerman, E. C. 1958. Insects of Hawaii, Vol. 7:339.

**Zimmerman, E. C. 1958. Insects of Hawaii, Vol. 7:253.

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) continues to be an important factor in corn production in Arkansas and is one of the reasons for the decrease in corn acreage in the State. Winter survival studies in the northwest area showed a variation of infestation of 2.5 percent, with an average of 18 percent. The infestation was very light in early corn but severe in late corn. With this same situation of severe infestation in late corn in regard to European corn borer as well as southwestern corn borer, and in most years with fall armyworm, it has become impractical to grow late corn in Arkansas. In Missouri, a brief check of one southwest area corn field in mid-March showed 30 percent of southwestern corn borer larvae overwintering successfully. Percent of girdled stalks found during the fall survey was higher than in 1958. An average of 8 extreme southwest counties showed 11.3 percent girdled stalks compared with 6.3 percent in 1958. Southwestern corn borer was collected in Mississippi for the first time in 1959, being identified from adults that were reared from pupae taken in corn in Coahoma County during May. The pest was also recorded in Bolivar, Tunica, Panola, Tate, Quitman and De Soto Counties, Mississippi, by the end of the year.

Southwestern corn borer numbers in Kansas were generally low during 1959. Mortality of overwintering larvae was 13 percent in the Stillwater area of Oklahoma. Surviving larvae began pupating by early May and emerging by middle and late May in the same area. First-generation larvae pupated from late June into July. Surveys showed light infestations in early planted corn and medium to heavy counts in late-planted corn in the central and east central areas of Oklahoma. Infestations of southwestern corn borer ran as high as 100 percent on corn in the north and south plains areas of Texas, with some damage to grain sorghum. Lighter infestations were noted in other areas of the State. In Louisiana, infestations of first-generation southwestern corn borer larvae were very light; but numbers increased considerably, later. This was probably due to a concentration of populations brought about by a large reduction in acreage planted to late corn. Southwestern corn borer was found in Richland Parish, Louisiana, for the first time during 1959.

Survey of corn and sorghum fields in Dona Ana, Luna, Quay, Curry and Roosevelt Counties, New Mexico, showed most corn stalks heavily infested with southwestern corn borer while very few sorghum stalks were infested, except for one Curry County field in which infestation was moderately heavy. Light trap data in Arizona indicates peak of moth emergence from overwintered southwestern corn borer larvae occurred during April in the central area of that State, followed by heavy infestations in corn and grain sorghum throughout the summer. Counts ranged 20-90 percent of stalks infested with one or more larvae per stalk. The pest did not occur in Arizona west of Gila Bend in western Maricopa County. The distribution of Southwestern corn borer in the United States is shown below.



Distribution of Southwestern Corn Borer

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) infestations were reported in the southern Coastal Plain of North Carolina and complete loss of two acres of corn following corn occurred in Robeson County. Populations of SUGARCANE BORER (D. saccharalis) were extremely heavy in late grain sorghum in the Brazos River area of Texas, with lesser damage noted to corn and grain sorghum in the upper coastal and south central areas. Early damage to corn in the sugarcane belt of Louisiana by sugarcane borer was exceptionally light in 1959 compared with 1958, except in some fields in St. Mary Parish. By fall, however, much damage was observed in Acadia, East Baton Rouge and Grant Parishes.

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations in Arizona began increasing in late May in young corn and sorghum where seed was planted without treatment. Late plantings were heavily infested in some cases, particularly in central and southwestern areas of the State. This pest severely damaged a field of grain sorghum in East Baton Rouge Parish, Louisiana, damage being estimated at approximately 20 percent. Lesser cornstalk borer infestations were light to heavy in Georgia in 1959, but generally not as serious as in other years.

STALK BORER (Papaipema nebris) populations increased slightly in southeastern Nebraska, with only light damage; and the species was higher than usual in Kansas during 1959, with heavy damage to corn only in a few localized areas. This pest injured marginal rows of corn in southwestern Missouri in early June and larvae damaged early corn in Indiana, especially along weedy fence rows. Occurrence was general over southern, western and northern Indiana counties. Stalk borer was present but light in Minnesota, damage to corn being confined to field margins. Larvae of this species were present in all Delaware counties during June and injury was very slight and noneconomic. In Maine, light to moderate damage, probably caused by stalk borer, occurred in a few Aroostook County gardens during June; but damage was generally less than usual. Severe damage also occurred to corn in one field taken out of sodland.

CORN ROOT WEBWORM (Crambus caliginosellus) heavily attacked roots of young corn in one field in New Castle County, Delaware, during early June. Large areas of the field required replanting due to destruction. Larvae of a NOCTUID (Simyra henrici) were found feeding in corn fields in many areas of Illinois, but populations were low and caused no serious damage. A PYRAUSTID (Nomophila noctuella) was economically important on corn planted in fields following sod in many areas of Indiana.

SORGHUM WEBWORM (Celama sorghiella) caused considerable damage to grain sorghum throughout Missouri and was more important in Kansas during 1959 than usual. Populations were extremely heavy in many areas of Texas, while infestations of this pest were considerably higher over the eastern two-thirds of Oklahoma than in 1958. Sorghum webworm was not as abundant in Indiana as in 1958, due principally to better growing conditions and more uniform plant development. One 40-acre field of late sorghum in Posey County, Indiana, averaged 80 percent of heads infested with 5-6 larvae per head, and adults were collected in Daviess County in mid-September.

Sorghum webworm caused considerable damage to late-maturing grain sorghum in southeastern Kansas. First specimens were noted in western Missouri counties in late July and damage began in early September in western counties of that State on sorghum that was blooming. In mid-September, counts in the central area averaged 700 larvae per 100 heads, while in the extreme northeast section some heads in fields were completely devoid of grain. In early October, larvae were still feeding in very late-planted sorghum and ranged 40-1200 per 100 heads in southwest and 20-90 in southeastern Missouri. Sorghum webworm populations in Oklahoma began building up in mid-August, averaging up to 250 larvae per head in some southeastern and south central fields by late September. Complete loss of grain was reported in some fields in several areas in the eastern two-thirds of Oklahoma. The use of loose-headed varieties of grain sorghum in Arkansas appears to prevent some damage to this crop by sorghum webworm.

CORN ROOTWORMS (*Diabrotica* spp.) apparently are becoming more important in corn each year in several corn-producing states. Injury to corn in Nebraska by SOUTHERN CORN ROOTWORM (*D. undecimpunctata howardi*), WESTERN CORN ROOTWORM (*D. virgifera*) and NORTHERN CORN ROOTWORM (*D. longicornis*) is becoming increasingly important, with fields in certain areas showing more damage from this group than from European corn borer. In Minnesota, the cropping system of corn following corn has led to more problems from *Diabrotica* spp. each year, damage being quite evident during 1959. Awareness of this group has increased in this State with the result that more corn acreage is receiving soil treatment each year. Based on county agents reports, the 1959 treated acreage in Minnesota was more than double that of 1958. Surveys in May in Wisconsin revealed injury to corn and counts in Rock County averaged 25 larvae per corn plant and 12-13 per plant in Columbia County.

Adults of southern corn rootworm were abundant in many corn fields over Illinois, being exceptionally abundant in the Champaign-Urbana area. Northern corn rootworm was very abundant over the State in the same crop, and both species caused more damage to corn than for the past several years. Both northern and southern corn rootworms were numerous during July and August in Indiana, with some scattered reports of root injury to corn. A few northern and western corn rootworms appeared in South Dakota in late July, but numbers were noneconomic. Adults of southern corn rootworm averaged one per corn plant in Union County, in the southeast area of the State.

Northern corn rootworm adults were observed in grain sorghum heads during August in the northern portion of Missouri, with heavier counts ranging 2-9 per head. Larval damage was noted on corn in the east central portion of the State in early June, with counts of 3-12 larvae per stalk in one field. Counts of adults feeding on silks of late corn in northern areas of Missouri, in August, ranged 3-6 per ear. Northern corn rootworm was also serious in corn on about 5,000 to 10,000 acres in Humphreys County, Tennessee, in August. Southern corn rootworm caused some damage to young corn in April in Tangipahoa and Livingston Parishes, Louisiana.

Western corn rootworm was more numerous in corn fields in Kansas during 1959 than for the past 4 years, and contributed to losses in shelled and ensilage corn in Colorado. Western corn rootworm was reported for the first time from Montana during 1959, being found in Yellowstone County, severely damaging corn.

WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata*) was reported in the roots of sweet corn plantings in Polk County, Oregon.

Unspecified species of BILLBUGS caused light damage to corn throughout Illinois and some heavy damage in the southwest section where 60 percent of plants were damaged in some fields. A few corn fields along the Missouri River bottoms in the central area of Missouri were reported to have 85-95 percent of the stand damaged by *Calendra* spp. in early May. *Calendra* spp. also injured corn in many southern Coastal Plain fields in North Carolina, some requiring replanting. Infestations of *C. callosa* were general on corn in the southern section of Georgia and some farmers had to replant 3 times due to injury.

CORN FLEA BEETLE (*Chaetocnema pulicaria*) was more abundant in Illinois than in 1958, especially in the southern part of the State where as many as 25 adults per plant occurred in 1959, compared with a high of 6 per plant in 1958. Seedling corn in southwestern Missouri was damaged by populations of 2-6 adults per plant and second-generation adults continued very numerous during late summer in the same area. Incidence of Stewart's disease was very high in the flea beetle area. Northern area populations were very light in Missouri.

Corn flea beetle was present in nearly all corn fields in the eastern half of Kansas; however, damage occurred in only a few areas. Damaging infestations were reported in scattered corn fields in north central, central and south central Oklahoma during May and early June. Corn flea beetle again damaged sweet corn throughout Washington County, Utah, with some damage occurring in other counties, including a few spots farther North.

Corn flea beetle was less numerous than usual on corn in New Jersey and adults were first noted on young corn in Delaware in mid-May, remaining common in that State throughout the season but apparently causing only light feeding injury.

Medium to heavy infestations of DESERT CORN FLEA BEETLE (Chaetocnema ectypa) occurred in young corn and sorghum in the central area of Arizona during late March, continuing through the spring. Damage in most cases was not heavy. WESTERN BLACK FLEA BEETLE (Phyllotreta pusilla) infestations damaged sweet corn in the Winter Garden area of Texas during 1959.

Adults of DUSKY SAP BEETLE (Carpophilus lugubris) were first encountered in Delaware the first of June in early corn infested with European corn borer and were common to abundant on sweet corn in Kent County, causing fairly heavy injury during the latter part of the month. By mid-July and through most of August, adults and larvae of this beetle were very common in most infested ears. Dusky sap beetle caused slight damage to canning and market corn in isolated areas of Illinois and conspicuously small numbers were found wherever sweet corn records were taken throughout the season in Ohio. This pest caused local injury to sweet corn in Utah as far north as Salt Lake and Utah Counties, mostly in home gardens, damage being greatest in the southern part of the State. In Washington, sweet corn ears in the Yakima Valley were infested with up to 10 larvae of C. lugubris per ear during the last half of July. Unspecified species of SAP BEETLES were abundant in ears of sweet corn in Maryland during most of the season.

SEED-CORN BEETLE (Agonderus lecontei) severely damaged corn in a few north central areas of Kansas, especially where seed was not treated; and surveys in Wisconsin during May showed some injury to corn, due to this pest.

A WEEVIL (Anacetrinus deplanatus) occurred in damaging numbers on grain sorghum in the central area of Texas during 1959. Another WEEVIL (Hyperodes humilis) was collected in all stages on sweet corn in Palm Beach County, Florida, during the period February 12-16. Approximately 50 percent of all corn fields in the area were infested and infestations were close to 100 percent of all plants in infested fields. Serious damage occurred to plants 1-2 feet high. Although previously collected in Florida, this species has not been recorded as of economic importance. Centrinaspis penicellus, also a weevil, was reported for the first time from Connecticut, having been taken in corn in New Haven County in August 1958.

SAND WIREWORM (Horistonotus uhlerii) damaged corn in Missouri in southeast area sandy fields in late June and WHEAT WIREWORM (Agriotes mancus) was reported to have caused severe damage to corn fields in Rutland County, Vermont. Unspecified species of WIREWORMS were destructive to corn in eastern Wicomico County, Maryland, and injured corn in Wisconsin in May. Wireworms were not important in Indiana during 1959 because of a low point in population cycles and the increased number of treated corn fields. These pests were present in corn fields in many parts of Illinois and caused considerable damage, with 180 larvae per 100 plants being reported in one field. In late May, stands in some corn fields in southwestern Missouri were reduced 2-6 percent by Melanotus spp., and in early June, damage was evident in fields scattered through the northern half of the State. Infestations of undetermined wireworms injuring corn were reported from Griggs, Towner, Pierce and Cavalier Counties, North Dakota, with crop damage being extensive in Pierce County. About 90 acres of redtop sorghum were destroyed in San Miguel County, New Mexico.

JAPANESE BEETLE (Popillia japonica) was of minor importance on corn in a few areas of Virginia during 1959 and corn in Wisconsin was injured by unspecified species of WHITE GRUBS during May. Adults of a BEETLE (Colaspis sp.) caused severe damage to corn in the southern half of Illinois, with as many as 80 percent of the plants reported damaged in some fields, and up to 2,300 larvae per 100 plants also reported. Adults of Colaspis sp. also injured corn in Hyde County, North Carolina, and were unusually abundant throughout the Coastal Plain of that State.

CHINCH BUG (Blissus leucopterus) was widespread in corn in Hyde County, North Carolina, in early May and in Warren County in late June. In Hyde County, 20 percent of young corn plants were infested and 2-5 percent had buds killed. This pest was relatively scarce in Illinois corn fields, with very little damage; but the pest damaged grain sorghum in a few localities in Kansas. Chinch bug began migrating from small grain to small corn and grain sorghum in Missouri in late June and early July. Some fields next to small grain in the southwest area of the State were completely taken out.

As expected, damaging infestations of chinch bug occurred in newly planted corn fields in scattered localities of north central, central and south central Oklahoma during May and early June. Outbreaks occurred only in those counties rated as moderate, severe or very severe in the 1958 hibernation survey.

Although large numbers of adults and nymphs of a FALSE CHINCH BUG (Nysius raphanus) were often found in alfalfa fields along fence rows in New Mexico in early summer and in the fall, there was no buildup or damage to grain sorghums as occurred in 1958. Several species of STINK BUGS, including SOUTHERN GREEN STINK BUG (Nezara viridula), BROWN STINK BUG (Euschistus servus) and another stink bug (E. ictericus), caused considerable damage to young corn in Caddo Parish, Louisiana, and in southern portions of that State, particularly where corn was interplanted with soybeans.

With respect to CORN LEAF APHID (Rhopalosiphum maidis), 1959 was the worst year ever experienced in Ohio from the standpoint of grower concern; and in Indiana infestations were the heaviest recorded in recent years. The species was extremely abundant in Illinois and caused much concern to corn growers in that State. Populations in Ohio were high in corn and generally distributed over the 20 counties in the northwestern quarter of the State. Actual losses in Ohio were not as high as anticipated from the magnitude of infestation, more seriously affected fields seldom exceeding more than 15-20 percent loss. Feeding was minimized in areas receiving adequate rainfall.

In Indiana, nubbins and barrenness were extensive, with greatest losses to corn by corn leaf aphid in the northern tier of counties and through the north central portion of the State. Infestations of this pest averaged 36-80 percent in these regions and loss averaged 4.5 percent in the northern one-fourth of the State, 11.2 percent in the next fourth, followed by 3.3 percent, with no measurable loss in the south fourth. In Illinois, it was very common to find 10-20 percent of plants infested with corn leaf aphid in early and midseason corn; and 10 percent of corn plants were infested in some late corn.

Populations of corn leaf aphid were high in Minnesota corn in 1959 as they were in 1958, apparently causing incomplete pollination or kernel set in many areas. However, high temperatures and drought may have been responsible. Predator populations were high in that State, but did not exert much control until late in the season. Small colonies of corn leaf aphid were present on corn in southwestern Wisconsin counties July 7, approximately 2 weeks earlier than in 1958. Aphids became numerous in many sections, but populations varied considerably. By August 7, populations began to decline in corn fields in the southern section of Wisconsin.

An unusually high corn leaf aphid population occurred on North Dakota corn, although no particular injury was observed; and populations were very high on corn in many areas of South Dakota through August, with little damage noted. The species was first noted the third week of July on sorghum in this same State. Low numbers of corn leaf aphid were detected in southeastern Nebraska corn fields in mid-July. A buildup occurred in this same area during mid-August, with only moderate damage, although 10-40 percent of the plants were infested. Light to medium corn leaf aphid infestations were common in corn and grain sorghum fields throughout Oklahoma from May to late October. Usual numbers of this pest were present in Kansas but no severe damage was noted to corn and sorghum in the State.

Corn leaf aphid infested 10-85 percent of grain sorghum throughout Missouri in mid-July. Infestations were moderate in southwest area corn in late June; but in early to mid-July 10-40 percent of north central and northwest area corn plants were infested with this pest, which also caused considerable damage to grain sorghum in north central, south central and southwest areas of Texas.

Corn leaf aphid injury to corn in Utah was very light during 1959; but heavy corn leaf aphid infestations occurred on corn in Dona Ana County, New Mexico, during August. In Arizona, heavy infestations moved into grain sorghum as it came up in late April, but were gradually reduced as temperatures increased. However, infestations increased statewide in older sorghum in late August in Arizona and were extremely heavy by September 15, continuing until late harvest. RUSTY PLUM APHID (*Hysteroneura setariae*) also became heavy in grain sorghum in Arizona in early September and continued heavy through October, when heavy flights were a problem in cities and towns.

Colonies of corn leaf aphid became abundant on corn tassels and whorls in Delaware during late July, continuing to increase for 3-4 weeks. Populations were markedly decreased in September and remained low on corn most of the season. Populations of corn leaf aphid in Maryland were generally lighter than they were in 1957 and 1958.

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) and GREEN PEACH APHID (*Myzus persicae*) were found attacking field corn in the upper Columbia Basin area of Washington by September, while apple grain aphid and other species were collected in fewer numbers on sweet corn and watergrass. Heavy populations of apple grain aphid developed on milo in the Le Grande area of Merced County, California. CORN ROOT APHID (*Anuraphis maidi-radiciis*) was found in 55.5 percent of northwestern Illinois corn fields in mid-June. Infestations ranged light to heavy; 14 percent of fields in the western part of the State were lightly infested in early July.

Heavy infestations of SORGHUM MIDGE (*Contarinia sorghicola*) occurred on grain sorghum in the south central, upper coastal and eastern areas of Texas; while populations of this pest in Oklahoma dropped far below the 1958 counts, with none to very light damage being noted during 1959. Sorghum midge is the most serious pest of grain sorghum in Arkansas, but early planted crops generally escaped damage in 1959. This species appeared to be one of the most damaging insects to grain sorghum in Louisiana in the spring of 1959, with heavy populations observed in Caddo and Bossier Parishes. One Louisiana field sustained losses of approximately 50 percent by July.

SEED-CORN MAGGOT (*Hylemya cilicrura*) injury to corn in Utah was moderate to locally severe, while in Wisconsin some injury to corn was revealed by surveys conducted in May. Seed-corn maggot adults were killed in all sections of Maryland by a fungus during the spring, while large numbers of adults were also killed by a fungus disease in the Columbia Basin of Washington during June. CORN BLOTCH LEAF MINER (*Agromyza parvicornis*) was very active in Delaware, particularly in July and August, when it was common in most areas of the State.

Reported damage by SPIDER MITES was somewhat limited during 1959. Unspecified species caused late damage to corn fields in the south central portion of Montana, while Tetranychus spp. and Oligonychus spp. caused light to moderate damage to lower leaves of corn in localized areas of two counties in western and north-eastern areas of Nebraska. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) caused the major loss to shelled corn in Colorado, also infesting ensilage and sweet corn in that State. Damage to corn by this pest was severe in parts of Davis and Weber Counties, Utah, and scattered in other counties of the State. DATE MITE (Oligonychus pratensis) damaged corn and grain sorghums in Dona Ana, Eddy, Torrance and Valencia Counties, New Mexico; and O. stickneyi heavily infested corn in home gardens in Las Cruces, Dona Ana County.

GRASS THRIPS (Anaphothrips obscurus) was very abundant on corn throughout Illinois, causing much concern to corn growers, especially in the south. A severe infestation of unspecified species of THRIPS occurred on late-planted corn in Clay County, Indiana, in late May and early June, with counts on leaves of corn 8-12 inches tall averaging 75-150 per leaf. Infested corn lacked glossy leaf appearance and was grayish-green in color. Leaves were flaccid to the touch. Several hundred acres were treated, but locally heavy rains also reduced populations and plants made normal recovery and outgrew injury. Undetermined species of thrips damaged a few fields of small grain sorghum in the west central area of Missouri in June, while moderate to heavy infestations caused temporary shriveling of corn tops in southeastern counties of Nebraska during mid-July. In Maryland, undetermined species of thrips were abundant on corn during the summer.

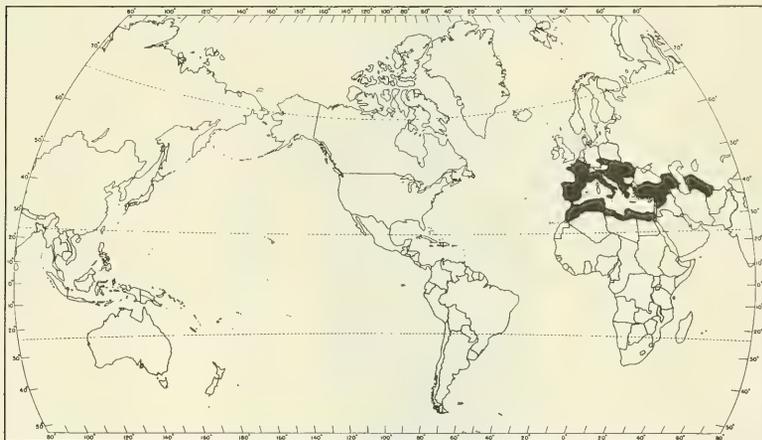
EUROPEAN EARWIG (Forficula auricularia) heavily infested corn in Payette County, Idaho, during July; and was heavier than normal on plants in Baker, Wallowa and Grant Counties, Oregon, and was especially noted damaging corn in August.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

ALMOND BUG (Monosteira unicastata Muls. & Rey.)

Economic Importance: This tingid causes damage to apple and pear in North Africa. It is also injurious to almonds, apricots, cherries, pears and plums in Italy and Spain. Feeding causes yellow spotting of leaves and in heavy infestations the foliage becomes coated with excreta. Severe attacks lead to defoliation, heavy losses of crop, and abnormal second growth. Monosteira unicastata has been intercepted occasionally at U. S. ports of entry.

Distribution: Recorded in Albania, Czechoslovakia, Cyprus, France, Greece, Hungary, Italy (including Sicily), Portugal, Spain, Romania, Turkey, United Arab Republic (Syria), U.S.S.R. (Caucasus, Turkestan), Yugoslavia and North Africa.

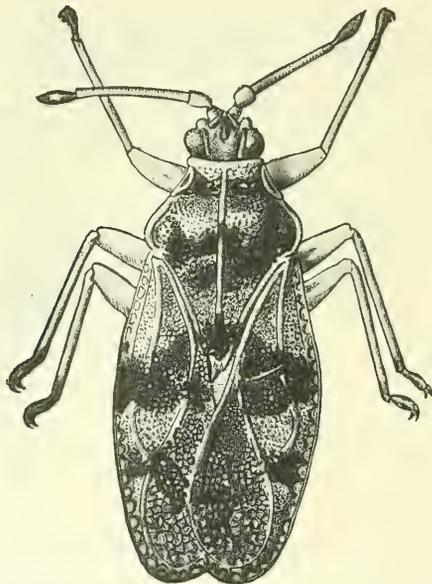


General Distribution of Monosteira unicastata

Hosts: Almond, apricot, cherry, pear, apple, plum, peach, hawthorn, willow and poplar.

Life History and Habits: Adults overwinter in cracks in tree trunks or in debris in the soil. Eggs are inserted into the leaf tissue along the veins on the underside of the leaves. The eggs hatch in 13-15 days. The nymphs undergo 5 molts and complete development in 25-30 days. There are as many as 3 or 4 generations annually with considerable overlapping late in the season so that all stages may be found at one time. Injury is reported to be more serious in late summer.

Description: ADULT 2-2.5 mm. head to tip of wings which extend pass tip of abdomen. General form oval. Color brownish-yellow marked transversally with dull-brown and black spots. (see illustration). Lower part of thorax black; underside of abdomen, brownish-red. Uppersurface of pronotum coarsely punctate. Head small, reddish eyes prominent, brown-red. Head has 3 frontal spinose protuberances arranged in a triangle. Occiput has two diverging spines which are longer than those on the fore part of the head and directed forward. Antenna has 4 segments: the two basilar are short and swollen, the third slender and several times longer than wide, the last fusiform and sharp-pointed. Legs pale-yellow with extremities of tibiae and tarsi darker. Male easily distinguished from female by presence of intercrossing parameres at extremity of abdomen. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 10(12):3-18-60.



Adult of Monosteira unicastata

Major reference and figure (except map) from: Bremond, P. 1938. Rev. de Path. Veget. et D'Ent. Agr. 25(4):294-307.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business



VOL. 10 NO. 13

MARCH 25, 1960

SB
823
C77
Ent,

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 of Insect Conditions

GREENBUG infestations light to moderate in oats in East Carroll Parish, Louisiana, and generally light or noneconomic in Oklahoma and Texas. ALFALFA WEEVIL eggs hatching in Delaware, larvae present in South Carolina and adult activity increased in Nevada. (p. 211).

Populations of SOUTHERN PINE BEETLE increasing in Texas. (p. 213).

CORRECTIONS. (p. 217).

INSECT DETECTION: A tortricid (Tortrix cockerellana) recorded for first time in Nebraska (p. 213), and elm leaf beetle collected in Mineral County, Nevada, for the first time (p. 214).

The species and relative abundance of North Dakota APHIDS infesting barley and grasses with a key to species. (p. 217).

INTERCEPTIONS of special interest at U. S. ports of entry. (p. 220).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1959

Cereal and Forage Insects

Small Grain Insects - (p. 221).

Sugarcane Insects - (p. 230).

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

WEATHER BUREAU 30-DAY OUTLOOK

MID-MARCH TO MID-APRIL 1960

The Weather Bureau's 30-day outlook for mid-March to mid-April calls for temperatures to average below seasonal normals over most of the Nation except for near normal along the northern tier, the west coast states, and the extreme Southeast. Greatest departures are predicted for the Central and Southern Plains as well as the Ohio Valley. However, a reaction to springlike weather is expected during the first half of April, especially over much of the east. Precipitation is expected to exceed normal over the southern two-thirds of the country lying east of the Continental Divide, with additional snows in north central areas. Sub-normal amounts are predicted west of the Continental Divide and along the Northern border. In unspecified areas, near 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 MARCH 21

Persistent very cold weather in the Great Plains, the Mississippi and Ohio Valleys, the lower Great Lakes region, and the Middle and South Atlantic States continued to be the dominant weather feature this week. Conditions typical of midwinter prevailed over this large region. Temperatures averaged 10° or more below the seasonal normals for the fifth or sixth consecutive week in most areas from northeastern Texas and southern Georgia northward to the eastern Dakotas, southern Wisconsin and western Pennsylvania and Maryland; and moderate to heavy snow, sleet and freezing rain again covered large areas of the Nation's midsection and the Northeast. Freezing temperatures extended from southern Arizona and Texas along the Gulf coast to north-central Florida, while below-zero readings covered the northern Great Plains and upper Mississippi Valley and scattered areas of the Appalachians on one or more mornings.

Two low-pressure areas developed over Oklahoma and off the Georgia coast early in the week and moved northeastward, leaving locally heavy new snow from eastern Colorado and Oklahoma to the Great Lakes, and snow, sleet and rain from northern Georgia to New England. Snowfall ranged from 5 to 11 inches in Virginia, up to 7 inches in northern Maine, 6 inches in the Catskills in New York, 5 inches in northeastern Ohio, 2 to 9 inches in Iowa, Illinois and Wisconsin, and 10 to 15 inches in northeastern Kansas, southeastern Nebraska and northwestern Missouri. Snowfall at Richmond, Virginia, in March, has now surpassed the previous alltime record, and at Roanoke, Virginia, and Rochester, New York, the seasonal record has been topped. Extremely heavy rainfall and several tornadoes developed along a stationary front in central Florida from Tuesday through Friday. Most areas from the Suwanee River southward to Tampa and Vero Beach received from 5 to 10 inches of moisture, and unofficial reports indicate more than 20 inches in portions of Pasco County, north of Tampa. Precipitation in other areas east of the Rocky Mountains was generally light to moderate. Totals of 1/2 to 1 inch extended from portions of the central Great Plains to the lower Lake Michigan area and covered portions of the Southeastern and Middle Atlantic States.

In the Western States, temperatures moderated rapidly during the week and averaged much above normal in most of California and in central Montana. On the 20th, the 72° reading at Great Falls, Montana, equalled the highest for March there, and the 89° mark at Fresno, California, was a new high for so early in the year there, as was the 74° at Pendleton, Oregon, on the 21st. Precipitation early in the week in the West was generally light to moderate, with 1 to over 2 inches of rain in coastal Oregon and Washington and lighter amounts inland and southward. Light to locally heavy snow fell in northern Nevada and Utah, western Wyoming and Colorado, and northern New Mexico. Mostly clear and dry weather was the rule later in the week. At the end of the period, extremely cold arctic air was moving southward from the Great Plains eastward. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - LOUISIANA - Infestations ranged light to moderate in 4 fields of oats in East Carroll Parish and in 4 fields in Tensas Parish. Weather remains very cold and wet and oats are showing little growth. (Spink). OKLAHOMA - Populations decreased only 20 percent during past month of inclement weather in a wheat field checked near Perkins, Payne County. Counts taken in the field on February 18 averaged 150 per linear foot while those taken on March 18 averaged 124 per linear foot. (Wood). Greenbugs, mixed with other aphids, found in approximately one-third of the fields of small grain checked in Kingfisher, Blaine, Dewey, Custer, Caddo, Canadian, Washita, Comanche, Stephens, Grady and Cleveland Counties. Populations remained light in all infested fields checked, with counts averaging 15 per linear foot in a wheat field near Watonga, Blaine County. Counts in most infested fields in the area averaged less than one per linear foot. (VanCleave, Vinson). Populations showed some decrease compared with previous weeks in a wheat field checked in Hennessey area, Kingfisher County. Counts now average 4 per linear foot. (Owens). None noted in 2 wheat fields checked in Washita and Beckham Counties (Hudson); and counts averaged 8 per linear foot in an oat field checked near Kingston, Marshall County (Vinson). TEXAS - None were found in fields checked in Roberts, Lipscomb, Wheeler and Ochiltree Counties and very limited infestations were noted in Potter and Carson Counties. Three fields checked in Wilbarger County were negative. (Daniels). Infestations ranged from none to very light in Bailey, Parmer, Deaf Smith, Castro and Swisher Counties. (Hawkins).

CORN LEAF APHID (Rhopalosiphum maidis) - CALIFORNIA - Medium infestation on barley in vicinity of El Centro, Imperial County. Nymphs and adults present. (Peterson, Ext. Ser.). OKLAHOMA - Light populations, less than 5 per linear foot, noted in about one-fourth of the fields of small grain checked in central and west central areas. (VanCleave, Vinson). Light, 2 per linear foot, in field of oats checked near Kingston, Marshall County. (Vinson).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Counts averaged 1,000 plus per linear foot in one barley field in the Loyal area near the Blaine-Kingfisher County line. Effects of feeding were quite evident throughout the field. R. maidis was also present, but in considerably less numbers. Light populations of R. fitchii found in approximately one-third of the fields of small grain checked in central and west central areas. Heaviest counts averaged less than 5 per linear foot, with most counts averaging less than one per linear foot. (VanCleave, Vinson).

A WHEAT APHID (Brachycolus tritici) - TEXAS - Infestations reported found in large clumps of wheat in Potter and Carson Counties. This species affects wheat by stunting heads and causing leaves to turn yellow. (Daniels).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Present in limited numbers, less than 25 per linear foot, in approximately one-fifth of the fields of small grain checked in the central and west central areas. (VanCleave, Vinson).

CUTWORMS - OKLAHOMA - Counts of unspecified species averaged 3 per linear foot in a wheat field checked in Hennessey area, Kingfisher County. (Owens). Light populations, less than 0.5 per linear foot, noted in scattered fields of small grain throughout the central and west central areas. (VanCleave, Vinson).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - OKLAHOMA - Counts averaged 4 live larvae per 25 stalks in a field of corn stubble checked in Marshall County. (Vinson).

ALFALFA WEEVIL (Hypera postica) - SOUTH CAROLINA - Larvae are present in alfalfa fields. (Nettles et al.). DELAWARE - Overwintering eggs found from light in one field to heavy in another field in New Castle County. Stalks examined for eggs revealed many eggs just hatched or on the verge of hatching. One cluster of new spring eggs found on March 1. (Burbutis, Mason). NEVADA - Adult activity has increased due to warm temperatures and most spraying has been completed in the western counties. (Coop. Rpt.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - OKLAHOMA - Light, averaged 5 per square foot of crown area, in an alfalfa field near Bison, Garfield County. (Owens). Light, averaged 3 per square foot, in an alfalfa field surveyed in Marshall County. (Vinson). TEXAS - Light, widespread infestations attacking alfalfa in El Paso County; counts averaged 5 per sweep. (Hawkins). NEVADA - Counts averaged 1 per 3 sweeps at Las Vegas, Clark County. (Bechtel, Lauderdale).

PEA APHID (*Macrosiphum pisi*) - CALIFORNIA - Heavy infestation on alfalfa in El Centro area, Imperial County. Nymphs and adults present. (Peterson, Ext. Ser.). NEVADA - Counts averaged 5 per sweep in alfalfa in Las Vegas, Clark County. (Bechtel, Lauderdale). NEW MEXICO - Beginning to build up in a few fields checked in southern Dona Ana County. (N. M. Coop. Rpt.). OKLAHOMA - Light, averaged 3 per square foot of crown area, in an alfalfa field surveyed in the Bison area, Garfield County. (Owens). Light, averaged 2 per square foot, in an alfalfa field in the Lebanon area, Marshall County. (Vinson).

COWPEA APHID (*Aphis medicaginis*) - NEVADA - Counts averaged 8 per stem in alfalfa in Las Vegas, Clark County. (Bechtel, Lauderdale).

FRUIT INSECTS

GREEN PEACH APHID (*Myzus persicae*) - COLORADO - An egg survey was conducted in Mesa, Delta and Montrose Counties from February 16 to March 14. The mean number of eggs per 100 fruit buds by areas is tabulated below. (Colo. Ins. Sur.).

<u>Area</u>	<u>1960</u>	<u>1959</u>
Redlands, Mesa County	0	3
Appleton, "	3.0	14.0
Palisade, "	1.14	3.0
Vineland, "	1.0	108.0
Orchard Mesa, "	.14	12.6
Clifton, "	.33	.50
Paonia, Delta County	3.85	45.50
Austin, "	23.00	0
Olathe, Montrose County	5.85	*

* No survey in 1959

CALIFORNIA TENT CATERPILLAR (*Malacosoma californicum*) - CALIFORNIA - First to third-instar larvae present in moderately heavy populations and locally damaging neglected almond orchards in Concord area of Contra Costa County. (Cal. Coop. Rpt.).

APPLE MEALYBUG (*Phenacoccus aceris*) - OREGON - Nymphs appearing on filbert trees in the Gervais area by March 16. Infestations appear materially reduced from those of previous years. (Jones).

TRUCK CROP INSECTS

CABBAGE LOOPER (*Trichoplusia ni*) - TEXAS - Some increases in activity in late cabbage reported in lower Rio Grande Valley, but populations remain at a fairly low level. (Deer).

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

THRIPS - NEW MEXICO - Moderate to heavy infestations in most onion fields checked in Dona Ana County. Many fields averaged from 15-30 thrips per plant. (N. M. Coop. Rpt.).

SEED-CORN MAGGOT (Hylemya cilicrura) - CALIFORNIA - A local heavy infestation reported from garbanzo beans in Chico, Butte County. (Cal. Coop. Rpt.).

SPIDER MITES (Tetranychus spp.) - LOUISIANA - Heavily infesting strawberry plants in Tangipahoa Parish. Heavy egg deposition was also noted. Severe damage can be expected when the weather warms sufficiently for the mites to become active. (Spink).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light infestations on tobacco in the plant bed in Ben Hill, Cook, Lowndes, Brooks and Colquitt Counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light to moderate infestations on tobacco in the plant bed in Ben Hill, Cook, Lowndes, Brooks and Colquitt Counties. (Johnson).

SNAILS - SOUTH CAROLINA - Some damage reported in tobacco plant beds in Clarendon County. (Nettles et al.).

COTTON INSECTS

CUTWORMS - TEXAS - Unspecified species moving into some cotton fields from adjacent fields in Hidalgo County. (Deer).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A TORTRICID (Tortrix cockerellana) - NEBRASKA - Larvae completely webbed and defoliated a few red cedar trees at North Platte, Lincoln County, during August and September of 1958. Itoplectis conquisitor and an unidentified dipterous insect heavily parasitized the larvae. Light trap collections in 1959 showed the presence of a few moths, but no infestations were observed. Moths recently determined by J. F. G. Clarke. (Pruess). According to ARS and U. S. National Museum records, this is the first report of T. cockerellana in Nebraska.

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Populations are still increasing. Due to wet ground, very little control work or ground checking was done. On an aerial detection flight, ten newly infested spots, as well as additional single infested trees, were located. There are 43 spots lacking control of which 5 have in excess of 100 trees. Up to 600 per square foot of healthy larvae, preparing to pupate, have been found in sample trees. (Young).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - DELAWARE - Heavy infestation on Virginia pine in north Wilmington and on spruce trees in Newark, New Castle County. (Burbutis, Mason).

A SCALE INSECT (Ehrhornia cupressi) - CALIFORNIA - Heavy infestation recorded on Arizona cypress in Lancaster, Los Angeles County. (Cal. Coop. Rpt.).

SPRUCE SPIDER MITE (Oligonychus ununguis) - MARYLAND - Eggs abundant on Norway spruce at College Park, Prince Georges County. (U. Md., Ent. Dept.).

A PINE PITCH MIDGE (Retinodiplosis inopis) - SOUTH CAROLINA - Reported in Spartanburg on loblolly pines. Det. by Dr. Fox. (Nettles et al.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEVADA - Overwintering adults collected at Hawthorne, Mineral County. This is the first record for Mineral County and the most southern record of the species in the State. (Bechtel, Kuntze).

DOGWOOD BORER (Thamnospectia scitula) - OREGON - A survey to determine the extent of infestation in Oregon nurseries has been completed. This insect, introduced on budded dogwood from several southeastern states, appears to be confined to the introduced trees. These trees have been destroyed or fumigated. (Capizzi).

SOUTHERN RED MITE (Oligonychus ilicis) - LOUISIANA - Large populations observed on azaleas in lath houses at Abita Springs. (Spink).

APHIDS - OKLAHOMA - Light to medium infestations of Cinara sp. continue to be common on arborvitae in the central and west central areas. (VanCleave, Vinson). NEW MEXICO - C. tujafilina is becoming abnormally abundant on arborvitae in southern counties. The species is also a nuisance in and around homes. Unspecified aphids are heavy on iris plants in Las Cruces area, Dona Ana County. (N. M. Coop. Rpt.). CALIFORNIA - Heavy infestation of C. tujafilina reported from property in Covina, Los Angeles County, on Juniperus sp. (Cal. Coop. Rpt.).

SCALE INSECTS - SOUTH CAROLINA - Noticeable on camellias in the Hampton area of Hampton County. (Nettles et al.). NEW MEXICO - An unspecified species found infesting willows planted around a home at Las Cruces, Dona Ana County. (N. M. Coop. Rpt.). CALIFORNIA - A heavy infestation of Aspidiotus hederæ reported from Hanford, Kings County, on strawberry madrone (Arbutus unedo). (Cal. Coop. Rpt.).

GREENHOUSE PESTS - OKLAHOMA - Light infestations of aphids and spider mites continue to be reported on a variety of plants in some greenhouses in the east central and southwestern areas. (Stiles, Latham, Hatfield).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - TENNESSEE - Of 100 cows checked in Cumberland County, 26 percent were found infested. Infestations were 10 percent H. bovis and 90 percent H. lineatum. Of 34 cows checked in Anderson County, 35 percent were infested. Infestations were 90 percent H. bovis and 10 percent H. lineatum. Counts were made the first week of March. (Stanley). NEBRASKA - Counts on February 9 in Lancaster County showed that 23 coming yearling calves averaged 5.4 grubs per animal; however, one-half of the animals were not infested. Three control groups, totaling 61 animals, in Cherry County, averaged 5.4 grubs per animal on February 9. Sixty-one mixed heifers and steers in Sioux County averaged 1.5 grubs per animal on February 16 and 17. (Jones, Roselle, Andersen). OKLAHOMA - A total of 3 H. lineatum grubs found on 70 head of untreated yearling heifers checked at Fort Reno, Canadian County, on March 15. (Kinzer).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - TEXAS - Light, widespread infestation of adult females reported attacking humans in Cameron County. (Kachtik).

CATTLE LICE - OKLAHOMA - Heavy on approximately 70 percent of the cattle (75 head) checked in a sales barn in Pushmataha County. (Goin).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Heavy on 65 head of hogs checked at a sales barn in Pushmataha County. (Goin).

DOG FOLLICLE MITE (Demodex canis) - NORTH CAROLINA - Four cases reported to the State Veterinarian in February (Zweigart).

TICKS (unidentified) - OKLAHOMA - Light, averaged 8 per animal, on 30 percent of the cattle (75 head) checked in a sales barn in Pushmataha County. (Goin).

CAT FLEA (Ctenocephalides felis) - IDAHO - Infesting a Lewiston home (Kambitsch).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - WISCONSIN - Extremely heavy populations found in bags of sunflower seeds in a Milwaukee seed-processing plant on February 23. (Wis. Coop. Sur.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - DELAWARE - Present in a feed mill in Sussex County. (Burbutis, Mason).

DEPRESSED FLOUR BEETLE (Palorus subdepressus) - DELAWARE - Present in a feed mill in Sussex County. (Burbutis, Mason).

BENEFICIAL INSECTS

PREDATORS - OKLAHOMA - Convergent lady beetle (Hippodamia convergens) and Nabis sp. were present in very limited numbers in fields of small grain checked in the central and west central areas. (VanCleave, Vinson).

MISCELLANEOUS INSECTS

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - NORTH CAROLINA - Infesting a large tourist home with slab construction. (Jones, Farrier). MARYLAND - Winged forms noted in houses at 3 localities in Prince Georges County. (U. Md., Ent. Dept.).

A TERMITE (Reticulitermes tibialis) - COLORADO - A swarm observed during the week ending March 17 when the temperature was 50° F. and relative humidity 60 percent in Larimer County. (Colo. Ins. Sur.).

LITTLE BLACK ANT (Monomorium minimum) - NORTH CAROLINA - Heavy, persistent infestation in a house in Forsyth County. (Wright).

BLACK CARPENTER ANT (Camponotus pennsylvanicus) - MARYLAND - Winged forms noted in a house at Silver Spring, Montgomery County, on March 16. (U. Md., Ent. Dept.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - LOUISIANA - A heavy flight of kings and queens was observed at Port Barre in St. Landry Parish on March 16. (Spink).

ALMOND MOTH (Ephestia cautella) - WISCONSIN - Collected in a Milwaukee seed-processing plant on February 23 in seed bags and in the corrugations of boxes. (Wis. Coop. Rpt.).

GERMAN COCKROACH (Blattella germanica) - SOUTH CAROLINA - Extraordinary populations reported from Chester and Aiken Counties. (Nettles et al.).

BOXELDER BUG (Leptocoris trivittatus) - UTAH - A serious problem about some homes at Murray in Salt Lake County. (Knowlton).

SILVERFISH (Lepisma saccharina) - DELAWARE - Moderately heavy in a home in Newark, New Castle County. (Burbutis, Mason).

OLD-HOUSE BORER (Hylotrupes bajulus) - SOUTH CAROLINA - Larval infestation recorded in Spartanburg County. Det. by W. H. Anderson. (Nettles et al.).

A FRUIT FLY (Trupanea jonesi) - CALIFORNIA - Adult taken on flower of Monolopia major in Navajo Canyon, San Luis Obispo County; also found in sweeping wheat stubble in Cuyama, Santa Barbara County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 10(7):90 - A WEEVIL (Rhyssomatus sp.) should read (Rhyssomatus sp.).

CEIR 10(8):108 - Delete last sentence of first paragraph. Earwigs infesting homes in Georgia are NOT Forficula sp.

CEIR 10(10):151, 152 - Map on page 151 is upside down. The correct spelling of the specific name under the figures on page 152 is Zabrus tenebrioides.

LIGHT TRAP COLLECTIONS

	<u>Pseudaletia</u> <u>unipuncta</u>	<u>Agrotis</u> <u>ippsilon</u>	<u>Feltia</u> <u>subterranea</u>	<u>Prodenia</u> <u>ornithog.</u>	<u>Heliothis</u> <u>zea</u>
LOUISIANA					
Baton Rouge 3/11-17	6	2		2	1
Franklin 3/11-17			1	1	
SOUTH CAROLINA					
Charleston 3/14-20		1			

THE SPECIES AND RELATIVE ABUNDANCE OF NORTH DAKOTA
APHIDS INFESTING BARLEY AND GRASSES WITH A KEY TO SPECIES ^{1/}

Richard L. Post^{2/} George Senechal^{3/} and Robert E. Krause^{4/}

Barley yellow-dwarf, a virus disease transmitted by aphids, is a serious problem to the plant breeder because of its prevalence in late-planted spaced plots. At present, yellow-dwarf is of little concern to the commercial grower in North Dakota where it is confined to the borders of fields within 100 feet of the edges. Since little work had been done on North Dakota cereal-infesting aphids, major emphasis was directed towards determining the species and relative abundance of aphids infesting barley and grasses.

I. The Species and Relative Abundance of Aphids Infesting Barley and Grasses.

Relative abundance of the species of aphids infesting barley:— Plans were made to determine the numbers of plants infested and the relative abundance of the species of aphids per plant. Aphids were not abundant in North Dakota during 1959, and when examination of individual plants revealed less than 1 aphid per 150 plants, fields and grasses were swept so that several hundred plants could be sampled by 100 sweeps of a 12" net. A total of only 1,260 aphids were collected from 8 barley fields, representing three crop reporting districts of eastern North Dakota by weekly sweepings from June 1 to August 31. The relative percent abundance of the species were as follows:

<u>Species</u>	<u>Percent</u>
<u>Macrosiphum granarium</u> (Kby.), English grain aphid	47
<u>Toxoptera graminum</u> (Rond.), greenbug	39
<u>Rhopalosiphum maidis</u> (Fitch.), corn leaf aphid	8
<u>Macrosiphum dirhodum</u> (Wlk.), grass aphid	3.5
<u>Rhopalosiphum fitchii</u> (Sand.), apple grain aphid	2.5
<u>Sipha agropyrella</u> H.R.L.	Less than .02 of total populations

Relative abundance of aphid species infesting grasses:— Aphids were not common on grasses adjacent to the eight barley fields selected for aphid abundance studies. Based on 114 specimens, the relative percent abundance was as follows:

<u>Species</u>	<u>Percent</u>
<u>Macrosiphum granarium</u> (Kby.)	42
<u>Toxoptera graminum</u> (Rond.)	42
<u>Rhopalosiphum fitchii</u> (Sand.)	12.5
<u>Rhopalosiphum maidis</u> (Fitch.)	3.5
<u>Macrosiphum dirhodum</u> (Wlk.)	0

^{1/} Work conducted under N. D. Exp. Sta., Project H-5-9, Insect Vectors of Barley Yellow-dwarf Virus, cooperative with Crops Research Branch, ARS, USDA, and the N. D. State Seed Dept.

^{2/} Associate Entomologist, N. D. Agricultural Exp. Sta. and N. D. State Seed Dept.

^{3/} Graduate Student, Dept. Agricultural Entomology, NDAC.

^{4/} National Science Foundation Undergrad., Research Participant in Agricultural Entomology, NDAC.

Abundance of aphids in barley fields and on grasses bordering barley fields:-
Aphids were more abundant along the borders of barley fields, 10-30 feet from the margins, than they were in the interiors, more than 40 feet from the edges or along the grassy borders of the fields. Aphids collected by 100 sweeps of an insect net averaged 26 along the border of barley fields; 8 in the interior of the fields; and 2 along the grassy borders of these barley fields.

II. Key for Determining Preserved or Mounted Adults and Fourth Instars of North Dakota Barley Aphids.

- A. Cornicles with a definitely flanged (flared) tip; pale, becoming dark distally (Fig. 3). Unguis at least 5 times the length of the base (Fig. 6)..... Rhopalosiphum fitchii
- Cornicles without a definite flange (flare); if cornicles pale with dark tips the unguis is less than 5 times the length of base..... B
- B. Cornicles dark throughout..... C
- Cornicles pale with dark tips..... D
- C. Cornicles more than 3 times the length of hind tarsus, dusky to black, reticulated distally (Fig. 1 & 9). Unguis more than 5 times the length of the base (Fig. 8)..... Macrosiphum granarium
- Cornicles less than 3 times the length of hind tarsus, dusky, not reticulated. Unguis less than 3 times the length of the base (Fig. 5)..... Rhopalosiphum maidis
- D. Antennae pale throughout. Cornicles pale with sometimes a dusky tip, more than twice the length of the hind tarsus. Unguis more than 4 times the length of the base (Fig. 7)..... Macrosiphum dirhodum
- Antennae dark (dusky) beyond III (Alate usually has all dark antennae). Cornicles less than twice the length of the hind tarsus, pale with dark or black tips (Fig. 2). Unguis less than or equal to 4 times the length of the base (Fig. 4)..... Toxoptera graminum

Definition of Terms

Base - The thickened part of last antennal segment, proximal of the unguis.
Cornicle - A tubular process on the posterior of the abdomen.
Reticulated - Weblike, resembling network; netted.
Unguis - That portion of the last antennal segment that forms the antennal apex, distal of the base.

Key to Figures on Page

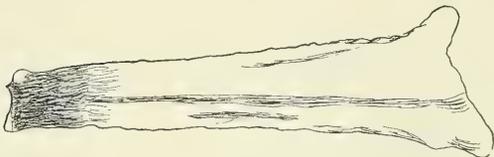
1. Cornicle, Macrosiphum granarium
2. Cornicle, Toxoptera graminum
3. Cornicle, Rhopalosiphum fitchii
4. Unguis, Toxoptera graminum
5. Unguis, Rhopalosiphum maidis
6. Unguis, Rhopalosiphum fitchii
7. Unguis, Macrosiphum dirhodum
8. Unguis, Macrosiphum granarium
9. Hind tarsus, Macrosiphum granarium



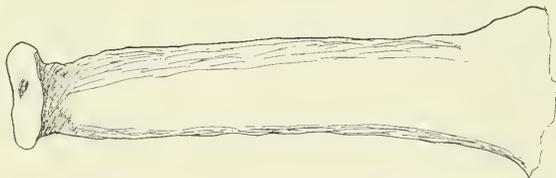
1



9



2



3



4



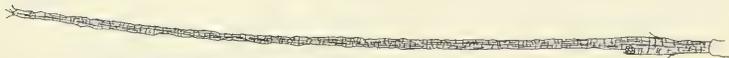
5



6



7



8

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

(1959 records unless otherwise indicated)

A pupa of a NOCTUID (Sesamia sp.) in an ear of corn in baggage from Spain on September 5 at New York, New York; an adult of a WEEVIL (Apion pomonae F.) (a seed pest of vetch and lentils in several European countries) in vetch seeds contaminating straw jackets from France on June 18 at New York, New York; SNAILS (Cochlicella barbara (Linn.) and Helicella pyramidata (Draparnaud)) with package of mixed seeds in airplane baggage from Italy on September 23 at Detroit, Michigan; larvae of a FRUIT FLY (Dacus sp., possibly vertebratus Bezzi) in cucumber in ships stores from South Africa on November 10 at New York, New York; larvae of OLIVE FRUIT FLY (Dacus oleae Gmel.) 18 times, collectively, in olives in baggage and plane stores from Italy and Greece, at New York (New York) (17) and at Boston (Massachusetts) (1); larvae of LARGE WHITE BUTTERFLY (Pieris brassicae (L.)) in ships stores from France and Italy on September 14 and October 30 at New York, New York; larvae of CABBAGE MOTH (Mamestra brassicae (L.)) in ships stores from France, Germany and Italy at Savannah (Georgia) (1) and at New York (3); larvae of VINE MOTH (Lobesia botrana (Schiff.)) in baggage from Syria on August 28 at New York, New York; larvae and adults of a SWEETPOTATO WEEVIL (Cylas formicarius (F.)) in sweetpotato cargo from Japan (this is the first identified interception of this pest from that country) on February 16 at Honolulu, Hawaii; an adult of a BROAD NOSE WEEVIL (Phyllobius sp.) in wood moss packing material (recovery of specimen made by Berlese funneling process) for nursery stock cargo from France on April 23 at Hoboken, New Jersey; larvae of MEDITERRANEAN FRUIT FLY (Ceratitis capitata (Wied.)) 26 times, at Miami (Florida) (2) in ships stores from Portugal, at Philadelphia (Pennsylvania) (1) in ships stores from Brazil, and at New York (New York) (23) in fruits in baggage (22) (including 30 prickly pear fruits destined for Florida with 21 larvae) and airplane stores (1) from Mediterranean countries; and adults and larvae of KHAPRA BEETLE (Trogoderma granarium Everts) 7 times, at New York (New York) (1) in ships stores, at Houston (Texas) (1) in ships stores, at Charleston (South Carolina) (2) in Guar-Gum cargo from India, at Mobile (Alabama) (2) in ships stores, and at Seattle (Washington) in ships stores. (Plant Quarantine Division, December 31, 1959).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES ^{1/}

1959

CEREAL AND FORAGE INSECTS

Small Grain Insects: Several species of APHIDS caused varying degrees of damage to several small grain crops over the Nation during 1959. Of these, GREENBUG (*Toxoptera graminum*), CORN LEAF APHID (*Rhopalosiphum maidis*) and ENGLISH GRAIN APHID (*Macrosiphum granarium*) were the most troublesome. Greenbug was the most important insect problem in Minnesota during 1959, the last major outbreak of this pest in that State having occurred in 1926. In Oklahoma, the heaviest widespread greenbug damage that was encountered during the past several years occurred during 1959 in that State, with controls being applied to an estimated one million acres. Heavy greenbug damage was also recorded in Wisconsin, Illinois, Missouri and Nebraska.

The 1959 outbreak of greenbug in Minnesota apparently resulted from aphids carried into the State by high southwesterly winds from infestations in Oklahoma, Kansas and adjacent states. The winds diminished in Minnesota and the aphids were dropped along a cold front, which was moving in a southeasterly direction, and extended from Nobles County in the south to Mille Lacs and Kanabec Counties in the north. The first and heaviest infestations occurred along this cold front; subsequent infestations probably taking place from later high winds which scattered the initial one. Earliest and heaviest populations occurred in Watonwan, Brown and Nicollet Counties which suffered the most crop loss. Control was poor.

Weather conditions were favorable to greenbug all the way in Minnesota, first by providing ideal invasion conditions; second, cool temperatures hindered predator increase and reduced effectiveness of insecticides; and third, high winds hindered good insecticide coverage. Oats was the crop most seriously injured. The outbreak in 1959 occurred in early May, almost a month earlier than previously recorded outbreaks in the State. Grain crops were in succulent conditions and greenbug populations developed quickly, many fields being a total loss within a few days after damage was first noted. There was a reluctance to spray because of the threat of reinfestation, and a virus disease further complicated the situation. This reluctance to control greenbug because of the threat of reinfestation and the presence of the disease may account for losses that could have been avoided. Generally, poor results were due primarily to spraying too late to effect any protection to the crop.

Large numbers of greenbug were trapped in Wisconsin during the period May 2-6, when strong southerly air currents were common. Heavy, localized feeding and "yellow-dwarf" injury in small grains were observed by June 5 in Green, Trempealeau and La Crosse Counties. Local infestations of greenbug and "yellow dwarf" were common over the State, with controls being applied to approximately 20,000 acres. "Yellow dwarf" was more prevalent in Wisconsin during 1959 than for nearly a decade.

Greenbug was more abundant and widespread in fields of wheat and oats in Illinois during 1959 than for many years, and it is doubtful if there was a field of oats in the State was not infested. Many fields of oats were completely killed in the seedling stage; one such field about three inches high averaged 176 greenbugs per plant. Most oats which survived aphid attack were severely infested with "yellow dwarf".

^{1/} Including all reporting states except Hawaii and Alaska, which were carried in CEIR 10(4):46 and CEIR 10(6):74, respectively.

Heavy greenbug damage to spring-seeded oats appeared in north central and northeastern counties of Missouri in mid-May. Populations increased steadily for several weeks throughout the northern half of the State. Counts ranged 100-5,000 per linear foot in oats, 50-1,000 in barley and 40-800 in late-planted wheat. During late May and early June, parasites, predators and disease depleted populations of greenbug; but oats in the northern half of the State were severely injured by barley "yellow dwarf," transmitted by this insect.

Following locally heavy infestations during November and December 1958, populations of *Toxoptera graminum* were light but widespread throughout Oklahoma in January 1959. By mid-February, populations of this pest were building up to damaging proportions in the eastern half of Tillman County and winged forms were becoming abundant by mid-March; populations were also building up in central and north central areas of the State. "Greenbug spots" were appearing in fields of small grain throughout north central Oklahoma by late March and damage continued in this section of the State and in the northeast panhandle area, to a lesser extent, until early May. This was the heaviest widespread damage encountered during the past several years in Oklahoma, with controls applied to an estimated one million acres. Infestations appeared again in late October in the southeastern-south central area and further surveys showed light populations of greenbug becoming increasingly common in southeast and central areas of the State by mid-December.

Greenbug infestations were relatively light in the panhandle and high plains area of Texas during 1959, with some economic damage being reported in the north central portion of that State. Greenbug was much lighter in Arkansas during 1959 than during 1958; but local damage by this pest to wheat, barley and oats was reported in Kansas, with controls being required in localized eastern areas of the State.

Greenbug populations were light on small grains in the east central area of Nebraska during May, causing little or no injury. However, moderate to heavy infestations in Lincoln County caused severe damage to oats and barley, which is the first record of losses since 1952. Greenbug first appeared in South Dakota in mid-May in the eastern edge of the State, with averages of 20 per leaf blade being found on spring wheat in localized areas. Cool weather favored the pest, which spread for about two weeks. Warm weather, with high lady beetle and damsel bug counts, brought greenbug populations down to non-economic numbers by the second week of June. Many fields of small grain were reported plowed under due to the effects of this pest. Scattered, trace infestations of greenbug occurred over a wide area of North Dakota; however, populations did not increase and no plant injury occurred.

Greenbug populations were light in New Mexico during early spring, but began to build up quite rapidly during March in fields of wheat in Quay, Curry, Roosevelt and Eddy Counties. In Curry County, counts were often more than 100 per linear foot of row in fields of wheat during April. Greenbug infestations in wheat and barley in Colorado were localized, with damage to wheat being negligible and losses to barley being due to a combination of this pest and the weather.

Greenbug injured oats in Worcester County, Maryland, during early November. Low numbers of this pest occurred on this same crop in Louisiana during 1959, while a serious infestation was found on seedling rice in Iberville Parish. This latter occurrence is believed to be a new host record for this species in the State.

CORN LEAF APHID (*Rhopalosiphum maidis*) caused heavy damage to small grain crops in areas of Texas, New Mexico, Arizona, Nevada, Washington and Montana. In Nevada, infestations were heavy on grain in Churchill, Lyon and Pershing Counties from May through July. In many fields, plants became yellow and damage was heavy. This pest was very common and abundant throughout western, southern and central sections of Montana and transmitted barley "yellow dwarf." In a few cases there was extreme damage. Corn leaf aphid was considerably less important in Wyoming during 1959 than in 1958, appearing late in the season and not building up to large populations.

Populations of this aphid were above average throughout the southern area of Idaho, particularly in eastern and southeastern portions where an extensive appearance of barley "yellow-dwarf" virus was noted.

Corn leaf aphid damaged spring barley in several counties of Utah; and the pest became heavy in barley in mid-February in Arizona, where it continued extremely heavy until harvest. Heavy honeydew deposits in Arizona resulted in abnormal awn extension and light heads. Most wheat in Arizona was relatively free of corn leaf aphid. In New Mexico, light to heavy infestations of this species damaged barley in Chaves, Dona Ana, Eddy and Sierra Counties. Controls were applied to most barley in northern Dona Ana County.

Corn leaf aphid caused considerable damage to small grains in north central, south central and southwest areas of Texas; and populations were common during the winter and spring throughout Oklahoma. In Delaware, a heavy infestation of this aphid occurred on a very young cereal cover crop in New Castle County during early October.

APPLE GRAIN APHID (Rhopalosiphum fitchii), ENGLISH GRAIN APHID (Macrosiphum granarium) and M. dirhodum were prevalent in the western area of Washington and loss to oats, barley and wheat from cereal "yellow dwarf" was estimated at one million dollars. Grain aphids were low and of little concern in the eastern area of the State. Apple grain aphid and corn leaf aphid infestations were heavy in fall-seeded barley in the dry-land wheat area of central Washington during November, especially in the western half of Adams County. Such a heavy infestation has not been seen before by workers in this area.

In some of the other western states, English grain aphid caused some damage to small grains. Some damage occurred to barley and other small grains in northwestern Wyoming. This aphid was rarely damaging during 1959 in Utah; and populations were generally low in grain in northern areas of Idaho, except for moderate infestations in Bonner County during July and some heavy infestations in the southwestern area of the State during the same period. In Oregon, English grain aphid was present in low numbers on grain throughout the major part of the season.

English grain aphid was light to medium on heads of wheat statewide in Arizona during April and early May; most barley was not infested. In New Mexico, populations of this grain pest were generally light to moderate in grain fields in Curry, Roosevelt, Lea, Eddy, Chaves and Dona Ana Counties. Populations of the pest were common during late winter and spring on small grains throughout Oklahoma and numbers were only noneconomic in Kansas.

Populations of English grain aphid in Minnesota were low in late May and early June and posed no problem during 1959, but numbers were very abundant and widespread in wheat in Illinois. Infestations were light in Missouri in early March and by mid-April populations of 0.5-25 per foot of row existed in the southeast area of the State.

English grain aphid was present in low numbers on oats in Louisiana during the 1959 season. In Delaware, this aphid was present on cereal crops in most areas by mid-April and abundant in Sussex County. The pest was also common on winter rye cover crops in Kent County in late November.

Several other species of aphids were reported as infesting or damaging some small grains to varying degrees. A ROOT APHID (Tetraneura hirsuta), which was found on rice at Belle Glade, Palm Beach County, Florida, during the period May 25-29, was the first United States record for this species. Apple grain aphid infestations were quite common in small grains throughout Oklahoma during late winter and spring and very light numbers began appearing again in central and south central area small grains by mid-October. In Kansas, apple grain aphid was present only in noneconomic numbers during 1959; and the species was light on grain during early summer in Curry, Roosevelt, Eddy, Chaves and Quay Counties, New Mexico.

A GRAIN APHID (Sipha agropyrella) was collected on winter and spring wheat on San Juan and Lopez Islands in Washington; a WHEAT APHID (Brachycolus tritici) was heavy and spotty in several fields of wheat in Curry and Roosevelt Counties, New Mexico, and unspecified species of aphids caused moderate to severe damage to oats in one location in Palmyra, Maine, during July.

CHINCH BUG (Blissus leucopterus) was generally lighter than usual during 1959 in the states affected by this pest. Fall surveys in Nebraska detected a smaller population than in past years, being generally noneconomic. Only light damage was observed. Chinch bug was present in central and eastern small grain fields in Kansas during April and May. In Missouri, only two southwest district counties were rated as severe as a result of the 1959 survey. Infestations were light in barley and wheat in this State in mid-May, counts ranging 0-5 per foot of row. Mating and egg laying began in late May, and no damage to small grain was evident.

Chinch bug numbers in Arkansas were found to be somewhat lighter in 1959 than in either of the previous two years and the pest should not be a problem in 1960. The 1959 chinch bug hibernation survey indicated continued reduction in potential populations for 1960 in Oklahoma, with only the northeast area and scattered localities in the central and north central areas of the State as potential "hot spots." Chinch bug was present in many grain fields in Illinois, but no serious damage was reported, while in Louisiana, large populations developed in Caddo and Bossier Parishes in the fall.

FALSE CHINCH BUG (Nysius ericae) populations in Utah were far below those of 1958; however, this pest was spottedly numerous on range and about grain fields. In New Mexico, moderately heavy infestations of various species of STINK BUGS damaged barley in Lea County, while infestations in wheat fields in Curry, Roosevelt, Quay and Harding Counties were much lighter; and heavy populations of unspecified stink bugs occurred on several crops, including barley, in Imperial County, California. A heavy infestation of SOUTHERN GREEN STINK BUG (Nezara viridula) was observed in barley in East Baton Rouge Parish, Louisiana.

TARNISHED PLANT BUG (Lygus lineolaris) adults and nymphs were generally common on buckwheat all season over Delaware. Several other species of PLANT BUGS, largely Stenotus binotatus, Leptopterna ferrugatus and Thyrillus pacificus, damaged grasses and small grains in scattered areas of Utah.

RICE STINK BUG (Oebalus pugnax) first appeared in Louisiana rice fields in early June on barnyardgrass, moving from this host to rice as the latter began to head. Populations varied from field to field, but highest counts were taken in fields located in areas treated for imported fire ant.

Rice stink bug numbers have increased in rice and small grains in Arkansas during the last few years. It has been considered a damaging pest by rice growers and control measures have been applied in several cases. An experiment was conducted during 1959 in an attempt to determine the level of infestation which constitutes a damaging infestation.

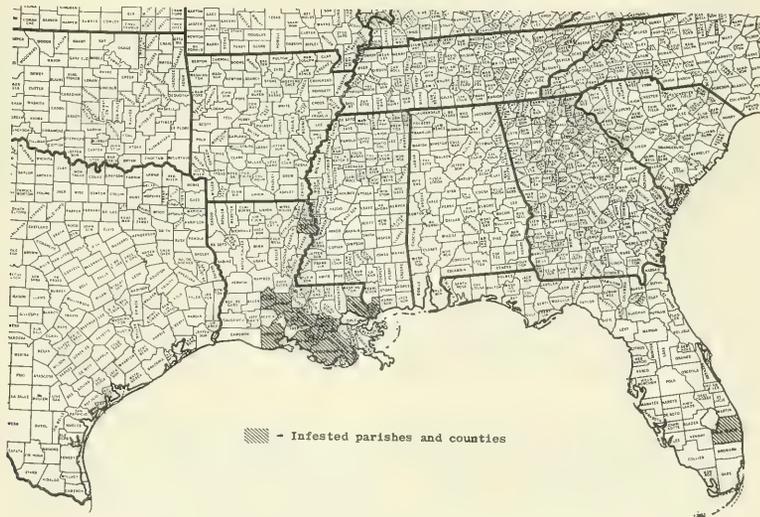
A table showing the various treatments which were replicated three times appears on page 225. Insects were caged on the rice in one square yard nylon cages.

Statistical analysis of the results on the table show that there was no significant reduction in either yield or quality with up to 80 rice stink bugs per square yard. Additional work along these lines may be conducted during 1960. Extensive work was also conducted throughout the growing season in Arkansas on occurrence, location, hosts and seasonal occurrence of rice stink bug. Occurrence of this pest in rice was found to be very closely associated with grass in rice fields, principally the barnyardgrasses (Echinochloa spp.).

Number and Stage of the Rice Stink Bug and Stage of Infested Rice Used in an Arkansas Experiment

Treatment Number	Number of Stink Bugs	Stage of Stink Bugs	Stage of grain Development
1	0	-	-
2	20	Adults and nymphs	Milk and dough
3	40	Adults and nymphs	Milk and dough
4	80	Adults	Milk and dough
5	80	Nymphs	Milk and dough
6	80	Adults and nymphs	Milk
7	80	Adults and nymphs	Dough

RICE DELPHACID (Sogata orizicola), the vector of hoja blanca disease of rice, was first found on three properties in Palm Beach County, Florida, in 1957, and was found on two properties in Hancock County, Mississippi, during 1958. Eradication treatments have been applied in these two states. In 1959, rice delphacid was first found in Louisiana in St. Tammany Parish, and later in thirteen additional parishes. Surveys in Arkansas, California, and Texas during 1959 were negative for this vector of hoja blanca disease. However, small numbers of S. furcifera were found in Arkansas. Hoja blanca disease has been found in all counties and parishes infested with S. orizicola, and in addition, has been found in Harrison County, Mississippi.



Distribution of Sogata orizicola

Migrations of SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) into North Dakota occurred May 11 in southeastern counties. Counts were low in small grains until May 25 when a rather heavy migration occurred; counts of 2-5 per sweep were common in the southeast area. Leafhoppers had dispersed by June 13 and could be found in all areas. Counts averaged 0.1-1.0 per sweep, comparable to data for the same 1958 period. Numbers of six-spotted leafhopper in small grains continued to decline during June and did not increase appreciably for the remainder of the season. POTATO LEAFHOPPER (Empoasca fabae) was of importance on cereal crops in Virginia.

Several species of ARMYWORMS caused some economic damage in limited areas during 1959, but there were no major outbreaks in small grains. ARMYWORM (Pseudaletia unipuncta) heavily damaged small grains in Highland, Northampton, Princess Anne, Montgomery, King William, Caroline, Charlotte, Accomack and Brunswick Counties, Virginia; and spring populations were light in Maryland and light on grains throughout Delaware. Adult flights in Delaware occurred during mid-April and mid-August in Kent and New Castle Counties.

Armyworm was again not a threat to oats in Louisiana until the end of April, when numbers increased tremendously in some areas. Heavy infestations were noted in Acadia Parish and a field in Vermilion Parish was estimated to have been more than 50 percent destroyed. Infestations of this pest in small grain in Texas were not as heavy as in past years, but they did cause economic damage.

The annual survey in Arkansas showed the presence of some armyworm larvae at the usual time, but numbers were low and size variable. In Missouri, first armyworm moths of the season appeared March 30 in the southwest section, and moderate to heavy flights continued through April. Small larvae appeared in southeast area barley in early May and by midmonth rank fields of wheat and barley contained populations of 5-30 armyworm larvae per square foot. Most damage in Missouri occurred in the southeast and central sections of the State.

Armyworm was scarce in Illinois, although widespread in the State, and required very little control. In Indiana, moth numbers were moderate in late spring, but larval damage was very moderate. Abundance of grass at that time probably prevented development of an economic problem. Armyworm moth flights were light to moderate during June in eastern areas of North Dakota. Larvae were observed in most southeastern grain fields in the State the week of July 6. Generally, noneconomic numbers were present and no damage was noted in any area. Scattered, light armyworm infestations were observed in Minnesota, mainly in the west central and northwestern districts, but no serious problems developed. In Wisconsin, large numbers of armyworm moths were trapped the first half of June, but infestations did not develop except for a localized area in Kewaunee County.

FALL ARMYWORM (Laphygma frugiperda) caused some damage to oats in the fall in Louisiana and a total of 146 per 100 sweeps were collected on rice in June in Vermilion Parish. Larvae of WHEAT HEAD ARMYWORM (Faronta diffusa) averaged about 6 per 100 sweeps in wheat fields near Mosquero, Harding County, New Mexico, in June, while lighter infestations occurred in wheat fields in Curry and Roosevelt Counties. Wheat head armyworm was of slight economic importance in a few southern areas of Kansas.

Various species of CUTWORMS caused some losses to grains over the Nation, but most damage ranged light to moderate and was scattered. ARMY CUTWORM (Chorizagrotis auxiliaris) caused economic damage to small grain in Texas, although infestations were not as heavy as in past years. Damage to small grains by army cutworm in Kansas remained low again in 1959; and populations of the pest in Nebraska were light to moderate generally, with the first light trap collections occurring April 4 at North Platte. Heaviest moth flights in the western half of Nebraska occurred the first two weeks of June. There was some damage by army cutworm to barley and wheat in Keith and Scotts Bluff Counties, with highest counts averaging 6 larvae per square foot. Fall moth flights were light to moderate and somewhat late at North Platte, Nebraska.

Populations of army cutworm were low in South Dakota during 1959, with a very small amount of damage noted in the southwest area in winter wheat. Scattered infestations occurred in central and eastern areas of Montana, but numbers were generally down. Army cutworm damaged much less small grain acreage in Utah in the spring than normal, while infestations in Colorado were localized in wheat, with negligible damage in most areas. This species caused minor damage to cereals in Wyoming during 1959.

Infestations of BLACK CUTWORM (Agrotis ipsilon)* and VARIEGATED CUTWORM (Peridroma margaritosa) in small grain were not as heavy as in past years, although some economic damage was caused by both species. Populations of variegated cutworm were much reduced in Kansas from the high populations that were present in 1958, with very little damage during 1959. PALE WESTERN CUTWORM (Agrotis orthogonia) caused scattered damage in central area grain fields in Montana, with only a few fields needing reseeding. Moth flights in Nebraska were light and there were no losses, much the same as in 1958. This species was not significant in Kansas during 1959.

Larvae of unspecified species of CUTWORMS attacked small grains at scattered locations in Bottineau and Pierce Counties, North Dakota, with severe damage in infested fields. Counts of larvae averaged 4-5 per linear foot in some fields. An unknown species of cutworm severely damaged grasses and grain in the north-eastern part of Montana, while various species were of importance on several cereal crops in Virginia.

BEEET WEBWORM (Loxostege sticticalis) damaged some grain in Teton County, Montana, while moderate to severe infestations occurred over a wide area of North Dakota, causing injury to small grains. STALK BORER (Papaipema nebris) populations in Kansas were higher than usual during 1959, but damage to wheat and oats was heavy only in a few localized areas. Infestations of this pest on wheat in Minnesota were light in the south central and southeastern districts of that State.

WIREWORMS caused some damage to grain crops, mainly in western states, only one eastern state reporting any injury by this group of insects. GREAT BASIN WIREWORM (Ctenicera pruinina noxia) severely damaged grain crops in Sherman and Gilliam Counties, Oregon. The extent of injury was greater than observed for several years, with fields showing about 50 percent damage and 20 percent of plants destroyed. Also in Oregon, unspecified species of wireworms damaged spring-seeded barley and other grains in the Willamette Valley, an unusual occurrence in this area. In North Dakota, infestations of unspecified species of wireworms injuring small grains were reported from Griggs, Towner, Pierce and Cavalier Counties; crop damage being extensive in Pierce County. Infestations of Limonius spp. were light on wheat in South Dakota and actual damage was very slight. Damage to grain crops throughout Idaho by numerous species of wireworms appeared to be generally above average for 1959. Undetermined wireworm species were very common in central area wheat fields in Montana early in the season, but most fields grew rapidly and damage was not acute. In Maine, during July, undetermined species of these pests caused moderate to severe damage to oats in one Palmyra location.

Larvae of FALSE WIREWORMS (Eleodes spp.) averaged 1-4 per linear foot of row in winter wheat in west central and central areas of South Dakota, damage in most instances being only slight.

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) adults were common on buckwheat in Delaware throughout the season, generally. WHITE GRUBS (Cyclocephala spp., Phyllophaga spp. and Anomala spp.) infested prepared wheat seed beds in the central area of Kansas, with areas of infestation being quite spotty.

* Zimmerman, E. C., 1958. Insects of Hawaii, Vol. 7:253.

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) was discovered in Butte County, California, in a rice planting in the Briggs area. This is a first record for this species in that State. Subsequent inspections revealed this pest had become generally distributed in five rice-growing counties of California, but apparently very little damage occurred to the rice crops in these counties. In Louisiana, larvae of rice water weevil averaged 12 per 5 stools in rice fields examined in Acadia Parish and severely damaged a rice field in Madison Parish. Rice water weevil is the principal pest of rice in Arkansas. Infestations are quite general over that State each year; however, control by drainage of irrigation water, properly timed, is universally practiced and damage is prevented. Soil insecticides and seed treatments are being adopted in some cases.

Specimens of a WHITE-FRINGED BEETLE (Graphognathus peregrinus) were found in a field of rice in Lafayette Parish, Louisiana, and established a new parish record for this group of pests (Graphognathus spp.).

A BEETLE (Colaspis sp.) has become a pest of rice in Arkansas. Overwintered larvae feed on the roots of seedling rice in the spring. Localized fields in Arkansas have been damaged in a few cases by stand reduction caused by larvae of this beetle. Changes in rotation, to avoid rice following lespedeza, have prevented infestations in most cases. Soil and seed treatments are being used in Arkansas in a few cases.

HESSIAN FLY (Phytophaga destructor) has shown a gradual decrease in several states during past years; but during 1959 populations of this pest showed increases in portions of Indiana, Illinois, Kansas, Missouri and Nebraska. Infestations in Indiana have been low for several years, but are now on the increase in the eastern portion of the State. Farmers in the Delaware and Randolph County areas had some economic loss and experimental plots showed losses as high as 8-10 bushels of wheat per acre. Fall infestations in the same area were significant.

Hessian fly populations in Illinois made a remarkable increase in 1959 after showing a gradual decrease during the last few years. The State average for percent of tillers infested was 7.2 in 1959 compared with 2.4 in 1958. The highest infestation in 1959 was in Sangamon County, with an average of 22.4 percent of tillers infested. Survey in some early wheat sown before the fall fly-free date showed 19-90 percent of plants infested with 20-525 forms per 100 plants.

Before wheat harvest in Missouri, considerable damage from hessian fly was observed in northwest, north central and west central districts of the State. The 1959 survey showed an increase in percent infestation in all districts. Observations in early fall-seeded wheat in central and west central areas of Missouri in late November indicated a high fall population of this pest. Counts ranged 30-92 percent of plants infested with 10-475 maggots and pupae per 100 plants. The State infestation average was 9.1 percent, compared with 2.6 percent for 1958.

Hessian fly populations were generally at noneconomic levels in Kansas; however, the summer survey in this State showed a higher average percent infestation of this pest than in 1958, especially in the northwestern area. Infestations were lower in the southeastern area. General fall emergence of adult hessian flies was delayed by a hot, dry midsummer and a light to heavy egg deposition occurred over Kansas after the normal fly-free date.

Hessian fly surveys during mid-April in Nebraska revealed numerous flax-seeds in volunteer wheat in southern counties. Fall-seeded and volunteer wheat in central and southeastern counties also contained flax-seeds at this time, with lodging evident in 20-30 percent of the wheat. Infestations were much heavier in Nebraska during 1958 and 1959 than during the past several years. Parasitism was as high as 100 percent in some areas in fall sampling of wheat stubble.

Hessian fly infestations in wheat were localized in Colorado and damage was negligible. In Oregon, numbers of this pest of wheat were low in the western area of the State during 1959, with no appreciable damage being observed. Wheat planted prior to the fly-free date in North Carolina had over 40 percent of the plants infested with hessian fly. Flax-seeds averaged 2-4 per plant in Rowan County in mid-January, and by early May less than 5 percent of the stalks in the same area were infested.

Several other dipteran pests caused some damage and concern. Infestations of WHEAT STEM MAGGOT (Meromyza americana), ranging 5-10 percent of stems, occurred in southeastern North Dakota wheat fields. This degree of infestation was above normal. Infestations of a WESTERN WHEAT STEM MAGGOT (Hylemya cerealis) in Colorado were localized and damage was negligible in most areas of occurrence. WHEAT JOINTWORM (Harmolita tritici) populations in Illinois were similar to those found in 1958. The heavier infested counties, with percent of tillers infested, were: Jefferson, 24.8; Jackson, 15.2; and Lawrence, 13.0. Also in Illinois, FUNGUS GNATS (Sciara spp.) were extremely abundant in wheat fields early in the season and caused much concern to farmers who thought they were hessian flies. A RICE LEAF MINER (Hydrellia griseola) was present in rice-growing areas of Sacramento, Yuba and Glenn Counties, California, but no controls were required.

SAWFLIES in wheat were not of too much concern during 1959. The 1959 survey for WHEAT STEM SAWFLY (Cephus cinctus) in North Dakota, conducted in eight northwestern counties of that State, showed an infestation range of 0-60 percent and an average of 10 percent. Infestation in 1959 was two percent lower than that in 1958 and the areas of heaviest infestation continued much the same as in previous years. Wheat stem sawfly was generally normal in abundance in Montana but damage occurred in Ravalli County fields, not normally subject to damage.

The area of approximately 40,000 acres in the Cuyama Valley of California, known infested by a WHEAT SAWFLY (Pachynematus sporax), received the fourth season spray treatment in the spring of 1959. Intensive survey failed to reveal any live sawflies during 1958 and 1959 in this location of Santa Barbara, Ventura and San Luis Obispo Counties. A survey late in the spring in Modoc and Plumas Counties revealed the presence of this sawfly in the area. As positive determination of this species is based on the adult male, and only larvae were obtainable from a suspected infestation that occurred in the Antelope Valley area of Los Angeles County, California, this season, an adult survey will be necessary in the early spring of 1960 to establish the species identity. As a result of positive findings in Modoc and Plumas Counties, and possible occurrence in Los Angeles County, this eradication program will be reevaluated in 1960. A SAWFLY (Pachynematus sp.) was present in wheat in Kansas, but numbers were not economic.

Several species of MITES were reported as damaging some small grains in a few areas of the country. WHEAT CURL MITE (Aceria tulipae), the vector of wheat streak mosaic, occurred in enormous numbers in Kansas, causing an estimated 80,000,000-dollar loss to the wheat crop in that State. In Wyoming, wheat streak mosaic was severe in some southeastern fields and moderate in others. Wheat curl mite was present in large numbers in certain areas in the fall of 1958. Losses were estimated as high as 50 percent in some fields in 1959. Infestations of wheat curl mite in wheat were localized in Colorado, with negligible damage in most areas. Infestations of this mite in barley in the same State were also localized, losses being due to a combination of infestation and weather. A 50-acre field of winter wheat in Whitman County, Washington, was severely damaged by wheat streak mosaic and plowed under. Although the disease and wheat curl mite had been previously reported from the State, this is the first record of economic damage.

Heavy numbers of BROWN WHEAT MITE (Petrobia latens) occurred early in the season in Klamath County, Oregon, but by mid-July the species was not a problem except for numerous overwintering eggs left in the soil as a potential threat for 1960. This mite was less damaging during 1959 in Utah than normal, particularly following spring rains. Damage was moderate in Juab, Tooele, Salt Lake and San Juan Counties. In Colorado, brown wheat mite infestations in wheat were localized, with damage in most areas being negligible; while in Kansas, the mite was economically important only in localized southwestern areas of the State. Brown wheat mite damaged several barley fields near Artesia, Eddy County, New Mexico; and the pest occurred only in isolated areas in Texas.

Damaging numbers of DATE MITE (Oligonychus pratensis) were present in many fields of wheat in the western half of Kansas; and light infestations of the same pest damaged barley at Ft. Sumner, De Baca County, New Mexico. WINTER GRAIN MITE (Penthaleus major) populations ranged light to heavy in south and north central sections of Texas, especially in fields planted to small grains for several years.

Highest populations of a BARLEY THRIPS (Limothrips denticornis) in four years occurred over a wide area of North Dakota, with an estimated 7,000 acres of barley being treated. Economic infestations of this thrips, two adults per stem prior to heading, were common. GRASS THRIPS (Anaphothrips obscurus) also was very abundant in many wheat fields in Illinois and apparently caused some damage. Survey of seven fields in the east-southeast section of the State, May 12, showed two fields (28.6 percent) heavily infested.

Adults of an undetermined species of STONEFLY caused light damage to wheat near Cut Bank, Glacier County, Montana, by feeding on stems. In California, a TADPOLE SHRIMP (Apus oryziphagus) caused about the same damage as normal in rice-growing areas of the State, in association with hydrophilids.

Sugarcane Insects: Egg masses of SUGARCANE BORER (Diatraea saccharalis) were first observed on cane in Louisiana in mid-April, averaging 9 masses per acre. These increased to 30 per acre by April 24 and then dropped to 6 per acre by April 30. By the third week of May egg masses had disappeared. Fresh sugarcane borer feeding signs were evident on about one percent of the plants examined in mid-April, and increased to 7 percent by May 1. Deadhearts were first observed in the State the third week of May and their numbers increased steadily thereafter. Deadhearts were most numerous in the southwestern area of the sugarcane belt, averaging 1,133 per acre. Newly hatched larvae of the second generation of sugarcane borer appeared about mid-June and by July 10 were present in all stages of development.

During the week of July 10 an infestation of RUSTY PLUM APHID (Hysteroneura setariae) occurred on sugarcane in Iberia Parish, Louisiana. FALL ARMYWORM (Laphygma frugiperda) caused considerable damage to late summer-planted sugarcane in St. James and St. Martin Parishes of the same State.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business



VOL. 10 NO. 14

APRIL 1, 1960

SB

823

C77

EMT.

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 of Insect Conditions

Heavy SPOTTED ALFALFA APHID infestations reported in Brazos County, Texas, and infestations increasing in Arizona. PEA APHID also heavy in Arizona alfalfa. (p. 234).

GREEN PEACH APHID severely damaging peach tree foliage in Las Cruces area, New Mexico, and heavy on potatoes and other plants in central Arizona. (pp. 235,236).

BARK BEETLES (Dendroctonus brevicomis and D. monticolae) causing considerable damage to pine trees in areas of California. (p. 236).

MOSQUITOES becoming prevalent in areas of Nevada and in northern California. (p. 237).

Larvae of a CUBAN MAY BEETLE (Phyllophaga bruneri) are abundant in the Miami area of Florida; the only known location in the U. S. (p. 238).

ADDITIONAL NOTES. (p. 239).

CORRECTION. (p. 240).

INSECT DETECTION: A yucca moth (Tegeticula yuccasella) recorded for first time in Wisconsin (p. 236); and European corn borer collected for first time in Union County, North Carolina (p. 234).

Some First Reports of the Season - ALFALFA WEEVIL adults active in Colorado, Utah and Idaho; CLOVER ROOT CURCULIO active in Colorado and Idaho; GREEN CLOVERWORM larvae present in Alabama; ALFALFA CATERPILLAR larvae taken March 23 in Colorado; LYGUS BUGS active in Utah, Colorado and Idaho; BEET ARMYWORM and CABBAGE LOOPER present in New Mexico lettuce fields; IMPORTED CABBAGEWORM adult collected in North Carolina; PEAR THRIPS active and PEAR PSYLLA eggs hatched in Oregon on March 18 and March 19, respectively; HACKBERRY NIPPLE GALL flights observed March 19 in Colorado; FACE FLY adults observed in Massachusetts; HONEY BEE active in Oklahoma; LADY BEETLES active in Colorado and Idaho; winged TERMITES noted in Maryland, North Carolina, Colorado and Nevada; and larvae of Apterona crenulella developing in Utah.

INSECTS not known to occur in the United States. (p. 241).

NOTE - Survey and Detection Operations has recently moved from the South Agriculture Building to their new offices in the Administration Building (room 450-E) in Washington, D. C. No change in the mailing address is necessary because of this relocation, however.

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

WEATHER OF THE WEEK ENDING MARCH 28

This week was a period of sharply contrasting weather conditions over much of the Nation. Mean temperatures in the eastern half of the country were again much below normal for the week. Rapid warming occurred in most sections over the weekend, however, ending record March cold in most States east of the Rocky Mountains. An outstanding example of the extremely rapid warming occurred in North Dakota, where temperatures were near -20° on Thursday morning and near 75° on Saturday afternoon. The warm weather caused rapid snowmelt which produced flooding over much of the Missouri and upper Mississippi River Basins and in the Great Lakes region. Unseasonably warm temperatures were general from the western Great Plains to the Pacific coast throughout the week.

Precipitation was very light or absent in most areas. Moderate to heavy rainfall, however, occurred from Louisiana to eastern New Mexico, and in south central Texas late in the week; light to moderate showers and rain fell along the Pacific coast over the weekend; and moderate to heavy snow was reported in parts of Michigan, Ohio and western New York, Connecticut, and in the mountains of North Carolina. Rainfall in the wet Southeastern States was the lightest in several weeks, allowing the start or resumption of fieldwork in most sections.

Before the rapid warming in the eastern portions of the Nation, extremely cold temperatures, including numerous record-low readings for so late in the year, were observed in the Great Lakes, Ohio Valley, and Northeastern States, and freezing temperatures extended to central Florida early in the week, equaling or approaching cold temperature records there for so late in the year. Below-zero readings were recorded in the Dakotas, Iowa, Wisconsin, Michigan, New York, and New England. Some of the coldest locations included Langdon, North Dakota, -20° ; Pellston, Michigan, -21° ; Wanekena Ranger Station, New York, -21° ; and Montpelier, Vermont, -12° .

In marked contrast were maximum temperatures in the Western States, where many record-high temperatures for so early in the year were equaled or exceeded in Montana, Oregon, California, Nevada, and Utah. Some of the higher readings occurred at Billings, Montana, 77° ; Pendleton, Oregon, 78° ; Red Bluff, California, 92° ; and Ely, Nevada, 83° , which exceeded the previous high temperature in March there. Cooler air pushed through the Plateau, northern Rocky Mountains and upper Great Plains States on Monday, again lowering temperatures in those areas. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - ARIZONA - Eggs of Aulocara elliotti, Melanoplus bilituratus and M. cuneatus began to hatch between March 20 and March 24 on the rangeland area of eastern Arizona. This is about 2 weeks later than in 1959, but is near the average for all years. Egg surveys indicate light populations in the San Carlos area and light to moderate populations in the Bonita-Sunset districts. (Ariz. Coop. Sur.).

GREENBUG (Toxoptera graminum) - ARKANSAS - Very few found in small grain in western area; counts less than one per linear foot. (Boyer). LOUISIANA - Survey of oat fields in Caldwell, Ouachita, Morehouse, Union, Lincoln, Claiborne, Webster and Bossier Parishes revealed a very light, spotty infestation. Greenbug was not present in 50 percent of the fields. Counts ranged 0-27 per linear foot in other fields. In one field in Ouachita Parish, greenbug averaged 13 per linear foot. (Spink). OKLAHOMA - None noted in 2 fields of small grain checked in Garfield County and counts ranged 1-3 per linear foot in 3 of 6 fields checked in Kingfisher County. (Owens). Counts ranged 1-10 per linear foot in 2 wheat fields in Payne County. (Stiles). Populations averaged from 1-30 per linear foot in small grain surveyed in Cleveland, McClain, Garvin, Pontotoc, Hughes and Seminole Counties. Counts averaged up to 100 per linear foot in bottom land fields near Noble, Cleveland County. Plants showed only limited effect from feeding of aphids. (VanCleave, Hatfield). Populations continue to increase in south central area. Counts averaged 9-120 plus per linear foot in 4 fields checked in Marshall County. (Vinson). Counts averaged 6 and 10 per linear foot in 2 fields checked in Cotton and Tillman Counties. None noted in 6 other fields surveyed in southwest area. (Hatfield). None noted in 6 fields checked in southwestern area. (Presgrove). Counts ranged 0-5 per linear foot in 2 wheat fields checked in Washita County. None noted in 14 other fields surveyed in Greer, Kiowa and Washita Counties. (Hudson). Light in 2 fields checked in Washita and Custer Counties and none noted in 5 additional fields checked in southwestern and west central areas. (Burke).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Counts averaged 2 per linear foot in wheat field checked in Hennessey area. None noted in 5 other fields checked in Kingfisher-Garfield County area. (Owens). None noted in 2 fields checked in Payne County. (Stiles). Light populations (averaged from less than 1-60 per linear foot) in one-eighth of the fields of small grain checked in the central area. (VanCleave, Hatfield). Counts averaged 6 and 80 per linear foot in 2 fields checked in Marshall County and none noted in 2 other fields checked in same county. (Vinson). Counts averaged 15 per linear foot in one field surveyed in Tillman County and none noted in 7 other fields checked in Cotton and Tillman Counties. (Hatfield). None noted in 22 fields of small grain checked in southwestern and west central areas. (Presgrove, Hudson). Light in one field checked in Washita County and none found in 6 other fields checked in southwest and west central areas. (Burke). ARKANSAS - None found on small grain that has made very little growth. Small grain six inches high in northwestern area has had spotted, heavy infestations for some time; counts ranged from very few to 50 or more per linear foot. (Boyer).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Found in only one field in Noble area where counts averaged less than one per linear foot. None noted in other fields checked in central area. (VanCleave, Hatfield). Counts ranged 8-30 per linear foot in 4 fields checked in Marshall County. (Vinson). None noted in fields surveyed in southwest and west central areas (Hatfield, Presgrove, Hudson, Burke) and none noted in fields checked in Payne, Kingfisher and Garfield Counties (Stiles, Owens).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Counts ranged 1-25 per linear foot in approximately one-fifth of the fields of small grain checked in central area. (VanCleave, Hatfield). Counts averaged 30 per linear foot in a wheat field in Tillman County. (Hatfield). None noted in other small grain fields checked throughout the State. (Vinson, Presgrove, Hudson, Burke, Owens, Stiles).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NORTH CAROLINA - Injured corn stalk and larvae parasitized with a fungus found in Union County. This is the first report of this species in that county. (Farrier).

ALFALFA WEEVIL (Hypera postica) - COLORADO - Adults active in alfalfa in Larimer County. (Colo. Ins. Sur.). UTAH - Adults now active in Davis and Salt Lake Counties. (Knowlton).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Counts average 10-12 per sweep in many Yuma County alfalfa fields. (Ariz. Coop. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidula) - COLORADO - Adults active in alfalfa in Larimer County. (Colo. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Infestations increasing in alfalfa, statewide. Populations still low in most areas; but in Yuma County some fields heavily infested and are being damaged considerably. (Ariz. Coop. Sur.). TEXAS - Heavy infestation on alfalfa in the Brazos River area of Brazos County. (Randolph). OKLAHOMA - Light populations (8-50 per square foot) noted in approximately one-half of the alfalfa fields checked in central area. (VanCleave, Hatfield). Counts averaged 10-15 per square foot in 2 alfalfa fields in Johnston County (Vinson) and 10, 20 and 20 per square foot of crown area in 3 alfalfa fields in Tillman County (Hatfield). Populations decreased in 4 infested alfalfa fields in Beckham, Roger Mills and Custer Counties. Counts now average less than one per square foot. (Burke). Counts averaged 0 and 3 per square foot of crown in 2 alfalfa fields surveyed in Kingfisher-Garfield County area. (Owens). ARKANSAS - None found on alfalfa in northwestern area. (Boyer).

PEA APHID (Macrosiphum pisi) - ARIZONA - Infestations heavy in alfalfa, statewide. (Ariz. Coop. Sur.). OKLAHOMA - Light populations, 0.8-8.0 per square foot, common in fields of alfalfa and vetch surveyed in central area. (VanCleave, Hatfield). Light, 8 per square foot, in an alfalfa field checked in Johnston County. (Vinson). None noted in field surveyed in Jackson County. (Presgrove). Counts averaged 0 and 0.5 per square foot of crown area in 2 alfalfa fields checked in Kingfisher-Garfield County area. (Owens). Light in an alfalfa field checked in Beckham County. (Burke).

A WEBWORM (Loxostege sp.) - OKLAHOMA - Light in an alfalfa field checked in Johnston County. (Vinson).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Light infestation on crimson clover in Autauga County. Larvae ranged from very small to one-half inch in length. (S. Hays).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - COLORADO - An early-instar larva taken March 23. (Colo. Ins. Sur.).

A LEAFHOPPER (Dikraneura carneola) - UTAH - Very numerous in fall grain and grassy roadsides of central Utah County. (Knowlton).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - COLORADO - Counts 28 per 100 sweeps in alfalfa. (Colo. Ins. Sur.). UTAH - Numerous in alfalfa fields at Spanish Fork and Mapleton, Utah County. (Knowlton).

FALSE CHINCH BUGS - UTAH - Appearing on range and alfalfa field margins of Weber and Salt Lake Counties. (Knowlton).

LYGUS BUGS (Lygus spp.) - COLORADO - Adults number 8 per 100 sweeps in Larimer County alfalfa. (Colo. Ins. Sur.). UTAH - Active in northern area alfalfa fields, largely L. elisus. (Knowlton).

FRUIT INSECTS

GREEN PEACH APHID (Myzus persicae) - COLORADO - Eggs hatching in Mesa, Delta, Garfield and Montrose Counties. (Colo. Ins. Sur.). NEW MEXICO - Causing severe damage to foliage of peach trees in Las Cruces area, Dona Ana County. (N. M. Coop. Rpt.).

APHIDS - UTAH - Eggs light to moderately numerous in apple orchards in south Box Elder, Weber, Salt Lake and Utah Counties. (Knowlton).

SAN JOSE SCALE (Aspidiotus perniciosus) - TEXAS - Infestations on peach trees in Nacogdoches County causing damage to orchards. (Texas. Coop. Rpt.). NEW MEXICO - Abandoned apple orchards heavily infested at Aztec, San Juan County. (N. M. Coop. Rpt.).

MEXICAN MEALYBUG (Phenacoccus gossypii) - CALIFORNIA - Heavy populations developed on guava in Willows, Glenn County. (Cal. Coop. Rpt.).

LYGUS BUGS (Lygus spp.) - UTAH - Active in northern area orchards, largely L. elisus. (Knowlton).

PACIFIC FLATHEADED BORER (Chrysobothris mali) - CALIFORNIA - Medium damage to a peach tree in Santee, San Diego County. (Cal. Coop. Rpt.).

Citrus Insect Situation in Florida - Mid-March - PURPLE SCALE (Lepidosaphes beckii) activity will hold near the present low level through March and then will take a slight upward trend in April. Populations will be lower than in the spring of 1959 and much below those of 1951-58. FLORIDA RED SCALE (Chrysomphalus aonidum) activity has sharply increased since February and a further increase is expected through April. However, populations are very low at present and will remain below average in most districts this spring. Moderate activity is present in the Indian River and Ridge districts. CITRUS RED MITE (Panonychus citri) - An increase in activity during the past week marked the start of an upward trend which will prevail during the next month. Current activity and population levels are below average for this time of year and are expected to remain below average through April. Infestations are spotty, but all districts have a few groves with moderate to high infestations. Mites are now moving out on the new growth. Highest activity is in the Bartow and Brooksville districts. CITRUS RUST MITE (Phyllocoptura oleivora) activity dropped to average level during the past two weeks and will continue downward through April. Heavy to moderate infestations are spotty, but can be found in all districts and are more numerous than normal for this time of year. Highest activity is in the Bartow, west coast, Ridge and Brooksville districts. TEXAS CITRUS MITE (Eutetranychus banksi) and SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infestations are increasing. (Simanton, Thompson, Johnson (Citrus Exp. Sta., Lake Alfred)).

BLACK CITRUS APHID (Toxoptera aurantii) - CALIFORNIA - Medium populations developed on tangerine in Imperial County. (Cal. Coop. Rpt.).

DARKLING BEETLES - ARIZONA - Adults have been numerous in Yuma County vineyards for several weeks and are causing damage by feeding on the buds. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

BEEET ARMYWORM (Spodoptera exigua) - NEW MEXICO - Occasional larva, probably this species, found in lettuce fields in Dona Ana County. (N. M. Coop. Rpt.)

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Eggs and larvae very light and spotty in Dona Ana County lettuce fields. (N. M. Coop. Rpt.).

IMPORTED CABBAGEWORM (Pieris rapae) - NORTH CAROLINA - First adult of the season received for identification from Lenoir County. (Jones, Farrier).

A CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Causing minor damage to lettuce plantings in Dona Ana County. (N. M. Coop. Rpt.).

FLEA BEETLES - NEW MEXICO - Unspecified species beginning to build up on cabbage in Dona Ana County; damage is light. (N. M. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Heavy infestations present on potatoes, safflower and numerous weeds and flowers in the central part of the State. Infestations are light on lettuce and cantaloup in the central and southwest areas. Large numbers of winged forms are present in all areas. (Ariz. Coop. Sur.).

CUTWORMS - NEW MEXICO - Unspecified species are a problem in several onion fields which were in alfalfa during the 1959 season. (N. M. Coop. Rpt.).

THRIPS - NEW MEXICO - Unspecified species averaged 10-12 per plant on seed onions, lighter on bulb onions, in Dona Ana County. (N. M. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES (Dendroctonus spp.) - CALIFORNIA - D. brevicomis and D. monticolae causing considerable damage to old growth ponderosa and sugar pines in the south grove of the Calaveras Big Trees and an area between the north and middle forks of the Stanislaus River. Red tops and fading occurring on about 1,000 acres of timber. (R. Pland). Aerial survey revealed considerable kill in ponderosa pine in groups of 30 or more in the Stanislaus National Forest and adjacent private land. Many small trees also involved. Control logging and chemical treatment are anticipated. (L. S. Price).

AN OLETHREUTID (probably Petrova metallica) - CALIFORNIA - Causing tip killing of bishop pines in the Fort Bragg area of Mendocino County. (P. Lowell).

A SCALE INSECT (Matsucoccus paucicatricis) - CALIFORNIA - Causing flagging of twigs and branches and also complete kill of some young sugar pines in the Mendocino National Forest. (B. Lange).

A YUCCA MOTH (Tegeticula yuccasella) - WISCONSIN - Specimens collected from yucca seed pods in a nursery at Brodhead, Green County, on August 12, 1959, were determined as this species. This is a new State record for this species. (Wis. Coop. Sur.).

APHIDS - FLORIDA - An increase reported from Palm Beach district, especially on hibiscus and citrus. (Fla. Coop. Sur.). NEW MEXICO - Moderate to heavy infestations of Cinara tujaefilina present on arborvitae in southern counties. (N. M. Coop. Rpt.). OKLAHOMA - Light to medium infestations of Cinara sp. noted on arborvitae throughout the central area (VanCleave, Hatfield) and medium infestations noted on the same host at 2 locations in Johnston and Marshall Counties. (Vinson).

A CHINCH BUG (Blissus sp.) - FLORIDA - Populations reported to be the lowest in 10 years. (Fla. Coop. Sur.).

DOGWOOD CLUB-GALL MIDGE (Mycodiplosis alternata) - NORTH CAROLINA - Severely infesting dogwood locally in Durham County. (Jones, Farrier).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Infesting euonymus at Baltimore, March 19. (U. Md., Ent. Dept.).

SCALE INSECTS - MARYLAND - Florinia externa severely infesting yew at Towson, Baltimore County. (U. Md., Ent. Dept.). IDAHO - An unspecified species reported infesting flowering peach trees at Parma. (Scott).

SPIDER MITES - NEW MEXICO - Populations of unspecified species building up on ornamental plants in southern part of the State. (N. M. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - UTAH - Adults survived the winter at Granger, Salt Lake County. (Knowlton).

A CHRYSOMELID (Altica ulmi) - PENNSYLVANIA - Large numbers present at base of elm tree at Grove City, Mercer County, December 28, 1959. Det. W. W. Boyle. (Adams).

A PLANT BUG - PENNSYLVANIA - Infesting buds of white ash at Livonia, Centre County. Buds were killed. Determined as probably ash plant bug (Neoborus amoenus) by R.T. Saylor from egg, host and damage. (Drooz, March 7).

HACKBERRY NIPPLE GALL (Pachypsylla celtidis-mamma) - COLORADO - Flights observed March 19 in Larimer County. (Colo. Ins. Sur.).

A PSYLLID (Pachypsylla venusta) - NEW MEXICO - Galls caused by this species abundant on shade trees at Truth or Consequences, Sierra County. (N. M. Coop. Rpt.).

EUROPEAN ELM SCALE (Gossyparia spuria) - CALIFORNIA - Heavy infestations occurring on American elm trees in Riverside, Riverside County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - CALIFORNIA - Populations of Culex tarsalis and other species generally showing rapid increases during March. High daytime temperatures, following considerable rain, have activated mosquitoes, causing a nuisance to home owners. Highest populations occurred in the northern area of the State. (Vector Control). NEVADA - Third-instar larvae of Aedes communis and A. increpitus averaged 35-50 per dip at Glenbrook, Douglas County. Larvae of A. dorsalis were mostly third instar and those of A. campestris mostly fourth instar; both in the Fallon area of Churchill County. A. niphadopsis adults emerged in Fallon, as well as in Fernley and Yerington, Lyon County. (Chapman).

FACE FLY (Musca autumnalis) - MASSACHUSETTS - Adults overwintering in schoolhouse in Amherst, Hampshire County. Active in schoolrooms on warm days. (Sweetman, Steve, March 22).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Grubs removed from backs of cattle in the Ephraim-Gunnison-Mayfield area during period February 23-25 were all determined as H. lineatum by C. W. Sabrosky. Some herds of cattle in the Fillmore-Kanosh area, Millard County, are heavily infested by Hypoderma spp. (Knowlton). OKLAHOMA - Adults of H. lineatum observed running cattle in the Roff area of Pontotoc County on the afternoon of March 23. (VanCleave, Hatfield).

CATTLE LICE - UTAH - Unspecified species heavily infesting some cattle herds in the Fillmore-Kanosh area of Millard County. (Knowlton).

PACIFIC COAST TICK (Dermacentor occidentalis) - CALIFORNIA - Light populations occurring in native grasses and volunteer wheat in Cuyama, Santa Barbara County. (Cal. Coop. Rpt.).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - PENNSYLVANIA - Fairly heavy infestation in basement of a home in Centre County, reported March 3. (Gesell).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - OKLAHOMA - First activity noted; gathering pollen from elm and maple in the Stillwater area, Payne County. This is 4-6 weeks later than usual. (Bieberdorf).

LADY BEETLES (Hippodamia spp.) - COLORADO - Masses of hibernating adults of Hippodamia spp. found in foothills in northwest Larimer County. (Colo. Ins. Sur.). OKLAHOMA - Light to medium populations of H. convergens noted in most fields of alfalfa and small grain found to be infested with aphids in the west central area of the State. (Burke). Very limited numbers of the same species noted in the remaining fields surveyed throughout the State. (Okla. Coop. Rpt.). IDAHO - Annual spring migrations of numerous species commenced in the Moscow area with the advent of warm weather. (Gittins).

NABIDS (Nabis spp.) - OKLAHOMA - Limited numbers active in fields surveyed in the central area of the State. (VanCleave, Hatfield).

MISCELLANEOUS INSECTS

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - MARYLAND - Winged forms noted in cellar of a home at Baltimore, March 22. (U. Md., Ent. Dept.). NORTH CAROLINA - Swarming in a house in Wake County. (Jones, Farrier).

TERMITES - COLORADO - Winged forms of Reticulitermes tibialis observed in several locations in Larimer County. (Colo. Ins. Sur.). UTAH - Severe infestation of an unspecified species present in a large business building in Salt Lake City. (Knowlton). NEVADA - Reticulitermes sp. swarming in Elko, Elko County, with many homes reported infested. (Del Curto).

A PSYCHID (Apterona crenulella) - UTAH - Larvae developing inside overwintered cases in cherry orchard near Spanish Fork. Quite a little winter mortality is evident. (Knowlton).

WHITE-SPOTTED SAWYER (Monochamus scutellatus) - MARYLAND - Specimens collected in a home at Kensington, Montgomery County, March 22. (U. Md., Ent. Dept.).

A CUBAN MAY BEETLE (Phyllophaga bruneri) - FLORIDA - Light traps have been operated in the Miami area since this pest was discovered in June 1959. (A write-up of the species can be found in CEIR 10(4):47.). Adults have been collected every month since the discovery, except the months of January and February 1960. However, larvae are abundant and appear to be near pupation. Insecticidal tests have yet to reveal satisfactory control. Additional tests are being conducted in the Miami area. (Fla. Coop. Sur.).

CIGARETTE BEETLE (Lasioderma serricorne) - NORTH CAROLINA - Large numbers received for identification from Lenoir County. (Jones, Farrier).

FURNITURE CARPET BEETLE (Anthrenus flavipes) - PENNSYLVANIA - Specimens taken in a home in Centre County, March 12. (Gesell).

NITIDULIDS - CALIFORNIA - Heavy adult populations of Carpophilus hemipterus and Haptoncus luteolus occurring in old fruit dumps in the Clovis area of Fresno County. A single 5-gallon trap collected over 5,000 beetles in 48 hours, with daytime temperatures over 80° F. C. hemipterus comprised 95 percent of the collection while H. luteolus had only 5 percent. (G. Spitzer, A. Yearington).

COCKROACHES - MARYLAND - Blattella germanica infesting a new house at Randallstown, Baltimore County. (U. Md., Ent. Dept.). UTAH - Blatta orientalis infesting a home in Salt Lake City. (Knowlton).

EASTERN LUBBER GRASSHOPPER (Romalea microptera) - FLORIDA - Reported as appearing in abundance. (R. A. Long).

BOXELDER BUG (Leptocoris trivittatus) - MARYLAND - Troubling homeowners by entering houses in Baltimore and Montgomery Counties. (U. Md., Ent. Dept.).

CLUSTER FLY (Pollinia rudis) - COLORADO - Abundant in lawns in Larimer County. (Colo. Ins. Sur.). UTAH - This species and blow flies active about farms at Spanish Fork, Utah County. (Knowlton).

LARGER YELLOW ANT (Lasius interjectus) - PENNSYLVANIA - Were swarming in a home in Delaware County in February. (Menusan).

A THRIPS (Gynaikothrips ficorum) - CALIFORNIA - Reported as Gynaikothrips sp. in CEIR, Vol. 9, pages 921, 963, 986 and 1008; has now been determined as this species by K. O'Neill. (Cal. Coop. Rpt.).

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Heavy population invading a home in San Leandro, Alameda County. (Cal. Coop. Rpt.).

ADDITIONAL NOTES

NEVADA - No specimens of PEA APHID (Macrosiphum pisi) or SPOTTED ALFALFA APHID (Therioaphis maculata) found in fields checked in Churchill and Washoe Counties. (Bechtel, Gardella, Lauderdale, York).

IDAHO - Overwintering adults of ALFALFA WEEVIL (Hypera postica) became active in the Moscow area during the week ending March 18 and adults of CLOVER ROOT CURCULIO (Sitona hispidula) are now active in the same area. (Gittins). LYGUS BUGS (Lygus hesperus and L. elisus) are appearing in large numbers in the Parma area of Canyon County. (Scott). L. hesperus also becoming quite active in the Moscow area of Latah County. (Gittins). Infestation of what is probably WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) found in a small peach orchard in the Parma area. Infestations in this orchard were apparently reduced by 90 percent from those of 1959 following 2 summer treatments and one spring treatment. Infestations have also been reported on backyard peach trees in Parma and Emmett. (Scott).

OREGON - PEAR THRIPS (Taeniothrips inconsequens) began emerging in Linn County, March 18. (Jones). LEAFHOPPERS (undetermined) were reported severely infesting lawns and shrubs in Pendleton, March 18. Damage was considered light. (Chinn). Early spring surveys made in Umatilla County alfalfa fields heavily infested during the late fall of 1959 by SPOTTED ALFALFA APHID (Therioaphis maculata), proved negative for this species. (Every). PEAR PSYLLA (Psylla pyricola) - Eggs laid by winter adults on pear spurs began to hatch in the Medford area on March 19; an unusually early date. (Gentner). APPLE GRAIN APHID (Rhopalosiphum fitchii) - Recently emerged young aphids were observed on March 21 in moderate numbers in the opening blossom clusters of unsprayed pear trees in the Medford area. (Gentner).

LIGHT TRAP COLLECTIONS

	<i>Pseudaletia</i> unipuncta	<i>Agrotis</i> ippsilon	<i>Feltia</i> subterr.	<i>Prodenia</i> ornithog.	<i>Peridroma</i> margaritosa
ARIZONA Mesa 3/7-20				24	8
FLORIDA Quincy 3/14		1	13		
LOUISIANA Franklin 3/18-24		5	12	4	
Baton Rouge 3/18-24	3	2	1	1	
SOUTH CAROLINA Charleston 3/21-27		12	1	2	1
TEXAS Brownsville 2/20-3/11	30	15	9		7

Additional Collections

ARIZONA (Mesa, 3/7-20) - *Spodoptera exigua* - 14. TEXAS (Brownsville, 2/20-3/11) - *Heliothis zea* - 9; *Loxostege similalis* - 843.

CORRECTION

CEIR 10(13):214 - DOGWOOD BORER (*Thamnospectia scitula*) should read (*Thamnospecia scitula*).

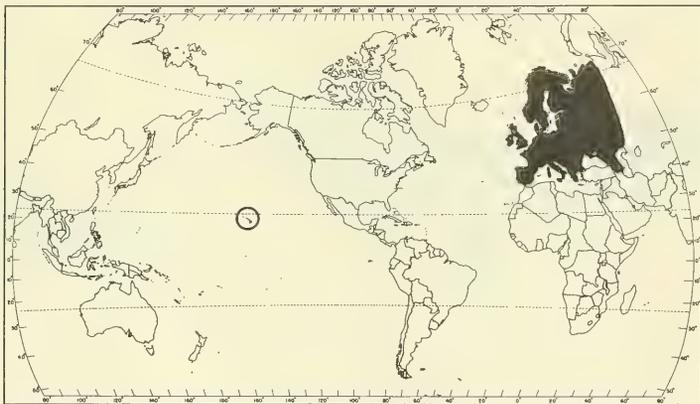
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

LEEK MOTH (Acrolepia assectella (Zell.))^{1/}

Economic Importance: This hyponomeutid causes heavy damage to leeks, onions and related crops in Europe by mining and feeding within the foliage and bulbs. Damage is followed by extensive rotting. The larvae also feed on the seed stalk, preventing formation of seed. Infestations in leek in Italy increase in intensity during the growing season, reaching 40 percent or more by late summer. Injury to onions in England is apparently less severe than that on leeks. Combined damage from this species and the onion maggot (Hylemya antiqua) on leeks in Holland has run as high as 80 to 90 percent. In some areas, the moth is regarded as more damaging than the maggot. Acrolepia assectella is frequently intercepted at U. S. ports of entry. It has been reported from Hawaii where it attacks onions.

Distribution: Generally distributed in Europe, including British Isles. Also reported from Hawaii.

Hosts: Onion, leek, garlic, chive.



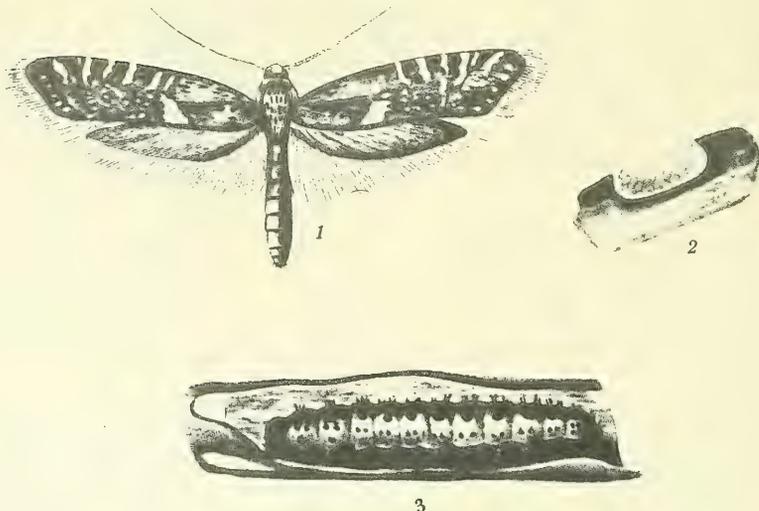
General Distribution of Acrolepia assectella

Life History and Habits: The moth flies at night in an irregular zigzag pattern. Copulation occurs in the early morning and lasts for several hours. Egg laying begins shortly thereafter. Each female lays about 100 eggs during the month of May. These are placed singly at the base of the onion, leek or garlic plant. Hatching occurs in 5 to 8 days and the young larva perforates the epidermis and makes a gallery 2 to 5 mm. long. After about 5 days the larva moves to the heart of the plant and bores in all directions. The affected plants yellow at the extremities, the central leaves show perforated and transparent streaks in irregular bands. After 15 to 20 days, the larva leaves the plant and pupates in a cocoon on the foliage or other support. In about 2 weeks moths emerge. The second generation feeds during August. Pupation takes place in September and

(Hyponomeutidae, Lepidoptera)
^{1/} Except the State of Hawaii.

part of the moths emerge and overwinter in sheltered locations. The remainder of the moths do not emerge until the following spring. This is the life history of *A. assectella* under French conditions. Five or six generations a year are reported for Italy.

Description: ADULT expanse 16-18 mm. Head red; antennae, thorax and abdomen brownish. Hindwings clear gray with long fringe. Spread forewings brownish-black with terminal third whitish, fringe brownish with intermingled black scales. Two white spots occur on the posterior border. Antenna simple in both sexes. Maxillary palps short and erect. EGGS 0.5 by 0.2 mm., reniform, white. Full-grown LARVA about 5 mm. long, clear greenish. Head, pronotum and thoracic legs yellow. Each abdominal segment has 4 small black plaques dorsally, each with a seta, and laterally 4 similar ones on each side. COCOON grayish or brownish, pupa about 7 mm. long. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U. S. National Museum). CEIR 10(14):4-1-60.



Adult (1), Egg (2) and Larva (3) of *Acrolepia assectella*

Figures (except map): Adult, egg and larva from Volkov, S. M., Zimin, L. S., Rudenko, D. K. and Tupenevich, S. M., 1955. Album of Pests and Diseases of Agricultural Crops of the non-Chernozem Area of European USSR. Table 72. (In Russian).

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business



VOL. 10 NO. 15

APRIL 8, 1960

SB

823

C77

Ent.

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 of Insect Conditions

CORN LEAF APHID infestations very heavy in barley in Arizona. HESSIAN FLY infesting 2-20 percent of plants in central Missouri. (p. 245). PEA APHID and SPOTTED ALFALFA APHID controls being applied in Brazos and Burleson Counties, Texas. (pp. 245-246).

PAPAYA FRUIT FLY trapped in Texas; first time in many years. (p. 248).

CABBAGE LOOPER infestations heavier and earlier than normal in Arizona. (p. 248). POTATO PSYLLID controls being applied in lower Rio Grande Valley of Texas. (p. 249).

GYPSY MOTH buildup reported in several New England states; defoliation may be heavy in several areas. (p. 250).

KHAPRA BEETLE infestation found in Riverside County, California. (p. 252).

Some First Reports of the Season - ALFALFA WEEVIL laying eggs in Colorado. CLOVER LEAF WEEVIL larvae present in Missouri. ARMY CUTWORM larvae present in Colorado and Kansas. GREEN PEACH APHID egg hatch underway in Colorado. PEAR PSYLLA eggs present in Wenatchee area of Washington. GREAT BASIN TENT CATERPILLAR larvae active in Utah. SPRING CANKERWORM adults observed in Missouri and Kansas. FACE FLY adults observed in home in Ohio on March 30. Several ANT species appearing in Pennsylvania, Maryland and North Carolina. EASTERN SUBTERRANEAN TERMITE swarms noted in several Eastern states. EUROPEAN EARWIG adults active and NORWAY-MAPLE APHID eggs hatching in Idaho.

INSECT DETECTION: Imported fire ant found in Red River Parish, Louisiana, for the first time. (p. 252).

CORRECTIONS. (p. 253).

ADDITIONAL NOTES. (p. 253).

INTERCEPTIONS of special interest at U. S. ports of entry. (p. 255).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1959

Cereal and Forage Insects

Alfalfa, Clover and Vetch Insects - (p. 256)
Soybean and Peanut Insects - (p. 273)
Pasture and Grass Insects - (p. 276)
Pests of Miscellaneous Crops - (p. 278).

Reports in this issue are for the week ending April 1, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

APRIL 1960

The Weather Bureau's 30-day outlook for April calls for temperatures to average above seasonal normals over the Northeast and Far Southwest. Below-normal temperatures are expected to prevail over most of the area lying between the Appalachians and the Continental Divide. In unspecified areas, near normal temperatures are indicated. Precipitation is expected to exceed normal over the eastern half of the Nation except for normal amounts along the Gulf Coast. Subnormal rainfall is expected over the southwestern quarter. Elsewhere near normal amounts are predicted.

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 4

The week was unusually warm in most sections of the Nation, and precipitation was generally moderate to heavy from the eastern Gulf States northeastward, along the coast of the Pacific Northwest, and over portions of the central Great Plains, Mississippi Valley, and the central Great Lakes area. Generally above-normal temperatures were experienced in most areas east of the Rocky Mountains for the first time since early February. The weekly averages were 5° to 10° above normal from Florida northward to the eastern Great Lakes and western New England, and in the northwestern Great Plains, 3° to 6° above normal in the Far Southwest, near normal from the Pacific Northwest to the west Gulf coast, and below normal in the eastern Dakotas and Nebraska, Iowa, and most of Minnesota. Maximum temperatures ranged in the 70's and 80's as far north as New Jersey, Indiana, Missouri, Nebraska and Washington on one or more days. Scattered 90° readings were recorded in west Texas, Arizona and California. The 92° mark at San Diego on Saturday was the warmest for April there since 1947. Minimum temperatures below freezing were felt as far south as southern New Mexico, northern Arkansas and Ohio, and southwestern New England on one or more mornings. Rapid snow and ice melting, resulting from the moderating temperatures in northern sections of the country and moderate to heavy precipitation in the Middle West and the Northeastern States, caused flooding over wide areas from New England to the central and northern Great Plains, and excessive precipitation in the Southeastern States has produced flooding in that region.

Precipitation totals exceeding 1 inch were general from eastern Louisiana northeastward to central New York, along the Pacific coast from northern California northward, from north central Kansas to the eastern Dakotas, and in scattered areas of Illinois, Wisconsin and Michigan. Heavy rains and thunderstorms associated with cold frontal passages in the Southeastern States continued during most of the week. Precipitation totals of more than 4 inches were general from the central Gulf coast to the Carolinas, and 7 inches or more were reported in scattered areas. Heavy rains fell at midweek in Illinois and Wisconsin, with some record 24-hour totals for March in southeastern Wisconsin. Unusually heavy late-season snowfall ranged from 1 to 4 inches in north central Kansas to 4 to 8 inches (locally up to 16 inches) in eastern South Dakota and 4 to 12 inches in southwestern Minnesota on Friday and Saturday, as a large low pressure area moved north-northeastward over the Great Plains. West of the Rocky Mountains, precipitation covered the Pacific Northwest most of the week. Totals were heavy along the coast, with 3 inches or more general, while 1 to 3 inches were reported west of the Cascades, and lighter amounts in eastern sections and in the Plateau States, while only scattered showers fell over the Desert Southwest. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (*Toxoptera graminum*) - OKLAHOMA - None to very few noted in widely scattered fields of small grain surveyed in northwestern and north central areas. (VanCleave). Populations generally light or noneconomic in fields checked in central, southwest and northwest areas. (Owens, Stiles, Presgrove, Hatfield). Medium (60 per square foot) and heavy (200 per square foot) in two fields of volunteer oats surveyed in Choctaw County. (Goin). TEXAS - Light, noneconomic, populations in 15 northern area counties surveyed except as follows: Wichita County - 2 fields each averaging 25-300 per foot; remainder of fields in area with light and noneconomic infestations. Dallas County - 2 fields in eastern part of county averaged 150-200 per foot and several in Duncanville area about the same. Denton County - One field with 10-15 per foot. (Chada). KANSAS - None found in wheat fields examined in southeastern counties. (Peters). COLORADO - None found in wheat in Baca or Prowers Counties. (Colo. Ins. Sur.).

APPLE GRAIN APHID (*Rhopalosiphum fitchii*) - CALIFORNIA - Heavy on barley in the Otay area, San Diego County. *Myzus persicae* also present. (Cal. Coop. Rpt.). TEXAS - Few observed in Denton area. (Chada). OKLAHOMA - None noted in fields of small grain checked in northwestern and north central areas (VanCleave) and in fields checked in southwestern and southeastern areas (Hatfield, Presgrove, Goin). Light in 3 of 5 fields checked in Hennessey area and in a field checked in Major County. (Owens).

CORN LEAF APHID (*Rhopalosiphum maidis*) - ARIZONA - Infestations very heavy in barley statewide; however, percent parasitized becoming high. In general, populations not as high as in 1959. (Ariz. Coop. Sur.).

HESSIAN FLY (*Phytophaga destructor*) - MISSOURI - From 2-20 percent of plants in central area infested with from 4-40 pupae per 100 plants. (Kyd, Thomas, Munson).

BROWN WHEAT MITE (*Petrobia latens*) - COLORADO - Not found in wheat in Baca or Prowers Counties. (Colo. Ins. Sur.).

WINTER GRAIN MITE (*Penthaleus major*) - TEXAS - Populations light, 0-50 per foot in area immediately around Denton-Dallas-Fort Worth area. Absent or very light in remainder of northern area surveyed. (Chada). MISSOURI - Present in very small numbers in wheat in southeastern area. Counts 0-4 per linear foot of row. (Kyd, Thomas, Munson).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - OKLAHOMA - Thirty-one percent of 420 larvae found in 6 Payne County fields were dead. There were few living borers in fields flooded during fall and nearly all larvae removed by birds in one field. (Arbuthnot).

PEA APHID (*Macrosiphum pisi*) - ARIZONA - Infestations continuing very heavy in alfalfa statewide. Diseased aphids have been found in most areas during past week. (Ariz. Coop. Sur.). NEW MEXICO - Building up in a few fields in northern Dona Ana County. (N. M. Coop. Rpt.). TEXAS - Infestations heavy on alfalfa in Brazos and Burleson Counties, averaging 50 per sweep. Controls being applied. (Randolph). UTAH - Numerous in some Kane and Washington County alfalfa fields. (Knowlton). OKLAHOMA - None noted in alfalfa fields checked in northwestern and north central areas. (VanCleave). Light to noneconomic in other alfalfa fields checked in north central, central, south central, southwest and southeastern areas. (Owens, Stiles, Hatfield, Presgrove, Vinson, Goin). KANSAS - Counts averaged less than one per square foot in alfalfa in southeastern counties. Alfalfa height ranged 1-4 inches. (Peters). MISSOURI - Present in fields in southwestern area that have some new growth. Counts ranged 0-25 per square foot. (Kyd, Thomas, Munson).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEW MEXICO - None found in alfalfa fields checked in Socorro and Sierra Counties. Few light infestations found in northern Dona Ana County. (N. M. Coop. Rpt.). UTAH - Present, but scarce, in alfalfa at Kanab, Kane County. (Knowlton). COLORADO - Not found in alfalfa in Baca, Prowers, Bent and Otero Counties. (Colo. Ins. Sur.). TEXAS - Infestations damaging alfalfa in Brazos and Burleson Counties. Counts average 15-25 per sweep. Control measures being applied. (Randolph). OKLAHOMA - None to very light populations (less than 10 per square foot) noted in fields of alfalfa in northwestern and north central areas. (VanCleave). Counts per linear foot in other areas were 9 in a field in Garfield County (Owens), 25 in a field in Blair area of Jackson County (Presgrove), and 10 in a field in Johnston County (Vinson). Counts per square foot of crown area were 30 in a field in Jackson County and 25-400 in 4 alfalfa fields surveyed in Tillman County. (Hatfield). KANSAS - None found in alfalfa fields in southeastern area. (Peters).

ALFALFA WEEVIL (*Hypera postica*) - NORTH CAROLINA - Larvae, mostly early instars, present. Some fields with lighter infestations than in past years. Larvae and adults active under recent snow cover. (Campbell). COLORADO - Adults active in Arkansas Valley, South Platte and on the Western Slope. Egg laying occurring on the Western Slope. (Colo. Ins. Sur.).

CLOVER LEAF WEEVIL (*Hypera punctata*) - MISSOURI - Present in limited numbers in alfalfa in the southwestern area. Counts ranged 0-3 first and second-instar larvae per crown. (Kyd, Thomas, Munson).

CLOVER ROOT CURCULIO (*Sitona hispidula*) - COLORADO - Adults active in Larimer and Weld Counties in alfalfa. (Colo. Ins. Sur.).

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - COLORADO - Larvae present in some alfalfa fields in Mesa County. (Colo. Ins. Sur.) KANSAS - One larva found in a wheat field in Cowley County. Damage was not evident. (Peters).

CUTWORMS (unspecified) - NEW MEXICO - Killed out large areas of seedling alfalfa near Hatch, Dona Ana County. (N. M. Coop. Rpt.). COLORADO - Not found in wheat. (Colo. Ins. Sur.). UTAH - Not numerous in alfalfa in Kane and Washington Counties. (Knowlton).

ALFALFA CATERPILLAR (*Colias philodice eurytheme*) - COLORADO - Larvae found in crowns of alfalfa in Larimer and Otero Counties. (Colo. Ins. Sur.).

GREEN CLOVERWORM (*Plathypena scabra*) - TEXAS - Averaged 5 per sweep on alfalfa in the Brazos River area of Brazos and Burleson Counties. (Randolph).

CITRUS THRIPS (*Scirtothrips citri*) - CALIFORNIA - Light infestation on alfalfa in Lancaster, Los Angeles County. (Cal. Coop. Rpt.).

SOYBEAN CYST NEMATODE (*Heterodera glycines*) - KENTUCKY - Five additional farms found infested in Fulton County during February. MISSOURI - Three additional farms found infested in Dunklin County in the Cardwell area since December 1, 1959. Intensive soil sampling in Scott County has been negative. (PPC, Cent. Reg., Feb. Rpt.). VIRGINIA - In Nansemond County, 19 additional properties, involving 854 acres, were found infested during February. (PPC, East. Reg.). ARKANSAS - Three additional properties were found in Craighead County and one property in Mississippi County was found infested during February. (PPC, So.Reg. Feb. Rpt.).

A BEETLE (*Colaspis* sp.) - ARKANSAS - Number of overwintering larvae in lespedeza appears lower than the past two years in northeastern area. This pest damaged soybean seedlings in this area in 1959, with some fields suffering economic damage. Of 13 soybean fields planted in 1959, that were checked, larvae were found in only 3 fields with less than one larva per square foot in soil examined. (Boyer).

FRUIT INSECTS

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Peach trees in southern counties often infested. (N. M. Coop. Rpt.). COLORADO - Egg hatch well underway in Mesa, Delta, Montrose and Garfield Counties. (Colo. Ins. Sur.). UTAH - Some present on apples at Santa Clara and Hurricane, Washington County. (Knowlton).

ROSY APPLE APHID (Anuraphis roseus) - UTAH - Curling apple leaves at Santa Clara and Hurricane, Washington County. (Knowlton).

APPLE APHID (Aphis pomi) - WASHINGTON - Hatched nymphs feeding on young apple leaves in Wenatchee area. (Hoyt).

COWPEA APHID (Aphis medicaginis) - NEW MEXICO - Light, spotty infestations on apple trees in Dona Ana County. (N. M. Coop. Rpt.).

A MITE (Tetranychus medanieli) - WASHINGTON - Large numbers in apple tree tops feeding on exposed foliage. (Hoyt).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Adults abundant and active in many orchards in Wenatchee area. Eggs already deposited on twigs and buds. (Burts).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - Medium infestations noted in plum and peach orchards in the east and central areas of the State. (King).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Causing unusually severe damage to young peach plantings at Santa Clara. Damage conspicuous to peach trees at Santa Clara, St. George, La Verkin, Hurricane and Ivins, Washington County. (Knowlton).

A FLATHEADED BORER (Chrysobothris sp.) - CALIFORNIA - Heavy infestations in peach, plum and cotoneaster in Willows, Glenn County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Although a few groves at Citrus Heights are heavily infested, Maricopa County citrus has generally lighter infestations than at same time in 1959. Petal fall is still 1-2 weeks away in most groves. (Ariz. Coop. Sur.).

FLOWER THRIPS (Frankliniella tritici) - ARIZONA - Populations very heavy in Maricopa County citrus. (Ariz. Coop. Sur.).

LEAF ROLLERS (Amorbia spp.) - CALIFORNIA - Light infestation of A. essigana on Meyer lemon in Atherton, and light infestation of A. cuneana on citrus in Palo Alto, San Mateo County. (Cal. Coop. Rpt.).

A GEOMETRID (Sabulodes caberata) - CALIFORNIA - Light populations on Meyer lemon in Redwood City, San Mateo County. (Cal. Coop. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - A rather extensive infestation was discovered during February southwest of Allende, Nuevo Leon, near the National Highway. All available inspection crews in East Mexico were moved into the area to assist in delimiting the infestation. At the close of February, the delimitation at Allende was not complete. As crews advanced from the focal point of infestation, fewer and lighter infested trees were being found. During inspection, infested leaves were removed from the trees and burned. Spraying of the infested area is in progress. Survey crews working in the chemical control and free zones of the States of Tamaulipas, Nuevo Leon and Baja California, inspected 62,504 trees on 1,217 properties and found 1,246 infested trees on 43 properties. The infested properties were as follows: 3 with 24 trees at Linares, Nuevo Leon; 37 with 1,217 trees at Allende, Nuevo Leon; 3 with 5 trees in Hidalgo, Tamaulipas.

The properties in Hidalgo were defoliated of infested leaves and put under observation. Inspections in Tijuana and Ensenada, Baja California; Hermosillo, Sonora; Valle Hermoso and Camargo, Tampaulipas; and Villa de Santiago, Montemorelos and Gral. Teran, Nuevo Leon, were negative. Spray treatments were applied in Nuevo Leon and Sonora during February. (PPC, Mex. Reg.).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - CALIFORNIA - Trapping operations continued during February in San Diego and Imperial Counties, with negative results, as were larval examinations on fruits in San Diego County. ARIZONA - Trapping operations in Santa Cruz and Yuma Counties were negative. (PPC, West. Reg., Feb. Rpt.). TEXAS - Effective February 2, Starr County was placed under State regulation. Two additional positive specimens were trapped in Starr County on February 5. Inspections in groves in the lower Rio Grande Valley, where *A. ludens* has been trapped for the presence of larvae, were negative through February. (PPC, So. Reg., Feb. Rpt.). MEXICO - Trapping operations continued in the same locations in Baja California and Sonora during February, with negative results. (PPC, Mex. Reg.).

PAPAYA FRUIT FLY (*Toxotrypana curvicauda*) - TEXAS - One female trapped in Cameron County on February 18. This is the first finding of this species in Texas for many years. The insect was frequently trapped in the Rio Grande Valley in the early days of the trapping program. (PPC, So. Reg., Feb. Rpt.).

TRUCK CROP INSECTS

CABBAGE LOOPER (*Trichoplusia ni*) - ARIZONA - Infestations heavier and earlier than normal in lettuce and other crops. At Aguila in northwest Maricopa County, 100 percent of lettuce is infested in some fields, with 1-4 larvae per head. (Ariz. Coop. Sur.).

A THRIPS - ARIZONA - An unspecified species averaged 10 per head in some central area lettuce fields. (Ariz. Coop. Sur.).

CABBAGE APHID (*Brevicoryne brassicae*) - NEW MEXICO - Occasional infestations, probably this species, found in fields of cabbage in Dona Ana County. Mostly winged forms present. (N. M. Coop. Rpt.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - DELAWARE - Adults present and active on turnips in northern Sussex County. (Burbutis, Mason).

FLEA BEETLES - NEW MEXICO - Moderately heavy infestations of undetermined species damaging cabbage in northern Dona Ana County. (N. M. Coop. Rpt.).

ASPARAGUS BEETLES (*Crioceris asparagi* and *C. duodecimpunctata*) - NEW JERSEY - A survey was conducted in December and January to determine the number of overwintering populations that were present in the major asparagus-producing counties. The survey revealed that populations are at the lowest level in the period of survey (1957-60). It appears that beetles should be less of a problem in 1960 than for the past 3 years. A comparison of the number of hibernating beetles this winter, compared with 1959, shows a decrease in all counties surveyed for total number of beetles. *C. asparagi* makes up the vast majority of the population. The average counts per field, statewide, for *C. asparagi* compared with the 3 previous years as are as follows: 1957 - 53.3; 1958 - 4.1; 1959 - 27.8; 1960 - 3.7. (Ins.-Dis. Newsl.).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - NEW JERSEY - A survey was conducted in February to determine the number of hibernating beetles in the upper layer of duff on the soil in pine or mixed deciduous woodlands within one-quarter of a mile from fields that had been planted in beans during the past growing season. Beetles were difficult to find in the survey; apparently populations were very low. A moderate number of beetles were present in bean fields in 1959 but damage

was not heavy. With apparently fewer overwintering beetles in the woodland areas, 1960 populations will probably be low. Of a total 18 sites examined in Cumberland, Cape May and Salem Counties and of 413 square yards of duff examined in these counties, the total number of beetles found in 1959-60 survey was 3, compared with 11 in 1958-59. Beetles were found at 2 locations in 1959-60 and 7 locations in 1958-59. (Ins.-Dis. News1.).

POTATO APHID (Macrosiphum solanifolii) - NEW JERSEY - A survey to determine the number of overwintering potato aphid eggs that are present on swamp rose, Rosa palustris, was conducted in the State during February and March. Overwintering eggs were found less numerous, generally, this spring than they were in 1957, 1958 or 1959. The most eggs were found along Raccoon Creek in Gloucester County. Eggs were less numerous in the Cumberland-Salem County area than in previous years, and very few eggs were found in the central area of the State. Based on the survey, the infestation potential for potato aphids is lower than in any previous year. However, weather conditions in early spring may affect the development of populations. Cooler, wet weather is generally favorable to high populations. (Ins.-Dis. News1.).

APHIDS - OKLAHOMA - Unspecified species medium on young tomato and pepper plants in Tulsa. (Stiles). Ranged light to heavy on young pepper plants in flats checked in the south central area. (Vinson). CALIFORNIA - Myzus solani and M. persicae occurring as a heavy infestation on beans in National City and heavy on tomatoes in Otay, San Diego County. (Cal. Coop. Rpt.).

POTATO PSYLLID (Paratrioza cockerelli) - TEXAS - Damaging infestation of nymphs present on potatoes and tomatoes in lower Rio Grande Valley. Control measures being applied. (Deer).

GREEN PEACH APHID (Myzus persicae) - NEVADA - Heavy infestation on sugar beets in Logandale, Clark County. (Zoller).

BEEF LEAFHOPPER (Circulifer tenellus) - UTAH - Four specimens collected in 50 square feet of area in the Yost-Snowville area of Box Elder County. (Thornley, March 20-26).

LYGUS BUGS (Lygus spp.) - WASHINGTON - Adults moving onto truck gardens at Walla Walla, Walla Walla County. Some damage to young spinach plants. Sudden cool, wet weather has slowed down activity of these bugs. (Hanna).

MUSHROOM MITE (Tyrophagus lintneri) - CALIFORNIA - Heavy populations of this species and Rhizoglyphus sp. occurring on garlic in King City, Monterey County. (Cal. Coop. Rpt.).

COTTON INSECTS

Pests of Cotton in the lower Rio Grande Valley of Texas - SEED-CORN MAGGOT (Hylemya ciliicrura) damaged 2 fields of cotton in Willacy County. An unknown species of CUTWORM caused some damage to cotton fields, with greatest damage occurring in those fields that had vegetation present during the winter. Unspecified species of APHIDS, SPIDER MITES and DARKLING BEETLES were reported in some of the older cotton. (Deer).

PINK BOLLWORM (Pectinophora gossypiella) - FLORIDA - Collected on wild cotton in Lower Matecumbe, Monroe County, on March 22. Det. R.A. Newkirk. (Creamer).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

GYPSY MOTH (Porthetria dispar) - NEW YORK - In the upstate areas, no new infestations were found as of the end of February in counties adjoining the States of New Jersey and Pennsylvania. However, several additional small infestations were located at the periphery of the regulated area in Otsego and Herkimer Counties. Two of the 3 sites where moths were trapped last summer in Westchester County have been negatively scouted. On Long Island, 4 scattered new egg masses were found in Southampton, 3 scattered new egg masses were found in Brookhaven and 2 new egg masses were found on a cemetery tree in Riverhead. The nature of the infestation in Suffolk County tends to indicate a wide distribution of very light and new infestation. NEW JERSEY - Scouting activities in Montague and Morristown areas continued, with negative results during February. PENNSYLVANIA - Scouting in Perry County has been negative. VERMONT - Surveys in western portions of Rutland and Addison Counties revealed widespread distribution and apparent buildup. At one site, there were an estimated 3,000 egg clusters per tree. Infestation in Chittenden County was light to medium at 8 locations surveyed. NEW HAMPSHIRE - Considerable defoliation may be expected in several sections; namely Merrimack, Rockingham, Hillsboro and Cheshire Counties. MAINE - Infestation is building up, with extensive defoliation expected in York and Cumberland Counties. MASSACHUSETTS - Infestations are building up both in area and intensity. Heaviest areas of infestation appear to be on Cape Cod near Barnstable and Truro and in the central area near Methuen and Haverhill. CONNECTICUT - Infestations appear to be building up in both area and intensity. The State has recommended that approximately 41,000 acres of land be treated. Heaviest known areas of infestation are in the vicinity of Windsor, Middletown, New Haven, Naugatuck and Waterbury. (PPC, East. Reg., Feb. Rpt.).

CARPENTERWORM (Prionoxystus robiniae) - CALIFORNIA - Medium infestation of larvae present in bark of oak trees in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - UTAH - Larvae infesting some native shrubs along the Virgin River from Springdale to Hurricane. (Knowlton).

SPRING CANKERWORM (Paleacrita vernata) - MISSOURI - Adults observed at lights in Columbia, Boone County, on March 27. (Stone). KANSAS - A total of 119 males collected in the light trap at Manhattan, Riley County, during period March 28-31. (Peters).

A BUPRESTID (Chrysobothris floricola) - PENNSYLVANIA - Collected from a Scotch pine stump in Perry County during March. Det. D. M. Weisman. (Drooz).

APHIDS (Cinara spp.) - OKLAHOMA - Cinara sp. heavy on arborvitae in a nursery sales yard in the southwest area. (Hatfield). CALIFORNIA - Heavy populations of C. curvipes on fir in Nevada City, Nevada County. (Cal. Coop. Rpt.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - PENNSYLVANIA - Very heavy infestation present on willow in McKean County, March 31. (Adams).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Heavy on euonymus at Eastport, Anne Arundel County, March 21. (U. Md., Ent. Dept.). OKLAHOMA - Heavy on some euonymus plants checked in Tulsa. (Stiles).

A SCALE INSECT (Aspidiotus degeneratus) - CALIFORNIA - Medium populations present on camellia in Porterville, Tulare County. (Cal. Coop. Rpt.).

Scale Insects in California - The pests tabulated below occurred on tropical plants in a nursery property in Los Angeles County, and as they are not known to be established in the State, all are subject to eradication treatment. (Cal. Coop. Rpt.).

Species	Host	Infestation
<u>Asterolecanium epidendri</u>	<u>Vriesia</u> sp.	Heavy
<u>Chrysomphalus albopictus</u>	<u>Tillandsia</u> sp.	Light
<u>Chrysomphalus sphaerioides</u>	<u>Chamaedora</u> sp.	Medium
<u>Diaspis</u> n. sp.	<u>Tillandsia</u> sp.	--
<u>Dinaspis aculeata</u>	<u>Billbergia</u> sp.) <u>Tillandsia</u> sp.)	Light
<u>Ischnaspis longirostris</u>	<u>Vriesia</u> sp.	Light
<u>Lepidosaphes dentata</u>	<u>Agave</u> sp.	Medium
<u>Mesolecanium</u> sp.	<u>Tillandsia</u> sp.	--
<u>Pinnaspis strachani</u>	<u>Vriesia</u> sp.	Medium

A SPIDER MITE (Oligonychus sp.) - NORTH CAROLINA - Severe local infestation on camellia in Rowan County. (Pl. Dis. Clin., Farrier).

INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (Musca autumnalis) - OHIO - Large numbers observed in a farm home on March 30 in Holmes County. Living and dead flies were abundant in all rooms of the house, with largest numbers in the attic. Several hundred flies were present on each attic window. Flies were also present on the outside wall of the home. (Holdsworth).

COMMON CATTLE GRUB (Hypoderma lineatum) - NORTH CAROLINA - Present in beef steers in Rowan County on February 11. Det. by C. W. Sabrosky. (Jones). OKLAHOMA - Heavy (8 per animal) on one out of 8 animals checked in the Madill area of Marshall County. (Vinson).

CATTLE LICE - OKLAHOMA - Unspecified species heavy on 5 of 8 cows checked in the Madill area. (Vinson). UTAH - Unspecified species conspicuous in some cattle herds in the Kanab-Glendale area of Kane County and several thousand cattle sprayed in Washington County for control of these pests. Infesting cattle in several other counties as well. (Knowlton).

MOSQUITOES - COLORADO - Third-instar larvae of Aedes dorsalis present in Larimer County, March 25. (Colo. Ins. Sur.).

BED BUG (Cimex lectularius) - NEVADA - Medium infestation in a home in Las Vegas, Clark County. (Williams).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - MEXICO - Inspections were made in the States of Baja California, Jalisco, Sonora, Mexico, Mexico D. F., Chihuahua and Durango. All determinations were negative. (PPC, Mex. Reg., Feb. Rpt.). CALIFORNIA - This species and T. parabile in a mixed population in eggplant seed in Thermal, Riverside County. (Cal. Coop. Rpt.).

A DERMESTID (Perimegatoma vespulae) - MINNESOTA - An infestation was found in stored small grain in an elevator in Duluth on February 3. (Minn. Ins. Rpt.).

VARIED CARPET BEETLE (Anthrenus verbasci) - DELAWARE - Larvae present in feed mill in southern Sussex County. Collected by E. O. Stockbridge. (Burbutis, Mason).

INDIAN-MEAL MOTH (Plodia interpunctella) - DELAWARE - Adults present in a seed cleaning plant and warehouse in southern Sussex County. Collected by E. O. Stockbridge. (Burbutis, Mason).

BENEFICIAL INSECTS

LADY BEETLES - ARIZONA - Counts in central area alfalfa fields, primarily Hippodamia convergens, averaged 8 larvae and 12 adults per 10 sweeps. (Ariz. Coop. Sur.). OKLAHOMA - Only occasional to light numbers of H. convergens reported in fields surveyed throughout the State. None noted in most fields checked. (Okla. Coop. Econ. Ins. Sur.).

A MELYRID (Malachius sp.) - DELAWARE - Larvae found in corn stalks and in a dead alfalfa stem in New Castle and Kent Counties. (Burbutis, Mason).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - LOUISIANA - Found in Red River Parish for the first time during February. TEXAS - Surveys have revealed 434,988 acres of new infestations in counties under regulation. All known infestations have been treated in San Antonio. (PPC, So. Reg., Feb. Rpt.).

LARGER YELLOW ANT (Lasius interjectus) - MARYLAND - Winged and none-winged forms noted in basements of homes in Montgomery, Prince Georges and Anne Arundel Counties. (U. Md., Ent. Dept.).

CARPENTER ANTS (Camponotus spp.) - PENNSYLVANIA - Winged forms of unspecified species present around homes in Clinton County, March 31. (Gesell). MARYLAND - C. pennsylvanicus present in a house at Silver Spring, Montgomery County, on March 29. (U. Md., Ent. Dept.).

AN ANT (Acanthomyops sp.) - NORTH CAROLINA - Adults flying in Caldwell and Granville Counties. (Culp, Chamberlain, Farrier).

CARPET BEETLES - MARYLAND - Adults and larvae of Anthrenus flavipes noted in homes in Charles, Montgomery and Prince Georges Counties, on April 1. Larvae of Attagenus piceus were noted in a home at Linthicum Heights, Anne Arundel County, on March 21. (U. Md., Ent. Dept.). NORTH CAROLINA - Adults of an undetermined species in wool rugs in a house and larvae causing severe damage to a wool sofa in another house; both in Forsyth County. (Wright).

A DERMESTID (Thyodrias contractus) - DELAWARE - A moderate infestation found in one home and present in another home in New Castle County. (Burbutis, Mason).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - OHIO - First swarming in Wooster, Wayne County, noted on March 29, when temperature reached 71° F. (Rings). MARYLAND - Swarming of reproductive forms common in south central sections of the State on April 1. (U. Md., Ent. Dept.). NORTH CAROLINA - In flight in Caldwell and Warren Counties. (Culp, Reams, Farrier). MISSOURI - Swarming in a house in Fredericktown, Madison County. (Stone).

TERMITES - PENNSYLVANIA - Swarming of unspecified species was more common than usual in Clinton County during late March. (Gesell).

A STONEFLY (Allocapnia vivipara) - PENNSYLVANIA - Very abundant on outside of home in Greene County, March 2. Det. H. H. Ross. (Udine).

BOXELDER BUG (Leptocoris trivittatus) - PENNSYLVANIA - Migrating over the side of a house in Centre County on March 25. (Adams). MARYLAND - Causing a nuisance by entering homes in Baltimore, Montgomery and Prince Georges County. (U. Md., Ent. Dept.).

BROWN-BANDED ROACH (Supella supellectilium) - PENNSYLVANIA - Heavy infestation present in a home in Delaware County, March 19. (Menusan). MARYLAND - Infestation present in home in Rockville, Montgomery County, March 28. (U. Md., Ent. Dept.).

COLLEMBOLA - PENNSYLVANIA - Achorutes nivicola numerous throughout Lycoming County on March 30. (Gesell). This species also very abundant in Blair County on this same date and was getting into the water supply. The species has been present in this area for the past 3 weeks. (Udine). CALIFORNIA - Medium infestation of Entomobrya unostriata occurring as a nuisance in a home in Lodi, San Joaquin County. (Cal. Coop. Rpt.).

CLOVER MITE (Bryobia praetiosa complex) - NEVADA - Invading homes in Reno-Sparks area, Washoe County. (Lauderdale). DELAWARE - Large numbers invading houses in New Castle County, particularly where lawns are relatively new. (Burbutis, Mason). NORTH CAROLINA - Large numbers invading a house in Wake County. (Jones, Farrier). WASHINGTON - Entering homes at Union Gap, Yakima County. (Landis).

AN EARTHWORM MITE (Fuscuropoda agitans) - CALIFORNIA - Heavy populations occurring in earthworm beds in Napa, Napa County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 10(13):214 - Note under elm leaf beetle (Galerucella xanthomelaena) from Nevada should read - "This is the second record for Mineral County, the species being previously recorded from Schurz."

CEIR 10(14):239 - CLUSTER FLY (Pollinia rudis) should read (Pollenia rudis).

ADDITIONAL NOTES

IDAHO - CUTWORMS (Agrotis sp.) are infesting over 15,000 acres in the reseeded area and cheatgrass areas in the Saylor Creek district south of Glens Ferry. At specific points checked, populations were running 3-5 larvae per square foot. Scattered larvae, believed to be the same species, were also noted infesting range areas in the Raft River Valley. (Evans, Gibson). EUROPEAN EARWIG (Forficula auricularia) overwintering adults now active in the Moscow area. (Portman, Gittins). NORWAY-MAPLE APHID (Periphyllus lyropictus) overwintering eggs hatching on trees in Moscow. (Manis).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Prod. ornith.	Perid. marg.	Helio. zea
ARIZONA						
Mesa 3/21-27				10	6	1
ARKANSAS						
Fayetteville 4/1		2				
Kelso 4/1		1			1	
FLORIDA						
Homestead 3/22			9	7		
MISSISSIPPI						
*Stoneville 3/25-31	11	5	4	6	11	
SOUTH CAROLINA						
Clemson 3/26-4/1	1	1		41		
Charleston 3/28-4/3	11	11	7	5	1	
TEXAS						
Brownsville-Progresse 3/21-25	25	20				7

* Two traps - Stoneville

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

(1959 records unless otherwise indicated)

Larva of ASIATIC RICE BORER (Chilo suppressalis (Wlk.)) in rice straw in baggage of an automobile tourist from Mexico (the host material and insect were possibly of Japanese origin) on November 29 at San Ysidro, California; an adult of Trypsetus incarnatus (Gyll.) (a weevil of importance to legume tree seeds in Indonesia) in unidentified seed in baggage from Burma on September 26 at New York, New York; an adult LYGAEID (Blissus sp., possibly n. sp.) in tomato cargo from Mexico on January 13 at Nogales, Arizona; larvae of Agriotes obscurus (L.), Agriotes sp., near mancus (Say) and Ctenicera sp., probably aeneus (L.) (all wireworm species of economic importance in many European localities) in soil around roots of plants; larva of Petrora resinella (L.) (a pine gall-forming species of economic importance in Europe) on Pinus sylvestris, in cargo from USSR on December 19, 23 and 30 at Washington, D. C.; an economic SNAIL (Helicella caperata (Montagu)) (of Western Europe and South Australia) on cut flowers in mail from France destined for California on May 22 at New York, New York; a GRAPE WHITEFLY (Aleurolobus taonabae Kuwana) (of some economic significance in Japan) on Vitis leaves in mail from Japan on July 20 at Washington, D. C.; a CHERMID (Pineus harukawai Inouye) (probably an important species but not known to occur in the U. S.) on Pinus pentaphylla in cargo from Japan on May 15 at Seattle, Washington; an adult and larvae of a European WIREWORM (Agriotes sp.) in soil around cyclamen bulbs in baggage from Italy on November 18 at New York, New York; CITRUS BLACKFLY (Aleurocanthus woglumi Ashby) 5 times on citrus leaves from Mexico, at Nogales (Arizona) (1) destined for California, El Paso (Texas) (2), Laredo (Texas) (1) and Brownsville (Texas) (1); KHAPRA BEETLE (Trogoderma granarium Everts) 6 times at Charleston (South Carolina) in cargo of crude guar gum (1), at Wilmington in cargo of crushed myrobalan nuts (1), and in stores once each at Portland (Washington), Baton Rouge (Louisiana), New Orleans (Louisiana) and Houston (Texas); larvae of a POTATO WEEVIL (Premnotrypes sp.) twice in potatoes in baggage from Colombia on January 4 and 11, respectively, at Miami, Florida; WHITE GARDEN SNAIL (Theba pisana (Muller)) 6 times, at Charleston (South Carolina) (1), at New Orleans (Louisiana) (1), at Norfolk (Virginia) (1) and New York (New York) (2) on military cargo and once in baggage at New York (New York), all from the Mediterranean area; larva of a FRUIT FLY (Anastrepha sp.) in palm nut in baggage from Guatemala on November 28 at New Orleans, Louisiana; larvae of MEDITERRANEAN FRUIT FLY (Ceratitidis capitata (Wied.)) 18 times, at Boston (Massachusetts) in fruits in baggage (10), at Baltimore (Maryland) (1), in stores, and New York (New York) in baggage (6) and stores (1); larvae of DURRA STALK BORER (Sesamia cretica (Led.)) in cargo of Italian broom-corn destined for Cuba at Charleston, South Carolina, on November 9; and larvae of EGGPLANT FRUIT BORER (Leucinodes orbonalis Guen.) in Solanum fruits in baggage from Liberia on July 14 at New York, New York. (Plant Quarantine Division, January 31).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES ^{1/}

1959

CEREAL AND FORAGE INSECTS

Alfalfa, Clover and Vetch Insects: Several lepidopterous species caused varying degrees of damage to alfalfa, clover and vetch in several of the states. Infestations and damage ranged from very light, or noneconomic, to severe, depending upon the species involved and the area in which infestation occurred.

ALFALFA CATERPILLAR (*Colias philodice eurytheme*) was first found on alfalfa in Sussex County, Delaware, by mid-April, being present in all areas of the State by late May. Highest infestations occurred from late August to October, but were never serious. Larvae also fed on clover, but to a very limited extent. Alfalfa caterpillar numbers were unusually abundant during late summer in the southern third of Indiana. Larvae appeared in South Dakota alfalfa fields the last of May, but populations remained low throughout the season.

Most alfalfa fields in Nebraska had light infestations of alfalfa caterpillar, with adults numerous in some southeast area fields during late July, but less than three larvae per ten sweeps. The species was common in alfalfa fields over Oklahoma during the growing season but was only of minor importance. Infestations in Arkansas remained low, generally.

Alfalfa caterpillar caused light injury to alfalfa locally in a few Utah counties, and the pest caused light losses to alfalfa in Colorado. This species was generally light in New Mexico alfalfa throughout the summer until the last two weeks of September, when populations became abundant. Larvae averaged 1-6 per sweep in fields of alfalfa in southwestern counties. Light infestations of alfalfa caterpillar were general in California on alfalfa plantings during 1959.

The ALFALFA LOOPER (*Autographa californica*) population in Utah was low, and a light infestation of red clover in the Columbia Basin of Washington was 20 percent infested with a granulosis virus by mid-June. The first alfalfa looper moth flight in Oregon reached a peak April 28 in the northwestern area and the first moths of the second brood appeared June 26. Infestations in the Milton-Freewater area were much less than those of 1958.

ALFALFA WEBWORM (*Loxostege commixtalis*) was present in most areas of Delaware, but infestations were generally very low. Moderate populations in east central and south central Nebraska during late summer caused minor injury to alfalfa; counts averaged less than 6 per 10 sweeps. Moderate to severe infestations of BEEF WEBWORM (*Loxostege sticticalis*) occurred over a wide area of North Dakota, causing injury to alfalfa.

GARDEN WEBWORM (*Loxostege similalis*) was abundant in some Illinois fields of alfalfa in late season, especially in west-southwest and southwest sections, with many fields being treated; and the insect was unusually abundant in legumes in the southern third of Indiana during late summer. Garden webworm numbers were down considerably from 1958 in Missouri and no economic populations appeared until late summer, when a few scattered fall-seeded fields of alfalfa were damaged. Infestations in Arkansas remained low, generally. Moderately heavy garden webworm infestations caused minor damage to alfalfa near Hondo (Lincoln County) and Lovington (Lea County), New Mexico.

^{1/} Including all reporting states except Hawaii and Alaska, which were carried in CEIR 10(4):46 and CEIR 10(6):74, respectively.

Unspecified species of Loxostege injured new alfalfa seedlings in the central area and on the Eastern Shore of Maryland during September; began building up in fields of alfalfa across Oklahoma during June, causing most concern in the south central area during July and August; but were noneconomic in Kansas during 1959.

CUTWORMS caused some economic damage to alfalfa, clover and vetch in several Plains and Western States, as well as in a few Eastern States. One species was trapped in Florida for the first time. ARMY CUTWORM (Chorizagrotis auxiliaris) damaged alfalfa in a few areas of Kansas and caused economic damage to vetch in Texas, although infestations in Texas were not as heavy as in past years. Damage to alfalfa in Wyoming was minor and losses to this crop were light in Colorado, while much less alfalfa was damaged in Utah in the spring than normal. This was the most common species of cutworm in Wyoming as determined by a spring survey.

BLACK CUTWORM (Agrotis ipsilon)* damaged seedling alfalfa and clover in central and northern New Jersey and injured old and new alfalfa stands in central Maryland during late summer. Infestations were not as heavy in vetch in Texas as in past years, but did cause economic damage.

Larval infestations of VARIEGATED CUTWORM (Peridroma margaritosa) were heavy (1-15 larvae per square foot) in early May in alfalfa and red clover in extreme southeastern Missouri, with severe damage to alfalfa. Infestations were light in central and north central areas of the State. In Texas, infestations were not as heavy in vetch as in past years, but some economic damage did occur. Small numbers of variegated cutworm were found throughout Illinois on clover and alfalfa, with no apparent damage; but there was local damage to alfalfa in Utah by this pest. Variegated cutworm populations in Kansas were much reduced from the high populations present in 1958, with very little damage during 1959.

SPOTTED CUTWORM (Amathes c-nigrum) larvae were prevalent on clover and alfalfa during late March in Kent and Sussex Counties, Delaware. Specimens of spotted cutworm taken at a light trap in Alachua County, Florida, May 13, 1958, and determined in 1959, constitute a new State record for Florida.

An undetermined species of CUTWORM damaged young alfalfa plantings in Hidalgo and Luna Counties, New Mexico, during February. Counts of several species of cutworms varied 0-4 per square foot on clover and alfalfa in Illinois during April and May, but apparently did not cause much damage; however, various cutworm species were of importance on several cereal and forage crops in Virginia.

ARMYWORM (Pseudaletia unipuncta) infestations in vetch in Texas were not as heavy as in past years, but did cause economic damage. FALL ARMYWORM (Laphygma frugiperda) damaged seedling alfalfa and clover in central and northern New Jersey, and outbreaks occurred on alfalfa in several Virginia counties.

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) was present on alfalfa statewide in Delaware during the season, with larvae becoming abundant in fields of alfalfa in New Castle County in late August and September. Outbreaks of this species occurred in several areas of southern Pennsylvania, with some controls required to prevent severe crop losses. Some alfalfa in Utah was damaged by both yellow-striped armyworm and WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica). Unspecified armyworms required considerable control work in forage and seed crops in local areas of California.

Adults of a CLOVER BUD CATERPILLAR (Grapholitha conversana) appeared in early May in Latah County, Idaho, and numbers increased through mid-May, with population counts of 1-10 per sweep in an area from Kootenai County south through Idaho County. However, little larval feeding damage was reported. Larvae of CLOVER HEAD CATERPILLAR (Grapholitha interstinctana) fed in central buds and crowns of

* Zimmerman, E. C., 1958. Insects of Hawaii, Vol. 7:253.

new clover seedlings in Illinois in June, killing up to 20 percent of the seedlings in some fields. In Indiana, clover head caterpillar was again abundant on southeastern area red clover, particularly in Decatur, Rush and Shelby Counties; and CLOVER LOOPER (*Caenurgina crassiuscula*) was unusually abundant on legumes in late summer in the southern third of Indiana. Infestations of CABBAGE LOOPER (*Trichoplusia ni*) in alfalfa were fairly common in Delaware during 1959, particularly in Sussex County during September and October.

Larvae of CORN EARWORM (*Heliothis zea*) were abundant in alfalfa during September and October in most areas of Delaware, but highest in New Castle County. The species also damaged seedling alfalfa and clover in northern and central New Jersey. Larvae of this pest were unusually abundant on legumes during late summer in the southern third of Indiana, but infestations were generally low on alfalfa in Arkansas. Corn earworm attacked alfalfa in Kansas to a small degree; and populations of this pest built up in alfalfa in Oklahoma during mid-May, continuing until fall with no noticeable increase in damage over that of 1958. Heavy infestations of corn earworm damaged alfalfa in Chaves and Eddy Counties, New Mexico.

Corn earworm was present on alfalfa in Georgia in late season. Counts of this species ranged 45-380 per 100 sweeps on crimson clover in northern Louisiana and heavy infestations were observed on this crop in West Feliciana Parish and on white clover in Pointe Coupee Parish.

Counts of GREEN CLOVERWORM (*Plathypena scabra*) larvae ranged 0-80 per 100 sweeps in clover and alfalfa in Illinois in late August and early September, when as many as 1,020 per 100 sweeps were found in the west-southwest section of the State. The species was also unusually abundant in legumes in the southern third of Indiana during late summer. Green cloverworm infestations remained low in alfalfa in Arkansas and the species was only of minor importance in Oklahoma, though common in fields of alfalfa over that State during the season. Surveys in Nebraska in late August showed slight increases of green cloverworm over those of 1958 on alfalfa; highest count was 4 per 10 sweeps in the east central area. Green cloverworm appeared in mid-May on alfalfa and clover over most of Delaware, not becoming common until mid and late July. Infestations increased rapidly and during most of August, September and October larval populations on these crops in Delaware were fairly abundant.

A PYRAUSTID (*Nomophila noctuella*) severely damaged seedling alfalfa and clover in central and northern areas of New Jersey and was injurious to new alfalfa seedlings in the central and Eastern Shore areas of Maryland during September. Moths of this pyraustid were unusually abundant early in the season in Ohio and, for the first time in the State, larvae caused important damage to summer-seeded alfalfa in five northeastern counties. The seedlings made rapid recovery after treatment. Larvae collected from fields of alfalfa were highly parasitized and, as a result, the species may be unimportant again in Ohio in 1960.

A TORTRICID (*Tortrix pallorana*) was abundant on alfalfa and clover in parts of New Castle and Kent Counties, Delaware, during late April and May, and again in July on clover. This tortricid caused only slight local seed-crop injury to alfalfa in Utah. Larvae of VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) were first found on alfalfa September 25 in Delaware, which is one of the earliest dates this species has been found in the State. Larvae were common on alfalfa during October over the State. The species was found on alfalfa in Georgia late in the season.

A larval complex, including variegated cutworm, armyworm and corn earworm, built up large populations on seed clover at Simmesport, Louisiana. Larvae ranged 20-40 per square foot of sod. Early larval infestations in clover began to disappear by mid-May and the infestations usually found in alfalfa did not materialize in 1959.

Of the APHIDS that infested forage crops during 1959, PEA APHID (Macrosiphum pisi) and SPOTTED ALFALFA APHID (Therioaphis maculata) were the most serious. Populations of pea aphid were heavy in several western states, being the heaviest encountered in Nevada in recent years; infestations were also damaging in some plains states, being more so in Kansas than has been noted since 1934; and numbers were heavy in a few eastern states, as was the case in Delaware in early June. Spotted alfalfa aphid was found for the first time in two years in Indiana during 1959, while economic numbers developed in Kansas only in a few localized areas. Heavy infestations of this aphid severely damaged alfalfa in several counties in New Mexico in March and April, and caused severe damage to this crop in Arizona during October. Spotted alfalfa aphid survived the winter statewide in Oklahoma, despite some severe winter weather; and infestations in Nevada were heavier than in 1958, but were generally below economic levels. This aphid was found in northern Oregon for the second consecutive year. Infestations in some areas of the Nation were controlled by weather or parasites and predators.

Pea aphid numbers on alfalfa hay were moderate to heavy in the Columbia Basin and the Yakima Valley of Washington by mid-July, with some treatments applied. This is the first time in 13 years populations of pea aphid have been great enough to cause reduction in seed yields in experimental plots at Prosser. A spring survey by the Aphid Control League revealed 12,000 acres of alfalfa in the Walla Walla area with an average infestations of 37 aphids per 100 tips, lower than normal. In Oregon, pea aphid population remained high in alfalfa fields throughout the season, especially in major alfalfa areas. Numbers in Klamath County in early June were estimated at several thousand per plant and actually killing young top growth in established fields. In mid-October, numbers again rose to an above-normal level in Oregon, after some decrease in early fall.

Outbreaks of pea aphid occurred in many southern areas of Idaho, with severe damage in numerous fields of alfalfa; counts of 10,000 per sweep were encountered in some southwestern fields. Considerable pea aphid damage was noted to third-cutting alfalfa in the southwest and damage was general to the third cutting in south central and southeastern areas of Idaho. Loss to alfalfa in the southern part of the State, including controls, was estimated at \$1,950,000. Growth of first-cutting alfalfa in Wyoming was retarded by pea aphid infestations of over 10,000 per 100 sweeps in the southeast area, with an estimated loss of 25 percent. Numbers dropped markedly after this early outbreak and remained low throughout the season over most of the State. Losses due to pea aphid on alfalfa were generally light in Colorado.

Pea aphid was again more serious in Utah than spotted alfalfa aphid, causing substantial losses of forage alfalfa hay and reduced seed production in a number of areas. Many outbreaks developed in the spring and early summer and damage continued until fall. Pea aphid populations were the heaviest encountered in Nevada in recent years, with severe damage to many fields and plants stunted or apparently killed. Excessive amounts of honeydew and sticky hay were common in Nevada. In most cases where both were present, pea aphid outnumbered spotted alfalfa aphid 10-50 to one. In many fields in Nevada, predators were unable to cope with the pea aphid situation and control applications were necessary. Pea aphid was probably not as severe in many locations of California as in previous years. The pest was general over the State in all alfalfa-growing areas, with heavy local infestations occurring.

Pea aphid built up gradually in alfalfa during March in Arizona and was extremely heavy statewide during April, when infestation were heavier than normal for previous years. Infestations began declining rapidly during early May in Yuma County, in mid-May in the central part of Arizona and during late May in north-eastern parts of the State. Heavy infestations of pea aphid in Roosevelt, Chaves, Eddy and Mora Counties, New Mexico, caused considerable damage to alfalfa; and abnormally heavy infestations destroyed many seedlings and established alfalfa stands in San Juan County during May and June. Many areas of New Mexico reported pea aphid populations building up again in the fall.

Pea aphid infestations in vetch and alfalfa in Texas were much less than in 1958. Infestations of this pest in alfalfa reached a peak during late April, May and early June in north central, central, south central and southeastern areas of Oklahoma. Populations dwindled gradually across the State during the summer and continued to be noneconomic the remainder of the year.

In Kansas, pea aphid caused more damage to alfalfa than has been noted in that State since 1934. The period of infestation lasted 6-8 weeks. Alfalfa stands appeared to have been 100 percent destroyed in many fields in the eastern half of the State; however, observations later in the season showed that plants in most fields made almost 100 percent recovery. In many fields in the State, a fungus disease eliminated pea aphid before chemical controls were applied.

Pea aphid infestations were generally light to moderate in Nebraska. Early-spring buildup was slow compared with past years. Peak infestations in central and eastern area alfalfa occurred during mid-July to mid-August, ranging 300-500 per 10 sweeps; however, most fields averaged 0-40 per 10 sweeps. In South Dakota, pea aphid appeared in fields of alfalfa the last week of April. Populations remained relatively low during 1959 and little damage was noted. Pea aphid counts in Wisconsin ranged from zero to over 140 per sweep by May 20 in fields of alfalfa in east central and southeastern counties.

Pea aphid was light on clover throughout Missouri in March. Cool temperatures in April resulted in a rapid buildup on red clover and alfalfa in the southwest, with counts of 20-300 per sweep on red clover and 5-200 on alfalfa. The buildup continued in early May in south central and southeast areas. Parasite and predator populations increased rapidly in southwest Missouri and 10-25 percent of aphids showed evidence of a fungus disease. Pea aphid populations continued high through mid-May in the southeast, with little evidence of damage. A buildup occurred in late October and early November in northeast Missouri, with counts of 5-125 per sweep. In Arkansas, pea aphid numbers fluctuated a great deal during the 1959 season.

Damaging numbers of pea aphid built up on clover and alfalfa in west-southwest sections of Illinois in early May, but the pest was of little importance at other times or in other sections of the State. Dissections in late April showed 70 percent of aphids parasitized in Urbana and parasites were abundant throughout northern areas of Illinois in early May. Pea aphid numbers remained at low levels in all fields observed in Ohio.

Pea aphid populations on alfalfa in Maryland were considerably above those of 1958 on first and second cuttings; many fields required treatments. Populations of this aphid in Delaware were very heavy on alfalfa in early June, with over 100 per sweep in Kent and Sussex Counties. Infestations were also abundant during late August and mid-October. Pea aphid caused very little damage in New Jersey during 1959. In Rhode Island, pea aphid populations built up early on alfalfa, but by mid-May it was evident that heavy parasitism had occurred. No serious infestations developed.

Heavy infestations of spotted alfalfa aphid severely damaged alfalfa in Chaves, Eddy, Dona Ana, Otero, Guadalupe, San Miguel and Grant Counties, New Mexico, during March and April. Infestations were much lighter during late summer and early fall, except for several heavy infestations which damaged young alfalfa stands in Chaves, Eddy, Torrance and Dona Ana Counties. Infestations of this aphid in alfalfa in Arizona peaked in April, July and October in central and southeastern areas of the State. Increases in April and July were light and of little significance, but were heavy in October and caused severe damage in many fields; chemical controls were also required during this period. Infestations increased about the same time in Yuma County, Arizona, but were not heavy enough to cause serious damage. Heavy rains in late October, combined with an aphid disease, helped reduce heavy infestations. Parasitism occurred to some degree in Arizona throughout the year and was partially responsible for holding down populations. Parasites, predators and fungus disease were all effective against

spotted alfalfa aphid in California during 1959. In some locations of the State, early insecticide treatment averted later heavy infestations of this pest. Generally, light populations of spotted alfalfa aphid were more common than heavy populations.

The most serious damage to alfalfa by spotted alfalfa aphid in Utah during 1959 occurred over the southwestern third of the State, with most controls being applied in Washington, Iron, Beaver and Millard Counties. Loss of alfalfa hay, seed and new plantings in Utah for 1959 is estimated at \$130,000, compared with an estimated \$780,000 for 1955, \$500,000 for 1956, \$165,000 for 1957 and \$178,000 for 1958. Movement northward through Box Elder and Cache Counties occurred during September. Spotted alfalfa aphid infested alfalfa in Colorado, but losses were generally light.

Infestations of spotted alfalfa aphid in Nevada were heavier during 1959 than in 1958, but populations were generally below economic levels because of the timely increase of parasites and predators in the southern and central sections of the State and of predators in the northern area. Peak populations occurred in Clark, Lincoln and Nye Counties in April and August. A heavy spotted alfalfa aphid infestation and damage occurred east of Sparks, Washoe County, the first week in April. Highest populations in Nevada occurred in Churchill, Douglas, Lyon, Pershing and Washoe Counties in June and in northern counties in July, except for a heavy infestation in northern Eureka County in late October. Periodic surveys during the summer in Nez Perce County, Idaho, failed to disclose the presence of spotted alfalfa aphid until October 15, when it was detected in the Waha and Lewiston areas. Numbers were fewer than those of 1958.

Spotted alfalfa aphid was found in northern Oregon for the second consecutive year, populating practically the identical areas as in 1958. Damage was apparently not severe. Its range in Oregon now includes Wheeler County as well as the four counties found infested in 1958. Spotted alfalfa aphid was first found in Washington in late September in spite of intermittent surveys until mid-July. Distribution was almost identical to that of 1958 in Benton, Walla Walla and Asotin Counties.

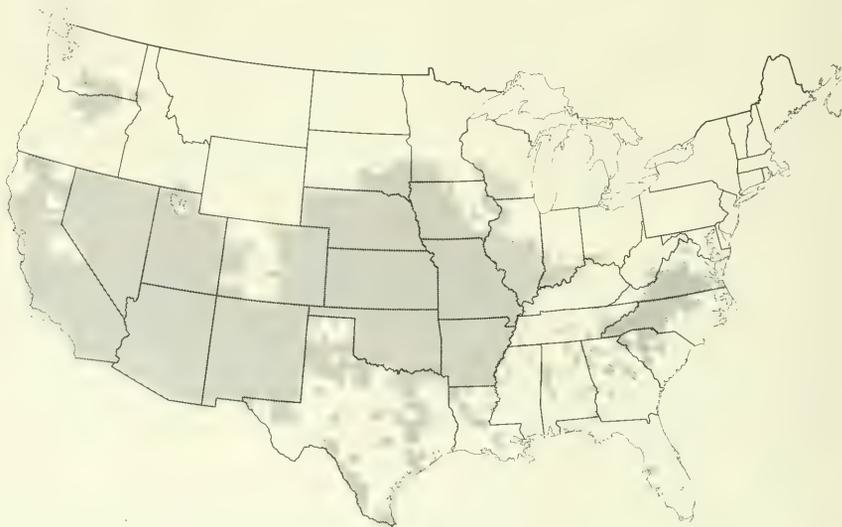
Spotted alfalfa aphid survived the winter statewide in Oklahoma despite severe winter weather during January, February and March. Populations began increasing in late February and early March in the central area. By early April, populations in scattered areas in the western half of Oklahoma were heavy enough to cause plants to become sticky. Populations dropped sharply in early May and continued generally light the remainder of 1959, a period of unusually heavy rainfall. Counts built up in a few isolated areas of the northwestern and south central sections of the State during July and August, causing some controls to be applied in limited areas. Spotted alfalfa aphid infestations in Texas were light and spotted during 1959.

Economic numbers of spotted alfalfa aphid developed only in a few localized areas of Kansas. Populations started to build up in the fall; however, excessive rain and low temperatures reduced populations before any damage was done. Numbers of spotted alfalfa aphid were also low in Arkansas except during a dry period in the fall of the year.

In Nebraska, low numbers of spotted alfalfa aphid were first recorded during the week of July 24 in the southern tier of counties from Dundy to Nuckolls. Aphids were well distributed in western and south central areas by late July, but remained light. Counts up to 150 per sweep occurred in the Republican Valley by early September. Highest infestation of the season in Nebraska, 200-1,000 per square foot, occurred in Red Willow County seedling alfalfa. Spotted alfalfa aphids in some fields were 50 percent infested by a fungus. In South Dakota, no spotted alfalfa aphids were found nor were any reported during 1959.

First spotted alfalfa aphids of the season in Missouri were taken in south central and southwest areas of the State early in May. Very light infestations existed until late July when widely scattered, heavy infestations appeared in the south-east area; counts averaged 300 per sweep in a few fields. In the southwest area of Missouri, counts ranged 3-45 per sweep. Weather conditions prevented serious damage in the State during 1959. Spotted alfalfa aphid was found in a field of alfalfa in the central area of Illinois on May 15, but apparently never spread and never reached more than 100 per 100 sweeps. Counts averaged 200-1,000 per 100 sweeps in southwestern Illinois in August. Spotted alfalfa aphid was found for the first time in two years in Indiana on September 22. Infestations were very low, although collections were made in the Wabash River bottom from Vincennes south and along the Ohio River from Mount Vernon to Clark County. Infestations followed the pattern previously noted, moving up the Wabash and Ohio River Valleys. Climatic conditions favored reentry of this aphid into Indiana.

In the southern part of the country, spotted alfalfa aphid infestations were generally light on alfalfa throughout Louisiana, as well as being generally light in Georgia. Spotted alfalfa aphid was collected on white sweetclover at Tampa, Hillsborough County, Florida, during April. The species has not previously been reported outside the Gainesville area of that State.



General Distribution of Spotted Alfalfa Aphid Since 1954

Several other aphids infested alfalfa and clover to a lesser degree, with damage not being as extensive as with pea aphid and spotted alfalfa aphid. No serious infestations of SWEETCLOVER APHID (*Therioaphis riehmi*) were noted in Minnesota. The species was abundant on old stands of alfalfa in the northwest district of the State early in 1959, but was never a problem. Sweetclover aphid was common in Utah but not economic. YELLOW CLOVER APHID (*Therioaphis trifolii*) populations built up very high in Illinois and caused some damage to clover in the east-southeast section of the State in mid-July, and heavy infestations of COWPEA APHID (*Aphis medicaginis*) during the spring damaged alfalfa near Bethel in Roosevelt County, New Mexico.

Heavy infestations of CLOVER APHID (*Anuraphis bakeri*) developed on red clover during early May in southwestern counties of Idaho and remained unusually large throughout the summer. Of clover stems checked, over 95 percent were infested in the southwestern area during May and over 90 percent were infested in the south central area of the State in late June. Elsewhere in Idaho, populations were a little above average. Clover aphid was especially abundant on alsike clover in Klamath County, Oregon, in early June, decreasing to an insignificant level by mid-July. In Washington, a light infestation of clover aphid in red clover seed fields in the Quincy area moved from stipules to heads the first week of June, increasing 10-fold the following two weeks. Most fields in the Columbia Basin and Yakima Valley were treated the last week of June. Infestations of clover aphid found on clover in Kent and Sussex Counties, Delaware, during May did not become economic.

Aphids, generally, were more abundant in total numbers and species in Nevada and caused more damage than in recent years in that State. First-cutting alfalfa in some areas of Colorado was reduced by 30-50 percent, but generally, losses were light.

MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) was the most serious insect problem on alfalfa and clover in Indiana and the most important pest of forage in Ohio during 1959. Infestations of this pest were the heaviest in three years in central and western sections of Maryland and were heavy in scattered areas of Virginia. Hatching of meadow spittlebug in Wisconsin extended over a longer period than has been observed in the past several years.

Meadow spittlebug was the most important pest of forage crops in Ohio during the 1959 season, with first hatch being observed at Columbus on April 13 and at Wooster on April 16. Cool weather after hatch delayed development a week or more in most areas of the State. Maximum populations of 6 nymphs per stem were common in northern Ohio counties and adult populations were higher in September than at the same time in 1958. The loss to first-cutting alfalfa and clover in Ohio by meadow spittlebug was estimated at 4 percent, or \$3,000,000.

Meadow spittlebug was the most serious insect problem on alfalfa and clover in Indiana during 1959. Infestations of this pest were believed to be the heaviest ever observed in the State, being most serious in eastern portions of the State. In the area of Indiana south of Richmond in Wayne County and east of Shelbyville in Shelby County, and extending to the Ohio River, infestations of meadow spittlebug were as high as 7.2 nymphs per clover stem. The total State loss due to this pest was estimated at \$12,000,000.

Meadow spittlebug did not show any increase in numbers in 1959, as it has for the past several years, in northern parts of Illinois. Nymphal populations were about the same as in 1958 and adult numbers, determined by the annual fall survey, showed a decline averaging slightly more than one per sweep in northeast and northwest sections. This decline may have been due, in part, to parasites. Collections of adults in Ogle County on August 19 showed 10 percent of females parasitized. There was an average of 5.4 eggs in each female at this time. Parasitized females showed no signs of egg development.

Meadow spittlebug infestations of 1.5 nymphs per alfalfa stem were found in Grant County, Wisconsin, by May 19; large numbers were also found in Rock, Green, Lafayette, Dane and Iowa Counties. Moderate populations extended as far north as Trempealeau and Eau Claire Counties, while a light population was observed in Ashland County. Infestations of meadow spittlebug in Brown, Door and Kewaunee Counties ranged 0.7-3.2 nymphs per stem. Hatching of this species in Wisconsin extended over a longer period than has been observed in the past several years.

Meadow spittlebug was heavy on clover, alfalfa and pasture crops in scattered areas over Virginia, during 1959, with southwestern counties more heavily and generally infested than other areas. Infestations of this pest on red clover and alfalfa were the heaviest in three years in the central and western sections of Maryland. Meadow spittlebug nymphs were first found on clover the first of April, in Delaware. Adults were common to abundant on clover and alfalfa statewide by the end of May. Meadow spittlebug populations generally decreased by the end of July in Delaware, but remained common throughout the season.

Meadow spittlebug numbers were less than normal in Pennsylvania during 1959; however, control demonstrations showed an increase of 700 pounds of dry hay over the checks. In Rhode Island, nymphs of meadow spittlebug were unusually abundant on grasses and forage legumes in early June. However, fall abundance surveys in late September yielded one adult per 100 sweeps. The species remains negligible in Rhode Island. Moderate numbers of meadow spittlebug caused light damage to hay in Cumberland County, Maine, during June.

Mild infestations of spittlebugs, principally meadow spittlebug, occurred in red clover and sweetclover fields in northern Idaho during May.

LYGUS BUGS (*Lygus* spp.) were troublesome in several western states during 1959, with populations increasing to rather high counts in some areas during late summer and fall. Infestations of unspecified species increased to one per sweep in alfalfa statewide in Arizona by mid-May; and remained high, 50 per 10 sweeps in some areas, until alfalfa growth became less succulent in midsummer. Counts were again heavy in the fall in all areas of the State and were still high in November. Populations of lygus bugs in alfalfa remained relatively high throughout the season in New Mexico, counts often averaging 0.5-20 per sweep. In Colorado, losses to alfalfa from unspecified lygus bugs were generally light. *Lygus elisus*, *L. hesperus*, *L. desertus* and other species were very abundant on seed alfalfa in most areas of Utah, resulting in reduced alfalfa seed yields in that State wherever control in the bud stage was delayed or omitted.

Lygus bugs were numerous in alfalfa hay and seed fields most of the season in Nevada. Populations of unspecified species generally increased in seed fields as the season progressed, in spite of controls, especially in southern areas; but not in Humboldt County, where controls remained effective. There was some apparent resistance to insecticides in southern areas of Nevada. In California, many local, heavy infestations of Lygus spp. occurred on alfalfa and clover over the State.

Unspecified species of lygus bugs were apparently spotty in distribution over Oregon. Moderate numbers of these plant bugs were present in poorly treated legumes in the major alfalfa areas of the State. Blossom drop was not the problem during 1959 that it was in 1958 in the important seed-growing regions of eastern and northeastern Oregon. As usual in Washington, *L. hesperus* and *L. elisus* were the major pests on alfalfa raised for seed. Controls were generally effective during 1959. Lygus bug numbers were generally low over Idaho in May and June but increased during July. In the southwestern area of Idaho, counts of 50 per sweep occurred in fields of alfalfa in late August and 25 per sweep in fields of red clover during the month of August.

Lygus bugs reached economic importance in alfalfa seed fields in the Riverton area of Fremont County, Wyoming, the third week of June. The population of these pests was relatively low until July 1, when counts averaged about 105 per 100 sweeps in untreated fields and 18 per 100 sweeps in treated fields. The population in untreated fields reached a peak of 150 per 100 sweeps in early August, at which time a steady decline began until September 10 when damaging numbers were no longer observed. Minor damage to alfalfa hay crops occurred in other parts of Wyoming.

In South Dakota, populations of unspecified species of lygus bugs were moderate on alfalfa through June and July. A few alfalfa seed fields in the State showed injurious infestations, but they were not as severe as were reported in 1958. Lygus bug populations were common in fields of alfalfa over Oklahoma during the growing season, but were of minor importance.

TARNISHED PLANT BUG (*Lygus lineolaris*) was common in legumes in several states, populations being widespread and quite abundant in some states. Tarnished plant bug infestations were light to moderate throughout alfalfa areas of Nebraska, ranging 0.5-3 per 10 sweeps. Heavier buildups occurred in July and August in east and southeast areas of the State, with up to 30 per 10 sweeps being recorded. Tarnished plant bug was present in most fields of alfalfa in Kansas during the 1959 season, but populations were generally noneconomic. Populations of this pest were light in legumes in Missouri through the season, with counts being as high as 5-12 per sweep in September.

Adults of tarnished plant bug were much more numerous early in the season in Illinois than in 1958; however, from June on, populations were similar in both years. Populations of this pest were widespread and quite abundant over Indiana.

In Maryland, tarnished plant bug was common in fields of alfalfa and clover during the 1959 season. Tarnished plant bug was abundant on clover over Delaware by late May and during June and early July. Adults and nymphal populations of this pest were high in alfalfa and clover all season. Populations decreased on alfalfa in Kent and Sussex Counties during late June, not building up again until October, when they remained numerous for the remainder of the 1959 season.

PLANT BUGS (*Adelphocoris* spp.) were numerous in legumes in some areas of the country during 1959, being more numerous than in 1958 in a few of these areas. ALFALFA PLANT BUG (*A. lineolatus*) populations over Indiana were widespread and quite abundant during 1959. Adults of this species were a little more numerous in Illinois than in 1958; however, the highest population found was only 180 per 100 sweeps.

Early season populations of alfalfa plant bug in Nebraska averaged about 4 per 10 sweeps, increasing to a peak of 25 per 10 sweeps in late August and decreasing to about 2 per 10 sweeps for the remainder of the season. Alfalfa plant bug first appeared in South Dakota in mid-May and by the first of June was present in moderate numbers on alfalfa seed crops. Adults and nymphs remained active in the State up to the first heavy frost.

Alfalfa plant bug was present on alfalfa over Delaware from June through October, with highest populations during late July and August in Sussex County.

RAPID PLANT BUG (*Adelphocoris rapidus*) adults were considerably more numerous throughout the 1959 season in Illinois than during 1958. Populations in some fields ranged 200-290 per 100 sweeps during the period May 7 through July 15, or later. In 1958, no field had a population exceeding 200 per 100 sweeps and very few exceeded 100 per 100 sweeps. Widespread and abundant populations of rapid plant bug occurred over Indiana during 1959.

Rapid plant bug first appeared in South Dakota the last week of May and small numbers were present throughout the summer. Counts averaged 5 per 10 sweeps from June through mid-September. In Nebraska, infestations of this plant bug remained similar to those of 1958, ranging 2-12 per 10 sweeps during late July and August and decreasing to less than one per 10 sweeps by October. Rapid plant bug infestations in Delaware were never very high on alfalfa and clover for any prolonged period, but did become abundant statewide during late June and early July.

Numbers of SUPERB PLANT BUG (Adelphocoris superbus) in alfalfa in Utah were normal during the 1959 season. Specimens of another PLANT BUG (Neurocolpus nubilus) were taken for the first time on alfalfa in Arkansas.

Populations of Adelphocoris spp. and Lygus spp. were generally higher throughout Minnesota in 1959 than they were during 1958. Nymphs of alfalfa plant bug, rapid plant bug and tarnished plant bug appeared in fields of alfalfa and clover in Illinois approximately three weeks earlier in 1959 than in 1958. Although populations in this State were quite similar during the two years, peak abundance occurred May 1-15 in 1959 and May 15-30 in 1958.

Also in Illinois, GARDEN FLEAHOPPER (Halticus bracteatus) was abundant in many clover and alfalfa fields in the southern two-thirds of the State and is believed to have caused moderate damage in some fields of these crops. Populations of garden flea hopper were much higher in Delaware during 1959 than they were in 1958, being relatively abundant throughout most of the season on alfalfa and clover.

Populations of unspecified species of STINK BUGS were lower in Nevada than they have been during the past two years, with only trace numbers occurring in alfalfa seed fields. No control treatments were necessary. In California, heavy populations of unspecified stink bugs occurred on seed clover in Imperial County.

Populations of FALSE CHINCH BUG (Nysius ericae) in Utah during 1959 were way down from those present in 1958. However, the species was spottedly numerous in alfalfa. Large numbers of adults and nymphs of another FALSE CHINCH BUG (N. raphanus) were often found in fields of alfalfa and on weeds along fence rows in early summer and in the fall in New Mexico.

Several species of LEAFHOPPERS were present on legume crops in various areas, with some damage occurring. The first record of POTATO LEAFHOPPER (Empoasca fabae) for 1959 in Nebraska occurred April 28. Populations were light in most alfalfa fields in the southeastern portion of the State. Low numbers, 5-20 per 100 sweeps, were constant in alfalfa throughout the summer. Populations of potato leafhopper were light on alfalfa statewide in Missouri through May and June. Populations of the pest increased in July and yellowing was evident in fields throughout the State.

The initial flight of potato leafhopper adults, which appeared in all fields of clover and alfalfa in Illinois between April 30 and May 6, was much heavier than in 1958. Subsequent nymphal populations in 1959 were 10 times those of 1958. Much yellowing of alfalfa occurred throughout Illinois. Very heavy and severe potato leafhopper infestations developed on second-cutting alfalfa in Indiana during July. Losses were severe, with considerable yellowing and stunting of the crop. Potato leafhopper was first collected in Ohio at Wooster on May 13, with a large migration occurring May 20. Damage was generally light in northern counties, with localized severe injury, and moderate to severe in southern counties. Damage to second and third-cutting alfalfa in Ohio was estimated at 3 percent, or \$750,000.

Potato leafhopper first appeared in Minnesota May 12, ten days earlier than usual in the southern area. Generally, the 1959 population was higher than in 1958. Injury to alfalfa was apparent, especially in southern counties. Drought conditions in Minnesota reduced plant succulence in most areas and leafhopper numbers declined. In Wisconsin, potato leafhopper was first noted on April 26 at the Middleton light trap in Dane County. Counts ranged 28-71 per 100 sweeps in alfalfa in that county during late May, and adults were plentiful in light trap catches in late June. Counts of potato leafhopper during mid-July ranged from less than one to 4 per sweep in southeastern, south central and central areas of Wisconsin. There was very little control applied for this pest in 1959.

Potato leafhopper populations were high on legume forage in Vermont during 1959, but the species was not particularly abundant in New Jersey during 1959. Populations of potato leafhopper on alfalfa in Pennsylvania were very low and of importance only in the northeastern section of the State. Potato leafhopper never reached serious proportions on forage crops in Delaware during 1959. Numbers were most abundant during late June and early July on clover and alfalfa in Kent and New Castle Counties in that State. The species was of importance on some forage crops in Virginia, but had not been found by April 28 in the Catawba River Valley of Mecklenburg and Gaston Counties, North Carolina.

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) migrations into North Dakota occurred May 11 in the southeastern counties; by June 13, they had dispersed and could be found in all areas. Numbers in legumes continued to decline during June and did not increase appreciably in these crops for the rest of the season. Counts on September 18 showed 0.8 adult per sweep in fields of alfalfa near Fargo, Cass County. Populations of six-spotted leafhopper were heavy on forage legumes in Rhode Island during the last week of September, adults having been abundant on other hosts by late June.

CLOVER LEAFHOPPER (Aceratagalla sanguinolenta) became prevalent on clover and alfalfa in Delaware during May, remaining present statewide throughout the season.

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) increased to heavy numbers in alfalfa statewide in Arizona during July. Counts remained high throughout the summer, averaging 2-5 per sweep in heavier infested fields; and infestations continued into late fall, with 1-2 per sweep common in late November. Three-cornered alfalfa hopper was light to moderate in alfalfa throughout the southern counties of New Mexico. Damaging numbers of this pest appeared on alfalfa in far west Texas and the high plains area of that State. A buildup in numbers of three-cornered alfalfa hopper began in fields of alfalfa in southeastern and south central Oklahoma during mid-July and spread into the central area of the State. Heavy populations of this species were reported primarily from the southeastern and south central areas of Oklahoma, where infestations continued through late October. Infestations of three-cornered alfalfa hopper in alfalfa remained low, generally, in Arkansas.

Several species of WEEVILS were troublesome and damaging to some legume crops during the 1959 season. The degree of infestations and the amount of damage varied with the locality and the crop involved. Several of the more important species were reported as being more numerous during 1959 than for the past several years in a few states, while infestations appeared to be lower in other states. ALFALFA WEEVIL (Hypera postica) was the most destructive insect in Wyoming during 1959, and was reported for the first time from Tennessee, Alabama and Kentucky during 1959, as well as extending its range in Pennsylvania, Maryland and North Carolina. SWEETCLOVER WEEVIL (Sitona cylindricollis) was reported from Kentucky for the first time during 1959, being found in Hart County, and was reported to have now spread to all counties in Utah. Two other WEEVILS, Sitona californicus and Hypera meles were reported from Utah for the first time during 1959.

Alfalfa weevil was the most destructive pest in Wyoming during 1959. Weather conditions in many areas of the State made controls difficult, resulting in severe damage in many fields of alfalfa to first and second cuttings. Many farmers applied controls after the first cutting. Overwintering adult populations of alfalfa weevil were generally low in the southern portion of Idaho. Eggs were first noted in early April and by May 1 were common throughout infested areas of the State. Larval stages were common by mid-May in Idaho, being extra heavy in Caribou and Bannock Counties. Populations were unusually low in southwestern counties and average elsewhere in Idaho. Overall losses in Idaho due to alfalfa weevil, including controls, amounted to \$2,609,000.

Alfalfa weevil adults were common at Clarkston, Asotin County, Washington, during April; this is the first observation of this weevil since it was recorded in the State at this same location in 1955. Typical foliage injury to alfalfa was also seen at Pullman, Whitman County. Alfalfa weevil larvae averaged 3-4 per sweep and adults of the pest averaged 3-4 per 10 sweeps in Wallowa County, Oregon, in early August. The species was generally present only in normal abundance throughout southern and eastern portions of that State. Heavy populations of alfalfa weevil were also present in fields of alfalfa in Lassen County, California.

Alfalfa weevil adults were active and laying eggs in Nevada the first week of February. Development was uneven, with first and second-instar larvae and cocoons being present in the same area. Peak larval populations occurred in late May and early June in Nevada. Damage by alfalfa weevil was lower during 1959 than in 1958, due partly to the treatment of a majority of fields in February and early March. Alfalfa weevil caused damage to large acreages of alfalfa in Utah. Benefits from control in that State were estimated at \$520,000. Light infestations of alfalfa weevil caused minor damage to alfalfa in San Juan County, New Mexico.

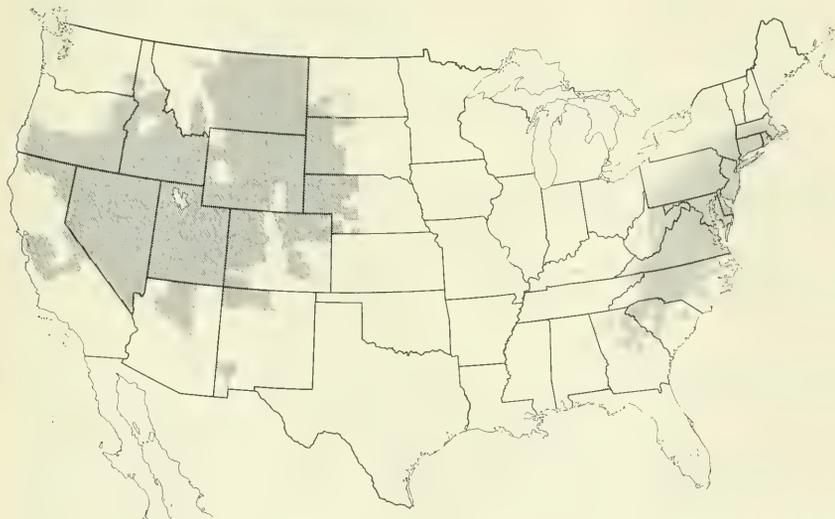
Alfalfa weevil again caused considerable damage to alfalfa in Lawrence County, South Dakota. Larvae of this pest averaged up to 97 per sweep in fields of alfalfa in Lawrence County, with many fields being treated during 1959. Damage to alfalfa by alfalfa weevil occurred in Cascade County, Montana, where control was not practiced. Larvae of this insect caused only moderate injury to alfalfa in fields in the panhandle region of Nebraska, and additional surveys did not reveal economic numbers to be present.

Early-instar larvae of alfalfa weevil first appeared in the southern portion of Rhode Island in 1959 during the first week of May. Predicted populations failed to develop during the next four weeks. Pupation was general in the State and no damage had been caused by June 4. Alfalfa weevil numbers had declined appreciably in Rhode Island from those present in 1958 and it is likely the species was delayed 1-2 years in becoming economic in the area. Counts in late September yielded one adult and 5 nearly-mature larvae of alfalfa weevil per 100 sweeps in West Kingston area alfalfa. Alfalfa weevil was a serious pest of alfalfa wherever the crop was grown in New Jersey. Damage again occurred later in the season, when stem height was 18-20 inches, rather than when the height was 10-12 inches, as in the early years of infestation in the State.

Alfalfa weevil infested 10 new counties in Pennsylvania during 1959, making a total of 47 counties now infested. Development of the species was not as prolonged as in 1958; consequently controls were more effective. Larvae of alfalfa weevil were first noted in eastern Sussex County, Delaware, the first of March, feeding on young, tender alfalfa foliage and were actively feeding over the State by the first of April. Typical extensive feeding injury was most noticeable the last half of May, particularly in fields not cut for the first time. Alfalfa weevil larvae were encountered in late August and in early October, but never in numbers. Except in a few fields, overall injury by this pest was materially lower in Delaware than during the last few years.

Alfalfa weevil caused moderate to heavy damage to untreated alfalfa in all sections of Maryland, with larval populations reaching a peak generally in mid-May. Damage was moderate to second growth in most sections. Infestations were light on alfalfa in Garrett County, a new county record, making all Maryland counties now infested with this pest. Infestations of alfalfa weevil were heavy in Virginia, with controls applied in most counties. Counties not known to be infested are Scott, Lee, Wise, Dickenson and Buchanan. Light infestations of this weevil were found in Bland, Tazewell and Russell Counties, Virginia, and infestations heavy enough to justify controls were spotted in Smyth and Washington Counties.

Larvae of alfalfa weevil were feeding in Richmond and Rowan Counties, North Carolina, in late February. Hertford County was found infested for the first time in 1959. Gross injury by this pest appeared in Lincoln County fields of alfalfa by early April, and by late April injury was approaching economic importance on clover in Anson and Wake Counties, North Carolina. Loss of first cutting would have been complete, and reduction to second-cutting alfalfa severe, in the Piedmont area of North Carolina, without controls. Infestations of alfalfa weevil were light to heavy in Georgia, with as many as 87 larvae per sweep in some fields. The pest has spread from the eastern to the northwestern part of Georgia and is now present in Floyd County. First-cutting alfalfa in untreated fields was largely lost to alfalfa weevil. Generally, the yield from treated fields as opposed to untreated fields was 3 bales to 1 bale, respectively.



Distribution of Alfalfa Weevil

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) was more abundant in Ohio during 1959 than in 1958. An average of 0.42 larva per stem damaged 0.76 bud per stem in all areas covered. Loss to first-cutting red clover in Ohio from this pest was an estimated 3 percent, or \$1,200,000. Lesser clover leaf weevil larvae were very abundant and damaged many fields of clover in Illinois. Many fields had 90-100 percent of stems and buds infested during the period April 30-June 30. One southern Illinois field had 100 percent of terminal buds infested by lesser clover leaf weevil and 60 percent of buds killed by this pest. Red clover in the central area of Missouri averaged 40-70 percent stem and bud damage in late May from lesser clover leaf weevil.

Lesser clover leaf weevil severely damaged red clover in Lyon County, Nevada, with peak larval populations occurring in late April and early May. The species is becoming the limiting factor in the production of red clover in this area of Nevada. Adults of lesser clover leaf weevil were active during early April near Caldwell, Canyon County, Idaho; and feeding by this species was widespread in southwestern counties of the State by mid-May. First and second-instar larvae of this weevil appeared during late April in Canyon and Owyhee Counties, Idaho. Larvae damaged 66 percent of red clover stems in one untreated field near Parma, Canyon County, by late May. Populations of lesser clover leaf weevil in southern and central areas of Idaho were moderate to abundant during May. Extensive feeding by larvae of lesser clover leaf weevil on red clover buds, 2-5 weeks after hay cutting, did not seriously affect development of a good number of heads for seed production in the Quincy area of Washington.

Moderate to heavy infestations of lesser clover leaf weevil caused much damage to the crimson clover seed crop in Georgia. Injury to red clover by lesser clover leaf weevil was noted in Talbot and Harford Counties, Maryland, during May; and numbers of this pest on clover and alfalfa in Delaware were not appreciable.

Late-instar larvae of CLOVER LEAF WEEVIL (*Hypera punctata*) were feeding on clover and alfalfa in Delaware by mid-March and were very common on clover to the last of April, when feeding injury was most noticeable in Kent and Sussex Counties.

Clover leaf weevil was much heavier in Illinois during 1959 than in 1957 and 1958, and slightly heavier than in 1956. The species caused light to severe damage in fields of red clover, with up to 103 larvae per square foot in one field. The State average in Illinois for each week during the period April 1 through May 20, varied from 2.2 to 6.5 clover leaf weevil larvae per square foot in 1959, compared with similar averages of 1.6-3.4 for 1958. Disease killed as much as 50 percent of the larvae in some Illinois fields in early May. Clover leaf weevil was much less significant on red clover and alfalfa in Indiana in the early spring of 1959 than normally.

Infestations of clover leaf weevil were light through March in southern Missouri, but by mid-April a fungus disease had eliminated 30-50 percent of the larval populations. Clover leaf weevil populations in Kansas were noneconomic during 1959. Very light larval infestations of clover leaf weevil were present in all fields of alfalfa examined in southwestern and south central counties of Idaho in late April and in Lewiston County in early April. Feeding damage was light over the State. Populations of clover leaf weevil were medium to heavy on alfalfa in Siskiyou County, California, and infestations of EGYPTIAN ALFALFA WEEVIL (*Hypera brunneipennis*) occurred on alfalfa in San Diego, Orange and Los Angeles Counties in that State.

Infestations of a CLOVER WEEVIL (*Hypera meles*) were moderate to heavy in Georgia, causing much damage to the crimson clover seed crop in that State during 1959.

SWEETCLOVER WEEVIL (*Sitona cylindricollis*) was abundant and damaging to sweetclover in northwestern counties of Ohio during 1959. In Illinois, sweetclover weevil was more numerous and destructive during 1959 than for several years. Many new sweetclover seedlings were destroyed and some old stands of sweetclover were badly damaged, especially where mixed with other clover and alfalfa. An old stand of sweetclover in Illinois averaged 27 sweetclover weevils per square foot the week of April 9-15. Feeding damage by sweetclover weevil was evident early in all areas of Minnesota, but no serious infestations developed.

In late May, most fields of seedling sweetclover in the northwest area of Missouri showed sweetclover weevil leaf-feeding injury to 100 percent of the plants. Sweetclover weevil damaged a small amount of sweetclover in the northeast area of Kansas during 1959. Damage by sweetclover weevil was reported in many fields of sweetclover in southeast areas of Nebraska. Surveys showed fields with averages of 20 per 100 sweeps during May and June. Injury by sweetclover weevil in Nebraska during 1958 and 1959 has increased over that of past years.

Sweetclover weevil has now spread to all counties of Utah. Damage in that State was rarely serious during 1959. Sweetclover weevil adults became active during April in Nez Perce County, Idaho, with heavy feeding damage noted in fields of sweetclover. Severe, spotty infestations developed in some fields of sweetclover in Power County during May. Light to moderate populations of sweetclover weevil developed in the northern area of Idaho during May, with relatively light damage. In the eastern area of Idaho, adults of sweetclover weevil were general during May but plants outgrew feeding damage. In Oregon, the sweetclover weevil population increased to a higher level during 1959 than in 1958, being especially heavy in Wallowa County.

Large numbers of CLOVER ROOT CURCULIO (Sitona hispidula) adults were active in fields of red clover and alfalfa in southwestern Idaho in early April, with near-normal feeding damage noted later. Some adult feeding damage was noted in northern counties of the State in early May. Clover root curculio populations were generally low in south central and eastern areas of Idaho in 1959.

Observations in scattered fields of 1 and 2-year-old alfalfa in Missouri revealed stunting of growth, yellowing and purpling of leaves and, in some instances, stands being killed. Root examination showed considerable clover root curculio larval damage. A survey conducted in three counties, to determine the extent of this damage, showed the number of feeding scars per 6-inch tap root sample increased with the age of the stand; the average number of scars ranged from 5.2 on 1 to 1.5-year-old alfalfa to 27.9 on 10-year-old alfalfa. It was not proven that S. hispidula was responsible for the above mentioned maladies. Counts of adult clover root curculio ranged 4-15 per sweep on alfalfa and ladino clover in late October and early November in Missouri.

Adults of clover root curculio were present on clover and alfalfa in Delaware most of the season but were low in numbers, causing little foliage damage.

Adults of PEA LEAF WEEVIL (Sitona lineata) began appearing in the Willamette Valley of Oregon during the week of July 13 and were present in approximately normal numbers on legumes. No specimens of pea leaf weevil were found during a survey in the Columbia Basin of Washington during the spring of 1959, although a specimen was collected in August 1958 near Quincy.

A WEEVIL (Sitona scissifrons) occurred on alfalfa in South Dakota in most counties east of the Missouri River during 1959. The weevil was found in nearly all fields of alfalfa, but populations were not high enough to cause much damage. Counts for the season in South Dakota averaged about 4 per 10 sweeps.

CLOVER SEED WEEVIL (Miccotrogus picrostris), which was found for the first time in Illinois during 1958, was not collected in that State during 1959. In Washington, up to 40 adults of clover seed weevil per 25 sweeps occurred in white clover seed fields in Whitman County by June 30 and bloom was about 20 percent brown. Treatments were successful in most cases. No specimens of clover seed weevil were found in new, isolated fields in Garfield County, Washington. Heavy, local infestations of COWPEA CURCULIO (Chalcodermus aeneus) occurred in the Griffin area of Spalding County, Georgia.

Several leaf beetles occurred on forage crops during 1959. Adults of both NORTHERN CORN ROOTWORM (Diabrotica longicornis) and SOUTHERN CORN ROOTWORM (D. undecimpunctata howardi) were very abundant in fields of clover and alfalfa in Illinois during 1959. Adults of southern corn rootworm were common on alfalfa, clover and cover crops in Delaware throughout the season, with an increase noted on alfalfa during October. In Louisiana, southern corn rootworm adults averaged 132 per 100 sweeps on burclover in Iberville Parish in January. Adults of southern corn rootworm appeared on alfalfa the first of June in the east central area of South Dakota and averaged 3 per 10 sweeps.

Populations of PALE-STRIPED FLEA BEETLE (Systema blanda) were noticeably higher in Delaware during 1959 than they were in 1958 on alfalfa and clover, particularly during July and August. Another FLEA BEETLE (Systema taeniata) infested alfalfa in Colorado, but losses were generally light.

Adults of a BEETLE (Colaspis sp.) were abundant in many fields of red clover in Illinois in July, averaging 405 per 100 sweeps in 10 fields in the east-southeast and southeastern sections of the State during the period July 9-15. In Louisiana, counts of Colaspis sp. averaged 101 per 100 sweeps in lespedeza in Acadia Parish.

Several other coleopterous species were found infesting alfalfa, clover, vetch and other forage crops in several areas. ASH-GRAY BLISTER BEETLE (Epicauta fabricii) infested alfalfa in Colorado, but losses were light. Ash-gray blister beetle was first noted in South Dakota the first of June and averaged 3 per sweep on alfalfa during June and July. BLACK BLISTER BEETLE (Epicauta pennsylvanica) occurred on alfalfa statewide in South Dakota during August and September, averaging 3 per 10 sweeps. Spotty, heavy infestations of unspecified species of blister beetles damaged alfalfa in Grant and Harding Counties, New Mexico; but were relatively scarce throughout the season in Illinois. However, Epicauta atrata, usually found on dandelion and other weeds, occurred on heads of red clover in western Illinois during 1959. In Delaware, adults of Epicauta sp. were common on alfalfa in New Castle and Sussex Counties in July and August, with very light feeding injury.

A NITIDULID (Meligethes nigrescens) first appeared in Oregon on April 3 and built up slowly, with very low numbers present on red clover by July 10. A rapid buildup followed, with populations so heavy that rapid reinfestation resulted in recommended control dosages being only temporarily effective. Also in Oregon, VETCH BRUCHID (Bruchus brachialis) emerged from hibernation shortly before April 18 and was normal in abundance during the 1959 season. However, infestations of vetch bruchid caused heavy damage to vetch in the north central area of Texas, with population counts twice those of 1958. CLOVER ROOT BORER (Hylastinus obscurus) caused some minor loss in localized fields in the Willamette Valley of Oregon. GREEN JUNE BEETLE (Cotinis nitida) was of some importance on forage crops in Virginia in 1959. Damage to forage throughout Idaho by numerous unspecified species of WIREWORMS appeared to be generally above average for 1959.

MITES were responsible for some severe damage to clover and alfalfa during 1959. Mites were more abundant in total numbers and species and caused more damage than in recent years in Nevada. CLOVER MITE (Bryobia praetiosa) infestations were high and damage to alfalfa was heavy in Churchill and Douglas Counties, Nevada. Damage was most apparent in sandy soils.

Unspecified species of SPIDER MITES were generally prevalent in California early in 1959 but remained more or less stationary until summer, when they showed as local heavy populations. Alfalfa, seed alfalfa, clover, horsebeans and grass crops were all affected by light to heavy populations over the State. Infestations of Tetranychus spp. on alfalfa were above normal statewide in Nevada, but no treatments were made, although several fields were very severely damaged in Lyon County. Spider mites, mainly FOUR-SPOTTED SPIDER MITE (Tetranychus canadensis), were present in many fields of red clover in southern Illinois during May. An average of 18.2 mites per clover leaf were found in three fields of clover in Gallatin County on May 23. Unspecified species of spider mites severely stunted red clover in eastern Allegany County, Maryland, during May.

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was heavier than normal on red clover and alfalfa in the Ontario-Nyssa area of Oregon during 1959. Unusually high populations of this spider mite caused leaf drop in some fields of established alfalfa plantings in the area. Some severe infestations of two-spotted spider mite developed in fields of red clover in Canyon County, Idaho, during mid-June; and some severe damage by this mite occurred to fields of alsike clover near Grangeville during July. Injury by two-spotted spider mite was generally light on alfalfa and clovers in Utah during 1959.

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) was very abundant on clover in Kent County, Delaware, where several fields were apparently killed outright by high infestations.

THRIPS damaged alfalfa in a few western areas during 1959. BEAN THRIPS (Hercotrips fasciatus) was severe on alfalfa in Sacramento and Yolo Counties, California, and populations of unspecified species of thrips were high on many crops in California, causing damage to alfalfa plantings in many growing areas of the State during 1959. Infestations of another thrips (Frankliniella occidentalis) were extremely heavy in some fields in all alfalfa-growing areas of Arizona throughout 1959, with considerable damage to terminal growth evident in some cases.

CLOVER SEED CHALCID (Bruchophagus gibbus) apparently caused above average economic damage in Utah during 1959. Adults of clover seed chalcid emerged during late May in Canyon County, Idaho. Seed reduction in the area was not assessed but damage was considered light. Infestations of clover seed chalcid were severe in alfalfa seed-growing areas of Nye County, Nevada. Fields producing seed for the first time had at least a 50-percent reduction in yield and many older fields were equally hard hit in that area of the State. High populations of clover seed chalcid occurred in Imperial County, California.

GRAY GARDEN SLUG (Deroceras reticulatum) was serious on crimson clover and hairy vetch in the Willamette Valley of Oregon during late summer and fall in 1959.

Soybean and Peanut Insects: Several lepidopterous pests occurred on soybeans in several areas, causing varying degrees of damage. Infestations also varied in intensity. GREEN CLOVERWORM (Plathypena scabra) damaged soybeans in many areas of Arkansas in early September. Damage was primarily due to foliage feeding although there was some pod feeding. Larval populations of green cloverworm ranged 1-5 per foot of row and damaged soybean leaves in the north central area of Missouri during late August. Larvae ranged 2-8 per foot of row in the southern area of the State through August and September. Some damage occurred to late soybeans in southeastern Missouri in early September. Green cloverworm numbers were very scarce in fields of soybeans in Illinois during 1959.

Surveys in Nebraska during late August showed slight increases of green cloverworm over 1958 on soybeans. The highest count recorded in 1959 was 4 per 10 sweeps in the east central area of the State. Several heavy infestations of green cloverworm occurred on soybeans in Delaware during 1959, while in Maryland, infestations of this pest in soybeans were about normal.

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) stripped soybean foliage in many fields in the Coastal Plain area of North Carolina and up to 50 percent of pods were injured by this species and corn earworm in the middle counties of the same area. Velvetbean caterpillar was a serious problem on soybeans throughout the southern part of Georgia during 1959. In Louisiana, adults of velvetbean caterpillar were first observed on soybeans August 1 in St. Landry and Tensas Parishes. Light larval infestations of this pest occurred on the same crop in Acadia Parish by the end of August. Larvae of this pest were also common on soybeans during October over Delaware.

In Missouri, in late May, larvae of VARIEGATED CUTWORM (Peridroma margaritosa) migrating from alfalfa, red clover and grassy areas, caused severe injury to marginal rows of soybeans. Moth emergence was high in southeast Missouri in early June.

CABBAGE LOOPER (Trichoplusia ni) larvae were present on soybeans over Delaware in late season but populations remained low. Cabbage looper was present on soybeans in Virginia during 1959 but presented no problem. In Georgia, however, cabbage looper infestations were a problem on soybeans.

There was some feeding by BEET WEBWORM (Loxostege sticticalis) on soybeans in Minnesota, but no serious damage was observed. A TORTRICID (Tortrix pallorana) was found infesting soybeans in Kent County, Delaware, where it was common on foliage, particularly along the edges of the fields. Larvae of an unspecified PLUME MOTH were found feeding on leaves of soybeans in central and northwestern areas of Illinois during 1959, with as many as 20 per 100 sweeps being recorded.

ARMYWORM (Pseudaletia unipuncta) was present on soybeans in several counties of Virginia during 1959. Although this pest caused heavy damage to several grain crops in these areas, it was of minor importance on soybeans. FALL ARMYWORM (Laphygma frugiperda) averaged 114 per 100 sweeps in a field of soybeans in St. Landry Parish, Louisiana, and this pest was also a problem on soybeans in Georgia. YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) was present on soybeans statewide in Delaware during the 1959 season. In Pennsylvania, outbreaks of yellow-striped armyworm occurred in several areas in the southern half of the State, with some requiring controls to prevent severe crop losses.

Several leaf beetles were found infesting soybeans during 1959. A CORN ROOTWORM (Diabrotica sp.) was observed feeding on pods of late soybeans in southeastern Missouri in October. Also in Missouri, but in the southwestern area of the State, damage to seedling soybeans caused by BEAN LEAF BEETLE (Cerotoma trifurcata) was evident in late May. Populations of 1-7 adults were common on soybeans throughout the State during the growing season. Adults of bean leaf beetle were observed feeding on pods of late soybeans in southeast Missouri in October. Bean leaf beetle caused a small amount of damage to seedling soybeans in southwestern Illinois. In Indiana, contrary to the trend in recent years, there was no increase in the numbers of bean leaf beetle on soybeans; and the species was not considered economically important during 1959. Bean leaf beetle adults were abundant most of the season in Delaware, particularly during June when moderately heavy feeding injury occurred in Kent and Sussex Counties on soybeans.

Adults of a LEAF BEETLE (Colaspis sp.) numbered up to 240 per 100 sweeps on soybeans in late June and early July in the southern half of Illinois. Adults of Colaspis sp. were observed feeding on soybeans in southern counties of Missouri during the last half of July and counts ranged 1-7 per foot of row. Damage by Colaspis sp. to soybeans was observed in local northeastern areas of Arkansas. Overwintering larvae of the beetle caused damage to soybean seedling roots.

LOCUST LEAF MINER (Chalepus dorsalis) migrated from black locust trees into soybeans in central Illinois and did considerable feeding on the soybean leaves. Also in Illinois, SWEETCLOVER WEEVIL (Sitona cylindricollis) was reported, although the report was unconfirmed, to number 20-30 per linear foot in one field of soybeans in Macoupin County.

PALE-STRIPED FLEA BEETLE (Systema blanda) populations in Delaware during 1959 were noticeably higher than in 1958 on soybeans, particularly during July and early August.

In Missouri, small spots in scattered fields of soybeans throughout the southern area of the State were defoliated by BLISTER BEETLES (Epicauta spp.) during the last half of July. MARGINED BLISTER BEETLE (Epicauta pestifera) caused considerable feeding injury to soybeans in southeast Kent County, Delaware, during mid-July, and was common in late August. Adults of unspecified blister beetles occurred on soybeans in New Castle County the first part of October.

loss of their crop in a limited number of fields. Surveys for soybean cyst nematode to December 31, 1959, reveal more than 34,600 acres infested on 791 properties in the States of Arkansas, Illinois, Kentucky, Mississippi, Missouri, North Carolina, Tennessee and Virginia. The percent of damage this pest caused was widely varied. In some fields only small spots were affected but in others as much as 90 percent of the field showed nematode damage. Severe injury was experienced by a number of Arkansas and Missouri growers; and in Lake County, Tennessee, it was estimated that this nematode cost the growers \$360,000 in 1959. A map showing this distribution of the species in the United States is shown on the preceding page. The State of Illinois was found infested for the first time during the year.

Peanuts in Georgia were attacked by light to heavy, and sometimes severe, infestations of several pests common to this crop. VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) was general and heavy throughout the peanut area of the State, with many fields being completely defoliated. CABBAGE LOOPER (Trichoplusia ni) infestations were light during 1959, as were those of FALL ARMYWORM (Laphygma frugiperda). An unspecified species of climbing CUTWORM defoliated large acreages of peanuts in Early County, Georgia, during the first part of August. RED-NECKED PEANUTWORM (Stegasta basqueella) infestations were light to moderate on peanuts in the State during 1959; and infestations of SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) were light to heavy on this crop in Georgia. This latter instance is unusual, as southern corn rootworm is rarely reported as damaging peanuts. JAPANESE BEETLE (Popillia japonica) was of minor importance on peanuts in a few local areas of Virginia.

A BURROWING STINK BUG (Pangaeus bilineatus) has been present in many peanut fields in Georgia where considerable damage has been done to peanuts. This so-called "physiological damage" may be caused by this pest. In Dooly and Crisp Counties, 20 percent of the Spanish peanuts were graded oil stock. Infestations of unspecified species of THRIPS were light to heavy on peanuts in Georgia during 1959, but mostly light to moderate in nature.

Peanuts in a few other states were infested and damaged by some of these same pests, as well as a few others. Red-necked peanutworm infestations severely damaged peanuts in the Winter Garden area of Texas and caused some damage to that crop in the southwest, west cross timbers and central areas of that State. In Oklahoma, infestations of red-necked peanutworm were heavy in peanuts in some central and southwestern areas during the summer, but populations were generally light across the State.

Southern corn rootworm caused considerable loss in yield of peanuts in one area of Virginia where controls failed. Unspecified species of LEAFHOPPERS caused yield losses estimated up to 200 pounds per acre of peanuts in the Coastal Plain of North Carolina because rains prevented the application of controls. Damaging numbers of THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) appeared on peanuts in the Winter Garden area of Texas during 1959.

Pasture and Grass Insects: The larvae of several species of Lepidoptera infested pastures and various grasses during the 1959 season. Spring populations of ARMYWORM (Pseudaletia unipuncta) were light in Maryland, but a moderate outbreak occurred on grasses in the southern area of the State and on the Eastern Shore during August. The species also heavily damaged pastures and cover crops in several counties of Virginia during 1959. In Georgia, infestations of armyworm were heavy on Coastal and common Bermuda grasses, as were infestations of FALL ARMYWORM (Laphygma frugiperda). Fall armyworm populations in Texas were light in pastures during 1959 as compared with 1958.

An outbreak of BRONZED CUTWORM (Nephelodes emmedonia) caused considerable damage in early spring bluegrass pastures in several southwestern counties of Pennsylvania. ARMY CUTWORM (Chorizagrotis auxiliaris) damaged much less range plant acreage in Utah than normal during the spring of 1959. An unknown species of CUTWORM severely damaged grasses in northeastern Montana, and unspecified species were destructive to turf in a few localized areas of Ohio.

Populations of STALK BORER (Papaipema nebris) were higher than usual in Kansas during 1959, but damage to bromegrass was heavy only in a few localized areas of the State. Infestations of a GRASSWORM (Mocis sp.) were heavy on Coastal and common Bermuda grasses in Georgia. SOD WEBWORMS (Crambus spp.) were reported in large numbers in the Canton and Cleveland areas of Ohio. In Rhode Island, Crambus sp. caused considerable damage in South Kingstown, with adults appearing in abundance in late September. Damage to lawns by several species of sod webworms appears to be increasing in New Jersey. Larvae of a sod webworm, Crambus sp., severely damaged a field of Merion bluegrass in Yamhill County, Oregon; the first injury observed in the western area commercial seed fields since 1956. Larval populations of various species of sod webworms, especially Crambus topiaris, were heavier than normal in the fall in Washington, with up to 50 per square foot in grasses grown for seed in the Spokane area. Populations were probably high because prolonged cool and moist weather in the late summer promoted survival of eggs and small larvae. Damage to lawns was also reported in the Puyallup area of Washington.

Among the several species of Coleoptera reported as infesting grass and turf, two constituted new State records. A SCARAB (Gronocarus autumnalis) was collected on St. Augustine grass in Panama City, Bay County, Florida, on November 11, 1959, for a new State record for Florida. It was also collected again from the same host on December 7, 1959, in the same locality. A WEEVIL (Hyperodes anthracinus) was collected in turf in Nassau County, New York, during 1959 for a first State record of this species in that State.

Several other species of Coleoptera were reported as infesting various grasses during 1959. BILLBUGS (Calendra spp.) were noticeable around lawns in Benton County, Oregon. However, injury to grass was not apparent, larval damage being less than in 1958. A CERAMBYCID (Prionus sp.) infested Bahia grass in several fields in Seminole County, Georgia, with an average of 6 larvae per square foot in one field. The pest fed on grass roots, causing the plants to die.

NORTHERN MASKED CHAFER (Cyclocephala borealis) was more numerous in Ohio than during 1958 and caused considerable damage in the Cincinnati and Wooster-Akron-Canton areas of that State during 1959. Northern masked chafer was abundant on untreated turf and the secondary effect of skunks made the fairways of one golf course unplayable. Grubs of GREEN JUNE BEETLE (Cotinis nitida) were the most common grubs infesting pastures in North Carolina during 1959. The population of WHITE GRUBS (Phyllophaga spp.) was much lower in Ohio during 1959 than it was during 1958 and unspecified species damaged numerous lawns in many counties and communities in Utah.

Several species of PLANT BUGS, largely Stenotus binotatus, Leptopterna ferrugatus and Thyrillus pacificus, damaged grasses in scattered areas of Utah during 1959. Also in Utah, populations of FALSE CHINCH BUG (Nysius ericae) were way down from those that were present during 1958. However, the pest was spottedly numerous on the range and about roadsides, and invaded a number of homes in Salt Lake County.

Much damage was caused to St. Augustine grass lawns by a CHINCH BUG (Blissus leucopterus insularis) throughout the southern portion of Louisiana during 1959 and infestations were heavy and general on St. Augustine grass in Georgia. HAIRY CHINCH BUG (Blissus leucopterus hirtus) destroyed many lawns in the Akron area of Ohio and was again abundant and destructive to bent grass lawns in the metropolitan counties of New Jersey during the 1959 season. In Georgia, a SPITTLEBUG (Tomaspis bicincta) was a serious problem on Coastal and common Bermuda grass throughout the middle and southern parts of the State.

YELLOW SUGARCANE APHID (*Sipha flava*) was reported by the hundreds on pangola grass in a 10-acre pasture at Iverness in Citrus County, Florida, in mid-April and seriously injured large areas of the same host at Gainesville, Alachua County, during the same period. Another APHID (*Hyalopteroides dactylidis*) moderately infested orchardgrass locally in Utah. In Washington, this aphid has been found in widely scattered areas throughout the State since it was first recorded at Pullman in 1955; however, it has not been found in orchardgrass seed fields in Spokane County.

Adults of SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) were abundant on grasses and weeds in some areas of Rhode Island by late June. Populations were again heavy on grasses during the last week of September. An unspecified GROUND PEARL infested centipede and St. Augustine grass in Valdosta, Lowndes County, Georgia.

HARVESTER ANTS (*Pogonomyrmex* spp.) were damaging to range in some western areas of the Nation during 1959. In Oklahoma, populations of *P. barbatus* were considerably lower than those reported during 1958. *P. occidentalis* caused its usual damage in Utah during 1959 by keeping many thousands of acres of range and forage croplands bare of vegetation. *P. occidentalis comanche* and *P. maricopa barnesi* were troublesome in the Washington-St. George area of Utah. In Hidalgo, San Miguel, Socorro and Rio Arriba Counties, New Mexico, *P. occidentalis* and/or *P. barbatus fuscatus* are becoming a serious problem on rangeland. Also in New Mexico, another ANT (*Formica cinerea montana*) became a serious problem during the summer of 1959 in pastureland near Cerillos, Santa Fe County, because of the large number of mounds present.

Several other pest species of grasses were reported during 1959. Among these was a new species of WHITEFLY (*Aleurocybotus* n. sp.) collected on grass December 12, 1958, at Gainesville, Alachua County, Florida. A SOD FLY (*Metoponia rubriceps*), previously known in California only in the city of San Francisco, extended its range in that State into San Mateo County during 1959. The total numbers of a LEAF MINER (*Phytomyza nigra*) in fescue seed fields in Oregon were much lower during 1959 than they were in 1958.

Large numbers of a FIELD CRICKET (*Acheta* sp.) were present in meadows and pasture areas throughout Rhode Island in early September and caused considerable concern as they entered houses with the advent of cold nights. CLOVER MITE (*Bryobia praetiosa*) was also abundant in early May in meadows and pasture areas of Rhode Island. DATE MITE (*Oligonychus pratensis*) became severe on wheatgrass plantings in Modoc County, California, causing damage associated with drought.

Pests of Miscellaneous Crops: Moderate to severe infestations of BEET WEBWORM (*Loxostege sticticalis*) occurred over a wide area of North Dakota, causing injury to several crops, including flax. Some feeding by beet webworm also occurred on flax in Minnesota, but no serious damage was observed. In Montana, this pest damaged some flax in Teton County. SIX-SPOTTED LEAFHOPPER (*Macrosteles fascifrons*) migrated into the southeastern counties of North Dakota on May 11; leafhoppers had dispersed by June 13 and could be found in all areas. Counts averaged 0.1-1.0 per sweep on several crops, comparable to data for the same period in 1958. Numbers of six-spotted leafhopper continued to decline during June and did not increase appreciably in flax for the rest of the season. In California, heavy populations of unspecified species of STINK BUGS occurred on flax in Imperial County.

A complex of SUNFLOWER MOTH (*Homoeosoma electellum*), BANDED SUNFLOWER MOTH (*Phalonia hospes*) and a tephritid occurred in numerous fields of sunflower in Cavalier and Trail Counties, North Dakota, with economic infestations in many of the fields. Populations of unspecified THRIPS were high on many crops in California, causing damage to safflower plantings in many of the growing areas of the State during 1959.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

The background of the document is a light green color with a repeating pattern of various insects. The insects are rendered in a darker green, semi-transparent style. Visible species include several butterflies of different sizes and patterns, numerous beetles of various shapes and sizes, and several flies. The insects are scattered across the page, creating a dense, naturalistic pattern.

VOL. 10 NO. 16

APRIL 15, 1960

SB
823
C77
Ent.

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 of Insect Conditions

CUTWORMS infesting 500,000 acres of rangeland in Idaho and several thousand acres in Oregon. GRASSHOPPER nymphs numerous along Mimbres River in New Mexico. (p.282). CLOVER LEAF WEEVIL larvae active and causing some damage to alfalfa in several states. (p. 283).

Strong increase in CITRUS RED MITE expected in citrus during May in Florida. (p. 285).

CABBAGE APHID appears to be increasing rapidly on cabbage in Charleston area, South Carolina, and light to heavy infestations present in 2 Georgia counties. (p. 286). Tetranychus lobosus a problem on strawberries in Louisiana. (p. 287).

Heavy PINK BOLLWORM moth emergence reported in Maricopa County, Arizona. (p. 287).

WESTERN PINE BEETLE and Ips spp. killed 6,850 ponderosa pines in El Dorado County, California. Other California areas also damaged. (p. 288).

Some First Reports of the Season - APPLE APHID hatching in Pennsylvania; half-grown in Utah. PEAR THRIPS passed peak of emergence in Willamette Valley of Oregon. PLUM CURCULIO adults leaving hibernation at Fort Valley, Georgia. Archips rosana eggs hatching in Oregon. SEED-CORN MAGGOT emerging at Walla Walla, Washington. Meligethes nigrescens emerged in Willamette Valley, Oregon. EASTERN TENT CATERPILLAR larvae present in Louisiana and Maryland, and FOREST TENT CATERPILLAR eggs hatching in Willamette Valley of Oregon. SPRING CANKERWORM adults trapped in Wisconsin and Illinois.

INSECT DETECTION: First State records include a hackberry mite (Aceria celtis) in California (p. 290); a parasite (Comperia merceti) in Missouri (p. 291); and an earwig (Euborellia cincticollis) in Nevada (p. 293). First county records include olive scale in San Mateo County, California; and a wax scale (Ceroplastes sp.) in Camden County, North Carolina. (p. 289).

CORRECTION. (p. 292).

ADDITIONAL NOTES. (p. 292).

Special Reports - Potato psyllid survey in the spring breeding areas of Arizona, California, New Mexico and Texas - 1960. (p. 294). Boll weevil survival surveys in Texas, northeast Louisiana, Mississippi and North and South Carolina, spring of 1960. (p. 295). Stored-grain insect survey in Missouri. (p. 297). Status of some IMPORTANT INSECTS in the United States. (p. 299). Light trap collections in Maine for 1958. (p. 302).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1959

List of Individuals Who Submitted 1959 Summaries. (p. 301).

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

WEATHER OF THE WEEK ENDING APRIL 11

Temperatures again averaged below normal over most of the eastern half of the Nation and above normal in western areas this week. Generally dry conditions were the rule, and heavy precipitation was largely confined to the Atlantic Coastal States and to scattered areas in the higher elevations of the Western States. Dry, continental, polar air was present throughout the week in most areas east of the Rocky Mountains, with temperatures 6° or more below normal from the Ohio Valley to Iowa. Freezing temperatures over last weekend extended deep into the Southeastern States, with light frost reported in northern Florida, where Cross City had 32° on the 11th. Record low readings for so late in the season included 30° at Charleston, South Carolina, and Augusta, Georgia; and 23° at Rome, Georgia, on the 11th; and 29° at Columbia, South Carolina; and 34° at Savannah, Georgia, on the same date equaled their lowest readings for so late in the spring. Much above-normal temperatures continued for the fourth consecutive week in most of the Rocky Mountains and Western States. Readings of 6° or more above the average were general from the Cascades to the western Great Plains and of 12° or more in the northern Rocky Mountains. Record high temperatures for so early in the spring reported during the week included Helena 77°, Missoula 78°, and Billings 80° in Montana; and Las Vegas, Nevada, 94° on the 5th; Albuquerque, New Mexico, 84° on the 7th and 10th; and Rapid City, South Dakota, 86°, and Casper, Wyoming, 75° on the 10th.

No measurable precipitation was reported over a wide area from the Far Southwest through the Southern Plateau to the Texas and Louisiana coasts, the central Mississippi Valley, and portions of the northern Great Plains. Generally light amounts, under 1/2 inch in most places, were recorded in all other regions from the Pacific Coast to the Appalachians. Generally moderate to heavy precipitation occurred along a cold front early in the week from New England to the Southeastern States. These heavy rains in Georgia and the Carolinas augmented floods on several major streams produced by the excessive rains of the previous week. Cloudy and wet weather continued until the weekend in the Northeastern States, with weekly totals of 1 to more than 2 inches in coastal sections. Light snow flurries occurred on several days in the Great Lakes area, and heavy snows of 1-5 inches were reported from mountainous sections of West Virginia, western Maryland, northern Pennsylvania, and southern New York. Binghamton, New York, had a 7-inch accumulation in 6 hours on the 9th. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - LOUISIANA - Survey in East Baton Rouge and Washington Parishes on oats revealed counts of 2.6 per linear foot in field in East Baton Rouge Parish and 39.6 per linear foot in 4 fields in Washington Parish. One field in Washington Parish averaged 100 per linear foot. (Spink, Mar. 31). A survey of oat fields in Jefferson Davis and Acadia Parishes revealed comparatively few fields infested. However, in those fields found infested populations were quite large. In one field, more than 1,000 per linear foot counted. Counts ranged 100-500 per linear foot in field of oats in Washington Parish. Predator and parasite activity very low in all fields. (Spink). TEXAS - Heavy and spotted infestations over widespread area of Collin County in wheat and oats; counts 100 per linear foot. (Davis). OKLAHOMA - Extremely light (less than 0.1 per linear foot) in fields of small grain checked in Arkansas River bottom in east central area. (VanCleave, Meharg, Washum). Populations 80-315 per square foot in 2 fields of volunteer oats and 18 per square foot in a field of fall-seeded oats in Choctaw County. (Goin). Light populations noted in wheat field in Payne County (Stiles); in 4 of 8 fields surveyed in Kingfisher, Blaine and Major Counties (Owens); and in wheat field in Kiowa County (Hudson). None noted in other fields checked in Custer, Washita and Kiowa Counties (Hudson) and in fields surveyed in Tillman and Cotton Counties (Hatfield). KANSAS - Not found in wheat fields in southwestern and south central areas. (Peters). UTAH - Few present. (Knowlton).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light, 6 per linear foot, in a barley field in Cotton County. (Hatfield). None noted in other fields of small grain surveyed. (Okla. Coop. Econ. Ins. Sur.). UTAH - Few present. (Knowlton).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - LOUISIANA - Infestations appear very heavy, but spotty, in oats near Hathaway. (Spink). OKLAHOMA - Light, but common, in fields of small grain checked in Arkansas River bottom in east central area. Counts ranged 1-5 per linear foot in most fields, but up to 100 per linear foot in one wheat field in Le Flore County. (VanCleave, Meharg, Washum). Light in 6 of 8 fields surveyed in Kingfisher, Blaine and Major Counties. (Owens). None noted in other fields surveyed in southeast, central, west central and southwest areas. (Goin, Stiles, Hudson, Hatfield).

WINTER GRAIN MITE (Penthaleus major) - MISSOURI - Counts in wheat ranged 0-15 per foot of row. (Kyd, Thomas, Munson). OKLAHOMA - Light, 2 and 3 per linear foot, in two wheat fields in Blaine County. (Owens). None noted in other fields of small grain surveyed in State. (Okla. Coop. Econ. Ins. Sur.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - ILLINOIS - Surveys in 5 counties in the western area and 1 county in the central area showed survival to be 66.7 percent. Individual fields varied from 56 to 76 percent survival. (Ill. Ins. Rpt.). MISSOURI - Overwintering larvae in New Madrid County ranged 0-1,000 per acre and averaged 92. In Carroll County, north central area, counts averaged 25 larvae per acre. (Fairchild, Keaster, Barry). NORTH CAROLINA - Overwintering population higher than previously observed in Pasquotank County (just under one borer per stalk). Infestation in Beaufort, Pamlico and Camden Counties a little less than in Pasquotank County. Pupation about 10-30 percent complete on April 4-7. Development a few days behind that in 1959 despite cold weather and late-season snow cover. (Farrier).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - MISSOURI - Overwintering survival was 7 percent in several southwestern fields. (Kyd, Thomas, Munson).

WESTERN BLACK FLEA BEETLE (Phyllotreta pusilla) - TEXAS - Medium infestation attacking corn in Zavala County. Leaves being noticeably scarred and 2-3 adults found per plant. (Harding).

A BILLBUG (Calendra sp.) - GEORGIA - Light infestations on corn in Colquitt and Thomas Counties. (Johnson).

SEED-CORN BEETLE (Agonoderus lecontei) - KANSAS - Moving in large numbers on March 30 and April 3 near Chase, Rice County, between hours of 2 and 5 P.M. "Bug" screens on cars were full of the beetles on both days. Counts on the ground were 2-4 per square foot on March 30. Populations are declining, but still quite a few on the move. (Keesling).

ARMY CUTWORM (Chorizagrotis auxiliaris) - IDAHO - This species, reported in CEIR 10(15):253, as Agrotis sp., has now been determined to infest over 500,000 acres of rangeland extending from Owyhee County in the southwest to Minidoka and Oneida Counties in the south central area. Counts ranged 2-5 per square foot and larvae predominantly in third and fourth instars. Damage up to April 8 has been confined to rangeland. However, in few locations, larvae found in irrigated pastures. This is first widespread outbreak of this cutworm in many years. (Gittins, Manis, Mink, Koester). WYOMING - Not found in 5 square-foot samples of 12 wheat fields and 5 alfalfa fields checked in Goshen and Laramie Counties. One larva found in grass on roadside. (Fullerton). KANSAS - Few larvae found in wheat fields in southwestern area, particularly along field margins, but in no instances were counts over 1 per square foot. (DePew, Apr. 4). Larvae found in an alfalfa field in Seward County; counts less than 1 per square foot of crown area. (Peters).

CUTWORMS - COLORADO - Undetermined species feeding on alfalfa in Fremont County. (Colo. Ins. Sur.). OREGON - Infesting several thousand acres of rangeland in Malheur County. Particularly heavy populations of late-instar larvae observed in area between Nyssa, Vale and Adrian. (Capizzi).

GRASSHOPPERS - NEW MEXICO - First, second and possibly third-instar nymphs becoming numerous along Mimbres River in Grant County. Counts average 4-6 per square yard. Egg survey made in Union, Curry and Roosevelt Counties showed all egg pods in excellent condition. No predators or parasites noted. By end of March, hatching was noted in Quay, Curry, De Baca, Roosevelt, Chaves, Eddy, Lea and Dona Ana Counties. (N. M. Coop. Rpt.). NORTH DAKOTA - Egg development survey conducted through Stark, Hettinger and Adams Counties in southwestern area. Light to moderate populations were indicated for this area in the 1959 fall grasshopper survey. Egg pods recovered showed Melanoplus bivittatus development in the coagulated stage and M. bilituratus in the eye spot stage. All egg pods appeared in good condition, with little evidence of predation. (N. D. Ins. Rpt.).

PEA APHID (Macrosiphum pisi) - ARIZONA - Populations very heavy in alfalfa, statewide. (Ariz. Coop. Sur.). TEXAS - Counts 100-700 per sweep on alfalfa in Brazos County. (Randolph). Attacking alfalfa and vetch in Rockwall County, 20 per linear foot. (Davis). OKLAHOMA - Light to medium (2-25 per sweep) in all alfalfa and vetch fields checked in east central area. (VanCleave, Washum, Meharg). Light to medium (1-50 per square foot) in 3 fields of alfalfa and vetch checked in Choctaw County. None noted in other fields in same area. (Goin). Light to medium (10-60 per square foot) in 4 fields of alfalfa and clover in Johnston, Bryan and Marshall Counties. (Vinson). Light in alfalfa fields checked in Payne, Garfield and Washita Counties. (Stiles, James, Owens, Hudson). None noted in 4 fields checked in Tillman County. (Hatfield). MISSOURI - Light on alfalfa with 3-4 inches of new growth in Sikeston area. Counts ranged 24-31 per 100 sweeps. (Harrendorf). Counts on alfalfa in southwestern area ranged 0-16 per 100 sweeps. (Kyd, Thomas, Munson). KANSAS - Found in several southwestern and south central counties. Counts ranged from less than one to 50 per sweep in alfalfa. Not found in Kearney and Hamilton Counties. (Peters). UTAH - Moderately numerous on alfalfa in St. George area of Washington County. (Knowlton). OREGON - Populations very low in Umatilla, Morrow, Baker and Malheur Counties. (Capizzi). DELAWARE - Averaged 20-25 per sweep in New Castle County and slightly less in Kent County on alfalfa. (Burbutis, Mason).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Infestations in southwest and central areas declining. In Safford area, some infestations still heavy, with considerable damage occurring in some fields. (Ariz. Coop. Sur.). TEXAS - Counts 30-60 per sweep in alfalfa in Brazos County. (Randolph). OKLAHOMA - Extremely light, less than 0.1 per square foot, in alfalfa in Arkansas River area of east central Oklahoma. (VanCleave, Meharg, Washum). Light to heavy in 4 fields of alfalfa in Tillman County (Vinson) and light to medium in 2 fields checked in Washita County (Hudson). Light in Choctaw County fields checked (Goin), and light in 3 alfalfa fields surveyed in Johnston and Bryan Counties (Vinson). Counts ranged 1-2 per square foot in alfalfa fields checked in Payne County. (James). KANSAS - Found only on alfalfa on roadside embankments in Pratt, Barber and Harper Counties; and in an alfalfa field with southern exposure in Barber County. Counts were less than 1 per sweep. (Peters). OREGON - Not found in alfalfa in Malheur, Umatilla, Morrow and Baker Counties. (Capizzi).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Populations building up in alfalfa in Dona Ana County. Light infestations, averaging 3 per 5 sweeps, in Roosevelt County. (N. M. Coop. Rpt.). OKLAHOMA - Light in fields of alfalfa in east central area. (VanCleave, Meharg, Washum). Light in alfalfa field in Bryan County. (Vinson). UTAH - Moderately numerous on alfalfa in St. George area of Washington County. (Knowlton). WYOMING - Averaged less than one per sweep in alfalfa fields surveyed in Goshen County. (Fullerton). OREGON - L. hesperus quite active in cultivated areas of eastern area. Counts of 3-5 adults per sweep not uncommon in Umatilla, Morrow, Baker and Malheur County alfalfa fields. (Capizzi).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - UTAH - Common in alfalfa at Manti and in Salt Lake County. (Knowlton).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - Young, first-instar larvae present, but scarce, on alfalfa in New Castle and Kent Counties. (Burbutis, Mason). MARYLAND - Small numbers of adults taken on alfalfa in Worcester County. No general hatch to April 6. (U. Md., Ent. Dept.). PENNSYLVANIA - Adults in flight in Lancaster County on March 29. (Negley). GEORGIA - Larvae infesting alfalfa at 1-6 per bud in Hancock, Oconee and Madison Counties. Fifty to 70 percent of plants showing feeding injury. Alfalfa now 6 inches high. (Robertson, Jordan, Johnson). COLORADO - Egg deposition started in Larimer and Weld Counties. (Colo. Ins. Sur.). UTAH - Adults and larvae one-third grown in some Washington County alfalfa fields. Activity noted in Sanpete and Box Elder Counties. Less than usual stubble spraying has been carried on in the State this spring. (Knowlton). OREGON - Active in Umatilla, Morrow, Baker and Malheur Counties, but not common. (Capizzi).

CLOVER LEAF WEEVIL (Hypera punctata) - DELAWARE - Larvae, several instars, fairly common on alfalfa in New Castle and Kent Counties. Feeding injury noticeable but not heavy. (Burbutis, Mason). MARYLAND - Light larval injury noted on alfalfa at Snow Hill, Worcester County. (U. Md., Ent. Dept.). ILLINOIS - Check of 3 clover fields in central and western areas showed 1, 19 and 7 larvae per square foot; all first and second instars. (Ill. Ins. Rpt.). IDAHO - Larvae abundant in some fields of clover and alfalfa in Idaho County; some damage apparent. (Cook). MISSOURI - Counts on alfalfa in southwestern area ranged 0-3 first to fourth-instar larvae per crown. Some larvae showing symptoms of a fungus disease. (Kyd, Thomas, Munson). KANSAS - Larval counts averaged less than 1 per square foot of crown in southwestern and south central areas. (Peters).

CLOVER ROOT CURCULIO (Sitona hispidula) - ILLINOIS - Adults numbered 0, 1 and 2 per square foot in 3 clover fields checked in central and western areas. (Ill. Ins. Rpt.). MARYLAND - Adults light in alfalfa at Bushwood, St. Marys County. (U. Md., Ent. Dept.).

VARIEGATED CUTWORM (Peridroma margaritosa) - LOUISIANA - Present in most white clover fields in Jefferson Davis Parish. Infestations ranged from light to very heavy, with as many as 16 second and third-instar larvae per square foot. No larvae evident in 6 fields of white clover checked in Vermilion Parish. Predator and parasite activity very low in all fields. (Spink).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - MARYLAND - Light in alfalfa at Bushwood, St. Marys County. (U. Md., Ent. Dept.). UTAH - Active in Washington County. (Knowlton).

A MITE (Petrobia apicalis) - LOUISIANA - Vetch bordering railroad tracks at Diamond heavily infested and badly damaged. (Spink, Mar. 31). Infestations in clover almost nonexistent; one field lightly infested. (Spink).

A BEETLE (Colaspis sp.) - ARKANSAS - Additional surveys show fewer than one larva per square foot in Clay and Green Counties. (Boyer).

GREEN JUNE BEETLE (Cotinis nitida) - NORTH CAROLINA - Larvae numerous in a lawn in Rowan County. (Corriher, Farrier).

DIAMONDBACK MOTH (Plutella maculipennis) - CALIFORNIA - Medium larval infestation on flax in El Centro, Imperial County. (Cal. Coop. Rpt.).

FRUIT INSECTS

APPLE APHID (Aphis pomi) - DELAWARE - Present on apple trees in Kent County. (Kelsey). PENNSYLVANIA - Hatching on apple in south central part of the State. (Pepper). UTAH - Common and half-grown on apple tips in Davis, Weber and Cache County orchards. (Knowlton).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Hatching in Larimer County. (Colo. Ins. Sur.). WASHINGTON - Abundance of eggs found during the early spring; now moderate to heavy egg hatch on peach. (Anthon). UTAH - Curling peach foliage at Hurricane, La Verkin and Toquerville, Washington County. (Knowlton).

APHIDS (undetermined) - ILLINOIS - Eggs began hatching April 2 at Carbondale. Egg populations generally very low. (Meyer). UTAH - Three unspecified species infesting plum foliage at Hurricane and Santa Clara, Washington County. Some trees already severely curled. (Knowlton).

RUSTY PLUM APHID (Hysteroneura setariae) - LOUISIANA - Heavy infestations noted on plums in East Baton Rouge Parish. (Spink).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Heavy on plum trees in San Pablo, Contra Costa County. (Cal. Coop. Rpt.).

A SCALE INSECT (Lecanium pruinosum) - CALIFORNIA - Remains active on walnuts in the Redding area of Shasta County. A parasite actively evident. (Cal. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - OREGON - Began egg deposition in the Hood River Valley on March 21. Newly hatched nymphs detected April 7. (Ellertson).

PEAR THRIPS (Taeniothrips inconsequens) - OREGON - Passed peak of emergence week of April 3 in Willamette Valley. Infestations appear light for 1960 season. (Jones). UTAH - Active on orchard blossoms in Utah and Salt Lake Counties. (Knowlton).

A THRIPS (Frankliniella occidentalis) - CALIFORNIA - Adults light to heavy on nectarine flowers and light on pears in Littlerock and Valeremo areas, Los Angeles County. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - ILLINOIS - Dormant egg populations vary a great deal from one location or variety to another in Carbondale area. Populations generally much lower than the previous two years, but some blocks of trees have enough potential for destructive populations to warrant special controls before cover sprays. (Meyer).

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - Adults have been leaving hibernation and appearing on peach trees in orchards since March 31 at Fort Valley. An average of 0.8 curculio per tree was taken in a commercial orchard on March 31 and 0.9 per tree on April 1. The mean temperature was 60° F. for 4 days before the first curculios were taken. (Snapp). LOUISIANA - Activity observed in East Baton Rouge Parish on plum during period April 1-7. (Spink).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - OREGON - Infestation reported in a Polk County prune orchard; numerous webbed buds and leaves observed. (Goeden).

A LEAF ROLLER (Archips rosana) - OREGON - Overwintering eggs observed hatching in Marion County, April 6. (Every).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Damaging peach orchards in Hurricane-Toquerville and Santa Clara-St. George areas of Washington County. Much control being applied later than recommended. (Knowlton).

PECAN NUT CASEBEARER (Acrobasis caryae) - FLORIDA - Infestation heavy on pecan trees not treated in 1959 at Monticello, averaging 2-3 larvae per twig on 50 twigs checked. All larvae active and feeding on buds. (Phillips, Mar. 31).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - FLORIDA - Larvae active and feeding on buds of pecans at Monticello. (Phillips, Mar. 31).

HICKORY SHUCKWORM (Laspheyresia caryana) - FLORIDA - First moths emerged in cages at laboratory in Monticello, March 14, as compared with February 24 in 1959. Moth emergence still slow due to cool weather. (Phillips, Mar. 31).

CITRUS MITE (Panonychus citri) - LOUISIANA - Counts taken April 1 on citrus in Plaquemines Parish were extremely low. (Spink).

Citrus Insect Situation in Florida - End of March - PURPLE SCALE (Lepidosaphes beckii) activity is holding at a very low level and will not change importantly during April. Although populations may increase slightly in the next two months, no heavy infestations are expected in any district. FLORIDA RED SCALE (Chrysomphalus aonidium) activity and populations presently are below average and generally will remain low this spring. An upward trend is expected to start the last half of April. None of the districts show more than moderate activity at present. CITRUS RED MITE (Panonychus citri) - The generally low level of activity that prevailed in March will persist through April. A strong increase is expected in May. A few groves now have moderate to high infestations and this spotty situation will be common in all districts. Highest activity is in the Bartow, upper east coast districts. CITRUS RUST MITE (Phyllocoptruta oleivora) activity was above average for March, but it is now decreasing and will generally trend downward through April. Nearly all districts have some groves with high infestations. Highest activity is in the Bartow and west coast districts. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) is numerous in certain groves that usually harbor this pest. The statewide infestations are about average. Although APHIDS are in average abundance over the State as a whole, many young groves and some mature groves have heavy infestations on leaves and blossoms. CHAFF SCALE (Parlatoria pergandii) is increasing. (Simanton, Thompson, Johnson (Citrus Exp. Sta., Lake Alfred)).

TRUCK CROP INSECTS

CABBAGE APHID (*Brevicoryne brassicae*) - SOUTH CAROLINA - Infested plants, some seriously damaged, scattered through most cabbage plantings in Charleston area. Injury to April 2 has been relatively light. Natural enemies scarce and population appears to be increasing rapidly. Adverse weather prevented use of controls. (Reid). GEORGIA - Light infestations on cabbage in Colquitt County and moderate to heavy infestations on cabbage in Brooks and Lowndes Counties. (Johnson). LOUISIANA - About 50 percent of cabbage plants in St. Martin Parish infested. (Spink).

CABBAGE LOOPER (*Trichoplusia ni*) - TEXAS - Third and fourth-instar larvae causing heavy damage to peas in Zavala County, particularly in upper leaves. (Harding). Damage light in lettuce and cabbage fields in Rio Grande Valley and increasing infestations attacking tomatoes in western part of the valley. (Deer). LOUISIANA - Numbers extremely low. (Spink).

DIAMONDBACK MOTH (*Plutella maculipennis*) - LOUISIANA - Approximately 25 percent of untreated cabbage plants in Plaquemines Parish infested and about 2 percent of cabbage plants in St. Martin Parish infested. (Spink).

SOUTHERN CABBAGEWORM (*Pieris protodice*) - TEXAS - Light infestations of sixth-instar larvae attacking turnips in Zavala County; infestations expected to increase. (Harding).

CABBAGEWORMS - SOUTH CAROLINA - Populations lower than usual for time of year in Charleston area. Many spring-crop plantings may be harvested before controls become necessary. (Reid).

HARLEQUIN BUG (*Murgantia histrionica*) - TEXAS - Attacking crucifers in Brazos County. (King).

A THRIPS (*Frankliniella occidentalis*) - TEXAS - Light infestations averaging 3-5 per plant found on onions in Zavala and Dimmit Counties. (Harding). ARIZONA - Heavy infestations, probably this species, in Cochise County lettuce requiring controls. (Ariz. Coop. Sur.).

TOMATO FRUITWORM (*Heliothis zea*) - TEXAS - Damaging lettuce in Rio Grande Valley and very light in western part of the valley. (Deer).

SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) - TEXAS - Light to medium infestations in potato, eggplant, pepper and melons in Zavala County. Feeding evident and adult numbers range from medium to heavy. (Harding).

GRANULATE CUTWORM (*Feltia subterranea*) - LOUISIANA - Causing considerable damage to field of peppers at Ponchatoula. From 1-5 seedling plants per 200 feet of row either cut off or withdrawn below soil surface. (Spink, Mar. 31).

POTATO PSYLLID (*Paratrioza cockerelli*) - TEXAS - Some damage reported in the western portion of Rio Grande Valley. (Deer).

BEEF LEAFHOPPER (*Circulifer tenellus*) - NEW MEXICO - Populations averaged 0.15 per square yard in southeastern and southern areas. (N. M. Coop. Rpt.). OREGON - Low overwintering population present in Hermiston area. A poor host plant relationship exists, with grasses crowding out the host annuals. (Capizzi). UTAH - Few numbers now present in sugar beet seed fields near Washington. (Knowlton).

LYGUS BUGS (*Lygus* spp.) - WASHINGTON - Adults damaging sugar beet seedlings at Toppish, Wapato and Brownstown. About 200 acres damaged; 36,000 acres could be affected later. (Landis).

ASPARAGUS BEETLES (Crioceris asparagi and C. duodecimpunctata) - UTAH - Damaging in Davis County. (Knowlton).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light infestations on snap beans in Brooks and Thomas Counties. (Johnson).

SEED-CORN MAGGOT (Hylemya cilicrura) - WASHINGTON - Spring brood emerging at Walla Walla. (Woodworth).

A SERPENTINE LEAF MINER (Liriomyza sp.) - FLORIDA - Collected on potatoes, tomatoes and other vegetables in the Redlands area of Dade County on March 30. Fewer numbers present than in previous weeks. (Wolfenbarger).

A LEAF MINER - TEXAS - An unknown species causing light damage to peppers, cantaloups, watermelons and cucumbers in the Rio Grande Valley. (Deer).

A NITIDULID (Meligethes nigrescens) - OREGON - Began emerging in Willamette Valley week of April 3. Adults abundant wherever spring blooming plants occur. (Every).

GARDEN SYMPHYLID (Scutigerella immaculata) - IDAHO - An extremely heavy infestation found in a garden at Orofino. (Fitzsimmons).

SPIDER MITES (Tetranychus spp.) - LOUISIANA - Infestations of T. lobosus on strawberries at Ponchatoula remain heavy and spotty; fields being treated by some growers. (Spink, Mar. 31). T. lobosus continues to be a problem on strawberries where treatments have not been made in Tangipahoa Parish. (Spink). TEXAS - Increasing infestations of an unknown species found on tomatoes in the western portion of Rio Grande Valley. (Deer).

RASPBERRY ROOT BORER (Bembecia marginata) - OREGON - Early instar larvae observed feeding at base of new buds in Marion County raspberry plantings on March 23. (Rosenstiel).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light infestations on tobacco in the plant bed in Mitchell, Colquitt, Thomas, Brooks, Lowndes, Cook, Berrien, Coffee and Wayne Counties; and light to heavy infestations in Tattnall County. Light infestations on tobacco in the field in Thomas County. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light infestations on tobacco in the plant bed in 10 counties. (Johnson).

APHIDS - GEORGIA - Light to moderate infestations on tobacco in the plant bed in 10 counties. (Johnson).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Heavy moth emergence in Maricopa County has been indicated by the collection of 18 moths in one night from light traps. Collections were made in traps located in different areas throughout the county. (Ariz. Coop. Sur.) FLORIDA - Larvae collected on wild cotton south of Whale Harbor, Monroe County, on March 27. Det. by R. A. Newkirk. (Creamer).

CUTWORMS - TEXAS - Scattered infestations of unknown species present in lower Rio Grande Valley, but greatest damage reported in Hidalgo County. (Deer).

COTTON APHID (Aphis gossypii) - TEXAS - Light to medium infestation on early cotton (3-6 leaf stage) in Cameron County. No natural control noticed. (Day).

DARKLING BEETLES - TEXAS - Unknown species reported in many areas, but damage reported only in a small section of Willacy County. Thickly planted cotton showing little damage, but where cotton stand was thin, damage was severe in a few fields. (Deer).

SPIDER MITES - TEXAS - Unspecified species present in scattered fields. (Deer).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - This species and Ips spp. seriously affecting forest stands in El Dorado, Nevada and Calaveras Counties; heaviest damage in El Dorado County, where an estimated 6,850 ponderosa pines of all ages have been killed. This area in Sierra foothills is probably hardest hit in State. (C. B. Eaton). Severe, killing up to 50 ponderosa pines in groups on both government and private lands in Nevada City area of Nevada County. Damage increasing. (F. Sodolski).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - SOUTH CAROLINA - Adults of this species and Ips spp. active and attacking ice-damaged trees in Edgefield and Saluda Counties on April 1. Indications are that D. terebrans had been active only a day or two, with Ips activity a few days older. (Fox). ARKANSAS - Some increase in activity reported. (Ark. For. Pest Rpt.).

A PINE REPRODUCTION WEEVIL (Cylindrocopturus eatoni) - CALIFORNIA - Seriously affecting a 5 to 6-year-old plantation and natural reproduction of ponderosa pine in Sierra National Forest adjacent to Nelson Cove burn of 1959. (Cal. Coop. Rpt.).

WHITE-PINE WEEVIL (Pissodes strobi) - PENNSYLVANIA - Adults feeding on terminals of white pines at Blair, Perry County, March 31. (Negley).

ORANGE TORTRIX (Argyrotaenia citrana) - WASHINGTON - Moderate damage on Douglas-fir and pines in a greenhouse at Centralia. Mining in terminal and lateral buds, feeding on needles. (Johnson).

A PHYCITID (Dioryctria abietella) - LOUISIANA - Larvae moderately infesting one loblolly pine near Amite. (Spink, Mar. 31).

PINE BARK APHID (Pineus strobi) - WISCONSIN - Populations noted on Jefferson County white pine which was heavily infested and damaged in 1959 by aphids, presumably this species. As yet, eggs present have not hatched. (Wis. Coop. Sur.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - IDAHO - A mugho pine infestation reported from Sandpoint. (McPherson).

PANDORA MOTH (Coloradia pandora) - CALIFORNIA - An infestation, which has persisted for several years in the Mt. Laguna area, is apparently building up in an off-cycle year. The flight cycle of this insect, which has a 2-year life cycle, is predicted in the Rocky Mountains and Pacific Northwest. Moths are now in the pupal stage in these latter areas. The Laguna-Corte Madera moth flights occurred in 1959. (J. W. Peterson, C. B. Eaton).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - LOUISIANA - Larvae hatching on laurelcherry trees in East Baton Rouge Parish. Webs about 4 inches in diameter. (Spink, Mar. 31). MARYLAND - First larvae of season noted on Prunus sp. at Salisbury, Wicomico County. (U. Md., Ent. Dept.).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - UTAH - Damaging cottonwood foliage in an area of Washington County, especially along Virgin River. (Knowlton).

FOREST TENT CATERPILLAR (Malacosoma disstria) - COLORADO - Egg masses four times as abundant as in 1959. (Colo. Ins. Sur.). OREGON - Began hatching in Willamette Valley the week of April 3. (Capizzi).

DOGWOOD BORER (Thamnospectica scitula) - NORTH CAROLINA - Larvae injuring 18-20 dogwood trees locally in Yancey County. (Jones, Farrier).

AN OLETHREUTID (Anchylopera platanana) - FLORIDA - First adult observed on April 4 on planetree (Platanus sp.) at Gainesville, Alachua County. Buds just beginning to open on a few planetrees. Adults of this species first observed in 1959 on March 13. (Denmark).

ROOT WEEVILS - OREGON - Undetermined species severely damaged a Eugene nursery planting of rhododendron. Several hundred 4-year-old plants killed; apparently root damage suffered during fall of 1959. (Larson).

AN ARBORVITAE APHID (Cinara sp.) - OKLAHOMA - Light to heavy on arborvitae in parks and cemeteries checked in east central area (VanCleave, Meharg, Washum); light on same host in Bristow, Creek County (Stiles); and heavy on arborvitae in Cotton County (Hatfield).

APHIDS - IDAHO - Young stem mothers of an undetermined species found on dogwood terminals at Caldwell. (Bechtolt).

AN APHID (Thoracaphis umbellulariae) - CALIFORNIA - This species and Tetraleurodes errans (a whitefly) heavy on California bay (Umbellularia californica) in Castro Valley, Alameda County. (Cal. Coop. Rpt.).

CHRYSANTHEMUM APHID (Macrosiphoniella sanborni) - MARYLAND - Infesting chrysanthemums at University Park, Prince Georges County. (U. Md., Ent. Dept.).

VIBURNUM APHID (Anuraphis viburniphila) - WISCONSIN - Eggs remain unhatched in Dane County where they are numerous on ornamental viburnums. (Wis. Coop. Sur.).

A THRIPS (Leucothrips sp.) - FLORIDA - Collected on croton at Ft. Lauderdale, Broward County, by J. M. Soowal on November 20, 1959. Det. by K. O'Neill as Leucothrips sp., near or furcatus. L. furcatus has not been previously recorded in Florida. (Fla. Coop. Sur.).

A HACKBERRY PSYLLID (Pachypsylla venusta) - OKLAHOMA - Heavy populations, probably this species, emerging in Stillwater area of Payne County. (Howell, Drew).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Light infestation present on Fraxinus velutina var. glabra (Modesto ash) in Menlo Park, San Mateo County. This is a first record for the county. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - OKLAHOMA - Heavy on flowering quince checked in Sapulpa, Creek County, and Stillwater, Payne County. (Howell, Drew). CALIFORNIA - Heavy on Photinia sp. in Yuba City, Sutter County. (Cal. Coop. Rpt.).

A WAX SCALE (Ceroplastes sp.) - NORTH CAROLINA - Infesting Chinese holly in Camden County. First report from this county. (Tuten, Farrier).

SCALE INSECTS - NORTH CAROLINA - Severe infestation of Pseudaonidia paeoniae on camellia locally in Robeson County. (Pl. Dis. Clin., Farrier). PENNSYLVANIA - Heavy infestation of Lepidosaphes yanagicola present on young nursery stock of Euonymus alatus compactus at Sandy Hill, Lebanon County. (Negley). CALIFORNIA - Epidiaspis piricola light on English walnuts in Atherton, San Mateo County. Coccus elongatus and Chrysomphalus dictyospermi medium on Ficus retusa in San Diego, San Diego County. Aspidiotus degenerata heavy on camellias in Marysville, Yuba County. (Cal. Coop. Rpt.).

A HACKBERRY MITE (Aceria celtis) - CALIFORNIA - Large bud clusters severely deforming hackberry trees along Highway 99 at Monterey overpass in Fresno County. This is the first report of this species in the State. (Cal. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - IDAHO - An adult male collected at Homedale. (Wood).

SPRING CANKERWORM (Paleacrita vernata) - WISCONSIN - Eleven adult males trapped in blacklight trap at Middleton on April 6-7. (Wis. Coop. Sur.). ILLINOIS - Adults observed at Urbana on April 3. (Ill. Ins. Rpt.).

EUROPEAN ELM SCALE (Gossyparia spuria) - CALIFORNIA - Heavy on elms in Port Costa, Contra Costa County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (Musca autumnalis) - NEW YORK - Adults active out-of-doors on sunny sides of buildings in Steuben County on March 29. (Matthysse). PENNSYLVANIA - Apparently present in a home at Sewickley, Allegheny County, all winter. Det. C. W. Sabrosky. (Mallis, March 11).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Up to 50 per animal present in untreated cattle in parts of Sanpete County; 1,027 found in 120 untreated cattle. Counts from 4,800 cattle sprayed with a systemic in October 1959 showed only 29 grubs present in 299 head. (Knowlton).

MOSQUITOES - DELAWARE - Very light larval populations (second instar) of Aedes canadensis found in one area of New Castle County. (Tindall). UTAH - Small numbers of unspecified species have appeared in the Washington-Santa Clara area of Washington County. (Knowlton).

HORSE BITING LOUSE (Bovicola equi) - MARYLAND - Heavily infesting ponies at Riverdale, Prince Georges County. (U. Md., Ent. Dept.).

CATTLE LICE - OKLAHOMA - Isolated cases of heavy infestations of unspecified species in cattle herds continued to be reported in the east central area. (Washum). UTAH - Rare on 4,800 cattle treated with systemics in the fall of 1959 in the southern Ephraim-Manti area of Sanpete County, but are abundant in some untreated herds at nearby Ephraim and Gunnison. (Knowlton).

TROPICAL RAT MITE (Ornithonyssus bacoti) - CALIFORNIA - Heavy infestation invading a residence in Orville, Butte County, severely annoying occupants. (Cal. Coop. Rpt.).

AMERICAN DOG TICK (Dermacentor variabilis) - OKLAHOMA - Relatively light adult numbers appearing on dogs in Payne County area. (Howell).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - NORTH DAKOTA - Survey is underway. All specimens submitted for determination have been negative. The most frequent dermestid species identified have been T. parabile and Attagenus sp. (N.D. Ins. Rpt.).

INDIAN-MEAL MOTH (Plodia interpunctella) - NEW MEXICO - Larvae and adults very common in stored grain checked. One exceptionally heavy infestation found in cracked grain at Gila, Grant County. (N. M. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - H. convergens adults common and active in most fields checked in east central area; counts 0.1-0.5 per linear foot in small grain and 0.1-0.7 per sweep in alfalfa and vetch. (VanCleave, Meharg, Washum). None noted in Choctaw County (Goin), nor in Payne County (Stiles); counts ranged 0.05-1 per linear foot in fields of small grain and alfalfa in Garfield, Kingfisher, Blaine and Major Counties (Owens); none noted in southwestern areas (Hatfield); counts averaged 0.25 and 0.5 per square foot in 2 fields of alfalfa and clover in south central area. (Vinson). KANSAS - Hippodamia convergens, primarily, found in 35 percent of the wheat and alfalfa fields checked in southwest and south central areas. Counts ranged from 0 to less than 2 adults per sweep over the area. (Peters). UTAH - Adalia bipunctata extremely abundant on aphid-infested snowball bushes at Logan, Cache County, at this time. Unspecified lady beetles, as well as several other beneficial insects, now active in pea aphid-infested fields in Washington County. A. bipunctata also feeding on apple aphid populations present in apple orchards in Davis, Weber and Cache Counties. (Knowlton). IDAHO - Adults active throughout Canyon County. (Bechtolt). OREGON - Numerous in alfalfa fields in Umatilla, Morrow, Baker and Malheur Counties. (Capizzi).

NABIDS (Nabis spp.) - OKLAHOMA - Only an occasional specimen noted in fields checked in west central area (VanCleave, Meharg, Washum) and in southwestern areas (Hatfield). None noted in remaining fields surveyed throughout State. (Okla. Coop. Econ. Ins. Sur.). KANSAS - Found in 20 percent of the wheat and alfalfa fields checked in the southwestern and south central areas. Counts averaged less than 1 per sweep. (Peters). OREGON - Numerous and active in alfalfa fields checked in Umatilla, Morrow, Baker and Malheur Counties. (Capizzi).

LACEWINGS (Chrysopa spp.) - IDAHO - Adults active in the Caldwell area; no eggs observed. (Bechtolt). OREGON - Numerous and active in alfalfa fields in Umatilla, Morrow, Baker and Malheur Counties. (Capizzi).

POLLINATING INSECTS - LOUISIANA - Activity of unspecified species was very light in clover in Jefferson Davis Parish. (Spink).

A BROWN-BANDED ROACH PARASITE (Comperia merceti) - MISSOURI - Picked up in a house in Jefferson City. This is a first record in the State. (Anderson).

A GRASSHOPPER MITE (Eutrombidium sp.) - MISSOURI - Counts in one location in Boone County ranged 0-15 per square yard, with an average of 3-5 per square yard. (Huggans).

MISCELLANEOUS INSECTS

ELM LEAF BEETLE (Galerucella xanthomelaena) - IDAHO - Adults active in basements and upstairs of homes in Caldwell. (Bechtolt).

A MAY BEETLE (Phyllophaga sp.) - LOUISIANA - The first flight of this species was observed in East Baton Rouge Parish during the period April 1-7. (Spink).

BOXELDER BUG (Leptocoris trivittatus) - DELAWARE - Very numerous in several homes in New Castle County. (Burbutis, Mason). WYOMING - A serious problem around some homes in Cheyenne, Laramie County. (Stanford). NEW MEXICO - Nuisance in and around homes in Albuquerque area, Bernalillo County. (N. M. Coop. Rpt.).

BROWN-BANDED ROACH (Supella supellecillum) - UTAH - Has become a more serious pest during the past 2 years in Washington County. (Knowlton).

A SPRINGTAIL (Achorutes sp.) - NORTH DAKOTA - Observed frequently on snow drifts in Billings County. Occurrence reports have been more numerous than usual. (N. D. Ins. Rpt.).

CLOVER MITE (Bryobia praetiosa) - OKLAHOMA - Becoming active around dwellings and causing concern to homeowners in central, east central and south central areas. (Howell, Vinson, Brown).

TERMITES - NEW JERSEY - Swarms quite numerous. (Ins. Dis. Newsl., Apr. 5). MARYLAND - Reticulitermes flavipes observed in St. Marys County. (U. Md., Ent. Dept.). NORTH CAROLINA - R. flavipes found infesting a home in Robeson County. (Jones, Farrier), and R. virginicus found infesting a home in Forsyth County (Wright). ILLINOIS - R. flavipes observed swarming in a house in Richland County on April 1. (Ill. Ins. Rpt.). IDAHO - An infestation of Reticulitermes hesperus reported in Weiser. (Hackler).

LARGER YELLOW ANT (Lasius interjectus) - MARYLAND - Infestations present in homes in Anne Arundel and Prince Georges Counties, March 29 and April 1. (U. Md., Ent. Dept.).

WESTERN HARVESTER ANT (Pogonomyrmex occidentalis) - UTAH - This species now clearing forage from about nests in many parts of Washington County. P. barbatus also encountered near Virgin and Washington. (Knowlton).

AN ANT (Formica montana) - TEXAS - Heavy infestations reported in hay meadows on one ranch in northeastern Hutchinson County; mounds every 10-15 feet in hay meadows. (Russell).

HOUSE CENTIPEDE (Scutigera coleoptrata) - FLORIDA - Collected at Alachua County courthouse building in Gainesville on or about March 25 by Mrs. L. M. Stewart. This is the first record in the county. (Fla. Coop. Sur.).

CORRECTION

CEIR 10(15):253 - Note on CUTWORMS (Agrotis sp.) from Idaho, in ADDITIONAL NOTES, should be changed to read ARMY CUTWORM (Chorizagrotis auxiliariis).

ADDITIONAL NOTES

NEW YORK - In eastern area, EUROPEAN RED MITE (Panonychus ulmi) eggs present in most orchards, but in smaller numbers than usual and FRUIT TREE LEAF ROLLER (Archips argyrospila) egg masses fairly common in orchards which adjoin woods. On April 6, in eastern area, overwintering CODLING MOTH (Carpocapsa pomonella) shows 45 percent mortality. In Columbia County, EUROPEAN RED MITE eggs not too numerous, but can be found in all orchards; SAN JOSE SCALE (Aspidiotus perniciosus) will be a problem in a few orchards; TWO-SPOTTED SPIDER MITE (Tetranychus telarius) can be found in most orchards, but not too numerous; and PEAR PSYLLA (Psylla pyricola) eggs were observed on April 6, apparently being laid on April 4. CLOVER LEAF WEEVIL (Hypera punctata) larvae observed on ladino clover on March 28 in Dutchess County and several adults of ALFALFA WEEVIL (Hypera postica) were caught on stickyboard traps on same date. TARNISHED PLANT BUG (Lygus lineolaris) and CLOVER LEAFHOPPER (Aceratagalla sanguinolenta) also observed on forage crops in Dutchess County. Swarms of EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) have occurred on Long Island and in the lower Hudson River Valley since late March. A species of a CARPENTER ANT (Camponotus nearcticus) was collected from an Ithaca home on March 30. (N. Y. Wkly. Rpt.).

NEVADA - Warm weather caused ELM LEAF BEETLE (Galerucella xanthomelaena) adults to emerge from hibernation earlier than usual in Lovelock, Pershing County. The species has been a great nuisance to home and motel owners by invading their premises. (Martinelli). Larvae of several species of MOSQUITOES (Aedes dorsalis, A. melanion, A. nigromaculis, Culex tarsalis) are present in varying numbers in Reno-Sparks area, Washoe County. A. hexodontus larvae very numerous in Lake Tahoe area, and A. campestris adults present in Fallon area, Churchill County. (Chapman).

An EARWIG (Euborellia cincticollis) specimens collected from pink bollworm light traps in Moapa Valley (Logandale, Overton), Clark County, in 1959 were identified as this species by A. B. Gurney. This appears to be the first record of the species in Nevada. EUROPEAN EARWIG (Forficula auricularia) becoming active in Reno-Sparks area, Washoe County. (Bechtel).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Prod. ornith.	Perid. marg.	Helio. zea
ARIZONA						
Mesa 3/28-4/3				8	15	7
ARKANSAS						
Morrilton 3/31-4/6		2				
Kelso 3/31-4/6	1	1			3	
Fayetteville 3/31-4/6		1				
FLORIDA						
Gainesville 3/24			1	1		
Monticello 3/23,29	1		14			
KANSAS						
Mound Valley 4/1-2,5,7		8				
LOUISIANA						
Baton Rouge 3/25-31	12	4	10	13	2	1
Baton Rouge 4/1-7	6	6		2		1
Franklin 4/5,7		3	2	1		1
MISSISSIPPI						
*Stoneville 4/1-7	8	5	1	7	19	
SOUTH CAROLINA						
Charleston 4/4-10	4		7		1	
Clemson 4/2-8	5	4	1	54	2	
TENNESSEE (Counties)						
Monroe 3/29-4/4	2	3		2		
Madison 3/29-4/4	1	1		1	1	
Maury 3/29-4/4		2				
Cumberland 3/29-4/4	1					
Greene 3/29-4/4				1		
Blount 3/29-4/4		5		3		
TEXAS						
Waco 4/2-8	13		6		36	1
Brownsville 3/12-4/1	61	176		13		396

Additional Collections

BEET ARMYWORM (Spodoptera exigua) - ARIZONA (Mesa, 3/28-4/3) - 27; LOUISIANA (Baton Rouge, 4/1-7) - 1.

* Two traps - Stoneville

Potato Psyllid Survey in the Spring Breeding Areas of Arizona, California, New Mexico and Texas - 1960

A potato psyllid (Paratrioza cockerelli) survey was conducted March 23-25 in the overwintering areas of Arizona, California and New Mexico, and from March 7-22 in Texas. Wild Lycium, the preferred overwintering host, was abundant in California and Arizona, being much further developed than in previous years, and was generally in excellent condition in those States. Fruit had already set on most plants, except in the Las Cruces area of New Mexico, where it was just coming into bloom. In the Texas area, Lycium was dormant or near dormant in many of the areas surveyed. It is possible that higher potato psyllid counts could be found on the host plants after they are fully leafed out. Temperature and moisture conditions have been abnormal this past winter in Texas; consequently, Lycium growth and leafing processes have been retarded in that State.

Potato psyllid counts at most stops in Arizona and California were high, while in New Mexico they were lower than in past years. Numerous nymphs and eggs were present at better than half of the stops, exceeding the adult counts in many cases. However, it should be pointed out that the 1960 survey was made 2 or 3 weeks later than in past years. Considering the fact that the survey dates were delayed in 1960 and the fact that there were numerous eggs and nymphs present, the survey tends to indicate that a potato psyllid population comparable to 1959 is present in both the Arizona and California areas. Therefore, potentially severe outbreak populations, particularly west of the Rocky Mountains, are forecast.

A comparison of populations found in 1957, 1958, 1959 and 1960 spring surveys is shown on the following table.

Potato Psyllid Survey on Overwintering Hosts

State	District	Average Number Per 100 Sweeps			
		1957	1958	1959	1960
Arizona	Phoenix-Tucson	95	93	992	665
California	Blythe-Barstow	143	96	237	282
New Mexico	Las Cruces	158	7	54	2
Texas	Big Spring (Howard County)		227	24	5
	San Angelo (Tom Green County)		219	29	32
	Del Rio (Val Verde and Kenney Counties)		134	55*	16
	Marathon-Sanderson (Terrell, Pecos, Brewster Counties)		201	44*	5
	El Paso (El Paso, Hudspeth Counties)		6	42	0.22

* 1959 figures from Del Rio and Marathon-Sanderson districts revised.

BOLL WEEVIL SURVIVAL SURVEYS IN TEXAS, NORTHEAST LOUISIANA, MISSISSIPPI
AND NORTH AND SOUTH CAROLINA, SPRING OF 1960

Spring collections of woods trash samples were taken in five states during the spring of 1960 to determine the number of live boll weevil (*Anthonomus grandis*) adults that survived the winter in the surveyed areas. Each sample taken consisted of two square yards of trash and, in general, were taken at the same locations where the samples were taken for the fall hibernation survey in 1959. Three samples were taken at each location. (See CEIR 9(52):1061 and CEIR 10(1):4 for details concerning the fall hibernation survey). The results of the spring survival survey are tabulated on page 296. Comparative figures for the spring survey in 1959 are also included on this table, as well as the number of weevils that entered hibernation during the fall of 1959. The details of the 1960 survival survey are contained in the following paragraphs.

TEXAS - Collections of woods trash were started on March 10 and were completed on March 22. Samples were made from the same locations as in the fall hibernation survey in Falls, Hill, Limestone and McLennan Counties; 6 or 7 samples in each county. Seventy-five samples were taken from a total of 25 locations in the 4 counties. The area average was 2,065 weevils per acre, with a survival percentage of 31.14. (C. R. Parencia, C. B. Cowan, J. W. Davis).

LOUISIANA - Collections of woods trash samples were made in the northeastern area of the State from March 8 through March 22. The area was comprised of East Carroll, Madison and Tensas Parishes. The average for the three-parish area was 4,748 weevils per acre, with the percentage of survival at 59. During the 24 years that these records have been maintained in Madison Parish, the number of weevils per acre (4,721) found in the spring of 1960 is the highest for the 24-year period. Likewise, the percentage of survival in Madison Parish (96), is very high compared with the 41 percent recorded for the 24-year period. In the Louisiana area, samples were taken at 30 locations; 20 in Madison Parish, 5 in East Carroll Parish and 5 in Tensas Parish. (G. L. Smith, T. C. Cleveland, E. Read, Jr., J. Williams).

MISSISSIPPI - Collections were started on February 23 and all examinations were completed on March 25. Samples were collected by personnel of the Plant Pest Control Division and were processed by personnel of the Entomology Research Division. In each county, either 7 or 8 samples were taken. Wherever possible, samples were taken at the same locations that were sampled during the hibernation survey in the fall of 1959. Four counties make up each area and the State was divided into four areas as follows: lower delta (Sharkey, Issaquena, Yazoo, Humphries Counties); central delta (Washington, Bolivar, Sunflower, Leflore Counties); north delta (Coahoma, Tunica, Quitman, Panola Counties); and hill section (Holmes, Madison, Noxubee, Monroe Counties). Ninety samples were taken from a total of 30 locations in each of the four areas, making a total of 360 samples taken in the State. The State average was 821 weevils per acre in 1960 compared with 464 in the spring of 1959 and 392 in 1958. (M. E. Merkl; Delta Br., Miss. Exp. Sta.).

NORTH and SOUTH CAROLINA - Spring surface woods trash examinations were made during the period March 14-25 in the same four representative areas in which fall examinations were made in 1959. In each area, a total of 30 locations was sampled. The same locations were sampled in both the fall and spring examinations. The areas surveyed are as follows: South central South Carolina (Orangeburg, Dorchester, Bamberg Counties); Coastal Plain of South and North Carolina (Florence, Darlington, Marlboro Counties, S. C.; Scotland County, N. C.); Piedmont of South and North Carolina (Anderson, Greenville, Spartanburg Counties, S. C.; Mecklenburg, Cleveland, Union Counties, N. C.); and north central North Carolina (Nash, Wilson, Franklin, Edgecombe Counties). The average number of live weevils per acre in these areas was 861, 1049, 590 and 377, respectively. The percent survival in these areas was 65.3, 20.6, 13.5 and 45.2, respectively. In Florence County, South Carolina, an average of 1,560 weevils per acre was found in the spring of 1960, with a winter survival of 28.7 percent. The survival is approximately 50 percent less than the average of the 17 years for which fall and spring surface woods trash examinations have been made. In recent years (1947 to present), only in 1952, 1957 and 1958 have less weevils been found than in 1960. (A.R. Hopkins, H. M. Taft, PPC).

Summary of Woods Trash Examinations for Live Boll Weevils

State	Area or District	Number of Live Weevils Per Acre		Percent Spring Survival 1959	Percent Spring Survival 1960
		Spring 1959	Fall 1959 : Spring 1960		
Texas	Central	--	6,631	--	31.14
Louisiana	Northeastern	2,246	8,097	39.0	59.0
Mississippi	Lower delta	781	4,215	17.68	25.63
	Central delta	364	8,513	7.73	16.12
	North delta	284	4,787	9.43	6.67
	Hill section	429	2,991	14.10	16.51
North and South Carolina	South central section of South Carolina	699	1,318	70.2	65.3
	Coastal Plain of North Carolina and South Carolina	1,963	5,082	42.4	20.6
	Piedmont section of North Carolina and South Carolina	242	4,383	9.2	13.5
	North central North Carolina	81	834	9.0	45.2

Stored-Grain Insect Survey in Missouri

Summary: For some time there has been need for an extensive survey of stored-grain pests in Missouri. This task was undertaken the past year. In December of 1959, and in January and February of 1960, 982 samples of grain from 74 counties were taken. The grain checked was wheat which had been in storage for more than one year. The average size of the sample was 2.2 quarts. The wheat was checked for all stored-grain pests and for the presence of rodent pellets. From this, the number of samples grading weevily by U.S.D.A. grain grading standards and the number of samples with rodent pellets in excess of F.D.A. tolerances, were determined.

The percent of samples infested in each district is as follows:

District #1	-	60
District #2	-	52.2
District #3	-	60.7
District #4	-	66.2
District #5	-	58.3
District #6	-	58
District #7	-	46.6
District #8	-	45.4
District #9	-	48.4

Of the total 982 samples checked, 56 percent was infested, 23 percent graded weevily, and 4.7 percent contained more than 2 rodent pellets per quart. The high counts of insects are in the table on the following page. (Kyd, Thomas, Munson).

Stored-Grain Insect Survey in Missouri
December, 1959 - February, 1960

District	Number Samples	Number Samples With: Grading Weevily by U.S.D.A. Grain Excess of F.D.A.	Number Samples With: Rodent Pellets in Tolerances	High Counts of Insects			
				Collec- tion	Secondary		
1. (9 Counties)	55	33	15	1	1	---	19 saw-toothed grain beetle and 33 flat grain beetle
2. (6 Counties)	40	21	8	3	1	---	30 flat grain beetle
3. (8 Counties)	112	68	28	5	1	42 rice weevil	65 flat grain beetle
4. (7 Counties)	71	47	23	6	2	---	78 saw-toothed grain beetle
5. (15 Counties)	218	127	61	12	1	178 rice weevil	---
6. (12 Counties)	205	119	43	3	2	---	216 red flour beetle
7. (7 Counties)	148	69	22	4	1	---	1,117 flat grain beetle and 124 saw-toothed grain beetle
8. (3 Counties)	11	5	1	1	2	42 rice weevil	---
9. (7 Counties)	122	59	27	11	1	1 rice weevil	275 flat grain beetle and 42 saw-toothed grain beetle
Totals	982	548	228	46	4	---	224 saw-toothed grain beetle
					2	47 rice weevil	---
					1	---	14 cadelle and 20 flat grain beetle
					2	60 rice weevil	---
					3	73 rice weevil	---
					4	---	4,272 saw-toothed grain beetle
					4	---	2,238 saw-toothed grain beetle

STATUS OF SOME MORE IMPORTANT INSECTS IN THE UNITED STATES

SPRUCE APHID (Aphis abietina Walker)

Economic Importance: This aphid, described in 1849, was never known as a serious pest until the summer of 1913 in England. The species was first reported in North America by R. C. Treherne about May 1, 1914, in Stanley Park, Vancouver, British Columbia, Canada, where it caused very serious damage to spruce. This insect is now considered to be a most destructive pest of forest trees in the northwestern United States. Millions of board feet of Sitka spruce have been killed along the tidelands of the Oregon and Washington coast and along the Columbia River in coastal areas. This pest has also caused considerable damage to Sitka spruce in some of the better inland sites of Oregon and Washington. The aphid apparently has an alternate host in the northwestern United States, as it disappears from Sitka spruce in mid-summer and reappears again the next spring.

Distribution: Recorded in Austria, England, Germany Ireland, Netherlands, Norway, New Zealand, Canada and the United States (see map).

Hosts: Sitka spruce (Picea sitchensis) appears to be the preferred host and is usually more severely attacked than the other species of spruce. Several other spruce species are also recorded as hosts, including P. engelmanni, P. abies, P. glauca, P. glehni, P. orientalis and P. pungens.

Life History and Habits: The life history as reported in England is as follows: Apterous forms have been found from early January to December, with the first alate forms occurring a little past mid-March through August. No sexual forms are known to occur. Trees attacked by this pest show comparatively few individuals until the end of September, when the aphid becomes fairly common. The winter forms seldom produce young. At this time, both mature and immature apterous viviparous females occur. Where an infestation is serious, they may live on the infested trees throughout the winter. Apterous forms usually occur along the

DISTRIBUTION OF SPRUCE APHID (Aphis abietina)

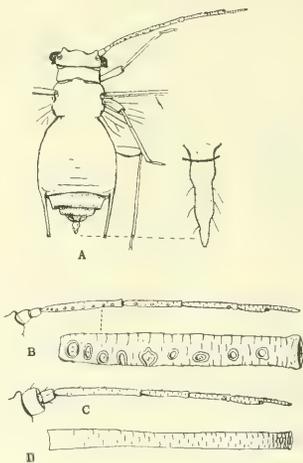


needles, a single one settling on each needle and giving rise to a colony of young which repeat the process. Where the apterous mother feeds, a yellow spot occurs; sometimes with a reddish tinge which later darkens. When two or three of these spots are present on old trees, the needles are killed, while with young aphids, feeding seldom completely kills the needles. This aphid does not seem to attack new growth except in the autumn and winter, and the pest is very sluggish in both the alate and apterous forms.

Description: **APTEROUS VIVIPAROUS FEMALE** - General color yellowish-green to green. Head yellowish-green to fawn colored, with 2 foveae. Eyes dull red. Antennae about half length of body, pale yellowish-green, darker at tips. Legs green, with tarsi, tips of femora and tibiae dusky. Cornicles pale green, with dusky tips; long and slender, about one-fourth the length of body. Abdomen rounded, longer than wide; a dark line on each side. Cauda green, long, sharply tapering and constricted toward the base. Length of body about 1.55 mm., width about 1.0 mm. Cornicles about 0.44 mm. long. Cauda 0.22 mm. long. **ALATE VIVIPAROUS FEMALE** - General color of head and thorax light brown; abdomen bright green, with four rows of dark spots, one row extending in a slight curve on each side of the median line and the others extending along sides of abdomen. Eyes deep red. Antennae nearly as long as body, yellowish-green at base and dusky green at tips. Legs pale green, tips of tibiae and tarsi dusky. Cornicles pale green to dusky, cylindrical, reaching to tip of long and sharply tapering cauda. Cauda pale green. First antennal segment strongly gibbous; third roughened and with 9-12 sensoria, some as wide as the segment itself; fourth segment has about 4 sensoria; fifth has one sensorium; and sixth antennal segment has usual sensorium at base of unguis. Wings have very variable venation, median vein sometimes once forked in frontwing and occasionally wanting in the hindwing. Opposite wings of the same individual may have wide variation. Length of body 1.6-1.8 mm., width about 0.7 mm. Cornicles about 0.43 mm. long. Cauda 0.25 mm. long. Wing 2.8 mm. long, 1.0 mm. wide. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 10(16):4-15-60.



Damage to Sitka spruce



A - Alate female of *A. abietina*. B - Antenna of alate female. C - Antenna of apterous female. D - Cornicle.

Major reference: Theobald, F. V. 1914. Ann. Appl. Biol. 1(1):22-36; figures except map and damage. Damage - U. S. Forest Service photograph.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES ^{1/}

1959

The summary of insect conditions that was published in the Cooperative Economic Insect Report for the year 1959, beginning in the February 12 issue of volume 10, has been completed except for the notes on forest, ornamental and shade tree insects. As stated in the February 12 issue of the report, however, this section of the 1959 summary will be covered by the "Status Report on Forest Insect Conditions in the United States - 1959", which is prepared by the U. S. Forest Service. Those ornamental and shade tree insects that are not covered in the Forest Service summary, will be covered by a special summary in a later issue of this report.

We are especially grateful to each individual who assisted with the preparation of these summaries, also the cooperators who assembled the information. We are sorry that space does not permit the use of the names of all individuals concerned. Listed below are the names of individuals who submitted the 1959 summaries.

ARIZONA - Leon Moore	NEW JERSEY - Dept. of Entomology, Rutgers University; N. J. Dept. of Agric.
ARKANSAS - W. P. Boyer	
CALIFORNIA - R. M. Hawthorne	NEW MEXICO - Gerald Nielsen
COLORADO - Ent. Sect., Colorado Exp. Station	NORTH CAROLINA - M. H. Farrier
DELAWARE - P. P. Burbutis	NORTH DAKOTA - V. V. Goodfellow
FLORIDA - R. E. Woodruff	OHIO - C. R. Neiswander
GEORGIA - W. C. Johnson	OKLAHOMA - H. W. VanCleave
IDAHO - A. R. Gittens	OREGON - R. K. Eppley
ILLINOIS - C. E. White	PENNSYLVANIA - E. J. Udine
INDIANA - J. V. Osmun	RHODE ISLAND - H. L. Hansen
KANSAS - L. L. Peters	SOUTH DAKOTA - G. B. Mast
LOUISIANA - W. T. Spink	TEXAS - Texas Coop. Sur.
MAINE - L. W. Boulanger	UTAH - G. F. Knowlton
MARYLAND - W. C. Harding, Jr.	VERMONT - J. W. Scott
MINNESOTA - R. G. Flaskerd	VIRGINIA - A. P. Morris
MISSOURI - R. E. Munson	WASHINGTON - C. A. Johansen
MONTANA - G. R. Roemhild	WISCONSIN - Wis. Coop. Sur.
NEBRASKA - R. G. Simpson	WYOMING - A. D. Davison
NEVADA - R. C. Bechtel	

Also included in the 1959 summary were special notes from the "1959 Summary of Fruit Insect Conditions in New York-New England", compiled by L. W. Boulanger from the 1959 New York-New England Fruit Specialist Conference at Orono, Maine, on November 3, 1959.

^{1/} Including all reporting states except Hawaii and Alaska, which were carried in CEIR 10(4):46 and CEIR 10(6):74, respectively.

Light Trap Moth Collections in Maine for 1958

(Prepared by A. E. Brower)

The 1958 light trap collections were hampered by much cold, rainy weather; however, during the warmer nights good catches were made. With experience in handling these catches, it can be determined from comparative numbers between the traps and past years about what degree of infestation exists in different parts of Maine, in the case of species more commonly caught. Fuller and more complete dating of each night's catch is required in some instances to be sure which night a flight occurred.

Conditions were not favorable for moth flights during 1958 and no flight of SPRUCE BUDWORM (Choristoneura fumiferana) was indicated. HORNWORM MOTHS were few in numbers except for three unspecified species, two of these species being collected at traps in Aroostook County. An unspecified species of moth was common at some traps in northern Maine and SPOTTED TUSSOCK MOTH (Halisidota maculata) was abundant over the State. FALL WEBWORM (Hyphantria cunea) was numerous at Millinocket and Enfield, both in Penobscot County, and at Kellyland in Washington County. Two unspecified species of NOCTUIDS were common in north central Maine during 1958, as were several species of PROMINENT MOTHS. SADDLED PROMINENT (Heterocampa guttivitta) occurred in noticeable numbers in Round Pond (T 11 R 8) in Lincoln County and at Enfield in Penobscot County. A SPRUCE TUSSOCK MOTH was common at several traps. FOREST TENT CATERPILLAR (Malacosoma disstria) was noticeable only at T 9 R 5, Kellyland (Washington County) and Enfield (Penobscot County). DREPANIDS of birch were noticed in traps in the western and northern parts of the State. More than a half-dozen species of GEOMETRID MOTHS were comparatively very common over much of Maine during 1958. A LEAF ROLLER occurred in numbers at Tim Pond, Dennistown, Dickey and T 9 R 5. A POPLAR LEAF ROLLER was taken in the largest numbers at Enfield, Penobscot County. Three field pests, ARMYWORM (Pseudaletia unipuncta), a NOCTUID (Polia lilacina) and a PYRAUSTID (Nomophila noctuella) were taken in large numbers at East Machias, Washington County. Adults of several species of CUTWORMS were very abundant in the catch of the light trap at Millinocket, Penobscot County. A number of POPLAR BORER (Saperda calcarata) adults were taken near Greenville, Piscataquis County. The above is a summary of the 1958 catches at 24 light traps in the forests of Maine.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE



VOL. 10 NO. 17

APRIL 22, 1960

SB
823
C77
Ent.

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.

WEATHER BUREAU 30-DAY OUTLOOK

MID-APRIL TO MID-MAY 1960

The Weather Bureau's 30-day outlook for the period mid-April to mid-May calls for temperatures to average above seasonal normals over most of the Nation except for below normal over the Pacific Northwest and near normal from the Great Lakes westward to the Continental Divide. Precipitation is expected to exceed normal over the Great Lakes and upper Mississippi Valley as well as the Pacific Northwest. Subnormal precipitation is indicated over the southern half of the country except for near normal amounts over the Southern Plains. In unspecified areas, near normal rainfall is 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 APRIL 18

Temperatures were above normal over most of the Nation this week. Heavy thunderstorms, many with large hail and damaging winds, were reported on several days in much of the area from Oklahoma and southeastern Colorado to the Dakotas and the Great Lakes. Weekly precipitation totals of more than 2 inches were general from Oklahoma to Illinois, and more than 8 inches of rain fell on Friday night in small sections of Missouri.

Warm, generally dry weather prevailed most of the week from the western Gulf coast northeastward to New England. Temperatures averaged much above normal in the Ohio Valley, the Great Lakes area, and the Middle Atlantic States. New record-high temperatures for the date were set at several stations in these areas, and 83° at Allentown, Pennsylvania, on the 14th, and 86° at Syracuse, New York, on the 17th were maxima for so early in the year at those places. Cloudy, showery, and much cooler weather, as compared with the previous 4 weeks, from Utah and Nevada to the Pacific Northwest and mild, generally sunny weather in the Southeast, resulted in below-normal temperatures for the week in these areas. Salt Lake City, Utah, reported 24° on the 17th, and Boise, Idaho, 20° on the 16th, record minima for so late in the year. Sharply cooler temperatures spread southward to cover most of the Nation over the weekend. Moderate snow briefly covered areas of the northern Great Plains and western Great Lakes on Saturday and Sunday, and heavy snow was recorded in the Rocky Mountains from Montana to Colorado, and in the Cascades in Washington.

Strong winds were reported from many areas of the Far West, the Rocky Mountains, and the Great Plains, with blowing dust in Montana, the Dakotas, Wyoming, eastern Colorado, and New Mexico. (Summary supplied by the U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - LOUISIANA - Infestation remains moderate in field of oats in East Baton Rouge Parish. (Spink). ARKANSAS - Infestations extremely variable. One field of oats in Hempstead County had 100 per sweep, while a field in Lafayette County averaged only 15 per sweep. In other areas surveyed, none found on small grains. (Boyer, Whitcomb). OKLAHOMA - Heavy, 1,000 plus per linear foot, beginning to kill out plants in 7 fields of small grain in sandy area along Cimarron River between Perkins and Paradise, Payne County. Aphidius testaceipes heavy in 3 fields. (VanCleave). Counts averaged 25-500 per linear foot in 7 fields of small grain checked in Jefferson, Love, Marshall, Johnston and Bryan Counties. Effects of aphids beginning to appear in fields with heavier populations. (Vinson). Heavy, 200 and 400 per square foot, in 2 fields of oats in Choctaw County. (Goin). Generally light in other fields checked in central, west central, southwest and north central areas. (Stiles, Owens, Hudson, Presgrove, Hatfield). TEXAS - Survey made during period March 9-31 in 23 panhandle counties. Counts low, less than 1 per row foot to 10 per foot, in Collingsworth, Carson, Potter, Moore, Deaf Smith, Castro, Parmer, Swisher, Brisco and Floyd Counties. Highest population found in Swisher County, with one field having 10 per foot. Damage is not expected this spring in the panhandle area. Predators were generally scarce, although lady beetles beginning to increase. (Daniels).

CORN LEAF APHID (Rhopalosiphum maidis) - UTAH - Some on barley in Washington-St. George areas, Washington County; populations seldom high. (Knowlton).

OKLAHOMA - Medium, 250 and 300 per linear foot, in 2 barley fields checked in Grandfield area, Tillman County; and averaged 60 per square foot in barley field in Jefferson County and 30 per square foot in field of fall-seeded oats in Choctaw County. (Goin, Vinson, Hatfield).

ENGLISH GRAIN APHID (Macrosiphum granarium) - DELAWARE - Adults and nymphs present on cereal cover crops in most areas. (Burbutis, Mason).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Counts averaged 1, 40 and 500 per linear foot in 3 wheat fields checked in Johnston, Marshall and Jefferson Counties, respectively. (Vinson). Medium, 20 per square foot, in a field of fall-seeded oats in Choctaw County. (Goin). Light in fields of small grain checked in Hennessey-Bison area and in Altus area. (Owens, Hatfield).

AN APHID (Brachycolus tritici) - TEXAS - Low populations found on large volunteer wheat clumps in Potter and Carson Counties. (Daniels).

CHINCH BUG (Blissus leucopterus) - TEXAS - Damaging infestations attacking young grain sorghum in Frio County. (Texas Coop. Rpt.).

A LEAFHOPPER (Dikraneura carneola) - UTAH - Numerous on roadside grasses and moving into winter wheat in Blue Creek-Howell area of Box Elder County. (Knowlton).

A BILLBUG (Calendra sp.) - GEORGIA - Light infestations in corn in Colquitt, Lowndes and Pierce Counties. Moderate infestation in Colquitt County. (Johnson).

FALSE WIREWORMS - TEXAS - Although found in many areas over panhandle from March 9-31, populations generally scarce. However, a local infestation near Amarillo caused considerable damage to small grains during March. (Daniels).

BROWN WHEAT MITE (Petrobia latens) - KANSAS - Observed in some wheat fields in Haskell, Seward, Stevens, Morton and Stanton Counties. Populations generally light, 12-78 per linear foot of row. (DePew). COLORADO - Counts 5-10 per linear foot in volunteer wheat in Weld County. (Colo. Ins. Sur., Apr. 12). UTAH - Scarce in winter wheat in Box Elder County. (Knowlton).

WHEAT CURL MITE (*Aceria tulipae*) - KANSAS - Found in field of volunteer wheat in Kearny County: wheat-streak mosaic symptoms quite evident. (DePew).

ARMYWORM (*Pseudaletia unipuncta*) - LOUISIANA - Averaged 1 per 10 sweeps in field of oats in East Baton Rouge Parish. Larvae ranged from second to fifth instar. (Spink). MISSOURI - First adult of season taken in light trap at Sikeston. (Harrendorf). First larvae of season observed in southeastern area. (Kyd, Thomas, Munson).

EUROPEAN CORN BORER (*Pyrausta nubilalis*) - DELAWARE - Spring survival survey completed. An average of 164 borers per 100 stalks survived the winter, compared with 394 that entered hibernation this past fall. Percent survival was 42. Population this spring is approximately 30 percent higher than the spring of 1959. Pupation has started in Sussex County. (Burbutis, Mason). SOUTH DAKOTA - Spring survival survey underway. The number of live, overwintering larvae found at various stops in 4 counties from the first 10 larvae examined at each stop was as follows: Brookings (stop #1) - 4; Brookings (stop #2) - 6; Clay - 6; Moody (stop #1) - 3; Moody (stop #2) - 0; Union (stop #1) - 0; Union (stop #2) - 0. No borers were found at stop 1 in Union County although much damage was evident. (Mast). WISCONSIN - Percent mortality of overwintering larvae by counties was as follows: Dane - 56; Fond du Lac - 45; Green - 50; Jefferson-37.5; Winnebago - 30. The average for the 5-county area was 43 percent. This appears to be higher than normal mortality. (Wis. Coop. Sur.).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - ARKANSAS - Survival of overwintering larvae is 15 percent in northwestern area. (Whitcomb). OKLAHOMA - One-third of stalks had been infested in a field of corn stubble checked in Marshall County; only 20 percent of infested stalks contained live larvae. (Vinson).

SUGARCANE BORER (*Diatraea saccharalis*) - LOUISIANA - First-generation larvae not found at check points in IOI fields in 13 parishes. (Spink).

SEED-CORN BEETLE (*Agonoderus lecontei*) - KANSAS - Numerous adults observed flying on afternoon of April 11 in Jefferson, Pottawatomie, Riley and Shawnee Counties. (Burkhardt, Buckley, Peters).

A GROUND PEARL (*Margarodes meridionalis*) - NEW MEXICO - Infesting Bermuda grass at Truth or Consequences, Sierra County. (N. M. Coop. Rpt.).

A SCALE INSECT (*Eriococcus diaboli*) - CALIFORNIA - Light infestation on Sitanion sp. in Gorman, Los Angeles County. (Cal. Coop. Rpt.).

ARMY CUTWORM (*Chorizagrotis auxiliaris*) - IDAHO - Spotted infestations on alfalfa, particularly young seeding, being reported; infested fields in Canyon County have populations consisting of approximately 20 percent second instar and balance third and fourth instars. Infesting large areas of a second-year alfalfa field near Emmett and keeping field bare of foliage. (Waters). Spotted infestations in Owyhee County, with one ten-acre field near Homedale heavily damaged. (Glenn). Spotted infestations in Manns Creek, Weiser Flat and Sunnyside areas of Washington County. (Hackler). No reports of attack on alfalfa in southeastern and south central areas, with exception of light infestation noted on dryland field in northern Franklin County. (Gittins). OREGON - Infesting extensive acreages of rangeland in Malheur County. Larvae now mature. This species reported in CEIR 10(16):282 as unspecified cutworms. (Capizzi). WYOMING - Averaged less than one larva per square foot in 7 alfalfa fields checked in Greybull-Basin areas. (Fullerton). UTAH - Larvae, 2-22 per square foot, present on 2,000 acres of rangeland near Snowville, Box Elder County; light to moderate in wheat and rangeland elsewhere in northern Box Elder County. (Knowlton).

COLORADO - Larvae number 0-16 per square foot in grazing land in Mesa and Delta Counties, 0-0.5 per square foot in alfalfa in Larimer and Weld Counties and 0-0.5 per linear foot in wheat in Weld County. (Colo. Ins. Sur., Apr. 12). TEXAS - Light infestations on wheat in Hutchinson County. (Daniels).

A CUTWORM (Feltia ducens) - WYOMING - Averaged less than 1 larva per square foot in 14 alfalfa fields checked in Powell, Thermopolis and Casper areas. (Fullerton).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - DELAWARE - Larvae present on alfalfa in New Castle County. (Burbutis, Mason).

GREEN CLOVERWORM (Plathypena scabra) - ALABAMA - Larvae scarce on crimson clover in Lee County. (Guyton).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - Few eggs hatching and young larvae still scarce. (Burbutis, Mason). MARYLAND - Adults active in alfalfa in Calvert County, averaging 3 per 10 sweeps. Adults averaged only 1 per 100 sweeps in Howard County. Very little larval activity noted. (U. Md., Ent. Dept.). VIRGINIA - Active in several areas of State in alfalfa. (Rowell). NORTH CAROLINA - Causing complete destruction of 2 alfalfa fields in Perquimans County; first record for the county. (Jones, Farrier). GEORGIA - Larvae averaged 8 per sweep and 1-3 per bud in alfalfa in Hancock County. An average of 1 larva per 5 buds found in Paulding County. (Johnson). ALABAMA - Heavy infestation on alfalfa in Lee County observed during week April 4-8. Det. W. H. Anderson. Reports and specimens also received since April 8 from Montgomery and Chambers Counties. This is the second time the species has been reported in the State. The first record was in Houston County in 1959. (Grimes, Guyton). COLORADO - Most early season control has been completed; alfalfa 2-4 inches high at present. (Colo. Ins. Sur., Apr. 12). UTAH - Adults active in alfalfa in Box Elder and Cache Counties. (Knowlton). WYOMING - Adults found in crowns of alfalfa; 0-10 per 5 square-foot samples. (Fullerton). IDAHO - Overwintering adults scarce in most alfalfa fields in Boise Valley. (Waters). Populations lower than normal throughout other southwestern and south central areas, with only spotted areas, particularly in eastern Owyhee County and Minidoka County, in need of early spring control. (Gittins).

A CLOVER HEAD WEEVIL (Hypera meles) - LOUISIANA - Averaged 8 per 100 sweeps on crimson clover at Franklinton and 2 per 50 sweeps in crimson clover fields in East Baton Rouge Parish. (Spink).

CLOVER LEAF WEEVIL (Hypera punctata) - MARYLAND - Larvae light in alfalfa in Calvert and Howard Counties. (U. Md., Ent. Dept.). ALABAMA - Plentiful on crimson clover in Lee County. (Guyton). ILLINOIS - Larvae averaged 21 per square foot in clover fields in southern one-third of State. (Ill. Ins. Rpt.). MISSOURI - Counts on alfalfa in southeast ranged 0-7 larvae per crown, averaging 3 per crown. From 6-20 percent of these larvae showed evidence of fungus disease. Counts on red clover in southeast ranged 2-7 larvae per crown; ranging first instar to half-grown. An average of 25 percent of these larvae showed evidence of being diseased. (Kyd, Thomas, Munson). KANSAS - Larvae in alfalfa in Barton County. (Gates).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - DELAWARE - Adults present on alfalfa in New Castle County. (Burbutis, Mason). MARYLAND - Five adults taken in 130 sweeps on alfalfa at Ellicott City, Howard County. (U. Md., Ent. Dept.). ALABAMA - Limited number present on crimson clover in Lee County. (Guyton). ILLINOIS - Adults averaged 0.2 per square foot in clover fields in southern one-third of State. (Ill. Ins. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - DELAWARE - Adults present on clover in New Castle County. (Burbutis, Mason). MARYLAND - Adults averaged 3 per 10 sweeps on alfalfa at Huntingtown, Calvert County. (U. Md., Ent. Dept.). MISSOURI - First adults of season swept from alfalfa. (Kyd, Thomas, Munson). UTAH - Adults active in alfalfa at Tremonton. (Knowlton). IDAHO - Overwintering adults abundant in most alfalfa fields checked in southern area. Some fields in Canyon County have 4-6 adults per crown. (Waters, Gittins).

VETCH BRUCHID (Bruchus brachialis) - TEXAS - Averaged 1 per 10 sweeps on vetch in Houston County. (Hawkins).

A WIREWORM (Limoniun sp.) - IDAHO - Adults in greater abundance during first two weeks of April than observed over past few years in Canyon County. Nearly mature larvae average 3 per root in red clover, alfalfa and sweetclover in a field near Parma. (Waters).

PEA APHID (Macrosiphum pisi) - DELAWARE - Populations slightly increased on alfalfa and present on clover in New Castle County. (Burbutis, Mason). MARYLAND - Averaged 15-19 per sweep on alfalfa in Calvert County. Negligible on alfalfa at Ellicott City, Howard County. (U. Md., Ent. Dept.). ALABAMA - Heavy on alfalfa in Lee County. (Guyton). ARKANSAS - Infestations on alfalfa increased; counts average 25-50 per sweep. (Boyer, Whitcomb). MISSOURI - Building up some in southeastern area; counts 4-20 per sweep on alfalfa. (Kyd, Thomas, Munson). OKLAHOMA - Light to medium in alfalfa fields checked in central and west central areas (VanCleave, Washum, Burke) and in south central and southeast areas (Vinson, Goin). Light in alfalfa fields checked in southwest (Pregrove, Hatfield) and in north central areas (Owens). TEXAS - Infestations averaged 10 per sweep on vetch and 25 per sweep on alfalfa in Red River and Bowie Counties and averaged 10 per sweep on vetch in Lamar, Delta and Houston Counties. (Hawkins). CALIFORNIA - Medium infestations on alfalfa in Butte City area, Glenn County. Light in east side of Lancaster, Los Angeles County. (D. May). WASHINGTON - Populations lowest on record on alfalfa in Walla Walla area. In 100 fields, counts 3-4 per 100 tips. (Cook).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Infestations continue heavy in some Graham County alfalfa fields. In other areas of State, infestations low. (Ariz. Coop. Sur.). NEW MEXICO - Several infestations damaging alfalfa in Gila River Valley, Grant County. Light in Lea and Chaves Counties. (N. M. Coop. Rpt.). OKLAHOMA - Light to medium, 20-250 per square foot of crown area in 6 alfalfa fields surveyed in Tillman County in southwest. (Hatfield). Populations generally none to light in other areas of the State surveyed. (Okla. Coop. Econ. Ins. Sur. Rpt.). TEXAS - Infestations ranged 150-200 per sweep on alfalfa in Clay County. Honeydew beginning to build up. (Turney). None found in northeastern area. (Hawkins). ARKANSAS - Only 2 found during the week, both in Lafayette County. A field heavily infested in October 1959 in Howard County was found free of aphids. (Boyer, Whitcomb).

WATERLILY APHID (Rhopalosiphum nymphaeae) - CALIFORNIA - Heavy infestations in conjunction with Aphis fabae on Ladino clover and filaree plantings in Orland area, Glenn County. (Cal. Coop. Rpt.).

LYGUS BUGS (Lygus spp.) - IDAHO - Spring populations throughout southern area more abundant than in past few years. In roadside areas, counts run as high as 10 per sweep, with 5-6 per sweep common in many alfalfa fields checked, particularly in south central area and in Owyhee County. (Gittins). WYOMING - Averaged 2 adults per sweep in 23 alfalfa fields in Big Horn Basin. (Fullerton). UTAH - Populations, largely L. elisus, common and sometimes numerous in alfalfa fields in Box Elder County. (Knowlton). OKLAHOMA - Light, but becoming common, in alfalfa fields in widely scattered areas throughout southern half of State. Heaviest counts averaged 0.7 per sweep, with most infestations considerably lower. (Okla. Coop. Econ. Ins. Sur. Rpt.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - DELAWARE - Present on cereal cover crops and alfalfa in New Castle County. (Burbutis, Mason).

CLOVER LEAFHOPPER (*Aceratagallia sanguinolenta*) - UTAH - Numerous in alfalfa at Garland, Tremonton and Snowville in Box Elder County. (Knowlton). DELAWARE - Present on clover in New Castle County. (Burbutis, Mason).

MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) - MARYLAND - Hatching on weeds near alfalfa at Huntingtown, Calvert County, on April 14. (U. Md., Ent. Dept.).

PENNSYLVANIA - Hatching recorded April 13 in south central area (Pepper) and in Fulton County on April 16 (Udine).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - OKLAHOMA - An occasional adult noted in alfalfa fields in south central and central areas; first report of the season. (Okla. Coop. Econ. Ins. Sur. Rpt.).

A THRIPS (*Frankliniella occidentalis*) - CALIFORNIA - Heavy adult populations in alfalfa in Butte City area, Glenn County. (Cal. Coop. Rpt.).

FRUIT INSECTS

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - PENNSYLVANIA - Adults present on apple in Adams County, but no egg masses observed as of April 13. (Pepper). INDIANA - As of April 11, egg masses have not been observed in the Vincennes area. (Hamilton).

EYE-SPOTTED BUD MOTH (*Spilonota ocellana*) - OREGON - Fairly heavy infestation on unsprayed apple, cherry and pear trees in a home planting near Talent, Jackson County. Larvae about one-fourth inch long. (Gentner).

PLUM CURCULIO (*Conotrachelus nenuphar*) - GEORGIA - Matured eggs found in bodies of females taken in a commercial peach orchard in Ft. Valley area, April 6. Adults continue to leave hibernation in numbers. As many as an average of 3.8 adults per tree were caught in a commercial peach orchard in the same area on April 8. (Snapp). INDIANA - No adults have been jarred from peach trees at Vincennes as of April 11. (Hamilton).

APPLE APHID (*Aphis pomi*) - DELAWARE - Present statewide on apple trees, with very slight buildup since week ending April 8. (Kelsey). WASHINGTON - Eggs hatching April 7 at Pullman, Whitman County, about one week earlier than in 1959. (Johansen).

ROSY APPLE APHID (*Anuraphis roseus*) - PENNSYLVANIA - Hatching on apple in Adams County, April 13. (Pepper).

APHIDS (undetermined) - MARYLAND - First of season found on apple tips at Hancock, Washington County, April 11. (U. Md., Ent. Dept.).

GREEN PEACH APHID (*Myzus persicae*) - IDAHO - Eggs observed hatching on peach trees at Aberdeen, Bingham County, and at American Falls, Power County, during first week of April. (Bishop).

TARNISHED PLANT BUG (*Lygus lineolaris*) - PENNSYLVANIA - Averaged 4 per peach tree in Adams County on April 13 and adults were plentiful on peach trees in York County on April 15. (Pepper). INDIANA - Peach tree jarring records from 5 trees on April 11 yielded 3 bugs in one orchard and one bug in another orchard in the Vincennes area. (Hamilton)

LYGUS BUGS (*Lygus* spp.) - COLORADO - Active on mustard and other weeds in peach orchards, ranging 6-15 per 100 sweeps, in Mesa County. (Colo. Ins. Sur., Apr. 12).

STINK BUGS - INDIANA - Three bugs jarred from 5 trees in one orchard at Vincennes. These are the first recorded this season. (Hamilton, Apr. 11).

PEAR-SLUG (Caliroa cerasi) - CALIFORNIA - Light populations appearing on pear trees in the Fremont area, Alameda County. (Cal. Coop. Rpt.).

A THRIPS (Frankliniella occidentalis) - ARIZONA - Heavy infestations damaging buds of peach and apple trees in Coconino County. (Ariz. Coop. Sur.).

GRAPE MEALYBUG (Pseudococcus maritimus) - OREGON - As many as 8 young nymphs per young leaf on infested pear trees in Medford area, Jackson County. Young nymphs also found on Quercus garryana and mistletoe on these trees adjoining infested pear trees. The known infestation as of April 13 was limited to a 6-acre block of pear trees and oak trees bordering one side of this block. (Gentner).

ORCHARD MITES - COLORADO - Tetranychus telarius eggs hatching in Garfield County. (Colo. Ins. Sur., Apr. 12). OREGON - Winter eggs of Panonychus ulmi hatching in the Medford area of Jackson County on April 12. (Gentner). WASHINGTON - Bryobia rubrioculus eggs began hatching on apple in the Pullman area, Whitman County, about April 1, almost 2 weeks earlier than in 1959. Weather records indicate the earliest seasonal development in 20 years. (Johansen).

SAN JOSE SCALE (Aspidiotus perniciosus) - ALABAMA - Heavy infestation on peach trees in Lee County. (Guyton). TEXAS - Heavy infestation present on peaches in Clay County; 75 percent of trees dead. (Turney). COLORADO - Increasing in neglected orchards in Montezuma County. (Colo. Ins. Sur., Apr. 12). CALIFORNIA - Heavy on apple trees in Watsonville area, Santa Cruz County. (Cal. Coop. Rpt.).

PEACH TWIG BORER (Anarsia lineatella) - CALIFORNIA - Light damage to almond occurring in the Ripon area of San Joaquin County. (Cal. Coop. Rpt.).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - GEORGIA - Light to heavy infestations, probably this species, present on pecan trees in Ware, Pierce and Toombs Counties. Trees just beginning to put on foliage. (Johnson).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Infestations are heavy on citrus in the central portion of the State. (Ariz. Coop. Sur.).

Citrus Insect Situation in Florida - Forecast for Second Quarter, April-June - PURPLE SCALE (Lepidosaphes beckii) populations will remain at or below the low levels of 1959. Infestations of FLORIDA RED SCALE (Chrysomphalus aonidum) will increase in May and June, but generally will not reach the average level of previous years during this quarter. CHAFF SCALE (Parlatoria pergandii) infestations will become more numerous than usual during April and May. Populations will start to decline in June. A strong buildup of CITRUS RED MITE (Panonychus citri) will occur in May and continue until a peak is reached in June. Unless an extended dry period occurs, the level of abundance is not expected to exceed the average. TEXAS CITRUS MITE (Eutetranychus banksii) populations will build up in April and May and peak in late June. Infestations are expected to be similar to those in 1959, when 30 percent of groves were infested. Populations of CITRUS RUST MITE (Phyllocoptruta oleivora) will increase strongly in May. The general level will be above average during the quarter. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infestations will increase in April, reach a peak at moderate levels in May, and decline in June. APHIDS will be abundant on Temples and tangerines through April. MEALYBUG and BLACK SCALE (Saissetia oleae) populations will be low. (W. A. Simanton, Apr. 7 (Citrus Exp. Sta., Lake Alfred)).

TRUCK CROP INSECTS

ALFALFA LOOPER (Autographa californica) - CALIFORNIA - Heavy populations damaging lettuce leaves and requiring treatment in the Salinas area of Monterey County. (Cal. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Young larvae and eggs noted in tomato fields in lower Rio Grande Valley. (Deer). NEW MEXICO - Light on lettuce in Dona Ana County. (N. M. Coop. Rpt.).

IMPORTED CABBAGEWORM (Pieris rapae) - MARYLAND - Adults active in central and southern sections of the State. (U. Md., Ent. Dept.).

CABBAGE APHID (Brevicoryne brassicae) - ALABAMA - Heavy infestation present on cabbage in Lee County. (Guyton).

TURNIP APHID (Rhopalosiphum pseudobrassicae) - LOUISIANA - Light to moderate infestations observed on turnips and cabbage in St. John the Baptist Parish. (Spink).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Medium populations in conjunction with Aphis sp. in mixed plantings of barley and mustard in Willows area, Glenn County. (Cal. Coop. Rpt.).

HARLEQUIN BUG (Murgantia histrionica) - ALABAMA - Moderate infestation on collards in Lee County. (Barwood).

FLEA BEETLES - UTAH - Unspecified species numerous on mustards in some areas of Washington, Sevier and Sanpete Counties. (Knowlton).

DARKLING BEETLES (Metoponium spp.) - CALIFORNIA - Adults causing medium damage to tomato plantings in the Meridian area of Sutter County. (J. H. Lindt).

POTATO PSYLLID (Paratrioza cockerelli) - TEXAS - There has been an increase of populations on tomatoes in the lower Rio Grande Valley. (Deer). CALIFORNIA - Medium infestation of treemallow in Fremont, Alameda County. (Cal. Coop. Rpt.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light infestations present on beans in Grady and Thomas Counties. (Johnson).

COWPEA APHID (Aphis medicaginis) - LOUISIANA - Light infestations occurring on field peas in St. John the Baptist Parish. (Spink).

MELON APHID (Aphis gossypii) - LOUISIANA - Very light on squash in St. John the Baptist Parish. (Spink).

A CHINCH BUG (Blissus sp.) - TEXAS - Infestations have caused moderate to severe damage to young watermelons in the lower Rio Grande Valley. (Deer).

ONION MAGGOT (Hylemya antiqua) - IDAHO - Adults first observed in the Parma area of Canyon County on April 12. (Scott).

SEED-CORN MAGGOT (Hylemya cilicrura) - IDAHO - Adults present in the Parma area of Canyon County, but at lower numbers than observed in 1959. Dead adults at poisoned-bait stations around onion fields ranged 10-40 per station, averaging 25. (Scott).

ONION THRIPS (Thrips tabaci) - CALIFORNIA - Causing medium damage to garlic plantings in the Watsonville area, Santa Cruz County. (Cal. Coop. Rpt.).

THRIPS - NEW MEXICO - Heavy, spotty infestation of an unspecified species present on onions in Dona Ana County. Growers applying controls. (N. M. Coop. Rpt.).

Second Statement of Beet Leafhopper Conditions in the Southern
Desert Areas of Southern Utah and Nevada, Southeastern
California and Central Arizona - 1960

Additional data have indicated further buildup of beet leafhopper populations in the southern desert breeding grounds to the extent that movement of leafhoppers to the cultivated districts of southern Nevada and Utah is expected to be light to moderate and the movement to eastern Utah and western Colorado is expected to be light to moderate. The movement to western Nevada is expected to be light and the movement to central and northern Utah will be light. The shift in population to cultivated districts of southeastern California and southern Arizona from adjacent desert areas started in March and will probably continue until mid-April and is light to moderate in magnitude. This statement covers movement of beet leafhoppers from only the southern desert breeding grounds to crop areas, and does not include populations that may have overwintered in the local breeding areas of northern and eastern Utah, western Colorado and western Nevada.

Approximately 2 percent of the overwintering beet leafhoppers collected in February for inoculation on test plants were found to be carrying the curly-top virus. This gives an estimated population of 0.017 billion infective leafhoppers, of the 8.6 billion total overwintering population calculated to be present in the southern desert breeding area at the time of the February survey. The percentage of infective leafhoppers may have increased since, as it has been observed to do so in previous seasons as population densities increased.

Precipitation occurring in the southern desert breeding grounds during the first half of February and the first and latter parts of March has helped to sustain the host plants germinated by November and December rains, but few additional plants have been propagated in most areas.

The winter annual plants are drying or dead in many parts of the southern desert due to lack of sufficient moisture. This causes movement of beet leafhopper populations from those portions of the southern desert breeding grounds to other areas with more favorable host plant conditions: to adjacent desert areas with more succulent vegetation or to the north where plants are not so far advanced in development as at the lower elevations, to cultivated districts, and to areas where Russian thistle and other summer weeds have germinated. Presence of the summer weed hosts in sufficient numbers may reduce the amount of long-range leafhopper dispersal into croplands, particularly in northern and eastern Utah, western Colorado and western Nevada where these weeds may occur abundantly in seasons of favorable rainfall in local beet leafhopper breeding grounds close to agricultural areas. (Blakemore).

BEEF LEAFHOPPER (Circulifer tenellus) SURVEY IN TEXAS,
NEW MEXICO AND COLORADO -SPRING 1960

TEXAS - The survey throughout southwestern and western areas began on March 7 and was completed on March 18. A total of 4,200 samples were taken, with 166 beet leafhoppers being found. The average for the area surveyed was 3.95 per 100 square feet compared with 5 per 100 square feet in 1959. The only significant infestation changes over the 1959 survey were in the extreme ends of the surveyed area. The north El Paso Valley shows a small increase in beet leafhopper counts, while the insect proved to be entirely absent along the eastern surveyed boundary. (Dickens, Guthrie, Aspermont vicinity) this year. Host plants were plentiful and in excellent condition throughout the territory. Although beet leafhopper counts are less than in 1959, ideal conditions in late March and early April could easily cause the population to multiply rapidly. Average counts per 100 square feet by areas were as follows: Area 1 (Crystal City-El Paso-Monahans) - 5.53; area 2 (Sonora-Abilene-Monahans) - 4.53; area 3 (Abilene-Lamesa-Hereford-Floydada) - 0.18. (O. M. Boyd et al.)

NEW MEXICO - Survey in eastern area was conducted during period March 14-23. Host plants were present at more than 90 percent of the stops and were generally more abundant. Although host plants were more prevalent than a year ago, beet leafhopper populations were about half. The average beet leafhopper population in the spring of 1959 was 2.70 per 100 square feet, compared with 1.5 per 100 square feet in 1960. The heaviest populations were in the Clovis-Hobbs area in the southeast and in the Las Cruces area in the southern part of the State. Weather conditions during the survey were cold and windy. (PPC, West. Reg.).

COLORADO - Survey in the Arkansas Valley was conducted during period March 14-23 under favorable weather conditions. Host plants were present at 90 percent of the stops and were far more abundant than at the same time in 1959. Beet leafhoppers were present at 60 percent of the stops, compared with 20 percent in 1959. The average population in 1960 was 1.3 per 100 square feet, compared with 0.6 per 100 square feet in 1959. (PPC, West. Reg.).

Summary - Based on the above surveys in Texas, New Mexico and Colorado, it is anticipated that beet leafhopper movement from the spring breeding areas to the north will be light.

CUCUMBER BEETLES (Diabrotica spp.) - UTAH - Common in Washington County fields and gardens; fewer numbers present about Kanab, Kane County. (Knowlton).

A SPIDER MITE (Tetranychus lobosus) - LOUISIANA - Continues to be a problem on strawberries in Tangipahoa Parish. (Spink).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light to moderate on tobacco in the field in Grady, Thomas, Colquitt, Lowndes, Ware, Pierce and Appling Counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - NORTH CAROLINA - Adults injuring a tobacco plant bed in Pender County. (Honeycutt, Farrier).

SPRINGTAILS - NORTH CAROLINA - An unspecified species is present but causing no known injury on tobacco plant beds in Wilson and Pender Counties. (Jones, Honeycutt, Farrier).

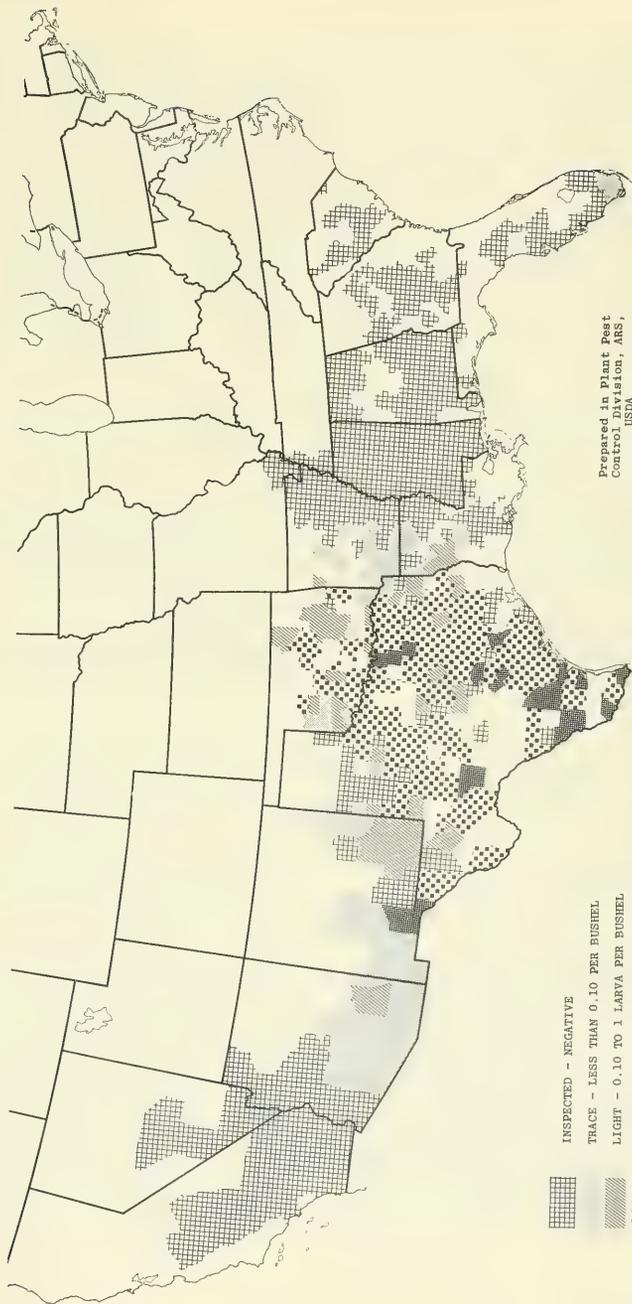
COTTON INSECTS

Pests of Cotton in the Rio Grande Valley, Texas - There has been a spread of SPIDER MITE and APHID infestations but no significant damage has been reported. APHIDS are building up in some fields to the point where some control may be necessary. THRIPS are infesting some fields along the river below Progresso, particularly in areas where onions are being harvested. Activity of CUTWORMS has diminished. Eggs of BOLLWORMS (*Heliothis* spp., et al) and CABBAGE LOOPER (*Trichoplusia ni*) are being deposited on young cotton, but no larval damage was reported. (Deer, Stephens).

Boll Weevil Survival Counts in Georgia and Tennessee - Spring 1960

GEORGIA - Spring examinations of surface trash from woods adjacent to old cotton fields, to determine the number of BOLL WEEVILS (*Anthonomus grandis*) surviving the winter, were made in 4 regions of Georgia during the period February 29-April 1. The State average was 407 live weevils per acre of surface trash, compared with 329 for 1959; the winter survival for 1960 was 57 percent. The averages for 9 years that records have been taken are 634 weevils per acre and 50 percent survival. The average number of weevils per acre and the percentage survival, respectively, for the different areas where samples were collected in 1960 were as follows: Northwest (Gordon County) 48 and 33; North Central (Butts, Spalding, Pike, Coweta, Meriwether Counties) 484 and 41; East Central (Burke County) 290 and 35; and South (Tift, Atkinson, Berrien, Irwin, Turner Counties) 726 and 100. Live boll weevils were found on 34 percent of the farms examined during the spring of 1960. The maximum number of weevils per farm was 2,420. This number was found on 4 different farms in 3 of the areas. Five samples of 2 square yards each were collected from each of the 50 fields examined. These were the same locations examined during the fall of 1959. (C. M. Beckham, L. W. Morgan). TENNESSEE - Tests were made in McNairy County to determine the population of boll weevil overwintering in west Tennessee for the 1960 growing season. McNairy County was chosen for the survey because it usually supports the heaviest population of weevils. Fall trash examinations indicated that the average per acre was 1,882, compared with 1,214 for the fall of 1958. Spring examinations of cotton field environ trash indicated that the average per acre was 807, a survival of 33 percent. This is a relatively high number of weevils per acre. The average per acre in the spring of 1959 was 124, a survival of 10 percent. With favorable weather conditions in the spring of 1960, there are definitely enough weevils present to cause early season damage. (J. H. Locke).

STATUS OF THE PINK BOLLWORM INFESTATION AS OF JAN. 1, 1960.



INSPECTED - NEGATIVE

TRACE - LESS THAN 0.10 PER BUSHEL

LIGHT - 0.10 TO 1 LARVAE PER BUSHEL

MEDIUM - 1 TO 100 LARVAE PER BUSHEL

HEAVY - OVER 100 LARVAE PER BUSHEL

(Based on gln trash samplings or equivalent)

Prepared in Plant Pest
Control Division, ARS,
USDA

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - Infestations on hardwood, plum and peach trees in north central and northeast sections. (Turney, Hawkins). ARKANSAS - Appeared in southern area during the early part of the week of March 28 and in the north the latter part of the same week. (Warren). LOUISIANA - Additional infestations found on Japanese plum trees in East Baton Rouge Parish. (Spink). MISSOURI - Present on wild cherry in southeast area; 1-8 webs in each tree. Each web contained several larvae. (Kyd, Thomas, Munson). VIRGINIA - Forming webs on April 13 in Richmond area and eastward. Webs up to size of a quart container. (Amos). DELAWARE - Eggs hatched in Sussex County and young larvae present on chokecherry. (Burbutis, Mason). PENNSYLVANIA - Hatching April 13 in Fayette County. Less egg masses than last year. Hatching at Harrisburg, Dauphin County, April 13 and in Cumberland County, April 14. (Drooz). MARYLAND - Small larvae and tents common on wild cherry and other trees in southern and central sections. (U. Md., Ent. Dept.). CONNECTICUT - No webs found on cherry tree but some larvae on each of two egg masses observed at Meriden on April 18. (Stevens).

FOREST TENT CATERPILLAR (Malacosoma disstria) - TEXAS - Attacking ash in College Station area. (Randolph). LOUISIANA - Quite extensive infestations on many deciduous trees in State. (Spink).

TENT CATERPILLARS (Malacosoma spp.) - OKLAHOMA - Medium infestations (up to 5 percent of trees showing webbing) noted on wild plum trees in southeast (Goin), east central (Washum) and central areas (Burke). CALIFORNIA - Medium infestations of second and third-instar larvae of M. constrictum in Santa Isabel area of San Diego County and fifth-instar larvae in San Francisco Bay area. In Morongo and Lucerne Valleys of San Bernardino County, M. fragile medium on desert almond. (F. Stehr).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - PENNSYLVANIA - At Turbotville, Northumberland County, 30 acres of Scotch pine 50 percent infested; 10 percent very heavy and 40 percent light to heavy in three-year-old trees. Heavily infested trees yellowed. (Gesell).

NEEDLE MINERS - WISCONSIN - Active on spruce and jack pine in Dane and Sauk Counties. (Wis. Coop. Sur.).

IPS BEETLES (Ips spp.) - NORTH CAROLINA - A minor outbreak of I. avulsus on shortleaf pine in Polk County. Small outbreak of Ips spp. following lightning strike in Anson County; minor attack on loblolly pine in Richmond County following damage by logging and ice. (Shaw, Johnson, Ward, N. C. For. News Lett.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Severe attack on loblolly and pond pine in areas of Dare County. (Carlson, N. C. For. News Lett.).

A SAWFLY (Neodiprion sp., probably pratti pratti) - NORTH CAROLINA - Active in a few counties in north central section. Surveys indicate noticeable defoliation may occur as follows: Scattered in northeastern quarter of Person County; scattered in northern third of Granville County, with heaviest damage occurring adjacent to Vance County, heavy, practically solid, defoliation in northwestern area of Vance County; some heavy defoliation in east central edge around Middleburg and scattered in other areas in northern half; heavy and complete defoliation expected in west central Warren County and extending to, and including Warrenton, Macon and Norkina. (N. C. For. News Lett.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - WISCONSIN - Examination of overwintering larvae in Kenosha County revealed a mortality of about 47 percent. (Wis. Coop. Sur.).

WESTERN SYCAMORE BORER (Ramosia resplendens) - CALIFORNIA - Heavy in sycamore trees in Riverside, Riverside County. (Cal. Coop. Rpt.).

AN ASH BUG (Neoborus illitus) - CALIFORNIA - Heavy on ash trees in Oroville, Butte County. (Cal. Coop. Rpt.).

A FALSE SPIDER MITE (Brevipalpus cardinalis) - CALIFORNIA - Medium infestation of ash trees in Lancaster, Los Angeles County. (Cal. Coop. Rpt.).

HACKBERRY NIPPLE GALL (Pachypsylla celtidis-mamma) - KANSAS - Oviposition occurring on fresh, swollen buds of hackberry in Riley County. (Thompson).

SPIREA APHID (Aphis spiraeicola) - ALABAMA - Heavy on spirea in Lee County. (Guyton).

SPRUCE APHID (Aphis abietina) - OREGON - Damage to needles commonly observed in Alberta spruce in Multnomah County. (Larson).

SPRUCE SPIDER MITE (Oligonychus ununguis) - MARYLAND - Eggs hatching April 15 on spruce at College Park, Prince Georges County. (U. Md., Ent. Dept.).

MITES - NEW MEXICO - Mites, probably Oligonychus coniferarum, heavy on evergreens throughout southern area. (N. M. Coop. Rpt.).

APHIDS - NEW MEXICO - Cinara tujafilina heavy on arborvitae throughout southern half of State. Macrosiphum rosae very common on roses throughout State. (N. M. Coop. Rpt.). CALIFORNIA - Light infestations of Pemphigus populi-transversus on willow attracting attention in Orland, Glenn County. (Cal. Coop. Rpt.).

DOGWOOD CLUB-GALL MIDGE (Mycodiplosis alternata) - NORTH CAROLINA - Usual public concern because of infestations on dogwood in Wake County. (Farrier).

RHODODENDRON BORER (Ramosia rhododendri) - MARYLAND - Infesting rhododendrons at University Park, Prince Georges County. (U. Md., Ent. Dept.).

PACIFIC FLATHEADED BORER (Chrysobothris mali) - CALIFORNIA - Severe damage to rose bushes in Willows, Glenn County. (Cal. Coop. Rpt.).

AN OLETHREUTID (Epinotia infuscana) - CALIFORNIA - Medium infestations in Lupinus sp. at Half Moon Bay, San Mateo County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

SCREW-WORM (Callitroga hominivorax) - NEW MEXICO - Ranchers in Grant County report several infestations in range cattle. (N. M. Coop. Rpt.).

HORN FLY (Siphona irritans) - OKLAHOMA - Light number becoming active in west central (VanCleave, Washum, Burke) and southeast areas (Goin). NEW MEXICO - Averaged 50-200 per head on range cattle in Dona Ana County. (N. M. Coop. Rpt.). OREGON - Adults appeared in Benton County on April 10. (Hargett).

BLOW FLIES - NEW MEXICO - Maggots very abundant in soiled fleece on ewes prior to lambing in Dona Ana County. Blow flies emerging from dog droppings causing a nuisance in residential areas of southern cities. (N. M. Coop. Rpt.).

MOSQUITOES - NEBRASKA - Several reports of people being bitten by mosquitoes around Lincoln, April 8-18. (Simpson).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Heavy adult activity in southeastern area, where cattle were observed taking refuge in water for protection (Goin); light to medium activity of same nature observed in west central area (VanCleave, Washum, Burke).

AMERICAN DOG TICK (Dermacentor variabilis) - OKLAHOMA - Adults becoming common on dogs in a widespread area in eastern half of the State. (Howell).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Medium infestations (20 per animal) noted on a herd of 30 beef cows checked in Pushmataha County. (Goin).

HOG LOUSE (Haematopinus suis) - TEXAS - Medium infestation on 100 head of hogs in Clay County. (Turney).

CATTLE LICE - OKLAHOMA - Heavy to severe on several small beef cattle herds in west central area; some cattle showed up to one-half loss of hair (VanCleave, Washum, Burke); 90 percent of all cattle observed in Pushmataha and McCurtain Counties rubbing, due to lice, with heavy infestations common (Goin). UTAH - Numerous in some Duchesne County herds. (Knowlton).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - ARIZONA - A new infestation was found at Winkelman in extreme southern Gila County on March 30. (Ariz. Coop. Sur.).

INDIAN-MEAL MOTH (Plodia interpunctella) - MARYLAND - Adults noted in a home at Bethesda, Montgomery County, April 4. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

LADY BEETLES - ALABAMA - Hippodamia convergens and an unspecified species plentiful on alfalfa and clover in Lee County. (Guyton). ARKANSAS - H. convergens, Coleomegilla maculata, Coccinella novemnotata, Cycloneda munda and Scymnus sp. were active during the period April 10-16. Small numbers of larvae are now appearing. (Ark. Ins. Sur.). OKLAHOMA - H. convergens common in about one-half of small grain and alfalfa fields surveyed in Kingfisher and Garfield Counties, averaging about 2 per linear foot in small grain and 3 in alfalfa. (Owens). H. convergens adults and larvae common in alfalfa surveyed in central and west central areas, ranging 0.2-1.8 per sweep (VanCleave, Washum, Burke); averaged 0.2 per sweep in an alfalfa field near Blair, Jackson County (Presgrove); common in most fields surveyed in southwest area, ranging from occasional to 3 per square foot of crown area in alfalfa and occasional to 1.5 per linear foot in small grain (Hatfield). H. convergens is present in most fields throughout south central area, ranging 0.2-1.5 per sweep in alfalfa and 0.25-1.0 per linear foot in small grain (Vinson); common in about one-half of fields checked in Choctaw County, averaging 0.1-3 per square foot in alfalfa and oats (Goin). ILLINOIS - Unspecified species average 0.6 per square foot and range 0-2. (Ill. Ins. Rpt.). WYOMING - Counts of unspecified species averaged 2 per 25 sweeps in fields of alfalfa in Park and Big Horn Counties. (Fullerton). CALIFORNIA - Heavy populations of H. convergens appearing on green peppers infested with green peach aphid in Casa De Oro, San Diego County. (Cal. Coop. Rpt.).

LACEWINGS (Chrysopa spp.) - OKLAHOMA - Common in most alfalfa fields and in a limited number of small grain fields throughout State. Counts ranged up to 0.5 per sweep in alfalfa and 0.2 per linear foot in small grain. (Okla. Coop. Econ. Ins. Sur. Rpt.). IDAHO - Adults extremely numerous throughout southwestern and south central sections of the State in both crop and rangeland areas. (Gittins). ARKANSAS - C. plorabunda activity observed during period April 10-16. (Ark. Ins. Sur.).

NABIDS (Nabis spp.) - OKLAHOMA - Common but light in many alfalfa and small grain fields throughout the State. (Okla. Coop. Econ. Ins. Sur. Rpt.). WYOMING - Averaged 3 per 25 sweeps in alfalfa fields in Big Horn Basin. (Fullerton). ARKANSAS - Activity observed April 10-16. (Ark. Ins. Sur.).

A HYMENOPTEROUS PARASITE (Aphidius testaceipes) - OKLAHOMA - Common to heavy in 3 fields of small grain in Payne County heavily infested with aphids. Adult wasps observed attacking aphids; "mummies" averaged 5-10 per linear foot. (VanCleave).

MISCELLANEOUS INSECTS

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - MARYLAND - Winged forms noted in a home at Silver Spring, Montgomery County, April 12. (U. Md., Ent. Dept.). NORTH CAROLINA - Swarming in Robeson County. (Coble, Farrier). MISSOURI - Several swarms observed in houses in the Malden area of Dunklin County. (Kyd, Thomas, Munson).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - WISCONSIN - Adults were in flight in Dane County. (Wis. Coop. Sur.).

DUNG BEETLES (Aphodius spp.) - SOUTH DAKOTA - Large numbers were observed in Union County. (Mast). WISCONSIN - Adults reported flying in large numbers in many localities over the State. (Wis. Coop. Sur.).

A SHINING FLOWER BEETLE (Phalacrus ovalis) - CALIFORNIA - Heavy population of adults present in Ladino clover fields in Hamilton City, Glenn County. (Cal. Coop. Rpt.).

A SPIDER BEETLE (Gibbium psylloides) - DELAWARE - Adults very abundant in a home in New Castle County. (Burbutis, Mason).

COCKROACHES - SOUTH DAKOTA - An unspecified species reported infesting a new home in Brookings, Brookings County. (Mast). OREGON - Very serious infestation of Blattella germanica present in and around the city dump at Oregon City, Clackamas County, April 10. (Gresbrink). CALIFORNIA - A heavy population of Blatta orientalis occurring as a nuisance in a home in Folsom, Sacramento County. (Cal. Coop. Rpt.).

CORRECTION

CEIR 10(10):133 - Sixth line from top of page should read "populations averaged 0.017 per square foot north of the 34 degree parallel and 0.011"

ADDITIONAL NOTES

NEBRASKA - Flax-seed stage of HESSIAN FLY (Phytophaga destructor) found in 50 percent of volunteer wheat in southeast area; most fields about 3 percent infested. ARMY CUTWORM (Chorizagrotis auxiliaris) infesting about 25 percent of wheat fields in northwest area; heaviest counts were 1 larva per foot of row in Scotts Bluff County. Very light infestations, not over 1 per 3 feet of row, present in Cheyenne, Kimball and Banner Counties. Large numbers of SEED-CORN BEETLE (Agonoderus lecontei) observed flying with the wind in Otoe County during midafternoons. Only occasional NABIDS (Nabis spp.) or CONVERGENT LADY BEETLE (Hippodamia convergens) observed in alfalfa which is about 1-2 inches high in Cass, Otoe, Johnson, Nemaha, Richardson, Gage and Lancaster Counties. (Simpson, Pruess).

NORTH DAKOTA - Preliminary winter survival survey of EUROPEAN CORN BORER (*Pyrausta nubilalis*) in Cass County indicates above normal mortality; of the borers recovered, 53 percent were dead. A NITIDULID collected from sweet corn in August 1959 has been determined as *Glischrochilus quadrisignatus*. GRASSHOPPER egg development survey in northwestern counties showed *Melanoplus bivittatus* and *M. bilituratus* eggs in the coagulated stage. Observation in wheat stubble and soil bank acreage north of Wildrose, Divide County, showed an average of 4 larvae of ARMY CUTWORM (*Chorizagrotis auxiliaris*) per square foot. (Goodfellow).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Prod. ornith.	Perid. marg.	Heliothis zea vires.
ALABAMA						
Auburn 4/5-7,11	11	3		4		
ARKANSAS						
Morrilton 4/7-13	5	7			2	
Kelso 4/7-13	5	4			6	
Fayetteville 4/7-13	1	2			1	
ILLINOIS						
Urbana 4/8-14	6	1			1	
KANSAS						
Garden City 4/6-7, 9		20				
Mound Valley 4/12	1	2		1		
LOUISIANA						
Franklin 4/11, 13		6	3		1	3
Baton Rouge 4/8-14	2	3		1	1	2 1
MISSISSIPPI						
*Stoneville 4/8-14	22	4	2	2	17	1
MISSOURI						
Sikeston 4/9-15	16	1			14	
Columbia 4/9-15	6	5				
NEBRASKA						
Lincoln 4/4-16		11				
North Platte 4/4-14		3			2	
SOUTH CAROLINA						
Clemson 4/9-15	4	2	1	19	2	
Charleston 4/11-17	2	1			1	
TEXAS						
Waco 4/9-15	20	8	19		34	9
WISCONSIN						
Middleton 4/10-15	1					

* Two traps - Stoneville

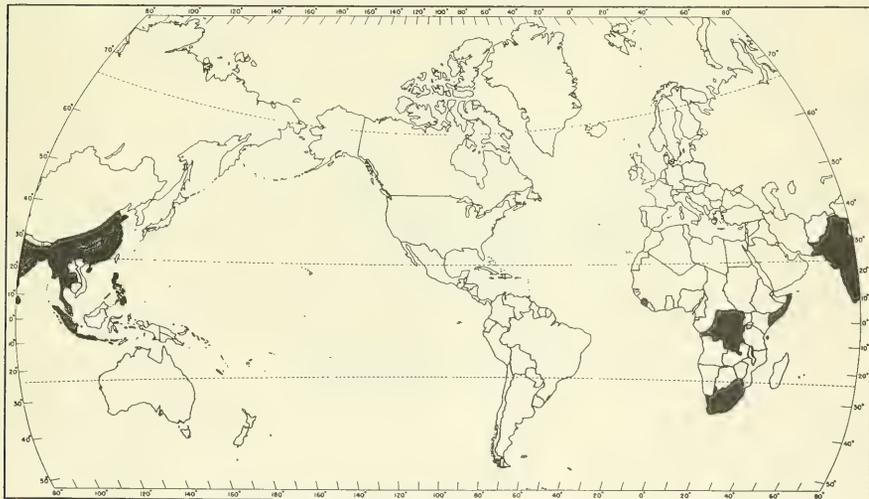
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

EGGPLANT FRUIT BORER (Leucinodes orbonalis Guen.)

Economic Importance: This pyraustid has been an important pest of eggplant in Pakistan for many years. Serious outbreaks were recorded in some areas in 1957-58. Injury to this crop is reported from other areas of the Indian region. The borer is also a pest of potatoes in parts of the Belgian Congo where it causes up to 50 percent loss of the crop. It has been intercepted at U. S. ports of entry on several occasions.

Distribution: Belgian Congo, Burma, Ceylon, China, Indonesia (Sumatra, Java), India, Malaya, Pakistan, Philippine Islands, Sierra Leone, Somiland, Thailand and Union of South Africa. This pest has also been intercepted from several West African countries, including Liberia, Nigeria and Ghana.

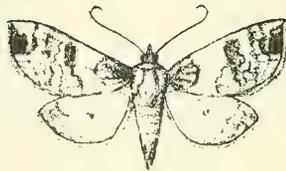
Hosts: Eggplant, potato, tomato, Cape gooseberry, black nightshade, wild eggplant, Physalis minima and Solanum xanthocarpum.



General Distribution of Leucinodes orbonalis

Life History and Habits: Moths oviposit on young leaves and terminals of potatoes in Belgian Congo. The larvae feed in the leaves then move to the stalk as leaves dry. Attack may kill entire plant. Eggs on eggplant hatch in 3 or 4 days in India. The larvae bore into petioles, shoots, stems and fruit, causing wilting. After feeding from 8 to 26 days, the larvae pupate in cocoons on stems, in folds of leaves or in the ground. Adults emerge one to two weeks later. There are about 3 generations a year.

Description: ADULT expanse around 24 mm. Forewings white, marked with black and ferruginous spots while hindwings are opalescent, marked with black dots. Both wings also with marginal row of black dots, the apical and middle dots being somewhat larger. Body speckled with ochreous-brown, abdomen whitish at base, palpi and legs white, bands on palpi and forelegs ochreous-brown. LARVA rose-colored with no obvious distinctive markings. At completion of development measures 20 to 22 mm. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 10(17):4-22-60.



Adult of Leucinodes orbonalis

Major reference: Ghesquiere, J., 1931 - Soc. Ent. Belgique Bul. et Ann. 71 (6/8): 131-138.

Figures (except map): Moore, F., 1887. The Lepidoptera of Ceylon. Vol. III. 578 pp., London (p. 289).

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business



VOL. 10 NO. 18

APRIL 29, 1960

SB

823

C77

Ent.

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 of Insect Conditions

MORMON CRICKET nymphs 8-15 per square yard in Oregon. GREENBUG heavy on small grain in north central Texas, with treatments being applied; but populations considerably reduced in Oklahoma. (p. 325). Aphidius testaceipes effective in controlling aphid populations in Oklahoma, most dramatic example of biological control noted in Oklahoma in several years. (p. 337). EUROPEAN CORN BORER survival surveys reported in Illinois, Minnesota, South Dakota, Kansas and Ohio (pp. 326, 327, 339); and pupation reported in Delaware and Maryland (p. 326). CORN EARWORM larvae present in Louisiana, Texas, Arizona and California (p. 327); and Frankliniella occidentalis is abundant on several crops in New Mexico (pp. 327, 331, 332).

PEA APHID populations increasing on alfalfa over a wide area and SPOTTED ALFALFA APHID infestations heavy in areas of Texas and Oklahoma, with treatments being applied. (p. 328). CLOVER LEAF WEEVIL larvae damaging red clover in Illinois, Missouri and Maryland. (p. 329).

BET LEAFHOPPER surveys reported from Kansas and Idaho. (p. 332)

FACE FLY adults active on cattle in Ohio and West Virginia. (pp. 336, 339).

INSECT DETECTION: New State records are as follows: A sawfly (Dolerus wanda) in Illinois (p. 327), pine root collar weevil in Delaware (p. 334) and a megachilid bee (Megachile rotundata) in Utah (p. 337). Also recorded were Egyptian alfalfa weevil in Pima County, Arizona (believed to be a new county record) (p. 329), and a scale insect (Lecanium kunoensis) in Butte County, California, a new county record (p. 336).

CORRECTIONS. (p. 338).

ADDITIONAL NOTES. (p. 338).

Estimates of damage by EUROPEAN CORN BORER to corn grown for grain utilization in the United States in 1959. (p. 341).

SUMMARY OF INSECT CONDITIONS - 1959 - YAQUI VALLEY, SONORA, MEXICO. (p. 343).

INSECTS not known to occur in the United States. (p. 345).

Some First Reports of the Season - SOUTHERN CORN ROOTWORM adults in Delaware and Illinois. MEADOW SPITTLEBUG eggs hatching in Illinois and Oregon. RED-BANDED LEAF ROLLER eggs hatching in Illinois. CODLING MOTH pupation noted April 18 in Indiana. ORIENTAL FRUIT MOTH larvae appearing in Georgia. First PLUM CURCULIO adult found in Illinois. EUROPEAN RED MITE eggs hatching in Indiana and Illinois. CABBAGE SEEDPOD WEEVIL adults collected April 7 in Washington. POTATO APHID nymphs present in Delaware. ASPARAGUS BEETLE laying eggs in Maryland. PINK BOLLWORM adult taken April 12 in New Mexico. NANTUCKET PINE MOTH adults emerging in Oklahoma and Maryland.

Reports in this issue are for the week ending April 22, unless otherwise indicated.

WEATHER OF THE WEEK ENDING APRIL 25

Temperatures for the week averaged unseasonably cold in the Pacific Northwest and the northern Rocky Mountains, and unusually warm from the central Rocky Mountains eastward across the midsection of the country to the Middle and North Atlantic States. In the Western and Great Plains States colder air moved southward following the passage of a strong low-pressure area late in the week. Freezing temperatures reached northern Arizona, and 34° at Tucson on the 25th was a record minimum for so late in the year. Unusually heavy snow covered sections of the northern Rocky Mountain States, and extended eastward into the Dakotas over the weekend. East of the Continental Divide, cool weather in most sections was rapidly replaced early in the week by progressively warmer temperatures which, late in the week, reached record levels of 85° to 95° for so early in the year from the Great Lakes States southwestward to eastern Wyoming and Colorado and southeastward to the Atlantic coast from the Carolinas to New Jersey. The 95° at Washington, D. C., on the 23d equaled the highest recorded there in April, as did 82° at Cheyenne, Wyoming, on the 21st.

Precipitation was heavy in coastal and mountain sections of the Pacific Northwest, in areas of the northern Great Plains, northern Rocky Mountains, upper Great Lakes, and southern Florida. Weekly totals of 2 to 6 inches were general in southern Florida and 5-to-7-inch rainfall over the weekend in western Upper Michigan and northeastern Wisconsin resulted in some flooding. Heavy wet snow left as much as 2 inches of water in southwestern and central Montana. Moderate to locally heavy thunderstorms from Texas northeastward to the central Mississippi Valley and northern sections of the Gulf States and in scattered areas of the Northeast left weekly precipitation totals of 1 inch or more.

Strong winds in the Plateau States and in portions of the western Great Plains produced local blowing dust on several days. Severe duststorms occurred in west-central Utah on Friday, as wind gusts reached 65 miles per hour. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - NEW MEXICO - Spotty infestations of first and second-instar nymphs in Roosevelt County, averaging 30-40 per square yard. Hatching found as far north as Clayton, Union County. (N. M. Coop. Rpt.). TEXAS - Light hatch noted in southern panhandle week ending April 15. Light hatch now in progress in northern panhandle. Only first instar observed. (Russell, Preston, Hawkins). OKLAHOMA - Pre-nymphal egg surveys in 3 panhandle counties indicate that hatch of early species will begin by May 3. Melanoplus bilituratus and Aeoloplides turnbulli eggs expected to begin hatching prior to mid-May. Greatest populations expected in soilbank land and roadsides, whereas range areas appear to have a low potential for economic infestations. (Pela). NORTH DAKOTA - Egg development survey conducted in Richland, Cass and Traill Counties. Egg pods recovered showed M. bivittatus and M. bilituratus in the early coagulation stage. (Wilson). WISCONSIN - Eggs show no development. (Wis. Coop. Sur.).

MORMON CRICKET (Anabrus simplex) - OREGON - Generally present, with an upward trend in populations in area from John Day River to Arlington. Crickets hatching to third instar (rarely) in development by April 23. In an area of approximately 1,000 acres, 2 miles west and 5 miles south of Arlington, populations of 12-15 nymphs per square yard present. Four miles south of Blalock, another area of same size has 8-10 nymphs per square yard. (Chinn).

ARMY CUTWORM (Chorizagrotis auxiliaris) - IDAHO - Larvae found in new and established alfalfa fields in Gooding County. (Koester). Second-instar larvae reported damaging dryland barley in Bingham County. (Weston) WYOMING - Averaged less than 1 per square foot in alfalfa fields in Platte, Goshen and Laramie Counties. (Fullerton). UTAH - Light in alfalfa in Salt Lake, Cache and Box Elder Counties. (Knowlton). COLORADO - Economic numbers not found on wheat in eastern and southeastern counties. Counts 0-5 per square foot in alfalfa in some areas of Otero and Crowley Counties. (Colo. Ins. Sur., Apr. 19).

CUTWORMS - ARIZONA - An undetermined species is abundant in Yuma County alfalfa, especially along borders and where old straw remains on the field. In some fields, alfalfa being damaged around areas of concentration. (Ariz. Coop. Sur.). CALIFORNIA - Agrotis ipsilon heavy and damaging young alfalfa in Morro Bay, San Luis Obispo County. (Cal. Coop. Rpt.). WYOMING - Feltia ducens averaged less than 1 per square foot in alfalfa and wheat fields surveyed in Platte, Goshen and Laramie Counties. (Fullerton). ILLINOIS - Population varies 0-8 per square foot in alfalfa and clover fields. Lacinipolia renigera predominates. Damage not yet apparent. (Ill. Ins. Rpt.).

GREENBUG (Toxoptera graminum) - ARKANSAS - This species and Macrosiphum granarium are principal species found on small grain in northwest area. Numbers low, with counts averaging 5-10 per sweep of 15-inch net. The ratio is about 60 percent T. graminum and 40 percent M. granarium. (Boyer). LOUISIANA - Populations ranged 10 to over 200 per linear foot (averaged 25) on oats in northern area. Parasites and predators very numerous and parasitism estimated to be well over 50 percent. (Spink). TEXAS - Serious damage to small grains in Brazos and Kaufman Counties. Attacking grain sorghum in Brazos County. (Randolph). All small grain fields in north central area heavily infested, and damage in some fields severe. Some damaged fields of oats, where stands were poor due to freeze damage, have been plowed up. Treatments being applied by airplane in spite of constant strong winds. Most fields became infested during past week; majority of greenbugs small, 2-4 days old. Parasites and predators, except for a few syrphid larvae, absent or very scarce. (Chada). Light infestation on wheat in Yoakum, Terry and Gaines Counties. (Whitaker). OKLAHOMA - The heavy populations which were killing plants in fields of small grain in south central area are now materially reduced, apparently as a result of effects by parasites, predators and climatic conditions. Populations also reduced along South Canadian River in Cleveland County. (VanCleave, Pennington, Vinson). Counts 20, 300 and and 600 per linear foot in 3 fields checked in Bryan County. (Vinson). Counts averaged less than 10 per linear foot in infested small grain fields in central

and north central counties. (Owens). None noted in Noble County and populations substantially reduced in fields along Cimarron River in Payne County. (Stiles, Wood). KANSAS - Found in 44 percent of wheat, oat, barley and rye fields examined in southeastern area. Counts ranged from 0 to less than 1 per linear foot. (Peters). COLORADO - None found in southeastern area. (Colo. Ins. Sur., Apr. 19).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Heavy infestations developing in barley, but damage not apparent. No parasites or predators observed. (Chada). OKLAHOMA - Populations decreasing in Tillman and Jefferson Counties; however, counts continued to average several hundred per linear foot in one barley field in Jefferson County. (VanCleave, Pennington, Hatfield, Vinson). Light in 2 fields checked in Kiowa and Comanche Counties. (Hatfield).

ENGLISH GRAIN APHID (Macrosiphum granarium) - DELAWARE - Colonies present in all cover crops, with a very slight increase in numbers. The highest count was 10 per sweep in one field in Kent County. (Burbutis, Mason). KANSAS - Found in one wheat field in Cherokee County; counts less than 1 per foot. (Peters).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Counts averaged less than 5 per linear foot in 6 fields and none noted in 4 other fields surveyed in Blaine, Kingfisher, Major and Garfield Counties. (Owens).

BARLEY APHIDS - OREGON - Early spring planted barley has reached third leaf stage and is free of aphid vectors of barley yellow dwarf virus in Benton County. This is in contrast to 1958-59 seasons when barley was infested immediately upon emergence. On suitable land, barley was planted earlier this season and overwintering aphid populations on winter cereals were noted to decline sharply during March. (Dickason).

FALSE CHINCH BUGS (Nysius spp.) - ARIZONA - Light to medium infestations migrating into grain fields in central and southeastern areas. Counts in Graham County barley average 3-5 per 10 sweeps. (Ariz. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - TEXAS - Light to medium infestations, with some damage noted in Dallam, Moore, Hutchinson, Hansford, Ochiltree, Lipscomb, Hemphill, Wheeler, Gray, Carson and Potter Counties. (Russell, Preston, Hawkins). COLORADO - Counts 5-15 per linear foot in wheat near Briggsdale, Weld County. Populations in eastern and southeastern counties scattered, 0-3 per linear foot. (Colo. Ins. Sur., Apr. 19).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Survey in southwestern area shows planted wheat to be almost free of this mite. No serious damage from wheat streak mosaic is predicted for this area. In extreme southwestern area, considerable number of large areas of volunteer wheat are heavily infested with wheat curl mite and are badly diseased with wheat streak mosaic. Many fields in area now in process of being plowed up and it is very likely that these mites will be destroyed before they have a chance to move to other fields. (Somsen).

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - Pupation of overwintering larvae noticeably increased; approximately 48 percent in Sussex County, 28 percent in Kent County and 16 percent in New Castle County. (Burbutis, Mason). MARYLAND - Pupation well along on Eastern Shore; 60 percent in Worcester County, 35 in Queen Annes County. (U. Md., Ent. Dept.). ILLINOIS - Of borers found in dissection of corn stalks, 68 percent were alive. A normal situation, except that larvae were apparently more readily found this spring than for previous 2 or 3 years. (Ill. Ins. Rpt.). MINNESOTA - Overwintering mortality survey completed. The results by districts are as follows: Southwest - 39 percent; south central - 33 percent; southeast - 28 percent; west central - 51 percent; central - 54 percent. The State average was 41 percent mortality. The State average is the highest in the last 7 years. Previous percent mortality by years was as follows: 1959 - 27; 1958 - 26; 1957 - 18; 1956 - 23; 1955 - 19; and 1954 - 25. (Minn. Ins. Rpt.)

SOUTH DAKOTA - The number of live, overwintering larvae found at various stops in 6 counties from the first 10 larvae examined (except in Minnehaha County where 30 larvae were examined) at each stop was as follows: Minnehaha - 4; Turner (stop #1) - 6; Turner (stop #2) - 5; McCook (stop #1) - 3; McCook (stop #2) - 3; Kingsbury (stop #1) - 4; Kingsbury (stop #2) - 4; Deuel - 6; Brookings - 3. (Mast). KANSAS - Results of overwintering mortality survey in Jefferson County on April 11-14 are as follows: Average number of borers per acre in spring of 1960 was 2,052 compared with 8,343 per acre in the fall of 1959; or a percent reduction of 75.5 which includes injury by mechanical pickers plus winter mortality. The percent mortality compared with previous years was as follows: 1955-56, 76.8; 1956-57, 82.3; 1957-58, 85.7; 1958-59, 48.5; 1959-60, 75.5. The five-year average was 73.7 percent mortality. (Burkhardt, Buckley, Peters).

CORN EARWORM (Heliothis zea) - LOUISIANA - Larvae ranged 8-21 per 50 sweeps (averaged 14) in white clover fields in Acadia Parish. (Spink). TEXAS - Heavy in flax in Refugio County. (Greer). ARIZONA - Counts average 3 per 10 sweeps in Yuma County heading wheat. Also infesting 75-80 percent of corn stalks as a pestworm. (Ariz. Coop. Sur.). CALIFORNIA - Medium infestation on sweet corn in Westmoreland area, Imperial County. (Cal. Coop. Rpt.).

SORGHUM WEBWORM (Celama sorghiella) - KANSAS - An overwintering cage was checked in Crawford County. Approximately 100 infested heads of grain sorghum were put in a screen cage measuring 1 ft. by 4 $\frac{1}{2}$ ft. in the fall of 1959. Examination showed 3 live larvae and about 25 dead larvae present. (Buckley, Peters).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Average of 6 egg masses per acre found at 101 survey stations, all located in fields of ratoon sugarcane. (Spink).

A SAWFLY (Dolerus wanda) - ILLINOIS - Collected for first time in State at Saybrood, McLean County. Det. H. H. Ross. (Ill. Ins. Rpt.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ILLINOIS - In field of oats and field of wheat, counts were 6 and 12 adults, respectively, in Jersey County. (Ill. Ins. Rpt.). TEXAS - Averaging about 2 per corn whorl in corn about 3 inches tall; also in early sorghum. Damage not yet apparent; some treatment underway. (Chada).

A WEEVIL (Anacetrinus deplanatus) - TEXAS - Occurring in grain sorghum in McLennan County. (Randolph).

WIREWORMS - IDAHO - Larvae of unspecified species, in association with Chorizagrotis auxiliaris, causing damage to dryland barley in Bingham County. (Weston). WYOMING - Averaged less than one per square foot in 10 samples in each of 12 wheat fields in Platte, Goshen and Laramie Counties. (Fullerton).

A BILLBUG (Calendra sp.) - GEORGIA - Light infestations on corn in Colquitt, Brooks and Pierce Counties. (Johnson).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - DELAWARE - Adults found in alfalfa in Kent and Sussex Counties, first report of season. (Burbutis, Mason). ILLINOIS - First adult of season found in alfalfa in extreme southern area of State. (Ill. Ins. Rpt.). TEXAS - Damaging seedling corn in Brazos County. (Randolph).

A THRIPS (Frankliniella occidentalis) - NEW MEXICO - Very abundant on alfalfa and barley. Damage very evident. (N. M. Coop. Rpt.).

PEA APHID (Macrosiphum pisi) - DELAWARE - Populations generally increased, averaging 30 per sweep in New Castle and Kent Counties and 45 per sweep in Sussex County. (Burbutis, Mason). MARYLAND - Increasing on alfalfa in all sections, with several fields in eastern and southern sections showing over 100 per sweep. (U. Md., Ent. Dept.). ILLINOIS - In extreme southern area,

population varied from 20-20,000 per 100 sweeps (averaging 8,755) in clover and alfalfa. Population very low in other areas. (Ill. Ins. Rpt.) MISSOURI - Building up in southern half of State. Counts in southwest ranged from 4 to as high as 100 per sweep in some fields. Counts on the southeast experiment station farm at Sikeston ran as high as 592 per sweep. (Harrendorf). ARKANSAS - Infestations increased in northwest; counts 1,000 per 25 sweeps of a 5-inch net quite common. (Boyer). TEXAS - Infestations average about 600 per square foot in alfalfa in northern area. Parasites and predators very scarce. Treatments underway. Infestations average 5 per sweep in vetch in Comanche County (Hawkins), 2 per sweep in Hutchinson County on alfalfa (Russell, Preston, Hawkins) and 5-25 per sweep in alfalfa and vetch in Brazos and Kaufman Counties (Randolph). OKLAHOMA - Medium to heavy, up to 1,000 plus per sweep in some fields, in alfalfa, clover and other legumes in south central and central areas. Some chemical controls applied. (VanCleave, Pennington, Hatfield, Vinson). Counts 50-100 per square foot in fields in Stillwater area and 50-75 per square foot in fields checked in Muskogee County. (James). KANSAS - Found in all alfalfa fields examined in southeastern area. Counts ranged 5-300 per sweep. Light deposits of honeydew observed in 2 alfalfa fields in Montgomery County. Plant height over area varied from 8 to 12 inches. Adults comprised from 5-50 percent of total population for the area, with an average of 15 percent. Percentage of winged adults present varied 10-50 percent, with an average of about 20 percent. (Peters). WYOMING - Small numbers appearing in alfalfa fields in Platte and Goshen Counties; 5 per 25 sweeps. (Fullerton). COLORADO - Counts 2 per 100 sweeps in alfalfa in Larimer and Weld Counties. (Colo. Ins. Sur.). NEW MEXICO - Light infestations in alfalfa in Dona Ana County. Populations building up in Bernalillo County. Heavy spotted infestations damaging alfalfa in Valencia County; large amount of honeydew on plants. (N. M. Coop. Rpt.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - NEW MEXICO - Very light in Dona Ana County alfalfa and building up in Chaves and Eddy Counties. (N. M. Coop. Rpt.). TEXAS - Heavy infestations attacking alfalfa in Bailey County. Over 75 per leaf per plant, including other aphids. (Hatchett). Decreasing numbers on alfalfa in Brazos County due to predators. (Randolph). Very heavy infestations in alfalfa in northern area, with damage severe. Parasites and predators scarce. Treatments being applied. (Chada). Infestations average 1 per 10 sweeps on alfalfa in Hutchinson, Castro and Swisher Counties. (Russell, Preston, Hawkins). OKLAHOMA - Heavy, up to 1,000 plus per sweep, common in alfalfa checked in Tillman County; chemical controls underway. Medium to light in alfalfa in south central area. (VanCleave, Pennington, Hatfield, Vinson). Light in alfalfa fields checked in Payne, Noble and Garfield Counties (Owens, Stiles); and averaged 5-15 per square foot in alfalfa checked in Stillwater area and 10-15 per square foot in Muskogee County (James). KANSAS - Found only on alfalfa on one roadside embankment in Crawford County and one roadside embankment and one field in Chautauqua County; counts averaged less than one per sweep. (Peters). COLORADO - None observed in southeastern area. (Colo. Ins. Sur., Apr. 19).

APHIDS (undetermined) - TEXAS - Medium infestation in alfalfa in Yoakum County. (Whitaker). Heavy infestations in alfalfa in Bailey County. Stalk and underside of leaves completely covered with aphids. Visible damage readily seen. (Hatchett). Very light infestations in grain sorghum in Bee and Live Oak Counties. (Edgar).

MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) - MARYLAND - Small nymphs becoming conspicuous on red clover in Queen Annes County; also noted on alfalfa in Prince Georges County. (U. Md., Ent. Dept.). ILLINOIS - First hatch observed as far north as Effingham. (Ill. Ins. Rpt.). OREGON - Hatching began first week of April in Willamette Valley, but persistent rain and cool temperatures slowed development. (Rosenstiel).

LYGUS BUGS (*Lygus* spp.) - WYOMING - Populations increasing in southeastern area alfalfa fields. Average counts per 100 sweeps at various locations were 3 at Wheatland, 4 at Lingle, 5 at Torrington and 3 at Pine Bluffs. (Fullerton).

UTAH - Numerous in Davis County alfalfa fields. (Knowlton). COLORADO - Lygus sp. ranged 10-30 per 100 sweeps in alfalfa and tansymustard in southeastern area. (Colo. Ins. Sur., Apr. 19). MISSOURI - Counts of L. lineolaris ranged 1-7 per 10 sweeps on alfalfa in southwest. (Munson, Thomas, Kyd). ILLINOIS - L. lineolaris averaged 47 per 100 sweeps in alfalfa and clover in southern half of State. (Ill. Ins. Rpt.). DELAWARE - L. lineolaris adults averaged 3 per 10 sweeps in alfalfa in New Castle and Kent Counties. (Burbutis, Mason).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - DELAWARE - Adults present in clover and alfalfa fields throughout State. (Burbutis, Mason).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - Adults active in alfalfa throughout the State, averaging 3 per 10 sweeps. Newly laid eggs found in Sussex County. Larval development variable, with first instars predominating in New Castle and Kent Counties and second instars most common in Sussex County. A few third instars present in Sussex County. Larval populations rapidly increasing, with 7-8 first-instar larvae per stem in one field in New Castle County and an average of 7 of the more mature larvae per 10 sweeps plus 4-5 younger larvae per stem in Sussex County. (Burbutis, Mason). MARYLAND - Adults active in all sections, averaging 1-5 per 10 sweeps. Larvae averaged 1-3 per sweep on alfalfa in eastern and southern sections, with light injury noted in Queen Annes County. (U. Md., Ent. Dept.). GEORGIA - Infesting alfalfa in Oconee County; 45 per sweep. Treated field in Oconee County had less than one larva per bud. (Johnson). Light to heavy infestations on alfalfa in Polk, Cherokee, Troup, Gordon and Jasper Counties. (Stowe, Moore, Evans, Gunnels, Yearwood). COLORADO - No larvae observed in southeastern area. (Colo. Ins. Sur., Apr. 19). No larvae found, eggs 20-30 per 100 sweeps in alfalfa in Larimer and Weld Counties. (Colo. Ins. Sur.). WYOMING - Adults averaged 1 per square foot in 5 one-square-foot samples taken in each of 10 fields in Goshen and Platte Counties. (Fullerton). UTAH - Adults active in Davis County. (Knowlton).

CLOVER LEAF WEEVIL (Hypera punctata) - MARYLAND - Moderate larval injury observed on red clover in Queen Annes County. (U. Md., Ent. Dept.). ILLINOIS - Larval counts per square foot in clover and alfalfa fields averaged 8 in northeast, 0.7 in northwest, 14 in central, 21 in west-southwest, 16 in east-southeast, 18 in southwest, and 19 in southeast. Damage has not been sufficient to be alarming, but weather conditions to May 2 will determine importance of populations. (Ill. Ins. Rpt.). MISSOURI - Leaf feeding is evident in some fields of red clover in southwest. Counts on alfalfa and red clover ranged 0-6 first instar to three-fourths grown larvae per crown. (Munson, Thomas, Kyd). ARKANSAS - Six larvae taken in 25 sweeps of a 5-inch net in field of alfalfa in Washington County. None taken in other fields. (Boyer). KANSAS - Larvae collected in Cherokee, Labette, Cowley and Butler Counties; counts less than one per sweep. (Peters). UTAH - Spotted infestation in an alfalfa field southwest of Salt Lake City. (Knowlton).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - DELAWARE - Adults present in most alfalfa fields throughout State. (Burbutis, Mason).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - CALIFORNIA - Light adult infestations on alfalfa in Corona area, Riverside County. (Cal. Coop. Rpt.). ARIZONA - Light infestations continue in Yuma County alfalfa. Some fields in Pima County reported infested in March. This may be a new record for Pima County. (Ariz. Coop. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidula) - MARYLAND - Adults averaged 16 per 100 sweeps on red clover in Queen Annes County. (U. Md., Ent. Dept.). DELAWARE - Adults present in New Castle and Kent Counties. (Burbutis, Mason). KANSAS - Adults found in alfalfa fields in Cherokee, Labette, Montgomery and Butler Counties; counts less than one per sweep. (Peters).

VETCH BRUCHID (Bruchus brachialis) - TEXAS - Adults occurring in vetch in Kaufman County. (Randolph).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - COLORADO - Larvae, 0-3 per 100 sweeps, in alfalfa in Larimer and Weld Counties. (Colo. Ins. Sur.).

FRUIT INSECTS

APHIDS - DELAWARE - Aphis pomi present on untreated apple trees in central Kent County and Anuraphis roseus present only on untreated trees in all counties. (Kelsey). MARYLAND - Unspecified species becoming numerous on apples at Hancock. (U. Md., Ent. Dept.). NORTH CAROLINA - Undetermined species began egg hatch on apples in Wilkes County on April 10. (Turnipseed). Eriosoma lanigerum caused 5 percent loss of trees on 10 percent of 10 acres of apples in Iredell County. (Pl. Dis. Clin., Farrier). INDIANA - Eggs hatched April 11 at Vincennes, with chances for some heavy infestation in the area (Cleveland); and began hatching April 8 at Orleans (Marshall). Overwintering populations on apple appear light at Orleans. (Marshall). ILLINOIS - A. pomi difficult to find on apples at Carbondale. (Meyer). COLORADO - Few Myzus persicae colonies found on fruit trees in Mesa County. (Colo. Ins. Sur., Apr. 19). NEW MEXICO - M. persicae light to heavy on peach trees in southern half of State. (N. M. Coop. Rpt.). UTAH - Generally scarce in commercial orchards in Davis and Weber Counties. (Davis).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Egg laying has been heavy April 14 and 15 in Columbia County; eggs lemon to orange colored by April 18 in Orleans County; active and flying April 16 in Wayne County; and many observed on April 14 in Oswego County. (N. Y. Wkly. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - INDIANA - Twelve were jarred from 5 trees on April 18 at Vincennes. (Cleveland). NEW YORK - Observed on cherry trees April 12 in Orange County. (N. Y. Wkly. Rpt.).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Light infestations on pear and plum in Raymon, Madera County, and light on peach in Squaw Valley, Fresno County. (Cal. Coop. Rpt.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - ILLINOIS - Egg masses hatching in Carbondale area. (Meyer). INDIANA - Adults observed at Linton on April 12 and first egg mass of season found at Vincennes April 14. (Cleveland). DELAWARE - Adults emerged in all three counties, with fresh egg masses noted in most areas. (Kelsey).

CODLING MOTH (Carpocapsa pomonella) - INDIANA - First pupation noted April 18 at Vincennes. (Cleveland). UTAH - In pupal stage at Roy. (Davis).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MARYLAND - Hatching on apple trees at Hancock on April 21. (U. Md., Ent. Dept.).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - IDAHO - Larvae infesting flower buds of back-yard prune trees at Lewiston. (Portman).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - GEORGIA - First-generation larvae appearing at Fort Valley. A larva about one week old found in a peach orchard at Fort Valley on April 18. (Snapp).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Present in some Weber County peach orchards. (Knowlton). COLORADO - Found first time this season at Austin, Delta County, on April 8. In Mesa County, populations abundant in neglected orchards. (Colo. Ins. Sur., Apr. 19).

PLUM CURCULIO (Conotrachelus nenuphar) - ILLINOIS - First adult of season found April 19 at Carbondale. (Chandler). GEORGIA - Adults continue to leave hibernation in numbers at Fort Valley. As many as an average of 2.5 adults per tree caught in a commercial peach orchard on April 15. Eggs found in peaches in orchards on April 20. (Snapp).

A THRIPS (Frankliniella occidentalis) - NEW MEXICO - Becoming extremely abundant on apple foliage at Mesilla Park, Dona Ana County. (N. M. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Eggs hatching at Vincennes on April 18. (Cleveland). ILLINOIS - Eggs hatching April 19 at Carbondale. (Meyer).

ORCHARD MITES - COLORADO - Bryobia rubrioculus and Tetranychus telarius eggs hatching in fruit orchards in Montrose County. (Colo. Ins. Sur. Apr. 19).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Heavy (30 percent of shoots infested) in a grove of native pecans in Love County and light (1 percent of shoots infested) in a native pecan grove in Garvin County. (VanCleave, Pennington, Vinson). GEORGIA - Moderate to heavy infestations on pecan trees in Lowndes, Ware, Pierce, Wayne, Tattnall, Evans and Bulloch Counties. (Johnson).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - Activities during March confined to trapping and visual inspection in Baja California and northwest Sonora. In the Tijuana district, trap catches heavy in latter part of March, with house flies predominating. In the two States, 2,183 traps were in use on 983 properties and 9,408 inspections were made, with negative results. In Tijuana, visual inspections on 11 properties were also negative. (PPC, Mex. Reg., Mar. Rpt.). TEXAS - During March, 1,564 traps were in operation in Brooks, Cameron, Dimmit, Frio, Hidalgo, Jim Wells, La Salle, Starr, Webb, Willacy and Zavala Counties. A total of 7,105 trap inspections were made and 75 adults were trapped at the following locations: 6 in Cameron County; 53 in Hidalgo County; 15 in Starr County; and 1 in Willacy County. Other counties trapped were negative. Other Anastrepha trapped included 18 A. spatulata and 1 A. fraterculus. (PPC, So. Reg., Mar. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - The 1960 survey period began on March 7 in Hidalgo and Cameron Counties. All inspections negative. (PPC, So. Reg., Mar. Rpt.). MEXICO - In chemical control and free zones of States of Tamaulipas, Nuevo Leon, Sonora and Baja California, surveys conducted on 1,525 properties with 183,959 citrus trees. Of the total trees inspected, 49,826 were nursery stock. On 45 properties, 461 trees found infested as follows: 30 properties with 358 trees at Allende, Nuevo Leon; 5 properties with 31 trees at Linares, Nuevo Leon; and 10 properties with 72 trees at 8 locations between Oyama, Tamaulipas, and the Nuevo Leon State line. Infestations varied from light to a few heavy at Allende. Inspections in Matamoros, Tamaulipas, and Gral. Teran, Nuevo Leon, zones continued negative. The 387 trees sprayed at Hermosillo, Sonora, in February were inspected and found free of infestations. Inspection at Tijuana, Baja California, continues negative. Spraying continues at Allende, but has been discontinued at Linares until after bloom period; however, infested leaves at Linares were removed and burned. (PPC, Mex. Reg., Mar. Rpt.).

CITRICOLA SCALE (Coccus pseudomagnoliarum) - ARIZONA - Some areas of 3 citrus groves northwest of Phoenix in Maricopa County have medium to heavy infestations. (Ariz. Coop. Sur.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Untreated citrus groves in Yuma and Maricopa Counties heavily infested, but in general treatments have been highly successful. (Ariz. Coop. Sur.).

A BLASTOBASID (Holcocera iceryaeella) - CALIFORNIA - Medium larval infestation in navel orange fruits in San Luis Obispo. San Luis Obispo County. (Cal. Coop. Rpt.).

A CUTWORM (Xylomyges curialis) - CALIFORNIA - Light larval infestation on citrus leaves in Glendora, Los Angeles County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

BEEF LEAFHOPPER (Circulifer tenellus) - KANSAS - Survey was conducted April 12-13 in 13 southwestern counties. A total of 272 samples were examined at 26 stops. Four nymphs of what might have been this species were found at four of the stops. All other stops were negative. Host plants surveyed were tansymustard, patata and kockia which varied from sparse to dense in stand and were in fair to good condition throughout the area surveyed. Weather conditions during the survey were partly cloudy to cloudy, cold and breezy. (Fitchett, DePew). COLORADO - None found in sweepings of tansymustard in southeastern area. (Colo. Ins. Sur. Apr. 19). IDAHO - Studies of breeding areas that contribute to spring migrant beet leafhoppers to Magic Valley were made during March and April and have shown that in most desert areas host plants are less abundant than in 1959. The exception is the south Saylor Creek area where host plants are more abundant than during recent years, averaging over 60 per 100 square feet over a large acreage. Many desert areas are dry and host plants sparse and mixed with non-host grasses. In the desert and range breeding areas, populations averaged 19 per 100 square feet compared with 17 in 1959, 16 in 1958 and 65 in 1957. In nonirrigated waste patches such as corrals, potato pits, high spots and larva outcrops adjacent to and within cultivated areas, host plants in good condition for producing a large spring generation. Such patches should be treated. Current indications are that the number of spring-generation beet leafhoppers that will move from spring breeding areas of southern Idaho into cultivated districts of southwestern area and Magic Valley will be lighter than in 1957 but slightly higher than in 1959. This movement, with normal weather conditions, will start in late May. (Portman).

LYGUS BUGS (Lygus spp.) - WASHINGTON - Hibernating adults severely damaging sugar beets in Yakima Valley; 1,000 acres have been treated, with a few fields needing replanting. (Landis).

LEAFHOPPERS - NEW MEXICO - Unspecified species heavy in lettuce fields near Hatch, Dona Ana County. (N. M. Coop. Rpt.). ARIZONA - Empoasca spp. very abundant on Yuma County cucumbers. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Occasional, light infestations in southern Dona Ana County lettuce fields; several moderate infestations in lettuce fields in Hatch area of Dona Ana County. (N. M. Coop. Rpt.). ARIZONA - Egg counts on Yuma County cantaloup very high, but newly hatched larvae feeding very little and survive only short time. (Ariz. Coop. Sur.)

IMPORTED CABBAGEWORM (Pieris rapae) - GEORGIA - Light to moderate infestations on cabbage in Colquitt and Brooks Counties. (Johnson).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - WASHINGTON - First adults of season taken on wild mustard on April 7 at Mount Vernon. This species has been found the first week of April at the same locality the last 12 years. (Eide).

A THRIPS (Frankliniella occidentalis) - NEW MEXICO - Continues serious in lettuce fields in Dona Ana County. Several treatments necessary for control. Damage severe in number of fields. Continues a problem in many onion fields in Dona Ana and Luna Counties. This pest has been much more numerous this spring than in past several years. (N. M. Coop. Rpt.).

AN APHID (Sappaphis foeniculus) - CALIFORNIA - Light population on celery locally in San Luis Obispo County. (Cal. Coop. Rpt.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light infestations on beans in Colquitt, Brooks and Lowndes Counties. (Johnson).

BEAN LEAF BEETLE (Cerotoma trifurcata) - GEORGIA - Heavy infestations on beans in Colquitt, Brooks and Lowndes Counties. (Johnson).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - None present on Lycium. Lycium leafing out and some shrubs are in prebloom stage in Larimer County. (Colo. Ins. Sur.).

POTATO APHID (Macrosiphum solanifolii) - DELAWARE - Stem mothers and few nymphs present on roses in Sussex County. (Burbutis, Mason).

GARDEN WEBWORM (Loxostege similalis) - TEXAS - This species and undetermined armyworms feeding on onion leaves in onion-growing areas. (Deer).

ONION THRIPS (Thrips tabaci) - TEXAS - Light, widespread infestation reported in Bee and Live Oak Counties; averaging one per 10 plants. Heaviest found, 1.42 per plant. (Edgar).

SQUASH BUG (Anasa tristis) - ARIZONA - Medium infestations in Yuma County squash. (Ariz. Coop. Sur.).

ASPARAGUS BEETLE (Crioceris asparagi) - MARYLAND - Eggs being laid on asparagus at Brinklow, Montgomery County, on April 22. (U. Md., Ent. Dept.).

SPIDER MITES - MARYLAND - Averaged about 10 per leaf on strawberries at Salisbury, Wicomico County. (U. Md., Ent. Dept.). ARIZONA - Tetranychus cinnabarinus light along edges of some Yuma County cantaloup fields, especially where they border alfalfa. (Ariz. Coop. Sur.).

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) - OREGON - Infestations appearing in 2 Silverton hill plantings, with 2 percent and 10 percent of plants infested April 16. In Multnomah County on April 21, 2 strawberry fields were found 5 percent and 25 percent infested (fourth year bearing). (Rosenstiel).

ROOT WEEVILS (Brachyrhinus spp.) - OREGON - Observed in Silverton and Gresham (fourth year bearing) strawberry plantings. These were soil treated fields. (Rosenstiel).

OMNIVOROUS LEAF TIER (Cnephasia longana) - CALIFORNIA - Heavy larval populations on strawberries in Gonzales, Monterey County. (Cal. Coop. Rpt.).

A LEAF ROLLER (Clepsis peritana) - CALIFORNIA - Heavy adult populations on strawberry plants in Ceres, Stanislaus County. (Cal. Coop. Rpt.).

GRANULATE CUTWORM (Feltia subterranea) - CALIFORNIA - Medium infestation on strawberry in Grover City, San Luis Obispo County. (Cal. Coop. Rpt.).

FOXGLOVE APHID (Myzus solani) - WASHINGTON - Overwintering on strawberries and relatively abundant in Snohomish, Skagit and Whatcom Counties. (Eide).

TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light to heavy infestations on tobacco in the field in Tift, Berrien, Cook, Colquitt, Brooks, Lowndes, Ware, Pierce, Tattnall and Bullock Counties. (Johnson).

BUDWORMS (Heliothis spp.) - GEORGIA - Light infestation on tobacco in the field in Ware County. (Boland). Eggs observed in most fields of tobacco surveyed in 10 counties. (Johnson).

GREEN JUNE BEETLE (Cotinis nitida) - MARYLAND - Uprooting plants in a tobacco plant bed at La Plata, Charles County. (U. Md., Ent. Dept.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Newly emerged adults noted in small numbers on tobacco plants in plant beds in Calvert and Prince Georges Counties. (U. Md., Ent. Dept.). GEORGIA - Moderate to heavy infestations on tobacco in the field in 10 counties. (Johnson).

A WIREWORM - GEORGIA - Heavy infestations on tobacco in the field in Berrien and Colquitt Counties. (Johnson).

A SPRINGTAIL (Achorutes armatus) - NORTH CAROLINA - Adults and juveniles on a tobacco plant bed in Wilson County. (Jones, Farrier).

COTTON INSECTS

THRIPS - GEORGIA - Light to moderate infestations on cotton in Tift, Berrien, Colquitt, Brooks, Pierce, Tattall and Bulloch Counties. (Johnson). TEXAS - Light infestations attacking cotton in Bee and Live Oak Counties. (Edgar). Light in 2 fields checked in Cameron County. (Day, Kachtik). ARIZONA - Counts generally low in seedling cotton statewide; however, few fields now being damaged and requiring treatment. (Ariz. Coop. Sur.). NEW MEXICO - Frankliniella occidentalis building up rapidly on seedling cotton in Mesilla Valley and on cotton just coming up near Deming, Luna County; averaged about 20 per seedling in certain areas of fields checked. (N. M. Coop. Rpt.).

FLEAHOPPERS - TEXAS - Light in Cameron County (Day, Kachtik) and found in cotton fields near Rio Hondo, Brigg-Coleman and eastern Willacy County (Deer).

APHIDS - TEXAS - Generally light on cotton in Live Oak and Bee Counties (Edgar) and in Cameron County (Day, Kachtik). General increase reported in Rio Grande Valley. (Deer).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Egg counts on seedling cotton average about 1 per plant statewide; larval counts in most cases very low. (Ariz. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - First adult of season collected from experimental cage April 12 near New Mexico State University. Emergence during past week: 3 moths, April 19 and 3 moths, April 22. (N. M. Coop. Rpt.).

A CUTWORM - TEXAS - Some damage to cotton reported in Zavala County. (Prucia).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Few adults found in Bee and Live Oak Counties. (Edgar).

SPIDER MITES - TEXAS - Light in cotton fields in Cameron County. (Stephens, Day, Kachtik). Some increases noted in Rio Grande Valley. (Deer).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE ROOT COLLAR WEEVIL (Hylobius radicis) - DELAWARE - Several Austrian and Scotch pines, showing signs of injury, scattered throughout the Wilmington area. Some trees apparently dying from attacks of weevil larvae. First report for State. (Bray).

TUSSOCK MOTHS - NEW YORK - Egg masses very conspicuous on shade trees and some fruit trees. Sycamore trees in some yards have trunks fairly well covered with these egg masses. (N. Y. Wkly. Rpt., Apr. 18).

NANTUCKET PINE MOTH (Rhyacionia frustrana) - OKLAHOMA - Moths emerging in Stillwater area during week of April 11. (Bieberdorf). MISSOURI - Young pines in Henry County with terminals 30-40 percent infested. (Kyd, Thomas, Munson). MARYLAND - Moths emerging from pines at two localities in Howard County. (U. Md., Ent. Dept.).

LARCH CASEBEARER (Coleophora laricella) - WISCONSIN - Larvae migrating to emerging larch needles in Dane County. (Wis. Coop. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - COLORADO - Eggs hatching in Larimer County. (Colo. Ins. Sur.). GEORGIA - Light infestation on oak in Athens. (Lund). LOUISIANA - Infestations statewide especially on sweet gum trees. (Spink).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MARYLAND - Tents common on wild cherry, apple and flowering crabs in eastern, central and southern sections. (U. Md., Ent. Dept.). DELAWARE - Quite noticeable along roadside; on apple, cherry and other trees in Kent and Sussex Counties. (Burbutis, Mason).

TENT CATERPILLARS (Malacosoma spp.) - GEORGIA - Infesting wild cherry in Meriwether County. (Daniels). UTAH - M. fragile conspicuously infesting cottonwood trees along the Virgin River in Washington County. (Dorst, Knowlton).

SPIDER MITES - FLORIDA - Severe infestations on 5-10-year-old pine plantations in Baker, Alachua, Columbia, Suwanee and Union Counties. The mites involved appear to be Tetranychus sp. and Oligonychus sp. (McCowan, Apr. 15).

AN ASH BUG (Neoborus sp., probably illitus) - CALIFORNIA - Heavy infestation of nymphs on ash trees in Academy, Fresno County. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - NORTH DAKOTA - Adult female migration observed at Fargo. (N. D. Ins. Rpt.). KANSAS - Hatching and starting to feed in Manhattan, Riley County. (Gates).

AN ELM FLEA BEETLE (Altica carinata) - NEW YORK - Reported from Rome in Oneida County and Salamanca in Cattaraugus County. Abundant along Routes 20 and 13 in Tompkins, Cortland, Madison, Oneida, Herkimer and Otsego Counties. It is indicated that the species will be present in large numbers over a wide area in the State in 1960. Considerable skeletonizing of foliage anticipated from June through August. (N. Y. Wkly. Rpt., Apr. 18).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Adults becoming active throughout most of State and leaving hibernation. Of concern to a few homeowners in widely scattered areas. (Bieberdorf, Flora).

A MIRID (Psallus sp.) - CALIFORNIA - Heavy populations on shrubs and garden plants in Carmichael, Sacramento County. Heaviest population on spirea in full bloom. These bugs inflict painful bites to residents. (Cal. Coop. Rpt.).

A FUNGUS GNAT (Sciara sp.) - OREGON - Heavily infesting roots of a dogwood nursery planting at Portland. (Larson).

APHIDS - GEORGIA - Heavy aphid infestations on rose, spirea and tulip in Lincoln County. (McGee). DELAWARE - Cinara tujafilina abundant on several plants in northern Kent County, with 10 per linear inch of stem. Sticky black substance very noticeable in spots. (Burbutis, Mason). CALIFORNIA - Heavy adult infestation of Prociphilus fraxini-dipetalae on ash trees in Oroville, Butte County. Medium infestation of Cinara curvipes on pine on a nursery property in El Sobrante, Contra Costa County. (Cal. Coop. Rpt.).

CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) - CALIFORNIA - Medium infestation in Ficus retusa in San Diego, San Diego County. (Cal. Coop. Rpt.).

A SOIL MEALYBUG (Rhizococcus kondonis) - CALIFORNIA - Heavily infesting laurel in Yreka, Siskiyou County. (Cal. Coop. Rpt.).

A SCALE INSECT (Lecanium kunoensis) - CALIFORNIA - A heavy infestation on Pyracantha in Chico, Butte County. This is the first record for Butte County. This species not generally distributed in the State. Previously known on deciduous fruits and walnuts. (Cal. Coop. Rpt.)

INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (Musca autumnalis) - OHIO - First report in 1960. About 8-10 adults per head on Hereford bulls in Wayne County, April 20. None found on these animals the previous two days. (Treece). This is the earliest authentic report of the species in the State. (Holdsworth).

MOSQUITOES - NORTH CAROLINA - Large numbers of Aedes sticticus along Tar River first part of April and now large numbers along Roanoke River following flooding in these areas. (Ashton). SOUTH DAKOTA - Several reports of mosquitoes in Brookings County area. (Mast). COLORADO - Adults of Culex tarsalis observed April 12 at Fort Collins, Larimer County. (Colo. Ins. Sur.). CALIFORNIA - Population of mosquitoes up slightly in all areas, with the northern district showing considerable increase of all species including Culex tarsalis. Few reports from homeowners being annoyed. Mosquitoes not as annoying as this time last year. (Bur. Vect. Cont.). UTAH - Mosquito larvae including Culex, Culiseta and Aedes were found in Salt Lake County. (Davis). Overwintered Culex tarsalis and Culiseta inornata collected, plus an occasional Aedes dorsalis, in pastures in Weber County. A few A. dorsalis, A. increpitus and C. inornata larvae also found. This spring, 400 acres were treated by air and 100 acres by ground equipment in the county. (Fronk, Knowlton).

HORSE FLIES - OKLAHOMA - Light numbers in a herd of 60 beef cows in Pushmataha County. (Goin). Small numbers of Tabanus similis annoying cattle in Pittsburg and Latimer Counties. (Howell).

HORN FLY (Siphona irritans) - OKLAHOMA - Light populations (10 per animal on calves and 50 per animal on cows) in a herd of 220 beef cattle in Johnston County. Counts per animal averaged 25 on calves, 150 on cows and 1,000 on bulls in a herd of 130 beef cattle in Coal County. (Vinson). Counts averaged 60 per animal on 60 head of beef cows in Pushmataha County. (Goin). NEW MEXICO - On cattle in southern counties, with average up to 500 flies per head. (N. M. Coop. Rpt.).

CATTLE GRUBS (Hypoderma spp.) - UTAH - First heel fly annoyance to cattle was noticed this season at Centerville, Davis County. Cattle at nearby Woodscross still "grubby." (Knowlton, Apr. 18).

CATTLE LICE - OKLAHOMA - Unidentified species heavy in a herd of 130 beef cattle in Johnston County. (Vinson).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Light populations (averaged 2 per infested calf with only 10 percent of calves infested and 3 per infested cow with 50 percent of cows infested) in a herd of 220 beef cattle in Johnston County. (Vinson). Counts averaged 4 engorged and 30 unengorged ticks per animal in a herd of 60 beef cows in Pushmataha County. (Goin).

LIVESTOCK PESTS - TEXAS - Unknown species of ticks and lice attacking livestock in Bee, Live Oak and McMullen Counties. Medium to heavy infestation. (Edgar).

A BLOOD-SUCKING CONENOSE (Triatoma protracta) - CALIFORNIA - A medium infestation in a home in Ione, Amador County. (Cal. Coop. Rpt.).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - MEXICO - Surveys were conducted in the States of Baja California, Sonora, Chihuahua, Jalisco, Mexico City, Queretaro, Guanajuato and Michoacan during March, with negative results. (PPC Mex. Reg.) TEXAS - During March, 408 properties were inspected in El Paso County, with negative results. (PPC So. Reg.).

BENEFICIAL INSECTS

A MEGACHILID BEE (Megachile rotundata) - UTAH - Seven female bees were collected by G. E. Bohart and Ross Nielsen at Logan, July 1959. None was found in alfalfa seed fields a few miles distant from the field of collection. This is an European species first collected in the United States near Washington, D. C. in the early 1940's. It is an efficient alfalfa pollinator. First report for Utah. Det. T. B. Mitchell. (Knowlton).

HONEY BEE (Apis mellifera) - GEORGIA - Nosema disease more prevalent in bees than in previous years. (Girardeau). SOUTH DAKOTA - Very active in eastern area. (Mast).

LADY BEETLES - COLORADO - Hippodamia sp. 1-2 per square foot on alfalfa in Otero and Crowley Counties week ending April 19 and 2-4 per 100 sweeps in Larimer and Weld Counties week ending April 22. (Colo. Ins. Sur.). UTAH - Coccinellids, largely Adalia bipunctata, numerous on many fruit trees and ornamental shrubs. (Davis, Knowlton). OKLAHOMA - Hippodamia convergens counts 0.5 to 3 per sweep in alfalfa fields and 0.5 to 4 per linear foot in fields of small grain infested with aphids in the southwest, south central and central areas. (VanCleave, Pennington, Hatfield, Vinson). Counts averaged 0-3 per linear foot in 10 fields of small grain in Blaine, Kingfisher, Garfield and Major Counties. (Owens). Counts averaged 1 per square yard in alfalfa fields in Stillwater area and 2 per square yard in fields in Muskogee County. (James). KANSAS - H. convergens and Coleomegilla maculata fuscilabris present in most alfalfa fields and a few wheat fields in southeast. Adult counts less than 1 per sweep. Few larvae and eggs in same area. (Peters). TEXAS - Lady beetles in fields in Gaines, Yoakum and Terry Counties. (Whitaker). Reported in Bee and Live Oak Counties. (Edgar). MISSOURI - Lady Beetle counts in alfalfa in southeast were 1-2 per 10 sweeps. (Harrendorf). INDIANA - Lady beetles, in addition to predaceous Hemiptera and Hymenoptera, active in the Vincennes area, April 12-18. (Cleveland). WISCONSIN - Adult H. convergens activity noted. (Wis. Coop. Sur.).

HYMENOPTEROUS PARASITES - OKLAHOMA - Heavy populations of Aphidius testaceipes effectively controlled large populations of aphids in fields of small grain along the Red River in the south central area, the South Canadian River in Cleveland County (VanCleave, Pennington, Hatfield, Vinson) and the Cimarron River in Payne County (Wood). This has been the most dramatic example of biological control noted in the State in the past several years. Aphelinus nigritus, introduced into a field heavily infested with aphids near Perkins, Payne County, has become established. This is the first time in the State when such introductions have been successful. (Wood).

LACEWINGS (Chrysopa spp.) - OKLAHOMA - Common, counts in alfalfa up to 1 per sweep and small grain fields up to 0.5 per linear foot in southwest, south central and central areas. (VanCleave, Pennington, Hatfield, Vinson). KANSAS - Counts averaged less than 1 per sweep of adults in several alfalfa fields in southeast. (Peters). UTAH - Occasionally numerous. (Davis, Knowlton).

A FLOWER BUG (Orius insidiosus) - KANSAS - Counts of less than 1 per sweep in alfalfa in Labette and Chautauqua Counties. (Peters).

NABIDS (Nabis spp.) - Up to 0.3 per sweep in alfalfa and up to 0.2 per sweep in small grains in southwest, south central and central areas. (Okla. Coop. Rpt.). KANSAS - Counts averaged less than 1 per sweep of adults in several alfalfa fields in southeast. (Peters).

A GORSE WEEVIL (Apion ulicis) - CALIFORNIA - Heavy population in gorse stands in Marin County. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

HIDE BEETLE (Dermestes maculatus) - CALIFORNIA - Caused severe damage to a chicken house by riddling the timbers. Both pine and redwood lumber riddled. Structures so severely damaged that they were torn down and rebuilt. Damage occurred two miles east of Hickman, Stanislaus County. (Cal. Coop. Rpt.).

TERMITES (Reticulitermes spp.) - OKLAHOMA - Swarming began April 14 in Stillwater area and increased in intensity the following week. (Bieberdorf, VanCleave). DELAWARE - Several new infestations of R. flavipes in homes in New Castle County. (Burbutis, Mason). WASHINGTON - R. hesperus attacking dead bark of Douglas-fir adjacent to buildings found infested. Trees apparently not damaged. Infestation in shipyard at Bremerton. (Buehler).

CLOVER MITE (Bryobia praetiosa) - MARYLAND - Entering homes at numerous localities in central and southern sections. (U. Md., Ent. Dept.). WYOMING - Infesting lawns and homes in Cheyenne, Laramie County, and Laramie, Albany County. (Fullerton). DELAWARE - Continues to invade homes in large numbers in New Castle County. (Burbutis, Mason). UTAH - Troublesome in homes at Salt Lake City, Murray and at Logan in northern area. (Knowlton, Apr. 18).

BLISTER BEETLES (Lytta spp.) - ARIZONA - Large numbers migrating on the desert in parts of Maricopa County. No damage to crops observed. (Ariz. Coop. Sur.)

SPRINGTAILS - KANSAS - Could be picked up by the handful on a sidewalk in Manhattan, Riley County. (Painter, Apr. 15). In several alfalfa fields in south, counts of less than 1 per sweep. (Peters).

BROWN-BANDED ROACH (Supella supellectilium) - WYOMING - Infesting dwellings in Laramie, Albany County. (Fullerton).

COWPEA APHID (Aphis medicaginis) - NEW MEXICO - Very abundant on Russian thistle in Dona Ana County. (N. M. Coop. Rpt.).

CARPENTER BEE (Xylocopa virginica) - DELAWARE - Common in northern New Castle County, attempting to start nests in woodwork. (Burbutis, Mason).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ARKANSAS - Specimens continue to be found in Union County. (Tullos).

A WEST INDIAN ACROBATIC ANT (Crematogaster steinheili Forel), det. M. R. Smith, was found to be unusually numerous by Francisco Sein, former entomologist at the Agr. Expt. Sta., Univ. of Puerto Rico, in his home at Punta Maria, Puerto Rico. According to him, they nested in a hollow cavity in the side wall of a window into which was inserted part of a metal window shade. The ants appeared at night on his kitchen table. When he offered them a choice of sugar, rice cooked in grease and hamburger, they ate the hamburger greedily, the rice next and showed little desire for the sugar. C. steinheili is widely distributed in the West Indies and is a common Puerto Rican ant. It normally nests outdoors in rotting wood, cavities in twigs, under bark, in insect cocoons and between the leaf sheaths of Tillandsia. The workers are noted attendants on honeydew excreting insects and often build sheds over their hosts. It is believed that this is the first time that the species has been reported as a house pest in Puerto Rico. (M. R. Smith).

CORRECTIONS

CEIR 10(15):259 - Second sentence in third paragraph should read "Considerable pea aphid damage was noted to first-cutting alfalfa in the southwest and damage was general to the third cutting in south central and southeastern areas of Idaho."

CEIR 10(15):275 - A MILLIPEDE (Pleurolooma butleri) - Should read "was reported cutting off soybeans at Elnora, Daviess County, Indiana."

ADDITIONAL NOTES

WEST VIRGINIA - On apple in Jefferson County, moths and eggs of RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) easily found, APPLE APHID (Aphis pomi) numbers below average, Bryobia rubrioculus beginning to move about and CODLING MOTH (Carpocapsa pomonella) is principally in larval stages. First and second-instar ALFALFA WEEVIL (Hypera postica) larvae feeding on alfalfa in Jefferson and Berkeley Counties and EASTERN TENT CATERPILLAR (Malacosoma americanum) is heavy on wild cherry and apple in northern and eastern counties. FACE FLY (Musca autumnalis) light on cattle in Greenbrier County and CHIGGERS are reported heavy, locally, on humans in Hampshire and Mineral Counties. (W. Va. Ins. Sur.).

OHIO - MEADOW SPITTLEBUG (Philaenus leucophthalmus) reported hatching April 15 in Pickaway County, which is 5 days later than first reported in 1959. As of April 15, hatch had commenced in counties north to Lake Erie. The lag in commencing of hatch this year between northern and southern areas is only 6 days, whereas in 1959 it was 12 days. (Holdsworth, Blair). A EUROPEAN CORN BORER (Pyrausta nubilalis) survey in Van Wert County showed that an average of 2,264 larvae per acre survived the winter. In the fall of 1959, a similar survey of the same fields indicated 7,305 larvae per acre. The percent survival for the mild 1959-60 winter was 31 which compared with 30.2 for the severe 1958-59 winter (Triplehorn).

NEBRASKA - EUROPEAN CORN BORER surveys indicate that less than 10 percent winter mortality will be found in southeastern crop reporting district. TARNISHED PLANT BUG (Lygus lineolaris) counts ranged 0-3 per sweep in alfalfa in Fillmore, Jefferson, Saline and Thayer Counties. Adults of HACKBERRY NIPPLE GALL (Pachypsylla celtidis-mamma) moderate in several southeastern counties and CLOVER MITES becoming a nuisance in homes in Lincoln area. NABIDS ranged 0-3 per 10 sweeps in alfalfa in southeast. (Simpson).

TEXAS - Additional spot checks for POTATO PSYLLID (Paratrioza cockerelli) on wild host plants were made April 11-13. Counts per 100 sweeps were 13 in Big Spring area on April 11 and 11 in San Angelo area on April 11-13. See CEIR 10(16):294 for information on March 7-22 survey in Texas. (PPC, So. Reg.).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Prod. ornith.	Perid. marg.	Helio. zea	Estig. acrea
ARKANSAS							
Fayetteville 4/14	4	24			18		
Kelso 4/14	2	1			1		
Morrilton 4/14	1	4			2		
FLORIDA							
Gainesville 4/20			5	1			
Homestead 4/12		4	15	9			
Monticello 4/12			1				
Quincy 4/6			1				
ILLINOIS							
Urbana 5/15-21	8						
INDIANA (Counties)							
Lawrence 4/8-18	4	5					
Tiptecanoe 4/6-21	6	2					
KANSAS							
Garden City 4/9-12, 14-16		1		2	10		
Hays 4/8,11,13,15,18		7					
Manhattan 4/15-17		2		1	3		
Mound Valley 4/15-16	5	1			5		
LOUISIANA							
Baton Rouge 4/15-21	6	4	2	6		2	
MISSISSIPPI							
*Stoneville 4/15-21	92	7	3	5	43	2	10
MISSOURI							
Columbia 4/16-22	4	1		5			
Sikeston 4/16-22	4				2		
NEBRASKA							
Lincoln 4/18-23	4	5					
SOUTH CAROLINA							
Charleston 4/18-24	5	4	2	2			1
Clemson 4/16-21	15	13	2	33	1		
TENNESSEE (Counties)							
Blount 4/12-18	3	1		9	2		
Cumberland 4/12-18	9	5		8	3		
Greene 4/12-18	2			16	1		
Johnson 4/12-18	4	1					
Madison 4/12-18	8	1		2	1		
Maury 4/12-18	12	8		4	4		
Monroe 4/12-18	25	6		16	2		
Robertson 4/12-18	4			7			
TEXAS							
Brownsville 4/7-15		13	29			29	11
Waco 4/16-22	11	17	12		21	10	1

* Two traps - Stoneville

Estimates of Damage by the European Corn Borer
to Grain Corn in the United States in 1959

Compiled in Survey and Detection Operations, PPC, ARS

The loss of corn grown for grain utilization from damage attributed to the European corn borer (*Pyrausta nubilalis*) in 1959 is estimated to be 67,763,000 bushels. This loss is approximately 1.7 percent of the total national crop estimated at 3,989,320,000 bushels.^{1/} The value of the crop lost, based on the season average prices received by farmers for corn ^{2/}, is \$71,979,000. These loss estimates are only for the States shown in Table 1 and are based on the counties or districts surveyed during the fall of 1959 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 Agricultural Marketing Service. The basis for the loss estimates was determined by the survey of European corn borer populations during the fall of 1959. ^{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:

1959	67,763,000 bushels	\$ 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
1951	35,812,000 "	57,438,000
1950	58,765,000 "	84,912,000
1949	313,819,000 "	349,635,000

^{1/} Crop Production, 1959 Annual Summary by States, Crop Reporting Board, Agricultural Marketing Service, December 16, 1959.

^{2/} Crop Values, Season Average Prices Received by Farmers and Value of Production-1958 and 1959-by States, Crop Reporting Board, Agricultural Marketing Service, December 16, 1959.

^{3/} Status of the European Corn Borer in 1959. Cooperative Economic Insect Report. Vol. 10, No. 3, pp. 29-38.

Table 1. Estimates of Damage by the European Corn Borer to Corn Grown for Grain Utilization in the United States in 1959.

State	Estimated data					
	: Districts : Total State :		: Value : Value :		: Value :	
	: Included <u>1/</u> :	: Production :	: per :	: of :	: Production:	: Loss of Crop
	Number	1,000 Bu.	Dollars	\$1,000	1,000 Bu.	\$1,000
Delaware	1	8,690	1.22	10,602	1,318	1,608
Illinois	1	655,863	1.08	708,332	10,486	11,325
Indiana	12	325,934	1.04	338,971	6,622	6,887
Iowa	12	803,748	1.03	827,860	15,406	15,868
Kansas	4	73,542	1.04	76,484	748	778
Maryland	3	24,192	1.13	27,337	987	1,115
Minnesota	6	292,850	1.01	295,778	4,331	4,374
Missouri	8	244,475	1.07	261,588	2,854	3,054
Nebraska	8	342,050	1.08	369,414	16,637	17,968
New Jersey	1	9,295	1.26	11,712	688	867
New York	1	12,137	1.20	14,564	10	12
North Dakota	1	8,892	1.04	9,248	76	79
Ohio	1	239,967	1.00	239,967	3,321	3,321
Pennsylvania	1	64,418	1.15	74,081	1,014	1,166
South Dakota	6	58,920	1.04	61,277	1,370	1,425
Virginia	2	31,924	1.24	39,586	532	660
West Virginia	1	6,650	1.31	8,712	58	76
Wisconsin	9	124,916	1.07	133,660	1,305	1,396
Total		3,358,463		3,509,173	67,763	71,979

1/ Status of the European Corn Borer in 1959. Cooperative Economic Insect Report. Vol. 10, No. 3, pp. 29-38.

Summary of Insect Conditions in the Yaqui Valley, Sonora, Mexico

1959

Prepared by J. A. Sifuentes
and W. R. Young

The Yaqui Valley is located near Ciudad Obregon in the State of Sonora about 275 miles north of the Tropic of Cancer and 350 miles south of Nogales, Arizona. In this irrigated Valley of 230,000 hectares, the chief crops at present are wheat and cotton, although further diversification is taking place. The hot, dry climate (average annual rainfall, 8 inches; average temperatures, maximum 110° F., mean 80° F., minimum 32° F.)^{1/} and the insect problems are similar to those in some additional 770,000 hectares of irrigated agricultural land in the river valleys of northwestern Mexico and certain areas of southwestern United States.

Cereal and Forage Insects: ENGLISH GRAIN APHID (Macrosiphum granarium) (Det. L. M. Russell) was present in wheat from February through April. Populations reached a level of 250-300 per head, reducing yields especially in the late plantings. A MEDITERRANEAN GRAIN APHID (Rhopalosiphum rufi abdominalis (= Splendens)^{2/} was found on wheat roots and crowns during late December 1958 and January 1959 in numbers up to 30-40 per plant. In some fields sampled, 75 percent of the plants were infested. Reductions in final yield caused by this aphid are thought to be slight. SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) (Det. H. W. Capps) infested both spring and fall plantings of corn and caused serious lodging during July in some fields. A THRIPS (Frankliniella occidentalis) (Det. S. F. Bailey) caused damage to young corn plants in March plantings where populations reached 150 thrips per plant, and FALL ARMYWORM (Laphygma frugiperda) (Det. E. L. Todd) infested practically 100 percent of the plants in these same plantings. A FLEA BEETLE (Chaetocnema sp.) (Det. G. B. Vogt) also was a problem on spring-planted corn where populations of 8-16 per small plant were common. A THRIPS (Hercotrips phaseoli) (Det. S. F. Bailey) caused serious foliage damage to soybeans late in June and in July, when populations reached 240 nymphs per leaf. It is estimated that yields were reduced 25 percent in some fields. This same thrips caused severe damage in alfalfa from August through October when it was common to find up to 30 adults and 40 nymphs per trifoliolate leaf. Yield reductions were estimated to be about 20 percent. SALT-MARSH CATERPILLAR (Estigmene acrea) (Det. W. D. Field) defoliated soybeans during late August and September, also reducing yields. CORN LEAF APHID (Rhopalosiphum maidis) (Det. L. M. Russell) infested barley from November through April, with populations reaching a maximum of 60-65 aphids per plant stem in young plants during January. This same insect was present in small numbers on sorghum during November. A STALK BORER (Chilo loftini) (Det. H. W. Capps) attacked both sorghum and rice. In second-cutting sorghum it was common to find up to 7 larvae per stalk in November. April and May rice plantings were affected by this insect during September. SPOTTED ALFALFA APHID (Therioaphis maculata) (Det. L. M. Russell) caused severe damage in alfalfa during March and April, reducing yields up to 50-60 percent. Further damage, though less severe, occurred during June and August. A SEED CHALCID infested up to 70 percent of alfalfa seed pods during June.

Cotton Insects: THRIPS (Frankliniella occidentalis and Hercotrips phaseoli) (Det. S. F. Bailey) were present in large numbers during June, when it was common to find 135-140 adults and nymphs of the former species per flower, and 40-50 adults plus 200-250 nymphs of the latter per leaf. BOLLWORMS (Heliothis zea and H. virescens) (Det. E. L. Todd) reached infestation levels of up to 50 percent of

^{1/} Contreras Arias, A., 1942. Mapa de la Provincias climatologicas de la Republica Mexicana. Secretaria de Agricultura y Fomento. Instituto Geografico.

^{2/} Determined as R. splendens by R. C. Dickson.

bolts in some fields sampled during May. A BOLL WEEVIL (Anthonomus sp.) (Det. R. E. Warner) infested up to 30 percent of squares in some fields during May. CABBAGE LOOPER (Trichoplusia ni) (Det. E. L. Todd) infested up to 20 percent of leaves examined during May and June. Insecticides were applied in the Valley for the control of the above cotton insects. A COTTON STAINER (Dysdercus maurus) (Det. P. D. Ashlock), COTTON LEAF PERFORATOR (Bucculatrix thurberiella) (Det. J. F. G. Clark), and a FLEAHOPPER were of minor importance.

Vegetable Insects: ONION THRIPS (Thrips tabaci) (Det. S. F. Bailey) was present on onions from April through June, with population levels reaching 160-170 thrips per plant. A THRIPS (Hercothrips phaseoli) (Det. K. O'Neill) and PEA APHID (Macrosiphum pisi) (Det. L. M. Russell) were present on winter plantings of peas and caused foliage damage from late December through January. CABBAGE LOOPER (Trichoplusia ni) (Det. E. L. Todd) was present in cabbage and broccoli from January through June. A LEAF MINER (unidentified) was of importance on the foliage of small melon plants during January and February. A FLEA BEETLE (Epitrix sp.) (Det. D. M. Weisman) caused serious foliage damage to tomatoes during October and November.

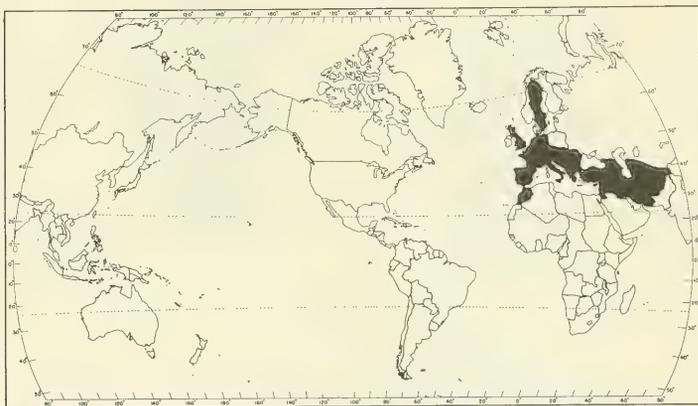
Beneficial Insects: In a survey of the native natural enemies of the more important pests, the following parasites were observed: BRACONIDS (Chelonus sonorensis) (Det. C. F. W. Muesebeck) reared from both Zeadiatraea grandiosella and Chilo loftini, and Aphidius testaceipes (Det. C. F. W. Muesebeck) from Rhopalosiphum maidis; a PTEROMALID (Heterolaccus grandis) (Det. B. D. Burks) from Anthonomus sp.; an ENCYRTID (Copidosoma truncatellum) (Det. B. D. Burks) from Trichoplusia ni; an EULOPHID (Euplectrus plathypenae) (Det. B. D. Burks) from Laphygma frugiperda; and a TACHINID (Euclatoria (n. sp.??)) (Det. C. W. Sabrosky) from Heliothis zea. Predators observed mainly in cotton, alfalfa and wheat fields were the following: COCCINELLIDS (Cycloneda sanguinea, Hippodamia convergens and Coleomegilla maculata) (Det. E. A. Chapin); NABIDS (Nabis capsiformis, N. roseipennis and N. ferus) (Det. P. D. Ashlock); REDUVIIDS (Zelus laevicollis, Sinea confusa) (Det. P. D. Ashlock); a MALACHIID (Collops femoratus) (Det. M. Y. Marshall); LYGAEIDS (Geocoris punctipes and G. near pallens) (Det. P. D. Ashlock); and several species of syrphid flies.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

PEAR LACE BUG (Stephanitis pyri (F.))

Economic Importance: This tingid causes significant damage to foliage of deciduous fruits, particularly pear and apple, in wide areas of Europe and Asia. Heavy attacks may cause defoliation leading to complete loss of crop. Such infestations are reported from France and Cyprus. Infestations were heavy in Iran in 1959 on apple and pears, causing chlorosis of leaves on untreated trees.

Distribution: Generally recorded in Europe. Also recorded in Afghanistan, Cyprus, Iraq, Iran, Israel, Jordan, Lebanon, Morocco, Turkey, United Arab Republic (Syria) and USSR (Turkestan, Caucasus, Siberia).

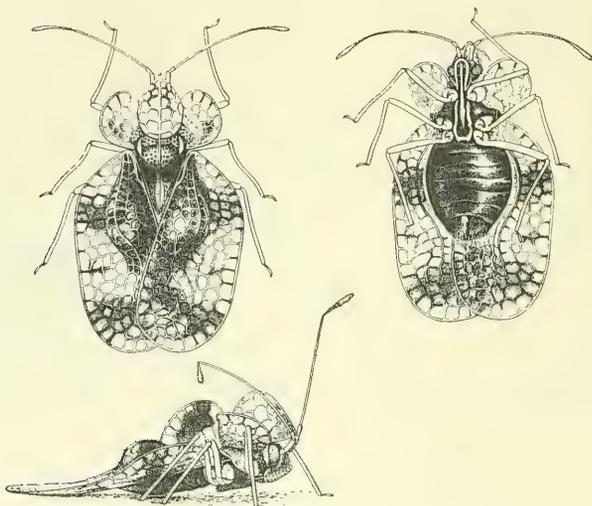


General Distribution of Stephanitis pyri

Hosts: Many deciduous fruits, including pear, apple, peach, apricot, cherry, quince, and currant. Also reported on rose, hawthorn, chestnut, walnut, and oak.

Life History and Habits: Under conditions in France, the insect hibernates as an adult in debris, in the soil, in crevices or other such shelters. Adults become active in May and copulate on leaves. The eggs are implanted in the lower surface of the leaves. The female covers each egg with a drop of excrement forming a little groove. Eggs are generally placed singly but punctures may be so numerous that the leaf surface appears speckled. Incubation lasts 25 to 35 days. Nymphs pass through five molts reaching adult stage in 25 to 30 days. There are two generations a year in the in the Paris area. Nymphs and adults feed on the lower side of the leaves. The multiple punctures produce a gummy exudate. The underside of the leaves show characteristic spotting while the upper surface becomes discolored.

Description: ADULT 3 to 6 mm. long, very flat and wide. (See illustration). Head and thorax have chitinous, foliaceous and rounded expansions provided with a fine reticulum. Eyes glossy. Antennae long and thin, composed of 4 segments, the third of which is a great deal longer. The hemelytra are subrectangular, large, with rounded angles, transparent, parchmentlike, marked transversally with two smoky spots. The cuticle of the hemelytra is finely divided into reticulate cells of uneven size. Hindwings transparent and veined. Abdomen (beneath) and legs shiny black. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 10(18):4-29-60.



Adult of Stephanitis pyri (3 views)

Major reference and figures (except map): Balachowsky, A. and Mesnil, L. 1935. Les Insectes Nuisibles aux Plantes Cultivees. Vol. 1, 1137 pp., Paris. (pp. 277-281).

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE



VOL. 10 NO. 19

MAY 6, 1960

SB
823
C77
Ent.

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 of Insect Conditions

PEA APHID infestations appear to be increasing on legumes in several areas. Heavy infestations reported in New Mexico, Oklahoma, Arkansas, Tennessee, Georgia, North Carolina, Maryland and Delaware. (pp. 351-352). SPOTTED ALFALFA APHID building up on alfalfa in Oklahoma; generally light elsewhere. (p. 352). ALFALFA WEEVIL larval damage heavy in Georgia and South Carolina. (p. 353). ARMY CUTWORM damage continues in Idaho and Utah; also reported in South Dakota. (pp. 354, 367).

Damage by a THRIPS (Frankliniella occidentalis) continues heavy on several crops in New Mexico. (pp. 355, 357, 359, 361).

PINK BOLLWORM moth trapped in Yuma County, Arizona. No evidence of larval infestation encountered. (p. 361).

BARK BEETLES (Ips sp. and Dendroctonus brevicomis) severely damaging ponderosa pine in several California locations. (p. 361).

LONE STAR TICK heavy on cattle in Oklahoma, several hundred per animal in several counties. (p. 365).

Some First Reports of the Season: First-instar nymphs of Melanoplus bilituratus collected in Kansas. EUROPEAN CORN BORER moths emerged in North Carolina. MEADOW SPITTLEBUG nymphs present in Pennsylvania, New York and Indiana. Bryobia rubrioculus adults on apple in Washington. Adults of COLORADO POTATO BEETLE emerging in New York and Delaware. IMPORTED CABBAGEWORM adults flying in Pennsylvania and larvae present in Delaware. HARLEQUIN BUG present in Knox County, Tennessee. BOLL WEEVIL adults active in South Carolina. EUROPEAN PINE SHOOT MOTH larvae active in Michigan. Larvae of FOREST TENT CATERPILLAR present in Pennsylvania. GYPSY MOTH eggs hatching in Connecticut.

INSECT DETECTION: A new State record was Phyllophaga profunda in Florida. (p. 366). New county records are as follows: Oriental beetle in Hoke County, North Carolina (p. 351); alfalfa weevil in Greene County, Tennessee (p. 353); and Eriophyes insidiosus in Ventura County, California (p. 357).

ADDITIONAL NOTES. (p. 367).

Status of some IMPORTANT INSECTS in the United States. (p. 369).

Reports in this issue are for the week ending April 29, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MAY 1960

The Weather Bureau's 30-day outlook for May calls for temperatures to average below seasonal normals over the eastern two-thirds of the Nation with coolest weather in the Upper Mississippi Valley. Above-normal temperatures are predicted along the West Coast and near normal in the remainder of the country. Rainfall is expected to be greater than normal in the northern third of the Nation east of the Continental Divide, and also along the Gulf and South Atlantic coasts. Subnormal amounts are indicated in both the Southwest and Pacific Northwest. In areas not specified, 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 MAY 2

Sharply contrasting air masses left weekly temperatures generally below normal from the Pacific coast eastward to the western Great Lakes, the central Mississippi Valley, and Texas and generally above normal in the eastern third of the Nation. Departures were as much as 12° or more below normal in parts of Montana and north-central Nebraska, and 6° above normal near the Nation's Capital. Polar air moved eastward late in the week to cover most of the Eastern States, however, dropping temperatures sharply from the record or near-record early season levels reached earlier. Freezing temperatures late in the week extended southward to northwestern Texas.

Moderate to heavy precipitation in California greatly benefited crops there. Over the Plateau States, scattered moderate to heavy rain or snow improved soil moisture conditions, and in the Great Plains and Mississippi Valley precipitation ranged from moderate to heavy. In northern sections, snowfall was mixed with showers and general rains. Locally heavy snow fell in eastern Colorado, Nebraska, and South Dakota. Water totals ranged from over 1 inch in parts of Colorado to generally 0.50 to 1.00 inch in Nebraska, western Iowa and Minnesota to near 0.50 inch in the Dakotas.

Heavy precipitation from Texas, Oklahoma, and Louisiana to Wisconsin, and in the central Mississippi Valley was the result of widespread thunderstorms, and several severe squall lines moved over portions of this region. Heavy hail and damaging winds were reported in the southern Great Plains, and several tornadoes skipped across Oklahoma. Precipitation totals ranged up to 7 inches locally in south-central Texas, over 5 inches in Louisiana, and 4 inches in Oklahoma and Missouri.

Rainfall in the Southeast, Middle Atlantic, and New England States was highly variable, ranging from very light to heavy in showers and thunderstorms. Excessive rains in southeastern Florida have caused damage to the vegetable crop, but many sections of the Southeast need additional rain. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - OKLAHOMA - First-instar nymphs of Melanoplus sp. noted in limited numbers, less than 1 per square yard, on 2 rangeland areas checked in Rogers and Nowata Counties. (Robinson). COLORADO - Melanoplus differentialis and M. bivittatus infesting 500 acres of idle land in Arapahoe County. Egg pods range 1 per square yard to 2 per square foot in field; 2 per square foot in fence rows and borders; 90 percent of M. bivittatus and 10 percent of M. differentialis. Thirty percent of eggs had been destroyed by bee fly and blister beetle larvae. (Colo. Ins. Sur.). KANSAS - Very few first-instar nymphs of M. bilituratus collected in sweepings in an alfalfa field in Cheyenne County, northwest area. (Peters). SOUTH DAKOTA - Preliminary grasshopper egg survey in southeastern area revealed most eggs just entering the coagulated stage. One pod found in eye-spot stage. (Mast). NORTH DAKOTA - Grasshopper egg development survey conducted in 9 southeastern counties. M. bivittatus and M. bilituratus eggs recovered had reached segmented stage of development in LaMoure and Emmons Counties. Eggs of these species in early coagulation stage in Ransom, Richland, Sargent, Dickey, McIntosh, Logan and Steele Counties. Some egg development to the eye-spot stage also observed in these counties. (Wilson). WISCONSIN - Overwintering species of Pardalophora apiculata and Chortophaga viridifasciata advanced to fifth instar by April 25, about the same stage as in 1959 at this time in Marquette County. Predatory damage and desiccation of egg pods noted in a Green Lake County field which had a high 1959 adult population. Sound egg pods examined indicated that M. femur-rubrum eggs in clear stage and M. bilituratus eggs in coagulated stage by April 25. (Wis. Coop. Sur.).

GREENBUG (Toxoptera graminum) - OKLAHOMA - Very limited numbers in 1 of 5 wheat fields checked in Kiowa County. (Hudson). Counts 10-20 per linear foot in 4 of 5 fields checked in Hennessey area. None noted in 3 other fields checked in Kingfisher, Major and Dewey Counties. (Owens). Heavy numbers continue to kill plants in limited number of fields along Cimarron River in Payne County. Populations in other fields in central area completely controlled by Aphidius testaceipes; plants recovering nicely. Greenbugs damaging some fields of late-planted grain in upland areas of Pawnee County. (Young). Counts averaged 60 per linear foot in field of oats in Porter area and populations appear to be increasing in bottom land fields along Grand River in vicinity of Fort Gibson; counts averaged 50-200 per linear foot in 2 fields checked in latter area, with damage beginning to show in field of oats. (Robinson). TEXAS - None found in 11 panhandle counties surveyed week of April 18. (Russell, Preston, Hawkins). Only light infestations noted on wheat in Lynn and Scurry Counties. (Whitaker). ARKANSAS - Eighty percent of fields checked showed presence of small numbers, with an average of only about 125 per 100 sweeps of a 15-inch net. Predators present and apparently keeping aphid populations low. (Boyer). ILLINOIS - Survey of 19 small grain and grass fields was negative. (Ill. Ins. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - NEBRASKA - Single specimen collected from wheat in Harlan County. (Simpson).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light, averaged 5 per linear foot, in 2 barley fields checked in Tillman County. Medium, up to 250-400 per linear foot, in spots in another field in same area. (Hatfield). TEXAS - Heavy infestations on young grain sorghum throughout coastal bend area. (Hawkins). Light infestation in Cameron County. (Hindman, Stephens). NEW MEXICO - Light to heavy, spotty infestations on barley in Eddy and Dona Ana Counties. (N. M. Coop. Rpt.).

BROWN WHEAT MITE (Petrobia latens) - COLORADO - Counts 1-5 per linear foot in wheat in Weld and Adams Counties. (Colo. Ins. Sur.). NEW MEXICO - Light to heavy, spotty infestations on wheat and barley in Curry and Valencia Counties. (N. M. Coop. Rpt.). UTAH - Present, but rare in Box Elder County winter wheat in Collingston-Garland area. Reported much more numerous before recent storms. (Knowlton).

CHINCH BUG (*Blissus leucopterus*) - OKLAHOMA - An occasional adult, less than 1 per 5 stalks, noted in cornfield in Wagoner County. (Robinson). Beginning to appear in very light numbers in a cornfield in Bryan County. (Vinson). TEXAS - Infestations ranged 2-4 per stalk on young corn in Atascosa and Live Oak Counties. (Hawkins). Light on grain sorghum in Zavala County. (Prucia). ILLINOIS - Averaged 184 per 100 sweeps in grassfields in west-southwest. (Ill. Ins. Rpt.). NORTH CAROLINA - All stages waiting under clods all over field for corn to come up in a Hyde County field. (Kulash).

A FALSE CHINCH BUG (*Nysius raphanus*) - NEW MEXICO - Heavy on tansymustard in alfalfa field in Eddy County. (N. M. Coop. Rpt.).

A LEAFHOPPER (*Dikraneura carneola*) - UTAH - Common on winter wheat and roadside grasses in Collingston-Tremonton area, Box Elder County. (Knowlton).

RICE STINK BUG (*Oebalus pugnax*) - LOUISIANA - Ranged 2-10 per 10 sweeps to 5 per sweep in oats in East Baton Rouge Parish and 32-56 per 100 sweeps in oats in Avoyelles Parish. Fifty collected in 100 sweeps on wheat in Natchitoches Parish and 52 per 100 sweeps in oats in Claiborne Parish. (Spink).

ARMYWORM (*Pseudaletia unipuncta*) - LOUISIANA - Very light infestations found in various areas of State. Less than 1 per 10 sweeps collected on oats in East Baton Rouge Parish and Avoyelles Parish. (Spink). ARKANSAS - Survey of fields of oats in Arkansas, Desha, Chicot, Lincoln and Jefferson Counties showed average of only 1.53 larvae per 100 sweeps of a 15-inch net. Larvae too scarce to find checking by square foot method. (Boyer).

FALL ARMYWORM (*Laphygma frugiperda*) - LOUISIANA - Whorls of sweet corn 20 percent infested at Diamond. (Spink).

ARMYWORMS - ILLINOIS - Two first-instar larvae collected in wheat fields surveyed in southwest and west-southwest areas. (Ill. Ins. Rpt.).

CORN EARWORM (*Heliothis zea*) - TEXAS - Damaging sweet corn in lower Rio Grande Valley. (Deer). LOUISIANA - A serious outbreak may occur if favorable conditions continue. In 7 fields of white clover in Avoyelles Parish, counts ranged 1-5 per 25 sweeps and averaged 4 per 25 sweeps. In Rapides Parish, 24 larvae were collected in 100 sweeps. In crimson clover in Washington, St. Helena and East Baton Rouge Parishes, counts averaged 1 per sweep. (Spink).

EUROPEAN CORN BORER (*Pyrausta nubilalis*) - MARYLAND - Pupation nearing completion on lower Eastern Shore; 90 percent at Hebron, Wicomico County. (U. Md., Ent. Dept.). NORTH CAROLINA - First adults of season emerged on April 25 at Elizabeth City and April 27 at Aurora. (Farrier). WISCONSIN - Overwintering mortality 42.9 percent in Columbia County and 20 percent in Manitowoc County. (Wis. Coop. Sur.). NEW YORK - Corn stalks examined at Poughkeepsie found this species pupated in 4 of about 50. (N. Y. Wkly. Rpt.).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - OKLAHOMA - One pupa found in 150 overwintered forms taken in a field in Payne County. (Arbuthnot).

SUGARCANE BORER (*Diatraea saccharalis*) - LOUISIANA - Averaged 22 egg masses per acre at check points in 101 fields in 13 parishes. Dividing 13 parishes into geographical areas, egg mass counts averaged 6 per acre in northern, 16 per acre in southwestern and 31 per acre in southeastern area. (Spink).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - LOUISIANA - Light damage to corn foliage noted in Caddo and Bossier Parishes and light larval damage noted on corn in East Feliciana Parish. (Spink). DELAWARE - Adults present in alfalfa fields over State. (Burbutis, Mason).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - DELAWARE - Adults present on young sweet corn in Sussex County. (Burbutis, Mason). ILLINOIS - Averaged 72.5 per 100 sweeps in wheat fields in southwest and 4 per 100 sweeps in west-southwest. Averaged 9 per 100 sweeps in grass fields in west-southwest. (Ill. Ins. Rpt.). UTAH - Damaging sweet corn in Santa Clara-Hurricane area, Washington County. (Knowlton, Hughes). NEW YORK - Total of 1,200 sweeps made in grasses at Poughkeepsie and incidental weeds; 106 flea beetles were taken of which 15 were *C. pulicaria* and 23 were *C. confinis*, *C. minuta* and *C. denticulata*. In Stone Ridge and Hurley areas of Ulster County 1,700 sweeps of rye and roadside grasses yielded 54 flea beetles of which 4 were *C. pulicaria* and 19 others were other 3 species previously mentioned. (N. Y. Wkly. Rpt.).

A BILLBUG (*Calendra* sp.) - GEORGIA - Heavy infestations on corn in Dooly, Berrien, Cook, Lowndes, Brooks and Sumter Counties; a 80-acre field in Dooly County destroyed. (Johnson).

ORIENTAL BEETLE (*Anomala orientalis*) - NORTH CAROLINA - Larvae taken in Hoke County in grass sod; a new county record. Det. W. H. Anderson. (Pender).

WIREWORMS - GEORGIA - Moderate infestation of unspecified species on corn in Dooly County. (Fulford). NEBRASKA - Larvae of undetermined species damaging an early planted experimental corn plot. No efforts made to determine extent of infestations. (Weekman).

PEA APHID (*Macrosiphum pisi*) - CALIFORNIA - Medium infestations on horse beans in Vina, Tehama County. (Cal. Coop. Rpt.). NEVADA - Averaged 2-4 per sweep in Las Vegas area and Moapa and Virgin Valleys, Clark County. (Bechtel, Zoller; Apr. 22). NEW MEXICO - Heavy, spotty infestations in Los Lunas-Belen area, Valencia County. Very light in Carlsbad-Artesia area. (N. M. Coop. Rpt.). TEXAS - Counts averaged 5 per sweep on sweetclover in Cameron County (Hawkins, Stephens); ranged 2-5 per sweep on sweetclover in Goliad County (Hawkins); light on alfalfa in Lynn County; medium on vetch in Terry County (Whitaker); and ranged 2-3 per sweep on alfalfa in Wilbarger County (Turney). OKLAHOMA - Heavy populations continue to occur on variety of legumes throughout State. Populations vary from light to heavy in some localities, indicating need of close check by farmers of each field. Treatments continue in several south central and central areas. Plants in some fields have wilted appearance due to heavy feeding. Counts were as follows: 50 per sweep in alfalfa field in Jackson County (Presgrove); 40 per square foot of crown area in field in Tillman County (Hatfield); 400-3,000 per sweep in 9 alfalfa fields in Johnston, Bryan and Carter Counties, with honeydew covering plants (Vinson); 6-900 per sweep in 15 fields of alfalfa, vetch and clover in Choctaw County (Goin); 50-100 per linear foot in 2 fields in Garfield and Kingfisher Counties (Owens); 10 to several hundred per sweep in alfalfa in north central area, averaging about 500 per sweep in most fields (VanCleave); 150-400 per square foot in Payne County; 180-650 per sweep in Muskogee County (James); 300-650 per sweep in 4 fields of alfalfa in Muskogee and Wagoner Counties (Robinson). Populations in some fields in Pawnee County heaviest noted in area in several years (Garlington) and heavy populations in some alfalfa fields in Lake Carl Blackwell area, with some plants showing wilting (Bieberdorf). KANSAS - Counts in alfalfa in northwest less than 1 per sweep. (Peters). NEBRASKA - First specimens of season collected from alfalfa in Harlan, Franklin and Adams Counties. Highest number averaged 3 per 10 sweeps in field in Harlan County. (Simpson). COLORADO - Counts 25-50 per 100 sweeps in alfalfa in Adams, Weld and Larimer Counties. Trace numbers found in Mesa County. (Colo. Ins. Sur.). WYOMING - Averaged less than one per sweep in 8 alfalfa fields checked in Worland-Thermopolis area. (Fullerton). UTAH - Damaging alfalfa in Washington and Kane Counties. Present but not numerous in alfalfa fields in Fielding-Tremonton area, Box Elder County. (Knowlton). WASHINGTON - Survey of nearly 1,000 acres of alfalfa in Palouse region showed decrease in populations over past 2 seasons; heaviest infestations near Penawawa, Whitman County. (Schultheis). LOUISIANA - Very large populations observed in clover and alfalfa week of April 15; however, almost nonexistent by week ending April 28 due to tremendous numbers of predators and parasites, particularly various species of lady beetles. (Spink).

ARKANSAS - Stunting alfalfa in northern area. (Barnes). MISSOURI - Very light infestations present in northeast and northwest areas; counts 3-20 per sweep in alfalfa. (Munson, Thomas, Kyd). ILLINOIS - Present in very small numbers in most areas; counts per 100 sweeps averaged 12 in northwest, 20 in west-southwest and 850 in southwest. (Ill. Ins. Rpt.). WISCONSIN - Counts in alfalfa averaged 4 per 10 sweeps in Rock, Green, Sauk and Crawford Counties. (Wis. Coop. Sur.). PENNSYLVANIA - Two fields of alfalfa heavily infested in Franklin County. (Pepper). MARYLAND - Very heavy on alfalfa on Eastern Shore, averaging 500-1,500 per sweep. Moderate to heavy on alfalfa in central area and light on red clover at Easton, Talbot County. (U. Md., Ent. Dept.). DELAWARE - Populations increased enormously over previous week in alfalfa and clover; counts ranged from 75 per sweep in New Castle County, 200 per sweep in Kent County to 300-400 per sweep in Sussex County. Some fields show signs of severe injury, including wilting, some yellowing and stunting. (Burbutis, Mason). NORTH CAROLINA - Eighty per 200 half-sweeps on alfalfa 4-6 inches tall on April 21 in Henderson County. At another location, on April 25, 3,000 per 100 half-sweeps, with actual estimate of 150-250 per foot of row on alfalfa seeded in fall of 1959 and now 6 inches tall. (Chalfant). TENNESSEE - Heavy on alfalfa in Knox County. (Bennett). GEORGIA - Heavy infestations on alfalfa in Oconee County. (Johnson).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - CALIFORNIA - Very light, scattered populations on alfalfa in Lancaster area, Los Angeles County. (D. May). NEVADA - Occasionally found in Virgin Valley, Clark County. Averaged 1 per sweep in Las Vegas area and 0-30 per stem in Moapa Valley, Clark County. (Bechtel, Zoller, Apr. 22). ARIZONA - Infestations low or absent in alfalfa, statewide. (Ariz. Coop. Sur.). NEW MEXICO - Generally light, with moderate spotty infestations in Carlsbad-Artesia area of Eddy County. Large numbers of young nymphs in some fields indicate beginning of rapid buildup. Heavy infestations reported in 100 acres in San Miguel County near Shoemaker. (N. M. Coop. Rpt.). TEXAS - Infestations very heavy on alfalfa in Wilbarger County, ranging 100-1,000 per sweep. (Turney). Light in Lynn and Scurry Counties. (Whitaker). OKLAHOMA - Continuing to build up in heavy numbers in alfalfa in southwest and south central areas, while just beginning to increase in southeast, east central and central areas of State. Counts averaged 250-1,000 plus per square foot of crown area in 10 alfalfa fields in Tillman and Comanche Counties (Hatfield); 100 per sweep in field in Jackson County (Presgrove); heavy in fields checked in Kiowa and Washita Counties, with spraying common in area (Hudson); 10-600 per sweep in 6 fields checked in Johnston and Bryan Counties (Vinson); 3-20 per sweep in 10 fields checked in Choctaw County (Goin); 10-75 per linear foot in 2 fields in Garfield and Kingfisher Counties, respectively (Owens); 50-100 per square foot in fields checked in Muskogee County (James); and light in fields checked in Wagoner and Muskogee Counties (Robinson). UTAH - Small numbers present in Washington and Kane Counties. (Knowlton).

YELLOW CLOVER APHID (*Therioaphis trifolii*) - ILLINOIS - Appearing in west-southwest and southwestern areas, ranging 0-10 and 0-20 per 100 sweeps. (Ill. Ins. Rpt.).

FOXGLOVE APHID (*Myzus solani*) - CALIFORNIA - Medium to heavy infestations of this species and *Macrosiphum* sp. on alfalfa and vetch in Sheridan area, Placer County. (Cal. Coop. Rpt.).

MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) - DELAWARE - Young nymphs present on alfalfa in New Castle and Kent Counties. (Burbutis, Mason). MARYLAND - Light to moderate on red clover, but increasing in eastern and central sections. (U. Md., Ent. Dept.). WEST VIRGINIA - Hatching in alfalfa in Monongalia County. (W. Va. Ins. Sur.). PENNSYLVANIA - Hatching 80 percent complete on legumes in Snyder County on April 26 (Gesell) and 100 percent complete on April 28 in south central area (Pepper). NEW YORK - First-instar nymphs found on forage crops in several western counties on April 29. (N. Y. Wkly. Rpt.). INDIANA - Newly hatched nymphs observed April 15 in Posey County. Nymphs also found in Perry and Vanderburgh Counties April 18 and in Grant County on April 22. Hatching now occurring in all areas of State. (Matthew).

CLOVER LEAFHOPPER (*Aceratagallia sanguinolenta*) - DELAWARE - Adults generally present in alfalfa, with 2 fields averaging 4-5 per sweep in Kent and Sussex Counties. One field in New Castle County had 20 per sweep. (Burbutis, Mason) MARYLAND - Common on red clover in eastern and central areas. (U. Md., Ent. Dept.). SOUTH DAKOTA - One per 50 sweeps found in a well protected alfalfa field in Bon Homme County. (Mast). UTAH - Moderately numerous in alfalfa in Garland-Fielding area of Box Elder County. (Knowlton).

TARNISHED PLANT BUG (*Lygus lineolaris*) - NEBRASKA - Most alfalfa fields in Adams, Clay, Nuckolls, Franklin, Kearney, Harlan and Phelps Counties had average of 4 per 10 sweeps. Highest counts were 8 per 10 sweeps in Franklin County. (Simpson). KANSAS - Counts of adults and nymphs less than 1 per sweep in alfalfa in northwestern area. (Peters). OKLAHOMA - Light to medium, 0.25-3 per sweep, in 12 fields of alfalfa and vetch checked in Choctaw County (Goin) and counts averaged up to 2 per square foot and 3 per sweep in some alfalfa fields checked in Carter, Bryan and Johnston Counties (Vinson). LOUISIANA - Nymphal counts were 43 per 100 sweeps in crimson clover in Claiborne Parish and 13 per 100 sweeps in alfalfa in Rapides Parish. (Spink). ILLINOIS - Adults averaged 27.5 per 100 sweeps in west-southwest and 16.7 per 100 sweeps in southwest. (Ill. Ins. Rpt.). DELAWARE - Adults present in alfalfa statewide, with little increase in numbers noted. (Burbutis, Mason).

LYGUS BUGS (*Lygus* spp.) - WYOMING - Averaged 2 adults per sweep in 100 sweeps per field in each of 8 alfalfa fields in Worland-Thermopolis area. (Fullerton). COLORADO - Counts 12-20 per 100 sweeps in alfalfa in Adams and Weld Counties and 2-8 per 100 sweeps in Garfield County. (Colo. Ins. Sur.). UTAH - *L. elisus* extremely numerous in alfalfa crowns and moderately numerous in wheat fields in Blue Creek area, Box Elder County. (Knowlton).

PLANT BUGS (*Adelphocoris* spp.) - ILLINOIS - Average nymphal counts per 100 sweeps 7.5 in west-southwest and 46.7 in southwest. (Ill. Ins. Rpt.).

A FLEAHOPPER (*Spanogonicus albofasciatus*) - NEVADA - Averaged 3 per sweep and 1 per sweep in alfalfa fields in Las Vegas and Moapa Valley, Clark County, respectively. (Bechtel, Zoller; Apr. 22).

ALFALFA WEEVIL (*Hypera postica*) - DELAWARE - Adults range from average of 3 per sweep in alfalfa in New Castle County, 7 per 10 sweeps in Kent County to 1 per sweep in Sussex County. Counts very variable in different alfalfa fields. One field in eastern Sussex County had 18 larvae per sweep, most in second and third instars. (Burbutis, Mason). MARYLAND - Larvae averaged 15 per sweep on alfalfa in Wicomico County. Larval injury to untreated alfalfa varies moderate to heavy on Eastern Shore and from light to moderate in central sections. (U. Md., Ent. Dept.). PENNSYLVANIA - All stages except pupa present in alfalfa in south central area (Pepper); and adults plentiful in Snyder County, but no larvae present (Gesell). TENNESSEE - Found for first time in Greene County. (Mullett). SOUTH CAROLINA - Heavy infestations noted in all untreated and many improperly treated alfalfa fields. (Nettles et al.). GEORGIA - Heavy infestations of larvae on alfalfa in Cobb, Stephens, Elbert and Gwinnett Counties. Light infestation in Walker County. Fifty larvae per sweep on treated area and 100 per sweep on untreated area in Oconee County. (Wester, Newman, Beasley, Shackelford, Bergeaux, Johnson). WYOMING - Adults found in crowns of alfalfa plants. Counts were less than 1 per square foot in Worland, Thermopolis, North Portal, Fort Washakie and Lander areas. None found in Missouri River and Hidden Valleys. Height of alfalfa 2-6 inches in areas where adults were found; 1-2 inches where not found. (Fullerton).

CLOVER LEAF WEEVIL (*Hypera punctata*) - ILLINOIS - Larval counts per square foot averaged 2.6 in northwest, 17.3 in northeast, 48 in east, 21.1 in west-southwest and 9 in southwest. Only 2 fields showed damage which will be outgrown if warm weather continues. (Ill. Ins. Rpt.). MISSOURI - Present in most fields of alfalfa and red clover in northern area; counts 0-5 larvae per crown. (Munson, Thomas, Kyd). KANSAS - Reported from Rice County. (Gates).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - MARYLAND - Adults averaged 4 per 10 sweeps on red clover at Easton, Talbot County. (U. Md., Ent. Dept.). ILLINOIS - Larvae present in west-southwest area and 10 per square foot in southwest; counts of adults per 100 sweeps were 4.2 in west-southwest and 13.3 in southwest. (Ill. Ins. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - CALIFORNIA - Medium infestation on white clover in Fresno, Fresno County, and in Apple Valley, San Bernardino County. (Cal. Coop. Rpt.). OREGON - Actively feeding on vetch and clover fields in Marion County. (Capizzi). NEBRASKA - Adult counts ranged 1-4 per 10 sweeps in 2 fields in Adams County. (Simpson). MISSOURI - Adults active throughout State; counts in northeast and northwest ranged 0-5 adults per 10 sweeps. (Munson, Thomas, Kyd). MARYLAND - Adults averaged 1 per 10 sweeps on red clover at Easton, Talbot County. (U. Md., Ent. Dept.).

PEA LEAF WEEVIL (Sitona lineata) - OREGON - Actively feeding on vetch and clover in Marion County. (Capizzi).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Counts 15 per 50 sweeps in alfalfa in Bon Homme County. Mating observed. (Mast).

WEEVILS (Sitona spp.) - ILLINOIS - Highest populations found in west-southwest; maximum 230 per 100 sweeps and average 70.8 per 100 sweeps. In southwest, average was 26.7 per 100 sweeps. (Ill. Ins. Rpt.).

A WEEVIL (Hypera sp., probably meles) - LOUISIANA - Larvae totaled 101 per 50 sweeps in crimson clover at Franklinton. (Spink).

BEAN LEAF BEETLE (Cerotoma trifurcata) - DELAWARE - Adults present in clover and alfalfa in New Castle and Kent Counties. (Burbutis, Mason).

FLEA BEETLES - ILLINOIS - Several species in west-southwest and southeastern areas feeding on legumes; average population ranged 18.2-26.7 per 100 sweeps. (Ill. Ins. Rpt.).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - PENNSYLVANIA - Larvae 5 per 10 sweeps on alfalfa in Franklin County. (Pepper). COLORADO - Larvae 0-8 per 100 sweeps in alfalfa and adults 0-4 per 100 sweeps in Adams, Weld and Larimer Counties. (Colo. Ins. Sur.).

GREEN CLOVERWORM (Plathypena scabra) - LOUISIANA - Averaged 20 per 100 sweeps on alfalfa in Rapides Parish. (Spink). OKLAHOMA - Counts averaged 0.1-3 per sweep in alfalfa in Choctaw County. (Goin). Counts averaged up to 2 per square foot and 1 per sweep in some alfalfa fields in south central area. (Vinson).

FORAGE LOOPER (Caenurgina erechtea) - ILLINOIS - Averaged 3.3 per 100 sweeps in southwestern area. (Ill. Ins. Rpt.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - UTAH - Damaging 100 acres of alfalfa at Promontory, Box Elder County. (Knowlton). COLORADO - Larvae 1 per square foot in idle land in Arapahoe County. (Colo. Ins. Sur.). KANSAS - Very few fourth and sixth-instar larvae found in an alfalfa field in Cheyenne County, northwest area. (Peters). SOUTH DAKOTA - Populations varied 1-6 larvae per square foot in alfalfa in Pennington County; some damage observed. (Hantsbarger).

VARIEGATED CUTWORM (Peridroma margaritosa) - LOUISIANA - Larvae, almost ready for pupation, found in white clover in Avoyelles Parish; averaging 1 per square foot. (Spink). CALIFORNIA - Medium infestation damaging alfalfa, especially first-year plantings, in Holtville-Brawley areas, Imperial County. (V. Roth).

CUTWORMS - NEVADA - Averaged 2-5 per square foot in seedling alfalfa field in Kings River Valley, Humboldt County. (Day, Lauderdale; Apr. 22).

SEED-CORN MAGGOT (Hylemya cilicrura) - DELAWARE - Adults average 4 per sweep in cover crops in Kent County. (Burbutis, Mason).

THRIPS - UTAH - Requiring control on alfalfa in Washington County. (Knowlton). NEVADA - Very abundant and causing light damage to alfalfa in Moapa Valley, Clark County. (Bechtel, Zoller; Apr. 22). NEW MEXICO - Frankliniella occidentalis moderate to heavy in alfalfa and barley in Eddy, Dona Ana and Luna Counties. (N. M. Coop. Rpt.). TEXAS - F. occidentalis adults average 3 per peanut terminal in Frio County. (Harding).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - ILLINOIS - Moths emerged in Randolph County. (Meyer, Apr. 27). INDIANA - Pupation practically complete at Vincennes. (Cleveland, Apr. 19-25). MICHIGAN - Overwintering numbers very low in all orchard areas. (Hutson, Apr. 26).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - WASHINGTON - Larvae found in apple, pear, peach and apricot foliage at Wawawai, April 16, and at Pullman, April 28. (Johansen).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - NEW YORK - Egg masses nearly all hatched April 28 in Ulster County, with an occasional egg mass still showing larvae emerging. (N. Y. Wkly. Rpt.).

OMNIVOROUS LEAF TIER (Cnephasia longana) - CALIFORNIA - Heavy larval populations on apple leaves in Watsonville area, Santa Cruz County. (Cal. Coop. Rpt.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - NORTH CAROLINA - First adults of season found April 18 in bait pail in Wilkes County. (Turnipseed).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - NEW YORK - Moths observed in Claverack, Columbia County, April 22, and in a Wayne County orchard on April 29. Egg masses observed in Columbia County April 27. No moths observed in Orleans County as of April 29. Egg masses scarce in Ulster County, but can be found in an occasional orchard. (N. Y. Wkly. Rpt.). PENNSYLVANIA - Egg masses observed on trunks of apple trees in Snyder County April 26 (Gesell) and most eggs have been deposited in south central area by April 28, but none have hatched. (Pepper). WEST VIRGINIA - Becoming active on apple in eastern panhandle area. (W. Va. Ins. Sur.). NORTH CAROLINA - First adult of season taken in bait pail on April 25 in Wilkes County; apples in very early petal fall at time. (Turnipseed). INDIANA - Activity has been light in Vincennes area; eggs have hatched. (Cleveland, Apr. 19-25). ILLINOIS - Egg masses generally difficult to find in Carbondale area. Only a few orchards and some problem areas in other orchards will require controls. (Meyer, Apr. 27). MICHIGAN - No eggs noted as of April 22. (Hutson).

LESSER PEACH TREE BORER (Synanthedon pictipes) - GEORGIA - Spring-brood moths emerging from peach trees at Ft. Valley April 21. (Snapp).

PEACH TWIG BORER (Anarsia lineatella) - WASHINGTON - Larvae flagging tips of peaches and apricots at Wawawai April 16. (Johansen).

PLUM CURCULIO (Conotrachelus nenuphar) - ILLINOIS - Expected to be normal for 1960; numbers increasing in Carbondale area. (Meyer, Apr. 27). INDIANA - None bumped from peach trees in Vincennes area as of April 25. (Cleveland). LOUISIANA - Last larval instar observed on plums in East Baton Rouge Parish. (Spink). GEORGIA - Adults depositing eggs in recently exposed peaches at Ft. Valley; these will result in "wormy" peach drops in May. (Snapp).

A ROUNDHEADED WOOD BORER (Neoclytus conjunctus) - CALIFORNIA - Heavy infestation of weakened pear trees in Gilroy, Santa Clara County. (Cal. Coop. Rpt.).

APPLE APHID (Aphis pomi) - ILLINOIS - Quite variable in Carbondale area; difficult to find in many orchards, but quite numerous in several locations. High populations of lady beetles were found in 2 orchards. Controls will be required in areas where predaceous insects are absent. (Meyer, Apr. 27). INDIANA - Curling leaves, considerable honeydew present, in some blocks in Vincennes area. (Cleveland, Apr. 19-25). NEW YORK - Numerous April 19 and 20 in Monroe County. (N. Y. Wkly. Rpt.). MASSACHUSETTS - Few found on fruit buds. (Crop Pest Cont. Mess., Apr. 26).

ROSY APPLE APHID (Anuraphis roseus) - MASSACHUSETTS - Some on fruit buds. (Crop Pest Cont. Mess., Apr. 26). NEW YORK - Hatched and active in Ulster County April 20, observed in Columbia County April 20 and in Clinton County April 21. First specimens noted in Orleans County April 22 and on April 21 and 22 in Wayne County. Hatched April 22 in Oswego County. Scarce in Monroe County, first being observed in Hilton April 22. Only a single specimen found in Niagara County as of May 2. (N. Y. Wkly. Rpt.). MARYLAND - Common and causing leaf curl on apples at Hancock, Washington County. (U. Md., Ent. Dept.). CALIFORNIA - Heavy on peach trees in Chico, Butte County. (Cal. Coop. Rpt.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - OKLAHOMA - Light numbers appearing on apple trees in Stillwater area, Payne County. (VanCleave).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Colonies light in Mesa County. (Colo. Ins. Sur.). WASHINGTON - Winged spring migrants on peach trees appear to be fewer than usual; start of spring flight is at about usual time in Parker area, Yakima County. (Landis).

MEALY PLUM APHID (Hyalopterus arundinis) - CALIFORNIA - Medium on prune in Red Bluff, Tehama County. (Cal. Coop. Rpt.).

APHIDS (unspecified) - NEW YORK - None hatching from tagged apple twigs in Orange County on April 16 and 17; unusually scarce in Niagara County. (N. Y. Wkly. Rpt.). INDIANA - Difficult to find in orchards in La Grange, St. Joseph, Elkhart and La Porte Counties. Attack will be light in most orchards in Orleans area. Eggs hatched over entire State. (Marshall, Apr. 26). MICHIGAN - Very few of any species present on apples, despite very careful survey in southern portion of State. (Hutson, Apr. 26). UTAH - Becoming numerous on pecan trees at St. George and Hurricane. (Knowlton, Hughes).

LYGUS BUGS (Lygus spp.) - COLORADO - Counts ranged 10-25 per 100 sweeps on cover crop and weeds in Mesa County orchards. (Colo. Ins. Sur.). UTAH - Several species, largely L. elisus, common in cherry orchards in Box Elder County. (Knowlton).

TARNISHED PLANT BUG (Lygus lineolaris) - INDIANA - Populations decreasing in peach orchards at Vincennes. (Cleveland, Apr. 19-25). Weather ideal in Orleans area for attacks by this pest. (Marshall, Apr. 26). NEW YORK - Active in peach orchards throughout the week of April 18 in Ulster County. (N. Y. Wkly. Rpt.).

STINK BUGS - ILLINOIS - Numbers increasing at present time; expected to be about normal for the coming season in Carbondale area. (Meyer, Apr. 27). INDIANA - Populations increasing in Vincennes area. (Cleveland, Apr. 19-25).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Egg deposition normal to heavy in Orleans County, depending on orchards; buds about in dormant stage. Eggs prevalent in Wayne County orchards where carryover is evidently high from 1959. (N. Y. Wkly. Rpt.). WASHINGTON - Eggs and all nymphal stages present at Wawawai, April 16. (Johansen).

A THRIPS (Frankliniella occidentalis) - NEW MEXICO - Heavy on apple trees on Flying H Ranch, Chaves County; being controlled. (N. M. Coop. Rpt.). CALIFORNIA - Medium populations on lemon in Concord, Contra Costa County. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - MICHIGAN - Large numbers present on susceptible apple varieties, particularly Delicious. Just beginning to hatch April 22. (Hutson). ILLINOIS - Laying eggs at Belleville, April 27. Conditions very favorable for mites so far this season. (Meyer). INDIANA - Eggs hatching in La Porte County, but not hatching in apple and cherry orchards in La Grange, St. Joseph and Elkhart Counties. (Marshall, Apr. 26). MARYLAND - Becoming common on apple at Hancock, Washington County. (U. Md., Ent. Dept.). DELAWARE - Hatching on apple statewide. (Burbutis, Mason). NEW YORK - Carryover of eggs generally light and spotty in Clinton County; difficult to find in Monroe County April 25; and appears to be very low in Ulster County. (N. Y. Wkly. Rpt.). NORTH CAROLINA - Hatching on apple April 10, with trees in delayed dormant. Most mites through first molt by April 18. (Turnipseed). MASSACHUSETTS - Eggs beginning to hatch. (Crop Pest Cont. Mess.).

FOUR-SPOTTED SPIDER MITE (Tetranychus canadensis) - ILLINOIS - Moving about on trees in Carbondale area. Sufficient abundance to indicate conditions will be as serious in 1960 as in 1959. (Meyer, Apr. 27).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MICHIGAN - Few heavy infestations in orchards around Grand Rapids, Battle Creek and Monroe. (Hutson, Apr. 26). DELAWARE - Hatching statewide on apple. (Burbutis, Mason).

A FRUIT TREE MITE (Bryobia rubrioculus) - WASHINGTON - First adults found on apple in Pullman area. Cold weather during past several weeks has brought season development back to normal. (Johansen). UTAH - Present, but not numerous, in commercial apple and cherry orchards in Brigham-Willard area, Box Elder County. (Knowlton). Numerous in some apple orchards at Hurricane and Rockville, Washington County. (Knowlton, Hughes). NEW MEXICO - Eggs hatching in unsprayed orchards throughout the State. (N. M. Coop. Rpt.).

AN ERIOPHYID MITE (Eriophyes insidiosus) - CALIFORNIA - Heavy populations of this vector of peach mosaic disease present on a backyard peach tree in Fillmore, Ventura County. This is the first record of this mite in the county. The area is negative for the virus disease and is several miles from the nearest known infestation in Los Angeles County. (Cal. Coop. Rpt.).

ORCHARD MITES - INDIANA - Highest population noted to April 25 at Vincennes was 60 per 100 leaves on a block of Golden Delicious apples. (Cleveland). ARIZONA - Infestations of unspecified species present on apple trees in Elfrida area, Cochise County. (Ariz. Coop. Sur.).

FORBES SCALE (Aspidiotus forbesi) - MICHIGAN - Quite a number of mature sour cherry trees in Coloma, Eau Claire and Paw Paw areas show infestations. (Hutson, Apr. 26). NEW YORK - Serious infestation present in a sour cherry orchard in Chautauqua County. (N. Y. Wkly. Rpt., Apr. 25).

BROWN SOFT SCALE (Coccus hesperidum) - OREGON - Abundant on home plantings and untreated orchards in Willamette Valley. (Larson).

SAN JOSE SCALE (Aspidiotus perniciosus) - MICHIGAN - Infestations very sparse on apples and cherries. (Hutson, Apr. 26).

FIG SCALE (Lepidosaphes ficus) - CALIFORNIA - Light infestation on fig in Jackson, Amador County. First record of occurrence in the county. (Cal. Coop. Rpt.).

FILBERT APHIDS - OREGON - Building up, with adults (some winged) averaging 6-8 per leaf examined in the more heavily infested orchards. (Capizzi).

APPLE MEALYBUG (*Phenacoccus aceris*) - OREGON - Previously found in a very localized area of Marion County; has now been observed in a filbert orchard near Labish Village, also in Marion County. Females laying eggs April 28. (Capizzi, Larson).

A LEAF ROLLER (*Archips rosana*) - OREGON - Causing leaf injury in scattered filbert orchards in Willamette Valley. As many as 66 larvae found per 50 terminal leaf clusters in Benton County; similar numbers observed in Marion County, but some orchards are only lightly infested. (Capizzi).

CIGAR CASEBEARER (*Coleophora occidentis*) - GEORGIA - Light to moderate infestations on pecan trees in Tift, Berrien, Cook and Lowndes Counties. (Johnson).

PECAN NUT CASEBEARER (*Acrobasis caryae*) - OKLAHOMA - Heavy, 30 percent of shoots infested, in a grove of improved pecan varieties in Carter County. (Vinson).

PECAN LEAF CASEBEARER (*Acrobasis juglandis*) - GEORGIA - Light to heavy infestations on pecan trees in Tift, Berrien, Cook and Lowndes Counties. (Johnson).

PECAN BUD MOTH (*Gretchena bolliana*) - NORTH CAROLINA - Causing severe injury to pecans in a nursery in Wayne County; plants apparently growing out from under insecticide applications. (Farrier).

A MAY BEETLE (*Phyllophaga* sp.) - GEORGIA - Light to heavy infestations on pecan trees in De Kalb and Jackson Counties. (Blasingame, Welborn).

A SAWFLY - GEORGIA - Light larval infestation of an unspecified species on pecan trees in Atkinson County. (Daniel).

A FLEA BEETLE (*Altica torquata*) - CALIFORNIA - Heavy populations occurring on young grapevines in Palm Desert, Riverside County. (Cal. Coop. Rpt.).

GRAPE ERANIUM MITE (*Eriophyes vitis*) - CALIFORNIA - Occurring as spotty, medium infestation on grape in the Modesto area, Stanislaus County. No predator activity noted. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - DELAWARE - Adults present and feeding on young snap beans in Sussex County. (Burbutis, Mason). GEORGIA - Moderate to heavy infestations on beans in Tift, Irwin, Berrien, Cook, Lowndes, Brooks, Thomas and Grady Counties. (Johnson). LOUISIANA - Damage heavy on lima beans in East Feliciana Parish. (Spink).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - GEORGIA - Light to moderate infestations on beans in Tift, Irwin, Berrien, Cook, Lowndes, Brooks, Thomas and Grady Counties. (Johnson).

ALFALFA LOOPER (*Autographa californica*) - CALIFORNIA - Light on garbanzo beans in Palo Verdes, Los Angeles County. (Cal. Coop. Rpt.).

PEA APHID (*Macrosiphum pisi*) - DELAWARE - Alate forms present on young pea plants, with very small colonies of young nymphs started, in New Castle and Sussex Counties. (Burbutis, Mason). NORTH CAROLINA - Counts of 50 alates and 250 apterae per 25-foot row of peas 3 inches high in one field in Henderson County. (Chalfant).

BEET ARMYWORM (*Spodoptera exigua*) - NEVADA - Occasional specimens found in sugar beet fields. (Bechtel, Zoller; Apr. 22).

GREEN PEACH APHID (Myzus persicae) - NEVADA - Populations in sugar beet fields greatly reduced by predators. (Bechtel, Zoller; Apr. 22).

LYGUS BUGS (Lygus spp.) - NEVADA - Averaged 0-1 per 10 sweeps in most sugar beet seed fields in Moapa Valley, Clark County, and 2 per sweep in margins of some weedy fields. (Bechtel, Zoller; Apr. 22).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - DELAWARE - Adults averaged 2-3 per potato plant on small truck farm in Sussex County; egg masses were present. (Burbutis, Mason). NEW YORK - Numerous reports of adults emerging from fences and hedgerows in Suffolk County. (N. Y. Wkly. Rpt.). GEORGIA - Light on tomatoes in Berrien and Thomas Counties. (Johnson).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Adults common on potatoes on a small truck farm in Sussex County. (Burbutis, Mason).

THREE-LINED POTATO BEETLE (Lema trilineata) - DELAWARE - Adults averaged 1-2 per plant in a small potato field in Sussex County; fairly heavy feeding injury evident. (Burbutis, Mason).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - None present on Lycium at La Salle, Gilcrest and Platteville in Weld County. (Colo. Ins. Sur.).

TOMATO FRUITWORM (Heliothis zea) - TEXAS - Large numbers of eggs and larvae present in untreated tomato fields in the lower Rio Grande Valley. (Deer).

ONION THRIPS (Thrips tabaci) - NEVADA - Caused heavy damage to green onions in Moapa Valley, Clark County, before adequate controls were taken. (Bechtel, Zoller; Apr. 22). TEXAS - Light infestation on 25 acres of onions in Lubbock County. (Weigle).

IMPORTED CABBAGEWORM (Pieris rapae) - PENNSYLVANIA - Numerous adults flying in south central area on April 28. (Pepper). DELAWARE - First and second-instar larvae averaged about one per plant in a small patch of cabbage in Sussex County. (Burbutis, Mason).

HARLEQUIN BUG (Murgantia histrionica) - TENNESSEE - Found in Knox County on a cruciferous flowering plant. (Mullett). TEXAS - Heavy on turnips and wild mustard in Zavala County. (Harding).

FLEA BEETLES - NEW YORK - Counts ranged 3-4 per plant on broccoli in Orange County April 28. (N. Y. Wkly. Rpt.). MARYLAND - Phyllotreta spp. heavily infesting turnip greens near Baltimore. (U. Md., Ent. Dept.). SOUTH CAROLINA - Heavy damage by unspecified species noted in home gardens in Union County. (Nettles et al.).

ASPARAGUS BEETLE (Crioceris asparagi) - DELAWARE - Adults numerous in all counties and causing noticeable feeding injury. Eggs common. (Burbutis, Mason).

A THRIPS (Frankliniella occidentalis) - NEW MEXICO - Heavy infestations damaging lettuce in Dona Ana and Eddy Counties; being controlled by most growers. Infesting one tomato planting in Luna County. Heavy on onions in Luna and Dona Ana Counties. (N. M. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Light to severe damage to young watermelon and cantaloup plantings in the Calexico area of Imperial County. (Cal. Coop. Rpt.). NEW MEXICO - Light to heavy, spotty infestations present in Hatch-Las Cruces area, Dona Ana County, and Artesia area, Eddy County. (N. M. Coop. Rpt.).

CUCUMBER BEETLES (Acalymma spp.) - GEORGIA - Light infestation of A. vittata on watermelon in Pulaski County. (Alligood). SOUTH CAROLINA - Moderate numbers of A. vittata present in a field of cantaloup near Allendale. (Nettles et al.).

UTAH - Acalymma spp. generally numerous in lower elevation agricultural areas of Washington County. (Knowlton).

MELON APHID (Aphis gossypii) - TEXAS - Heavy, widespread infestations on water-melons in Frio County. Controls being applied. (Harding).

STRAWBERRY LEAF ROLLER (Ancylis comptana frageriae) - MARYLAND - Light to moderate foliage injury observed on strawberries in western Wicomico County. (U. Md., Ent. Dept.).

STRAWBERRY WEEVIL (Anthonomus signatus) - MARYLAND - Light to moderate injury to strawberry buds noted at Salisbury, Wicomico County. (U. Md., Ent. Dept.).

A STRAWBERRY WEEVIL (Brachyrhinus sp.) - CALIFORNIA - Medium local infestation in strawberries in WALTERIA, Los Angeles County. (Cal. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - MICHIGAN - Adults have overwintered in sufficient numbers to cause trouble on strawberries in all strawberry-producing areas of the State, principally in Berrien County. (Hutson, Apr. 26). NEW YORK - Adults present in Erie County strawberries as of April 28. (N. Y. Wkly. Rpt.).

SPITTLEBUGS - NEW YORK - Nymphs of unspecified species present in strawberries in Erie County April 28. (N. Y. Wkly. Rpt.).

LEAFHOPPERS - NEW YORK - Several species present in strawberries in Erie County April 28. (N. Y. Wkly. Rpt.).

SPIDER MITES - MARYLAND - Moderate numbers of unspecified species observed on strawberries at Salisbury, Wicomico County. (U. Md., Ent. Dept.). NEW YORK - Two bad infestations of Tetranychus telarius on strawberries observed April 15 in Suffolk County. A number of eggs had already been laid and some young mites were active. (N. Y. Wkly. Rpt.). TEXAS - T. telarius averaged 3 per young cantaloupe leaf in Dimmit County; infestation is spotty. (Harding). Very few on potato leaves in Cameron County. (Day, Kachtik).

TOBACCO INSECTS

A TOBACCO BUDWORM (Heliothis sp.) - GEORGIA - Moderate on tobacco in Tift, Irwin, Berrien, Cook, Lowndes, Brooks, Thomas, Grady and Mitchell Counties. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light to heavy infestations on tobacco in Tift, Irwin, Berrien, Cook, Lowndes, Brooks, Thomas, Grady and Mitchell Counties. (Johnson). MARYLAND - Light to moderate numbers noted on edges of tobacco beds in Calvert, St. Marys and Prince Georges Counties. (U. Md., Ent. Dept.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - MARYLAND - Larvae noted feeding on weeds near tobacco bed at Barstow, Calvert County. (U. Md., Ent. Dept.).

A WIREWORM - GEORGIA - Moderate infestation of an unspecified species on tobacco in Emanuel County. (Varner, Apr. 20).

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light on tobacco in Tift, Irwin, Berrien, Cook, Lowndes, Brooks, Thomas, Grady and Mitchell Counties. (Johnson).

SPRINGTAILS - MARYLAND - Unspecified species caused light injury to tobacco plants in beds in Calvert County. (U. Md., Ent. Dept.).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - One female moth collected April 8 in a light trap near San Luis in Yuma County. Catch was three-fourths mile north of Mexico and 20 miles south of California. This is first known collection of pink bollworm in Yuma County. (Ariz. Coop. Sur.). Stalk destruction and discing of field completed on April 23. Adjacent fields are also being reworked. There has been no evidence of an established pink bollworm infestation in Yuma County. (PPC).

THRIPS - ARIZONA - Infestations heavy, averaging at least 4 per cotton plant in Cochise and Graham Counties. In central area, infestations generally lower; however, some areas have infestations which average 1-2 per plant. (Ariz. Coop. Sur.). LOUISIANA - Frankliniella fusca light on seedling cotton in East Feliciana Parish. (Spink). GEORGIA - Light infestations in Sumter County. Light to heavy infestations on cotton in Tift, Irwin, Berrien, Cook, Lowndes, Brooks, Thomas, Grady, Mitchell, Dougherty and Lee Counties. (Johnson). NEW MEXICO - Frankliniella occidentalis heavy on seedling cotton in Hatch-Las Cruces area, Dona Ana County, and Deming area, Luna County; averaging 48.6 per plant on 10 plants picked at random in one field. Larval stage predominates. (N. M. Coop. Rpt.).

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Adult observed Spartanburg County and captured April 20 in Union County. (Sparks).

BET WARMYWRM (Spodoptera exigua) - ARIZONA - Infestations on seedling cotton light to medium in a few central area fields. (Ariz. Coop. Sur.).

COTTON APHID (Aphis gossypii) - LOUISIANA - Light infestations on seedling cotton in East Feliciana Parish. (Spink).

GREEN PEACH APHID (Myzus persicae) - LOUISIANA - Light infestations on seedling cotton in East Feliciana Parish. (Spink).

Cotton Insect Situation in Texas - In lower Rio Grande Valley, light infestations of APHIDS and SPIDER MITES noted, with only a few infestations warranting treatment. FLEAHOPPER nymphs and some adults appearing in fields. Heavy population of nymphs noted on other host plants. BOLLWORMS and BOLL WEEVIL (Anthonomus grandis) feeding in terminals in some fields. Few CABBAGE LOOPER (Trichoplusia ni) larvae noted feeding on leaves in scattered fields. (Bente, Day, Kachtick, Stephens, Hindman, Phillips, Deer). Light infestations of THRIPS, APHIDS, CUTWORMS and SPIDER MITES observed in Zavala County. (Prucia). Light populations of THRIPS, CUTWORMS and a LEAF MINER in fields in Bee County, with APHIDS ranging from light to heavy. (Edgar). In central area; THRIPS - none to light, APHIDS - light to heavy, and SPIDER MITES - none to light. Earliest cotton in first true-leaf stage. (Parenacia). In south central area, THRIPS plentiful on evening primrose and other weeds and moving into seedling cotton. Light infestations of APHIDS noted in fields in area. (Hanna, Gaines).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES (Ips sp. and Dendroctonus brevicomis) - CALIFORNIA - Severely damaging ponderosa and Jeffrey pines, single trees and groups, in a 250-acre stand on Converse Mountain, 600 acres in Needles Creek and 600 acres in Dillon Canyon areas of the Sequoia. (Flynn). Severely damaging pines at the 6,000-foot elevation in Black Mountain area. (Fox). Severe on 40 acres, killing up to 200 ponderosa pines per acre in the Round Mountain area on Highway 299 E. (Wickman). Top fading and complete kill of ponderosa pine in groups of 50 in a 200-acre stand on the Burney Springs Mountain in the Lassen National Park. (Marshall).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - MICHIGAN - Larvae beginning activity and observed at Paw Paw, Benton Harbor, Pontiac and Cadillac. (Hutson). WISCONSIN - Mortality in Manitowoc, Sheboygan and Kenosha was 33.9 percent, considerably below that for the winter of 1958-59. (Wis. Coop. Sur.).

LARCH CASEBEARER (Coleophora laricella)-PENNSYLVANIA - Feeding on larch foliage and flowers in Cumberland and Schuylkill Counties, April 15. (Drooz).

PINE BARK APHID (Pineus strobi) - MARYLAND - Heavy on ornamental white pines at Quantico, Wicomico County. (U. Md., Ent. Dept.).

A SPRUCE NEEDLE MINER - DELAWARE - Larvae completed development and all pupated by April 25. Injury was moderate but not as severe as last year. (Burbutis, Mason).

A PINE NEEDLE MINER - PENNSYLVANIA - Common on pitch pine, Cumberland County, April 15. (Drooz).

PINE SPITTLEBUG (Aphrophora parallela) - FLORIDA - Fairly abundant on a few sapling-size loblolly pines southwest of Otter Creek. Newly emerged adults present. Det. L. A. Hetrick. (Fla. Coop. Sur.).

SPRUCE SPIDER MITE (Oligonychus ununguis) - DELAWARE - Abundant with heavy webbing on spruce trees in Newark area of New Castle County. (Burbutis, Mason).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MARYLAND - Heavy in all sections on wild cherry and neglected fruit trees. Larvae leaving trees in many sections. (U. M., Ent. Dept.). PENNSYLVANIA - Very numerous and much more abundant than last year; mostly on cherry trees in Snyder, Union and Northumberland Counties. (Gesell). WISCONSIN - A colony of second-instar larvae feeding in a plum tree in Rock County. (Wis. Coop. Sur.). NORTH CAROLINA - Numerous in many deciduous trees in the Coastal Plain and eastern Piedmont. (Jones).

FOREST TENT CATERPILLAR (Malacosoma disstria) - PENNSYLVANIA - Initial issuance from eggs on oaks in Cumberland County, April 15. (Drooz). WEST VIRGINIA - Damaging various hardwoods in Monongalia County. (W. Va. Ins. Sur.).

TENT CATERPILLARS - ARIZONA - Infestations of a tent caterpillar heavy on cottonwood and other trees in the Miami area of Gila County. (Ariz. Coop. Rpt.). NEW YORK - Tent caterpillars caused feeding damage to ornamental cherry, apple, and crabapple, April 25; hatched April 14 at Poughkeepsie and by April 20 had nests up to 4 inches wide in wild cherry; numerous in Nassau County, April 25. (N. Y. Wkly. Rpt.). TENNESSEE - Malacosoma spp. scattered over the State, heavy in some areas. (Mullett). OKLAHOMA - Heavy on native plums, Major Co. (Coppock).

FALL CANKERWORM (Alsophila pomataria) - MARYLAND - Stripping the foliage of oaks and maples on Sugar Loaf Mountain, Frederick County. (U. Md., Ent. Dept.).

SPRING CANKERWORM (Paleacrita vernata) - DELAWARE - Fairly common on elms in an area of Sussex County. (Burbutis, Mason). MISSOURI - Heavy on elms in north central and northwest areas. Mostly second-instar larvae. (Munson, Thomas, Kyd). OKLAHOMA - Defoliating some elms in Major and Pawnee Counties. (Coppock, Garlington).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Scouting around positive trap sites in Westchester area negative to March 31. No additional egg masses found on Long Island. In upstate area, scouting around positive trap sites in Otsego and Herkimer Counties continues, with small infestations being found. NEW JERSEY - Scouting of Morristown National Park completed, with no evidence of infestation encountered other than on Sugar Loaf Hill. PENNSYLVANIA - Survey of more than 5,000 acres by State personnel in Perry County has been negative. (PPC, East. Reg., March Rpt.). CONNECTICUT - Egg clusters hatching at South Windsor, Hartford County, April 27 on trees. (Phillips).

ELM LEAF BEETLE (Galerucella xanthomelaena) - INDIANA - Appearing on Chinese elms at Lafayette. (Schuder). OKLAHOMA - Adults attacking elms throughout the north central area where oviposition has begun. (Howell, VanCleave). Oviposition started in Oklahoma City area. (Pennington). Heavy on elms in McAlester area. (Meharg). OREGON - Adults in small numbers in the Salem area April 28. (Capizzi).

IMPORTED WILLOW LEAF BEETLE (Plagioderma versicolora) - DELAWARE - Adults and eggs very abundant on willows in one area of Sussex County. Most of leaves show some feeding injury. (Burbutis, Mason).

COTTONWOOD BORER (Plectrodera scalator) - OKLAHOMA - Heavy on some poplars in Stephens County. (Hatfield). Adults active throughout State. (Drew).

ELM LEAF MINER (Fenusa ulmi) - DELAWARE - Fairly common on elms in an area of Sussex County. Larvae one-half to fully grown. Few emerged. (Burbutis, Mason).

A SCARAB (Cotalpa sp.) - NEVADA - Moderate damage to cottonwood trees by partial defoliation in Virgin Valley, Clark County. (Bechtel, Apr. 22).

MAY BEETLES (Phyllophaga spp.) - TENNESSEE - Damaging oak. (Mullett).

AN ERIOPHYID MITE - UTAH - Poplar trees at Woodruff, Rich County, severely damaged by galls associated with eriophyid mites. Damage also occurring at Manila in Daggett County. (Knowlton).

AN ASH PLANT BUG (Neoborus illitus) - CALIFORNIA - Medium populations on ash trees in Milton, Copperopolis and Angels Camp, Calaveras County. (Cal. Coop. Rpt.).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - DELAWARE - On elm in Sussex County. (Burbutis, Mason).

APHIDS - OKLAHOMA - Several species light on elms, oaks, pecans, pines and other trees throughout most of State. (Howell, VanCleave, Drew). UTAH - Cinara sp. infesting arborvitae in St. George-Santa Clara area. Aphids, largely Macrosiphum and Amphorophora, are abundant on roses in Washington County. (Knowlton, Hughes). CALIFORNIA - Myzocallis elegans medium on street elms in Auburn, Placer County. Heavy infestation of adults of Cinara curvipes on Deodar cedar in Santa Ana, Orange County. Macrosiphum pisi heavy on native lupine in Crockett area, Contra Costa County. Eriosoma lanigerum heavy on pyracantha in Fresno, Fresno County. (Cal. Coop. Rpt.).

SCALE INSECTS - WYOMING - Unidentified species reported to be infesting caragana hedges in Lander, Fremont County. (Duncan). OREGON - Lecanium sp. infesting maple in a Portland nursery April 26. The same scale in a Marion County filbert orchard was found April 28. (Larson, Capizzi). MARYLAND - Unaspis euonymi heavy on euonymus locally in Calvert County, April 22. (U. Md., Ent. Dept.). OKLAHOMA - Heavy populations of Lecanium corni complex on hackberry and elm in Stillwater area of Payne County and Pond Creek area of Grant County. Heavy honeydew deposits causing spotting of car finishes. Eggs hatching in the area. (Howell).

THRIPS - CALIFORNIA - Heavy adult populations of Dactuliothrips xerophilus on native yucca in Apple Valley, San Bernardino County. Frankliniella occidentalis heavy in rose blossoms in Springville, Tulare County. Frankliniella sp. heavy on native lupine in the Crockett area, Contra Costa County. (Cal. Coop. Rpt.).

ROSE-SLUG (Endelomyia aethiops) - OREGON - Oviposition in Marion County, April 27. (Goeden).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - INDIANA - Unusually abundant on common lilac, redbud and redtwig-dogwood at Lafayette. (Schuder).

GALL INSECTS - INDIANA - Dryocosmus palustris common on oaks at West Lafayette. Adults of Pachypsylla celtidis-mamma emerging from hibernation and common on hackberry trees at Lafayette. (Schuder).

A BARBERRY LOOPER (Coryphista meadii) - CALIFORNIA - Heavy larval infestation. Defoliating a flame pea (Chorizema sp.) in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (Musca autumnalis) - DELAWARE - Several reports on horses (around eyes mainly) in New Castle County. (Burbutis, Mason). NEW YORK - On April 16, one Tompkins County herd with 25 per head on heifers, but most with about 10. Horses with 2-5 per head. Counts of 1-5 per head on several herds in Tompkins and Seneca Counties April 21-22. Annoyance to cattle and horses expected this summer. (N. Y. Wkly. Rpt.).

HORN FLY (Siphona irritans) - INDIANA - On unsprayed dairy cattle in Perry County, April 18, and on cattle in Dubois County during week of April 22. Counts averaged about 5 flies per animal. (Matthews). KANSAS - Several reports of species this year. (Peters). OKLAHOMA - Counts 600-1000 per animal on 150 beef cows in a herd in Major County. (Coppock). Counts averaged 600-900 per animal on mature cows and 1500 per animal on bulls in 200 head of beef cattle in Payne and Noble Counties. Counts averaged 75-100 per animal on 110 dairy cows in Payne County. (Howell). Counts averaged 70-80 per animal on 110 head of beef cattle from 3 herds in Pushmataha County. (Goin). WYOMING - Infesting cattle in the Wheatland area, Platte County, ranging approximately 20-30 per animal. (Haws).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Average of 1-2 per animal on 110 dairy cows in Payne County. (Howell).

MOSQUITOES - NEVADA - Adults of Aedes dorsalis and A. vexans numerous and biting in Virgin Valley, Clark County. (Bechtel, Apr. 22). NEBRASKA - Unidentified mosquito larvae (first instar) in Shelby area of Polk County. Larvae of Culiseta inornata breeding in sewage lagoons near Juniata, Adams County. (Rapp). DELAWARE - Second-instar larvae of Aedes sollicitans and fourth instars and pupae of A. cantator found in eastern Kent County. (Darsie). NORTH CAROLINA - Adults of Aedes mitchellae numerous in Edgecombe County and Culex sp. adults emerging in same county. Moderate flight of A. sollicitans in Carteret County. (Ashton).

COMMON CATTLE GRUB (Hypoderma lineatum) - TENNESSEE - Averaged 2.6 grubs per cow for 100 cows in Cumberland County. (Stanley). OKLAHOMA - Averaged 1-2 per animal on 110 dairy cows in Payne County. (Howell).

A DEER FLY (Silvius sp.) - NEVADA - Moderate numbers of adults in Virgin Valley, Clark County. (Bechtel, Apr. 22).

AN EYE GNAT (Hippelates collusor) - NEVADA - Light to moderate populations in Moapa Valley, Clark County. (Bechtel, Zoller; Apr. 22).

CATTLE LICE - OKLAHOMA - Heavy infestations of Linognathus vituli and Bovicola bovis on some cattle in Pawnee County. (Young). Unidentified species continued to heavily infest 110 head of beef cows in Pushmataha County. (Goin). UTAH - Haematopinus suis numerous on swine at Ogden, Weber County. (Knowlton).

AMERICAN DOG TICK (Dermacentor variabilis) - DELAWARE - Very abundant. Many dog owners reported numerous ticks on their pets. (Burbutis, Mason). MARYLAND - Very active. Found on humans frequently in the central and southern sections. (U. Md., Ent. Dept.). OKLAHOMA - Number annoying pets and humans much heavier than normal this year in northeastern area. (Howell).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Farmers and stockmen reported heavy numbers (up to several hundred per animal) on cattle in Pontotoc, Murray, Johnston, Carter, Coal and Atoka Counties. (Howell). Counts averaged 25, 30, 32 per animal on 110 beef cattle checked in 3 herds in Pushmataha County. (Goin).

TICKS - WISCONSIN - Wood ticks on humans in Juneau County, April 26. (Wis. Coop. Sur.).

TROPICAL RAT MITE (Ornithonyssus bacoti) - CALIFORNIA - Medium infestation in houses in Riverside; annoying residents in Riverside County. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES- DELAWARE - Coleomegilla maculata lengi very abundant in alfalfa and clover fields throughout the State. (Burbutis, Mason). ILLINOIS - Adults of several species now appearing over the State; C. maculata most common. (Ill. Ins. Rpt.). MISSOURI - Adult counts of Hippodamia convergens, H. tredecimpunctata and C. maculata lengi ranged 1-5 per 10 sweeps in northern area alfalfa. (Munson, Thomas, Kyd). OKLAHOMA - Despite large numbers of H. convergens larvae and adults in most fields of alfalfa over the State and some wheat fields in the Perkins-Paradise area of Payne County, this predator has not materially reduced aphid damage to plants. (Okla. Coop. Sur.). KANSAS - H. convergens averaged less than one per sweep in northwest area alfalfa. (Peters). SOUTH DAKOTA - Hippodamia spp. observed in alfalfa and corn fields in southeastern area of State. (Mast). COLORADO - Hippodamia spp. averaged 2-4 per 100 sweeps in Weld and Larimer Counties. (Colo. Ins. Rpt.). UTAH - Present in northern area alfalfa fields; largely Hippodamia spp. (Knowlton). NEVADA - Adults and larvae of unspecified species numerous in all alfalfa and sugar beet fields checked and mostly responsible for aphid reductions in these fields in Clark County. Highest counts averaged 8 larvae and/or adults per sweep. (Bechtel, Zoller; Apr. 22). WASHINGTON - Mostly adults observed in peach orchards; also on weeds and spring annuals. (Landis).

BIG-EYED BUGS (Geocoris spp.) - NEVADA - Very numerous in fields of alfalfa and sugar beets in Clark County. (Bechtel, Zoller; Apr. 22).

A FLOWER BUG (Orius insidiosus) - OKLAHOMA - Present in light to medium numbers over the State. (Okla. Coop. Sur.).

MINUTE PIRATE BUGS - NEVADA - Numerous in Clark County alfalfa and sugar beet fields. (Bechtel, Zoller; Apr. 22).

NABIDS (Nabis spp.) - ILLINOIS - Adults appearing statewide. (Ill. Ins. Rpt.). MISSOURI - Counts in northern area alfalfa ranged 0-4 per 10 sweeps. (Munson, Thomas, Kyd). OKLAHOMA - Light to medium numbers reported throughout State. (Okla. Coop. Sur.). KANSAS - Counts less than one per sweep in alfalfa in northwest area. (Peters). NEVADA - Very numerous in alfalfa and sugar beet fields in Clark County. (Bechtel, Zoller; Apr. 22).

LACEWINGS (Chrysopa spp.) - ILLINOIS - Adults of C. oculata beginning to appear statewide. (Ill. Ins. Rpt.). OKLAHOMA - Adults and larvae reported in light to medium numbers over the State. (Okla. Coop. Sur.). NEVADA - Populations in alfalfa and sugar beet fields in Clark County numerous. (Bechtel, Zoller; Apr. 22). WASHINGTON - Mostly adults present at this time in peach orchards, weeds and spring annuals. More abundant than previously observed at this time of year. (Landis).

SYRPHIDS - NEW YORK - Eggs observed on apple in Orange County April 15 and fairly common in Ulster County orchards. (N. Y. Wkly Rpt.). OKLAHOMA - Light to medium numbers of larvae reported throughout the State. (Okla. Coop. Sur.). NEVADA - Larvae of unspecified species very numerous in fields of sugar beets and alfalfa in Clark County (Bechtel, Zoller; Apr. 22). WASHINGTON - Mostly adults present in orchards and on weeds and spring annuals. Not previously observed as being so abundant at this time of year. (Landis).

SPOTTED ALFALFA APHID PARASITES - NEVADA - Cocoons of Praon palitans and Trioxys utilis found in Moapa Valley, but not in Virgin Valley or Las Vegas, Clark County. (Bechtel, Zoller; Apr. 22).

HYMENOPTEROUS PARASITES - OKLAHOMA - Heavy numbers of Aphidius testaceipes have controlled severe greenbug infestations in Perkins area, Payne County; found in approximately two-thirds of fields which had heavy to severe greenbug infestations in the area. In fields without this parasite, aphids continue to cause damage despite large numbers of predators. (VanCleave). WASHINGTON - Various species present in peach orchards; mostly adults. (Landis).

MISCELLANEOUS INSECTS

ARMY CUTWORM (Chorizagrotis auxiliaris) - ARIZONA - Large numbers of moths are a problem around and in homes in the Tucson area of Pima County. (Ariz. Coop. Sur.).

CARPET BEETLE (Anthrenus scrophulariae) - NORTH DAKOTA - Reports of larval infestations in homes have been more numerous than usual during the period April 25-29. (N. D. Ins. Sur.).

MAY BEETLES (Phyllophaga spp.) - FLORIDA - One male adult of P. profunda collected at blacklight trap at Florida Caverns State Park, Jackson County, April 13 by H. A. Denmark. This is first record of species in the State. (Woodruff). P. floridana collected at light at Sanford, Seminole County, April 24 by C. O. Youtsey. This is a rare species known from Georgia and Florida. Species has previously been collected in June, thus these are early records. These are the first specimens of this latter species for the State Plant Board Collection. (Fla. Coop. Sur.). INDIANA - Heavy flights of Phyllophaga sp. observed in Ripley County. (Chandler). DELAWARE - New adults of unspecified species present in lawns in New Castle County. (Bray).

A WEEVIL - UTAH - Larvae and adults of an unspecified species are numerous in roots of rabbitbrush (Chrysothamnus nauseosus) in the Lost Creek area on rangelands near Salina, Sevier County. Large areas of this plant are being killed out. (Knowlton, Harrison).

A LITTLE HOUSE FLY (Fannia sp.) - CALIFORNIA - Medium to heavy populations observed dead or dying on peach trees, grapevines, shrubs, grasses and clothes lines in many locations over the State. Apparently the fungus Entomophthora muscae is effective again this season. This is considerably earlier than the fungus disease was noticed in 1959. (Cal. Coop. Rpt.).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - MARYLAND - Numerous reports from various localities in central and southern sections of State during period April 23-28. (U. Md., Ent. Dept.).

CARPENTER BEE (Xylocopa virginica) - WEST VIRGINIA - Damaging structural parts of a house in Charleston. (W. Va. Ins. Sur.).

CARPENTER ANTS - DELAWARE - Heavy flights of unspecified species noted in New Castle County on April 23. (Burbutis, Mason).

PAINTED HICKORY BORER (Megacyllene caryae) - PENNSYLVANIA - Swarming from hickory lumber in basement of home, April 19, Susquehanna County. (Gesell).

A SCARAB (Paracotalpa sp.) - NEVADA - Adults numerous on Artemesia tridentata (big sagebrush) in Orovada, Humboldt County. (Lauderdale, Apr. 22).

ORIENTAL COCKROACH (Blatta orientalis) - SOUTH DAKOTA - Infesting dwellings in Davison and Walworth Counties. (Hantsbarger).

ADDITIONAL NOTES

IDAHO - ARMY CUTWORM (Chorizagrotis auxiliaris) causing considerable damage to alfalfa fields in Mayfield area, Elmore County. Fields with southern exposure being kept completely down by larval feeding. On rangeland between King Hall and Bliss, large areas with southern slopes eaten bare of grass. (Edwards). Also reported infested, 5 acres of barley in Burley area. (Bodily). Fairly general and occasionally severe over 20 acres of new seeding of clover near Shoshone. (Manning). Heavily damaging margin of a 200-acre field of barley near Bonida, Franklin County. Larval population 6-8 per 10-15 shovel samples. (Tovey). ALFALFA WEEVIL (Hypera postica) adult populations moderate in 2 alfalfa fields in southern Canyon County, but no larvae noted. (Bechtolt). Larvae infesting 30 acres of alfalfa in Washington County. Populations, however, not abundant and damage considered light. (Hackler). Adults of a CURCULIONID (Rhinoncus castor) common in Canyon County alfalfa fields and adults and nymphs of Lygus hesperus and L. elisus continue to be abundant on all alfalfa fields checked in Canyon County. (Bechtolt). SWEETCLOVER WEEVIL (Sitona cylindricollis) adults numerous, with light to moderate damage noted on all sweetclover stands checked in Lewiston area. A KLAMATHWEED BEETLE (Chrysolina gemellata) is abundant on all klamathweed stands in lower Clearwater area drainage. (Gittins). NABIDS and LADY BEETLES are very numerous in all alfalfa fields checked in Canyon County and BIG-EYED BUGS are light. (Bechtolt). A SUBTERRANEAN TERMITE (Reticulitermes sp.) infestation reported in a basement in a home in Nampa. (Weight).

NEVADA - Adults of a GRASSHOPPER (Trimerotropis sp.) more or less discontinuously distributed from Pioche, Lincoln County, to the southern end of Pahrnagat Valley, Lincoln County. In areas of higher concentrations, counts averaged 3-5 per square yard. Dissected females revealed that most specimens had previously laid their eggs. (Del Curto, Maloney). SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - Over 95 percent of adults have emerged from elms checked in Reno area, Washoe County. ELM LEAF BEETLE (Galerucella xanthomelaena) adults active and causing minor leaf damage by feeding in Reno-Sparks, Washoe County. No eggs have been observed. BOXELDER APHID (Periphyllus negundinis) infestations increasing on boxelder in Reno-Sparks, Washoe County. Leaves of many trees now partially covered with honeydew. (Bechtel). Adults of SUBTERRANEAN TERMITE (Reticulitermes sp., hesperus or tibialis) swarming in Reno-Sparks, Washoe County. (Coop. Rpt.)

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Prod. ornith.	Perid. marg.	Helio. zea	Laphy. frug.
ARKANSAS							
Fayetteville 4/21-27	66	186			103	39	
Kelso 4/21-27	4	4			1		
Morrilton 4/21-27	2	7					4
FLORIDA							
Quincy 4/18		13	10				3
ILLINOIS							
Urbana 5/22-28	36			2			
INDIANA (Counties)							
Lawrence 4/19-22	34	6		2			
Tippecanoe 4/22-28	23	4		8	1		
LOUISIANA							
Baton Rouge 4/22-28	12	12	8	15			1
Franklin 4/19,21,26	6	6	15	7			4
MISSISSIPPI							
*Stoneville 4/22-28	145	15	5	3	17		10
MISSOURI							
Columbia 4/23-29	72	17					9
SOUTH CAROLINA							
Clemson 4/23-29	20	14	3	13	1		1
TENNESSEE (Counties)							
Blount 4/19-25	51	39		41	7		
Cumberland 4/19-25	8	8		13	8		
Greene 4/19-25	1			5			
Johnson 4/19-25	5	1		1			
Madison 4/19-25	69	3					4
Maury 4/19-25	65	4		3	3		
Monroe 4/19-25	95	12		14	10		
Robertson 4/19-25	14	3		10	2		
TEXAS							
Brownsville 4/18-22		10	1				2
Waco 4/23-29	5	2	5	3	10		3
WISCONSIN							
Middleton 4/22-24	2	2			1		

Additional Collections

TEXAS - (Brownsville, 4/18-22); Protoparce quinque maculata - 3.

* Two traps - Stoneville

STATUS OF SOME MORE IMPORTANT INSECTS IN THE UNITED STATES

ALFALFA PLANT BUG (Adelphocoris lineolatus (Goeze))

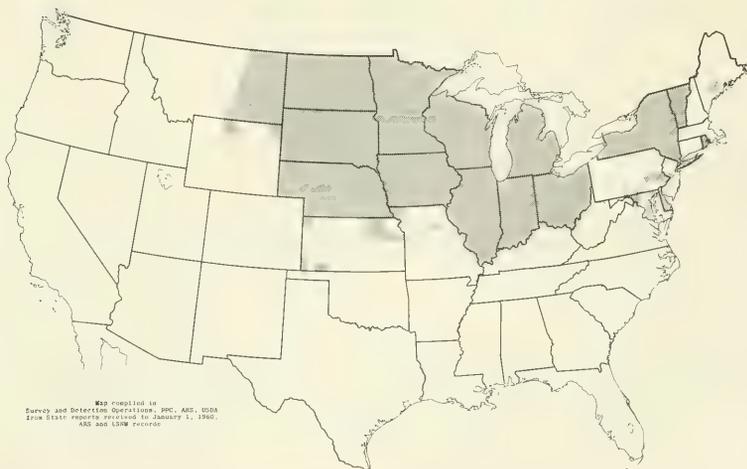
Economic Importance: This plant bug of European origin was first recorded in North America at Cape Breton, Nova Scotia, Canada, in 1917. The first record of the pest in the United States was at Ames, Iowa, on June 18, 1929. The insect was probably introduced into the United States as eggs in packing material, as about 700 seed samples were imported and grown at the agronomy farm at Ames in 1926 and 1927. Alfalfa plant bug can be very destructive to alfalfa seed. During 1955 in Illinois, counts of the species reached as high as 440 per 100 sweeps in some alfalfa fields; and in southeastern Nebraska in 1956, nymphs of this pest could be collected at the rate of 40 to 50 per 10 sweeps during early June.

Distribution: Algeria, Austria, Canada, China, Finland, France, Germany, Great Britain, India, Japan, Sweden, Tunisia, United Arab Republic (Syria), USSR (including Siberia) and the United States (see map).

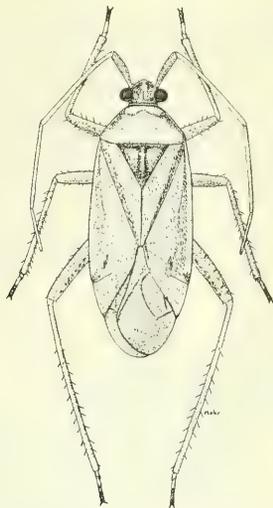
Hosts: Alfalfa and sweetclover are the preferred hosts. A limited number of other legumes and many succulent herbaceous plants, such as, chrysanthemum, thistle, beets, sugar beets, cotton, castorbean, potato and buckwheat, are recorded hosts.

Life History and Habits: Alfalfa plant bug prefers to feed on flower buds and newly formed seeds of host plants. Feeding injury is believed to be phytotoxic. The pest also injures the plants in oviposition and is attracted to lights at night. Only two generations occur in the latitude of St. Paul, Minnesota, and these overlap considerably. Alfalfa plant bug overwinters in the egg stage in Minnesota and other forms are killed with the advent of cold weather. Overwintering eggs are laid singly in the less-succulent stems near the soil surface of the host plants and begin hatching by the middle of May the following year. Nymphs pass through 5 instars in approximately 30 days. In two weeks adults begin to lay eggs, as early as June 22. Thus there is a second generation by late August or early September in Minnesota.

DISTRIBUTION OF ALFALFA PLANT BUG (Adelphocoris lineolatus)



Description: EGG - Length 1.36 mm. and 0.33 mm. at greatest diameter. Clear when first laid, yellowish when older; slightly curved, thickest near base, compressed at apex and obliquely truncate. NYMPH - Fifth instar - Length 5.5 mm., width 2.4 mm. Color uniformly yellowish-green, third and fourth antennal segments reddish-brown, tips of wing pads becoming uscosus. Legs uniformly pale yellowish and marked with black spots as in the adult. Dorsum and legs set with short, stiff black setae, antennae clothed with black pubescence. ADULT - Male - Body 8 mm. long, 2.8 mm. wide. Head 1.36 mm. wide, vertex 0.42 mm. Antennae 7.35 mm. long; first segment 0.98 mm., second 2.87 mm., third 2.20 mm., and the fourth segment 1.30 mm. long. Pronotum 1.30 mm. long and 2.25 mm. wide at base. General coloration pale yellowish with a tinge of brown and dusky. Scutellum with two fine, longitudinal, fuscous marks on middle; corium usually with triangular fuscous area on apical half; a fine line along costal edge black; cuneus yellowish; membrane fuscous. Antennae yellowish to brown, apical half darker and usually reddish-brown. Legs yellowish; femora with many black dots, anterior aspect with two rows of somewhat larger spots; tibial spines black, without distinct spots at bases. Body clothed with simple, pale yellowish pubescence; legs with black pubescence. Female - Body 7.50 mm. long, 2.90 mm. wide. More robust than male and usually somewhat paler in color, but otherwise very similar in form and coloration. Alfalfa plant bug can be separated from rapid plant bug (A. rapidus) by its paler color and slightly larger size. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 10(19):5-6-60.



Adult of Adelphocoris lineolatus

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business

The background of the entire page is a light tan color, overlaid with a pattern of various insects rendered in a muted greenish-brown ink. The insects are depicted in various poses and sizes, creating a dense, scientific illustration. Notable insects include a large butterfly with distinct wing patterns in the center-left, a striped beetle in the center-right, a fly-like insect in the upper right, and several smaller beetles and flies scattered throughout the lower half of the page. The style is reminiscent of early 20th-century scientific publications.

VOL. 10 NO. 20

MAY 13, 1960

SB
823
C77
Ent.

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 of Insect Conditions

EUROPEAN CORN BORER survival surveys reported in Iowa, Minnesota and South Dakota. Survival appears very low in Iowa. Moth emergence reported on Eastern Shore of Maryland. (pp. 374, 391). PEA APHID populations continue to build up on alfalfa; considerable damage reported in Delaware, Maryland and Virginia and yellowing reported in Missouri. Populations low in Nevada and Oregon. (pp. 375, 376). MEADOW SPITTLEBUG nymphs present in Wisconsin and Michigan. (pp. 376, 391). First POTATO LEAFHOPPER of season in Illinois taken May 4. (p. 376). ALFALFA WEEVIL continues damaging to alfalfa in many areas. (pp. 377, 390, 391). ARMY CUTWORM damaging considerable acreage of crops and forage plants in Utah. (p. 378).

EUROPEAN RED MITE a problem in untreated western North Carolina orchards and heavy in untreated orchards at Vincennes, Indiana. CASEBEARERS causing heavy damage to pecans in Alabama, Florida and Mississippi and MAY BEETLES also reported damaging pecans in Alabama and South Carolina. (pp. 380, 386). CITRUS RED MITE populations expected to be moderate to heavy on citrus before June in Florida and CITRUS RUST MITE and TEXAS CITRUS MITE populations also increasing in same State. (p. 381).

BEET LEAFHOPPER survey of overwintering populations in Washington reported. (p. 382). WESTERN SPOTTED CUCUMBER BEETLE requiring controls on hops in Oregon. (p. 383).

EASTERN TENT CATERPILLAR prevalent in several states and FOREST TENT CATERPILLAR seriously defoliated hardwoods in area of southern Alabama. (p. 385).

First FACE FLY activity reported in Vermont and Illinois. Heavy HORN FLY outbreak reported in South Carolina and heavy populations recorded in New Mexico. (p. 388).

Adults of a CUBAN MAY BEETLE (Phyllophaga bruneri) collected at Miami on April 20; first for the season. (p. 390).

CORRECTIONS. (p. 390). ADDITIONAL NOTES. (pp. 390,391).

INSECT DETECTION: Clover seed weevil reported for first time in Utah and in Aroostook County, Maine (p. 377); and alfalfa weevil collected in Washington County, Tennessee, for first time (p. 390). An ensign wasp (Hyptia floridana) collected in Florida; only second specimen in State Plant Board collection. (p. 389).

Status of some IMPORTANT INSECTS in the United States. (p. 393).

Reports in this issue are for the week ending May 6, unless otherwise indicated.

WEATHER OF THE WEEK ENDING MAY 9

Temperatures this week averaged near or below normal in all areas, except from the central Great Lakes region to New England where much above normal departures up to 9° or more were reported from central Maine to western New York State. Maximum temperatures in many sections of New York and New England were in the 75° to 85° range during most of the week. Greatest negative departures, exceeding 6°, occurred over an area from Montana to Lake Superior and in scattered sections of the Southern States.

Seasonally moderate precipitation fell in most areas west of the Rocky Mountains, with some locally heavy amounts in several sections of the Plateau States, including several inches of snow in the White Mountains of Arizona. Extensive precipitation occurred from the central slopes of the Rocky Mountains through the central Great Plains to the western Great Lakes, in the lower Mississippi Valley, and the Middle Atlantic States as a low pressure area developed over the central Great Plains and moved northeastward late in the week. Cold air moving southward behind this storm resulted in record minimum temperatures for so late in the season in portions of Texas, Tennessee, and Alabama over the weekend.

Severe weather included heavy rains, hail and high winds in many sections, numerous tornadoes in Oklahoma and Arkansas, and heavy late-season snowfall in eastern Colorado, Wisconsin, and Upper Michigan. Destructive tornadoes in Oklahoma on May 4 and 5 caused an estimated 31 deaths and property damage of \$3.5 million. Up to 15 inches of snow fell on the eastern slope of the Rockies in Colorado, and amounts of 3 to 5 inches were common in much of Wisconsin and Upper Michigan, with 7 to 12 inches locally.

Weekly precipitation totals of more than 2 inches were general from the central Gulf coast through Arkansas and eastern Oklahoma to eastern Nebraska, Iowa, and Upper Michigan, and in the Atlantic Coastal States from the Carolinas to Pennsylvania. Light to moderate precipitation was recorded in most of New England, the extreme Southeast, and from the west Gulf coast into the southern Rocky Mountains. Parts of south Texas, the trans-Pecos region, and areas of New Mexico need more moisture. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - NORTH DAKOTA - Limited egg-development survey in southwestern counties showed little change in development of Melanoplus bivittatus and M. bilituratus eggs from that of April 4-8. Development mostly in coagulated stage. M. femur-rubrum eggs in Richland County (southeast) showed development in early stages of coagulation. (Wilson). NEBRASKA - Egg development in Custer and Sherman Counties as follows: M. bilituratus 80 percent segmented; M. bivittatus fully segmented; M. differentialis 60 percent eye-spot and 40 percent coagulated. Approximately 12 percent of all eggs parasitized. Occasional M. bilituratus and M. bivittatus nymphs collected on alfalfa in southwestern counties. (Bell, Simpson). MINNESOTA - Observations in southwest and west central districts indicate eggs of M. femur-rubrum range from clear to coagulated, M. bivittatus eggs coagulated to eye-spot and M. bilituratus eggs all coagulated. (Minn. Ins. Rpt.). UTAH - A few winged, overwintered grasshoppers present on alfalfa field margins at Granger, Salt Lake County. (Knowlton). CALIFORNIA - Melanoplus sp. damaging a few fields of alfalfa in Imperial County. (V. Roth).

MORMON CRICKET (Anabrus simplex) - NEVADA - Scattered hatch occurred in Rabbit Hole-Rosebud area of Pershing County. (Del Curto, Apr. 15).

GREENBUG (Toxoptera graminum) - TEXAS - Infestations remain heavy in spring-planted small grains; some fields of small sorghum heavily infested in north central area. A parasite, Aphidius testaceipes, and coccinellids and other predators very numerous in fields; little further damage expected. (Chada, Turney). OKLAHOMA - Light populations (0-5 per linear foot) continue in 6 fields of small grain checked in Kingfisher and Major Counties. (Owens). MISSOURI - Appeared in southwest area small grain during May 1-7, with most aphids collected being winged. Counts in oats, wheat, barley, orchardgrass and bluegrass ranged 0-6 per linear foot, with average of 2.5 in small grain. (Munson, Thomas, Kyd). ILLINOIS - None found in northern part of State in small grains and grasses. (Ill. Ins. Rpt.). ALABAMA - Heavy populations damaging oats in Baldwin and Monroe Counties. (Guyton, Lemons).

ENGLISH GRAIN APHID (Macrosiphum granarium) - MISSOURI - Present in most wheat fields checked; numbers very light, never more than 2 per foot of row. (Munson, Thomas, Kyd). OKLAHOMA - Averaged 0.5-1.0 per sweep in field of rye in Murray County. (Meharg).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - MISSOURI - Present in most wheat fields checked; numbers never more than 2 per foot of row. (Munson, Thomas, Kyd). OKLAHOMA - Light populations (up to 10 per linear foot) continue in 6 fields of small grain in Kingfisher and Major Counties. (Owens).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Light to very heavy in fields of grain sorghum in Bee County. (Edgar). Some infestation remains in barley in central area, but parasites and predators will probably control infestations. Appearing in whorls of newly emerged sorghum. (Chada).

APHIDS - NEBRASKA - Unidentified subterranean aphids found feeding on crown and upper roots of a few wheat plants in Red Willow County, with no apparent damage. Aphids were in close association with a colony of ants. (Simpson).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Light to moderate on dryland wheat and on roadside grasses west of Murray, Salt Lake County. (Knowlton).

CHINCH BUG (Blissus leucopterus) - TEXAS - Averaged one per 5 stalks of young corn in Austin County. (McClung). General in north central area sorghum and barley; infestations in sorghum found on stems under crusted surface of ground. Some farmers have sprayed, but bugs cannot be reached in this location. Infestations average approximately 5 per plant; damage in barley not apparent. (Chada). OKLAHOMA - Occasional adult noted in corn surveyed in northeastern area. (VanCleave, Ritter, Campbell).

A FALSE CHINCH BUG (Nysius sp.) - WYOMING - Averaged 1 per 5 sweeps in 100 sweeps in a field of alfalfa near Lagrange, Goshen County. (Fullerton).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Heavy overwintering populations damaging small grain in Baldwin County. (Shotts, Eden, Guyton).

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) - MINNESOTA - Ranged 15-20 per 100 sweeps in fields of rye in Rosemount area, Dakota County. Abundant, succulent vegetative growth now a prospect as result of recent rains and will be favorable for leafhopper development. Rapid increase in populations possible and could result in increased aster yellows during 1960. (Minn. Ins. Rpt.).

RICE STINK BUG (Oebalus pugnax) - ALABAMA - Heavy infestations on oats and wheat in Escambia County. (Ruffin). LOUISIANA - Ranged 6-278 and averaged 79 per 25 sweeps in oats in Jefferson Davis, St. Tammany, East Baton Rouge and West Feliciana Parishes; 7 per 25 sweeps collected on ryegrass and 3 per 25 sweeps on wheat in Jefferson Davis Parish. (Spink).

A RICE DELPHACID (Sogata orizicola) - LOUISIANA - Surveys were made for this vector of hoja blanca disease on seedling rice and volunteer rice in St. Tammany and St. James Parishes. A total of 7,100 sweeps were made, with negative results. The closely related species, S. furcifera, was also absent. (Spink).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - LOUISIANA - Adults ranged 5-80 per 100 sweeps in rice in St. James Parish; 51 adults were collected in 5 sweeps of rice in Allen Parish. (Spink).

A COLAPSIS (Colapsis sp.) - LOUISIANA - Larvae have reduced stands of rice 20-50 percent, where this crop followed lespedeza in Jefferson Davis and Allen Parishes. (Spink).

ARMYWORM (Pseudaletia unipuncta) - MISSOURI - Small larvae light in southeast area barley and wheat; ranged 0-3 per square foot. (Harrendorf). TEXAS - Light on vetch in Kaufman County (Davis); ranged 2-10 per square foot in heavy growths of small grains in north central area; most larvae immature. (Chada). LOUISIANA - Field of oats in Acadia Parish severely damaged; required treatment. (Spink).

FALL ARMYWORM (Laphygma frugiperda) - ALABAMA - Causing moderate damage to rye and oats in Baldwin County. (Guyton). LOUISIANA - Infestations average 25 percent in corn in Plaquemines Parish. (Spink).

CORN EARWORM (Heliothis zea) - TEXAS - Heavy damage to corn appearing to tassel out in Starr County. (Plyler). Heavy damage to tassels of sweet and early field corn, with some ears infested, in Cameron County. (Stephens). LOUISIANA - Remains active in crimson clover, averaging one per sweep in West Feliciana, East Feliciana, St. Helena, Washington and East Baton Rouge Parishes. Larvae average one per 10 sweeps in white clover in same areas. (Spink).

EUROPEAN CORN BORER (Pyrausta nubilalis) - SOUTH DAKOTA - Survival survey completed. Number of live borers per 10 borers examined during period May 2-6, by county were: Deuel - 4 at stop 2; Hamlin - 3 at stop 1 and 4 at stop 2; Codington - 3 at stop 1 and 5 at stop 2; Clark - 1 at stop 1. Survey of 20 counties indicates a high mortality of 61 percent. (Mast). MINNESOTA - Survey completed during April in southern half of State showed percent mortality of overwintering borers to be 28 in southeast, 33 in south central, 39 in southwest, 51 in west central and 54 in central areas. State average was 41 percent, compared with 27 percent in 1959 and 26 percent in 1958. (Minn. Ins. Rpt.). WISCONSIN - Pupation of overwintering borers expected to begin May 20, with normal temperatures occurring between now and that date. Population of first-generation borers in corn to be planted on heavy soils may be much lower than overwintering potential would normally produce. (Wis. Coop. Sur.). DELAWARE - Pupation of overwintering larvae is 36 percent in New Castle County and approximately 80 percent in Kent and Sussex Counties. (Burbutis, Mason). MARYLAND - Moth emergence underway in several Eastern Shore counties. (U. Md., Ent. Dept.).

CUTWORMS - TEXAS - Infestations of an unspecified species destroying stands of late-planted corn in Bee County. (Edgar).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - LOUISIANA - In an East Baton Rouge Parish oat field, 15 adults collected in 50 sweeps. (Spink).

SUGARCANE BORER (*Diatraea saccharalis*) - LOUISIANA - Six egg masses per acre observed at 101 check points in fields examined in 13 parishes; feeding signs noticeable in infested fields. (Spink).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - TEXAS - Light generally throughout north central area, with 1-2 per whorl of corn and sorghum. (Chada).

DESERT CORN FLEA BEETLE (*Chaetocnema ectypa*) - ARIZONA - Light to medium infestations on corn and sorghum in central and southwestern areas. (Ariz. Coop. Sur.).

FLEA BEETLES - NEW JERSEY - Large numbers of an unspecified species reported active in sweet corn, April 26. Growers have already treated considerable acreage of early varieties for control. (Ins.-Dis. Newsl.). ILLINOIS - Several species averaged 6 per 100 sweeps in northern section of State. (Ill. Ins. Rpt.).

WIREWORMS - SOUTH DAKOTA - An unspecified species causing considerable damage to wheat in Sully County. (Mast). NEBRASKA - A single field of wheat in Perkins County 90 percent infested with wireworms and false wireworms; each plant contained a single larva. One alfalfa plant in Custer County had 4 wireworm larvae feeding on the roots. (Simpson, Bell). UTAH - Damaging part of a farm at Nibley, Cache County. (Knowlton).

WHEAT CURL MITE (*Aceria tulipae*) - IDAHO - Severe on early planted winter wheat in Franklin County. (Tovey). Also infesting volunteer barley in a Ladino clover field near Troy, Latah County. (Fenwick, Portman). KANSAS - Survey in northwest area showed planted wheat to be almost free of this mite. Light to medium infestations present in many large fields of volunteer wheat from Smith County west. Evidence of disease not as evident as in the southwestern area as reported in CEIR 10(18):326. Also, as in the southwest area, most fields of volunteer wheat in northwest are being plowed and the mites will be destroyed. (Somsen).

PEA APHID (*Macrosiphum pisi*) - NEW JERSEY - Populations increasing in southern area. (Ins.-Dis. Newsl., Apr. 26). DELAWARE - Populations on alfalfa very high throughout State; most untreated fields average over 300-400 per sweep. Many fields show severe yellowing. (Burbutis, Mason). MARYLAND - Heavy on alfalfa in all sections, with crop injury severe in untreated fields. Over 3,000 per sweep taken in one field of alfalfa in Frederick County. (U. Md., Ent. Dept.). VIRGINIA - Light to heavy infestations reported from all parts of State where alfalfa is grown. (Rowell). Ranged 1-12, averaging 6, per sweep on alfalfa at Steeles Tavern, Augusta County. (Woodside, Apr. 29). Causing considerable damage on some fields in Russell County, but most alfalfa too far along for controls. (Altizer). ILLINOIS - Averaged 56 per 100 sweeps in northern area; increasing in southern area. Aphids packed on stems in some alfalfa fields. (Ill. Ins. Rpt.). WISCONSIN - Averaged 29 per 10 sweeps in alfalfa, all wingless, in La Crosse, Sauk and Dane Counties. (Wis. Coop. Sur.). MISSOURI - Damage to alfalfa evident in southwest; some fields show considerable yellowing. Counts on alfalfa in southwest ranged 100 to over 600 per sweep. Populations decreasing in southeast due to disease, parasites and predators. Ranged 70-107 per sweep in southeast area alfalfa. (Harrendorf). NEBRASKA - Populations on alfalfa ranged 0-6, averaging 3 per 10 sweeps, in counties of southwest crop reporting district. (Simpson). KANSAS - Ranged 2-10 per sweep in northeast area alfalfa. (Peters). Some alfalfa being cut early in Montgomery County because of high populations. (Gates). OKLAHOMA - Light to heavy (25-800 per sweep) in legume fields checked in south central and central areas. (Vinson, Meharg, Stiles, Owens). Medium infestations (up to 300 per sweep) noted on alfalfa and vetch in northeastern area. (VanCleave, Ritter, Campbell). TEXAS - Averaged 25 per sweep on alfalfa in Bailey County (Hatchett, Russell) and 8-10 per sweep in one field of alfalfa

in Hansford County (Russell, Preston). Medium to heavy on vetch in Hunt and Kaufman Counties (Davis) and heavy on Huban clover in Collin County (Turney). ARIZONA - Infestations increased during past week and are light to medium in alfalfa, statewide. (Ariz. Coop. Sur.). COLORADO - Ranged 20-100 per 100 sweeps in Larimer County alfalfa, 4-8 per 100 sweeps in Montrose County. (Colo. Ins. Sur.). WYOMING - Averaged less than one per sweep in 100 sweeps per field of alfalfa in southeast area. (Fullerton). UTAH - Common but not damaging in alfalfa in Cache, Box Elder, Weber, Davis and Salt Lake Counties. Very few winged forms present. (Knowlton). NEVADA - Populations in Reno-Sparks area, Washoe County, remain extremely low. No aphids found in over 75 percent of fields checked. Highest counts were 2 per sweep. (Bechtel). OREGON - Remains extremely low on legumes in Willamette Valley. (Larson).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Light to moderate on alfalfa in Quay and Roosevelt Counties. (N. M. Coop. Rpt.). TEXAS - Averaged 50 per sweep in alfalfa in Bailey County (Hatchett, Russell); 15-20 per sweep in a field of alfalfa in Hansford County (Russell, Preston). Infestation greatly reduced in north central area. Farmers made early cuttings of heavily infested fields, and recent rains checked development. (Chada). OKLAHOMA - Populations ranged none to light in most alfalfa checked in central and south central areas; counts ranged up to 0.3 per sweep in most fields. Medium (100 per sweep) in one field in Johnston County. (Vinson, Meharg, Stiles, Owens). NEVADA - None found in fields checked in Reno-Sparks area, Washoe County. (Bechtel).

COWPEA APHID (Aphis medicaginis) - UTAH - Low numbers infesting alfalfa at Granger, Salt Lake County. (Knowlton).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - MARYLAND - Nymphs generally light on alfalfa in all sections. (U. Md., Ent. Dept.). PENNSYLVANIA - Infestations spotty in legumes in northwest area (Adams) and low in numbers and spotty in hay in Susquehanna and Lackawanna Counties (Gesell). WISCONSIN - Overwintering eggs hatching; nymphs averaged less than one per 10 stems of alfalfa in Dane County, May 5. None found in fields examined in other areas, but hatching is expected. (Wis. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - KANSAS - Adults averaged less than one per sweep in northeastern area alfalfa. (Peters). PENNSYLVANIA - Much more abundant in hay in south central area than usual. (Pepper).

RAPID PLANT BUG (Adelphocoris rapidus) - DELAWARE - Nymphs present on alfalfa and clover in New Castle and Kent Counties. (Burbatis, Mason).

LYGUS BUGS (Lygus spp.) - WYOMING - Surveys were made using 100 sweeps per field of alfalfa 6-9 inches high. Average number of adults and nymphs per sweep, respectively, were: Wheatland - 1 and 0 in 6 fields; Ft. Laramie - 1 and 0 in 3 fields; Lingle - 2 and 1 in 6 fields; Torrington - 2 and 0 in 6 fields; Hawk Springs - 1 and 1 in 3 fields; Lagrange - 2 and 1 in 3 fields; Pine Bluffs - 1 and 0 in 6 fields. (Fullerton). UTAH - L. elisus numerous on mustards and alfalfa at Willard, Box Elder County, and Ogden, Weber County. L. hesperus comprised 60 percent of lygus bug population in alfalfa at Bountiful, Davis County; this is only location it was dominant in numbers over L. elisus. (Knowlton). COLORADO - Averaged 0-1 per 100 sweeps in Larimer County alfalfa. (Colo. Ins. Sur.). ARIZONA - Counts averaged 10-20 adults and nymphs per 10 sweeps in alfalfa, statewide. (Ariz. Coop. Sur.). NEW MEXICO - Moderately heavy on alfalfa at Tucumcari, Quay County; mostly nymphs. (N. M. Coop. Rpt.). TEXAS - Light numbers on scattered alfalfa plantings in Terry County. (Whitaker).

POTATO LEAFHOPPER (Empoasca fabae) - ILLINOIS - First of season taken in a wind sock at Urbana on May 4. (Ill. Ins. Rpt.).

ALFALFA WEEVIL (Hypera postica) - NEW JERSEY - Damage in most fields appears to be coming later than in earlier years. Some fields will be cut before spraying because damage is so late in appearing. (Ins.-Dis. Newsl.). DELAWARE - Larvae range 5-20 per sweep on alfalfa throughout State. Injury becoming more noticeable in many areas. (Burbutis, Mason). MARYLAND - Larval injury generally light to moderate on alfalfa in all sections. Heavy damage noted to one field in Queen Annes County where larvae averaged 53 per sweep. (U. Md., Ent. Dept.). PENNSYLVANIA - Adults and larvae abundant on alfalfa in Lackawanna County. (Gesell). VIRGINIA - Averaged 1-6 larvae and 1-5 adults per 10 sweeps in alfalfa at Steeles Tavern, Augusta County, on April 29. (Woodside). In Russell County, where this pest was not serious in 1959, one field of alfalfa showed fairly serious damage, May 4. Generally, only an occasional plant shows weevil damage. (Altizer). ALABAMA - Adults emerging in large numbers in Lee County, with an average of 30 per sweep taken in one field. Ground observations revealed a tremendous number emerging from pupae and crawling on the ground. (Grimes). COLORADO - Larvae average 1 per 100 sweeps in Larimer County alfalfa; 2-4 per 100 sweeps in Mesa County. (Colo. Ins. Sur.). WYOMING - Adults averaged less than one per 25 sweeps in 12 fields of alfalfa in Wheatland-Torrington area; 100 sweeps made in each field. In 5 one-square-foot samples in each of same 12 fields, adults averaged less than one per square foot. Alfalfa was 6-9 inches high in all fields. (Fullerton). UTAH - Adults active in fields at Willard, Ogden, Salt Lake City and Granger, in northern part of State. (Knowlton). CALIFORNIA - Heavy populations occurring on alfalfa in Fresno, Fresno County. (Cal. Coop. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - MISSOURI - Populations have decreased in southwest area due to disease; most surviving larvae three-fourths to full grown. Larval counts in southwest area alfalfa ranged 0-3 per crown. (Munson, Thomas, Kyd). KANSAS - Larvae present in a few fields of alfalfa in northeastern area; larvae averaged less than one per sweep. (Peters). ILLINOIS - Averaged 6 per square foot in northern area. (Ill. Ins. Rpt.). NORTH CAROLINA - Larvae active on Ladino clover in Cleveland County. (Clapp, Farrier).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - MARYLAND - Larvae appearing in axils of red clover in Queen Annes County. (U. Md., Ent. Dept.). ILLINOIS - Adults varied 0-10 per 100 sweeps. (Ill. Ins. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - NEBRASKA - Light infestations present in 30 percent of alfalfa fields, averaging less than one per 10 sweeps in southwest counties. (Simpson).

CLOVER SEED WEEVIL (Miccotrogus picrostris) - MAINE - Reported from Aroostook County as a new county record. (Boulanger, Apr. 29). UTAH - Specimens collected in field of alfalfa at Petersboro, Cache County, August 15, 1958, by K. C. Tilley, determined as this species by V. M. Tanner. This is a new State record for this species. (Haws, Knowlton).

A CLOVER WEEVIL (Hypera meles) - ALABAMA - Heavy infestations observed in Lee and Chambers Counties, with averages of 15-20 larvae and 8-10 adults per sweep not uncommon. (Grimes).

CLOVER WEEVILS (Hypera spp.) - LOUISIANA - Larvae average more than one per sweep in most fields of white clover surveyed in central area of State. (Spink).

PEA LEAF WEEVIL (Sitona lineata) - OREGON - This species and S. hispidula damaging field peas in the Willamette Valley. In most fields examined, S. lineata was the prevalent species. Leaf notching noted on all plants in some fields. (Larson, Morrison).

VETCH BRUCHID (Bruchus brachialis) - TEXAS - Medium infestation noted on vetch in Kaufman County. (Davis).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - NEBRASKA - Larvae and adults occasionally collected in alfalfa in southwest counties. (Simpson). OKLAHOMA - Very light (0.1 per sweep) in field of buttonclover checked in Marshall County. (Vinson). UTAH - Rare at Granger and Magna, Salt Lake County. (Knowlton).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Averaged 0.3 and 1.5 per sweep in 2 fields of legumes in Marshall and Johnston Counties, respectively. (Vinson).

ARMY CUTWORM (Chorizagrotis auxiliaris) - UTAH - Has damaged more than 5,000 acres of range forage plants in the Snowville area, Box Elder County, and now damaging at least 500 acres of alfalfa and wheat in the same area. Northwest of Fielding, alfalfa is being held back from first growth and damage is occurring to some wheat. North of Bothwell, 800 acres of barley have been seriously damaged by this pest, with 135 acres already replanted. Wheat and range forage are moderately damaged throughout this area. The species is scarce in fields of alfalfa at Ogden, Weber County, and at Granger, Salt Lake County. No damage has been reported from Beaver County. (Knowlton). NEBRASKA - Light infestations damaging experimental sainfoin planting at North Platte. Larval development in wheat ranges from fourth instar to maturity, with some pupation, in Kimball and Cheyenne Counties. No injurious infestations reported in wheat or barley. Larvae less than one per 5 feet of row in most fields. (Pruess).

BRONZED CUTWORM (Nephelodes emmedonia) - ILLINOIS - Averaged 8 per 100 sweeps in northwest; none found in northeast. (Ill. Ins. Rpt.).

VARIEGATED CUTWORM (Peridroma margaritosa) - TEXAS - Light infestation noted on vetch in Kaufman County. (Davis). CALIFORNIA - General, heavy populations occurring in fields of alfalfa and flax in Imperial County. (V. Roth).

SALT-MARSH CATERPILLAR (Estigmene acrea) - TEXAS - Larvae of this pest and another unidentified species attacking clover, late flax and weeds in Bee and Live Oak Counties. Medium infestations in some fields of clover. (Edgar).

THRIPS - UTAH - Unspecified species very abundant on alfalfa in Washington County and numerous in fields at Granger, Salt Lake County. (Knowlton).

A SPIDER MITE (Tetranychus cinnabarinus) - ARIZONA - Light populations present in several Yuma County alfalfa fields. (Ariz. Coop. Sur.).

GRAY GARDEN SLUG (Derocerus reticulatum) - OREGON - Injury in annual legumes in the Willamette Valley is extremely light. Normally during this period, there is considerable concern over injury to these crops from this pest. (Dickason).

A SAWFLY (Dolerus sp.) - ILLINOIS - Averaged 10 per 100 sweeps of grass in northwestern area and 0 in northeast. (Ill. Ins. Rpt.).

ERIOPHYID MITES - ARIZONA - Heavy populations damaging central and southwestern area Bermuda grass lawns. (Ariz. Coop. Sur.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NORTH CAROLINA - First adults found in bait pail in apple orchard in Wilkes County; six days after petal fall, 4 days before first cover spray. (Turnipseed). PENNSYLVANIA - Pupating rapidly on apple in south central area on May 4. (Pepper). OHIO - Numerous larvae have pupated; no adult emergence noted in Wayne County. (Cutright). INDIANA - Pupation well along at Vincennes, but no adult emergence occurred as of May 2. (Hamilton). ILLINOIS - No emergence noted in Carbondale area. (Meyer, May 4). COLORADO - None taken in traps to May 6. (Colo. Ins. Sur.). UTAH - Moths not taken in bait traps to May 4. (Davis).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - PENNSYLVANIA - Eggs hatching on apple in south central area, May 4. (Pepper). Adults flying and egg masses common on apple in Erie County. (Adams). OHIO - Adults noted at Wooster April 27; no egg masses noted. (Cutright). INDIANA - Populations light throughout Vincennes area. Egg hatch developed far enough so that protection will be needed at petal fall where egg masses present. (Hamilton, May 2). ILLINOIS - Populations generally very light and well controlled. Larvae easily found on water sprouts and terminal growth inside trees in blocks where present in Carbondale area. (Meyer, May 4). MISSOURI - Larvae found in Columbia County, but not on fruit trees. (Wkly. Rpt. Fr. Gr.).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - ILLINOIS - Larvae found on underside of leaves in Carbondale area. (Meyer, May 4).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MISSOURI - Larvae in terminals of peach trees in southeastern area. (Wkly. Rpt. Fr. Gr.). INDIANA - Adults began coming to bait traps in Vincennes area on April 26. Activity high at night on April 27-28, then slowed down over weekend due to unfavorable weather conditions. (Hamilton, May 2).

PEACH TREE BORER (Sanninoidea exitiosa) - OKLAHOMA - Counts averaged 0.57 larva per tree in a peach orchard checked in Payne County. (Bieberdorf).

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - An average of 2.8 adults taken from an orchard April 28 in Fort Valley area. Many peach drops contain larvae. (Snapp). LOUISIANA - Heavy damage to peach trees caused by this pest observed in Allen Parish. (Spink). MISSOURI - Feeding signs on untreated plums plentiful in Cape Girardeau area. (Wkly. Rpt. Fr. Gr.). ILLINOIS - Numbers greatly reduced in orchards in Carbondale area due to controls. (Chandler). INDIANA - First adults of season jarred from peach trees at Vincennes on May 2. (Hamilton). PENNSYLVANIA - Eggs being laid in apple in south central area, May 4. (Pepper).

APPLE CURCULIO (Tachypterellus quadrigibbus) - NEW JERSEY - Some present in orchards. (Ins.-Dis. Newsl.).

PLUM GOUGER (Anthonomus scutellaris) - OKLAHOMA - In Stillwater area, 10-15 percent of apricot fruit infested with second-instar larvae. (Bieberdorf).

TARNISHED PLANT BUG (Lygus lineolaris) - PENNSYLVANIA - Much more abundant than usual on fruit trees in south central area. (Pepper).

PEAR PSYLLA (Psylla pyricola) - OREGON - Hardshells have been transforming to first-brood adults since about April 30 in the Medford area, Jackson County. (Gentner).

A PEAR LEAF MIDGE (Dasyneura pyri) - OREGON - Curling pear leaves in Polk County. (Capizzi).

APPLE APHID (Aphis pomi) - INDIANA - Infestations prevalent in Vincennes area; controls not recommended at present. (Hamilton, May 2).

ROSY APPLE APHID (Anuraphis roseus) - OHIO - Fairly common on untreated trees. Stem mothers reproducing. Predators active. (Cutright). INDIANA - Curling leaves in some orchards in Vincennes area; controls recommended. (Hamilton, May 2).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - MAINE - Nymphs present on apple buds in York County, April 29. (Boulanger).

SCALE INSECTS - CALIFORNIA - Parlatoria oleae and Aspidiotus perniciosus infestations medium on peach trees in Hanford area, Kings County. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - NORTH CAROLINA - A problem in all western area orchards not treated with dormant oil. Miticides being applied in orchards not treated with dormant oil. (Turnipseed). PENNSYLVANIA - Eggs hatched on apple in south central area on May 4. (Pepper). VERMONT - Some activity noted. (MacCollum). OHIO - Hatching of overwintering eggs almost complete. Hatching started April 23 and was quite heavy on April 25-26 in northern area. High populations of overwintering eggs were present. (Cutright). INDIANA - Heavy infestations of mobile forms present in most orchards in Vincennes area that did not receive preventive treatments. Egg laying has started. Average number per leaf on April 2, in untreated orchards, was 7 mobile forms and 4 eggs. (Hamilton).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - PENNSYLVANIA - Abundant on new growth of apples in south central area on May 4. (Pepper).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - Infestations have developed on foliage of pears at Lewiston, Nez Perce County. (Bechtolt). OREGON - Heavily infesting a nursery planting of several hundred pear trees at Sherwood, Washington County. Injury apparent on nearly every leaf on these trees. (Heinis).

THRIPS - UTAH - Unspecified species are very abundant in orchards in Washington County. (Knowlton).

A SPITTLEBUG (Clastoptera achatina) - FLORIDA - Light infestations present on pecans at Monticello, Jefferson County. (Phillips, Apr. 28).

SAWFLIES (Megaxyela spp.) - MISSISSIPPI - Damaging pecan in Oktibbeha County. (Bennett).

PECAN NUT CASEBEARER (Acrobasis caryae) - FLORIDA - Approximately 50 percent of specimens collected from pecan twigs at Monticello, Jefferson County, in pupal stage. (Phillips, Apr. 28). GEORGIA - Light infestations on pecan trees in Dooly County. (Lee, Apr. 28). ALABAMA - Heavy infestations on pecan trees reported in Monroe, Baldwin and Dallas Counties. (Shotts, Lemons). TEXAS - Overwintering larvae beginning to pupate in south central area. (Texas Coop. Rpt.). OKLAHOMA - Twigs 15 percent infested in grove of native pecans in Love County. (Vinson).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - FLORIDA - Infestations in some pecan orchards heaviest observed for several seasons. (Phillips, Apr. 28). ALABAMA - Heavy infestations on pecans reported in Monroe, Baldwin and Dallas Counties. (Shotts, Lemons).

PECAN CIGAR CASEBEARER (Coleophora caryaefoliella) - FLORIDA - Light larval infestation feeding on pecan foliage. This pest is becoming more prevalent in the Monticello area of Jefferson County each year. (Phillips, Apr. 28).

CASEBEARERS (Acrobasis spp.) - MISSISSIPPI - Causing considerable concern on young twigs and leaves of pecans in Jones and adjoining counties. (Pepper).

PECAN CARPENTERWORM (Cossula magnifica) - GEORGIA - Damaging trunks of pecan trees in Peach County. (Snapp, Apr. 28).

MAY BEETLES - SOUTH CAROLINA - Unspecified species have appeared in numbers in a part of Winnsboro, Fairfield County, and are keeping growth down on pecans and oaks. May cause loss of nut crop. (Nettles et al.).

A WOOD-BORING BEETLE (Neoclytus conjunctus) - CALIFORNIA - This species, in association with Blapstinus sp., heavy on Persian walnuts in Clearlake Highlands, Lake County. (Cal. Coop. Rpt.).

Citrus Insect Situation in Florida - End of April - Although PURPLE SCALE (Lepidosaphes beckii) activity increased for a brief period, it will remain in the low range over the State. Moderate to heavy infestations will be rare during May. The recent sharp rise in FLORIDA RED SCALE (Chrysomphalus aonidium) activity, due to hatching, will subside in May. Populations generally will remain below average for several weeks. A few moderate infestations may be expected in the Bartow, Ridge and Indian River districts, which now show activity in the high range. CITRUS RED MITE (Panonychus citri) - A strong increasing trend will prevail during May and early June. Populations will increase generally and some groves will have moderate to heavy infestations before June. Highest activity is in the Brooksville, Bartow and Orlando districts. CITRUS RUST MITE (Phyllocoptura oleivora) activity has taken an upward turn and will continue to increase during the next 2 months. Spring flush leaves are rapidly becoming infested. Highest activity is in the west coast and Brooksville districts. TEXAS CITRUS MITE (Eotetranychus banksi) populations are higher than in previous Aprils and are increasing. (Simanton, Thompson, Johnson, (Citrus Exp. Sta., Lake Alfred)).

A BLOSSOM WEEVIL - NEW JERSEY - Reported as being quite numerous on blueberries in Browns Mills, Sheep Pen Hill, Upton and Magnolia areas. (Ins.-Dis. Newsl., Apr. 26).

BLACK ARMY CUTWORM (Actebia fennica) - MAINE - Outbreak found on blueberries in Union, Knox County, April 23. Infestation in about same area as in 1959. Damage classed as moderate to date. (Boulanger, Apr. 29).

TRUCK CROP INSECTS

APHIDS - NEW JERSEY - Activity of unspecified species observed on strawberries. (Ins.-Dis. Newsl., Apr. 26). MARYLAND - Light on potatoes in southern sections. (U. Md., Ent. Dept.). DELAWARE - Alates of Macrosiphum solanifolii present on potato field in Sussex County. (Burbutis, Mason). VIRGINIA - Potato aphids more numerous in Painter area, Accomack County, than they have been at this time of year in quite a while. (Hofmaster). TEXAS - Heavy damage to peppers in western part of Rio Grande Valley reported; species suspected to be Myzus persicae. (Deer). CALIFORNIA - Populations of unspecified species low on strawberries at Anaheim, Orange County, after treatment a month ago. (J. Wilcox).

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Early instar larvae light on spinach and mustard in Tulsa and Wagoner Counties. (Walton, VanCleave, Ritter). NEW MEXICO - Eggs and larvae generally light on lettuce in Mesilla County. (N. M. Coop. Rpt.). ARIZONA - Populations more abundant than in previous years in Yuma County cantaloups. Many third and fourth-instar larvae damaging rinds of small fruit. (Ariz. Coop. Sur.). CALIFORNIA - Populations quite numerous at Artesia, Los Angeles County, and at San Juan Capistrano, Orange County, during third week in April. This is an extremely early field infestation and was due to hot weather during latter part of March and early April. At Artesia, about 10 percent of larvae were Autographa californica. (J. Wilcox).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW JERSEY - Eggs being laid on young cabbage plants. (Ins.-Dis. Newsl.). MARYLAND - Adults laying eggs on cabbage at several localities in Frederick and Washington Counties. (U. Md., Ent. Dept.).

DIAMONDBACK MOTH (Plutella maculipennis) - UTAH - Moths numerous and some larvae present on mustards at Granger, Salt Lake County. (Knowlton).

CABBAGE MAGGOT (Hylemya brassicae) - NEW JERSEY - Adults active throughout the State. (Ins.-Dis. Newsl.). MASSACHUSETTS - Eggs found in eastern area, May 3-4. Adults very abundant. (Chamberlain, Whitcomb, Fultz).

CABBAGE APHID (Brevicoryne brassicae) - VIRGINIA - Caused some damage in Painter area of Accomack County. (Hofmaster). UTAH - Numerous on mustards at Granger, Salt Lake County. (Knowlton).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Alate forms present on young cabbage in one area of Sussex County. (Burbutis, Mason). VIRGINIA - Caused one grower to lose 200 acres of spinach in Painter area, Accomack County. (Hofmaster). OKLAHOMA - Light on spinach in Bixby area. (Walton). CALIFORNIA - Heavy infestations on tomato in Rio Vista, Solano County. (Cal. Coop. Rpt.). Became serious on turnips at Artesia, Los Angeles County; treatments required. (J. Wilcox).

TURNIP APHID (Rhopalosiphum pseudobrassicae) - OKLAHOMA - Medium to heavy on mustard, radish and turnips in east central area. (Walton, VanCleave, Ritter, Mead).

TOMATO FRUITWORM (Heliothis zea) - TEXAS - Continues to damage tomatoes in lower Rio Grande Valley. (Deer). LOUISIANA - Larvae infesting strawberries in East Baton Rouge Parish; counts as high as 5 berries per pint. (Spink).

CUTWORMS - LOUISIANA - Agrotis ipsilon and Feltia subterranea damaging tomatoes in St. Tammany Parish. (Spink). NEW JERSEY - Unspecified species noted as active on strawberries. (Ins.-Dis. Newsl., Apr. 26).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Adults depositing eggs on potatoes at several southern localities. (U. Md., Ent. Dept.). VIRGINIA - Present in potatoes in Painter area, Accomack County; treatments applied. (Hofmaster). WASHINGTON - Attacking early crop potatoes as they emerge in Yakima County. Infestation localized. Adults appearing slightly earlier than usual and in considerable numbers. (Landis).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - FLORIDA - Reported on tomatoes and other truck crops in Homestead, Dade County, area. This species not very abundant over most of winter vegetable crop season, but they are more numerous than for nearly one year. (Wolfenbarger, Apr. 27). Became more abundant by May 3, but not nearly as abundant as at same time in 1959. (Wolfenbarger).

FLEA BEETLES - MARYLAND - Adults of Phyllotreta spp. noted on cabbage at several localities in Washington County and adults of Epitrix hirtipennis averaged 1.2 per potato plant at Bushwood, St. Marys County. (U. Md., Ent. Dept.). DELAWARE - Adults of E. cucumeris present on young potatoes throughout State; feeding injury light. Chaetocnema denticulata adults also present in some pepper seed beds in Sussex County, causing only light feeding injury. (Burbutis, Mason). VIRGINIA - Unspecified species present on potatoes in Painter area of Accomack County; treatments applied. (Hofmaster).

SPRINGTAILS - MARYLAND - Light to moderate injury noted to potatoes at several localities in St. Marys County. (U. Md., Ent. Dept.).

PEA APHID (Macrosiphum pisi) - DELAWARE - Colonies showing an increase on peas in all counties; however, still remain light, with highest counts of 30 per 10 sweeps in one field in Kent County. (Burbutis, Mason).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Conspicuous feeding on snap beans noted in Queen Annes County. (U. Md., Ent. Dept.). OKLAHOMA - Medium infestation on snap beans in Tulsa County. (Stiles). Medium in some fields of beans in Bixby area. (VanCleave, Ritter).

BEEF LEAFHOPPER (Circulifer tenellus) - WASHINGTON - Survey of overwintering populations conducted March 25-April 30 in Yakima Valley and Columbia Basin. Populations high, averaging 1.1 per square foot at 75 stops. Principal hosts (tumbleweed, flixweed, pepperweed) sparse on rangelands but abundant on uncultivated land in irrigated areas, especially along roadsides and ditches.

Conditions favorable for large spring generations within the irrigated areas of Yakima Valley. Conditions less favorable for leafhopper development in Columbia Basin. Rangelands on periphery not likely to contribute much to overall leafhopper migration. (Klostermeyer).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - LOUISIANA - First-generation adults averaged 6 per plant in field of cucumbers in Tangipahoa Parish. About 50 percent of plants showed symptoms of bacterial wilt disease. (Spink). GEORGIA - Heavy infestations in association with Diabrotica undecimpunctata howardi on watermelon and cantaloup in Wilcox County. (Hudson).

LEAF MINERS - ARIZONA - Infestations heavy in Yuma County cantaloups; could become a problem in some fields. (Ariz. Coop. Sur.). FLORIDA - Liriomyza sp. collected on tomatoes and other truck crops in Homestead area of Dade County on April 27; infestations about over for season. (Wolfenbarger).

ASPARAGUS BEETLE (Crioceris asparagi) - UTAH - Causing some damage to asparagus at Granger and Farmington. (Knowlton).

ONION MAGGOT (Hylemya antiqua) - MASSACHUSETTS - Adults started to emerge on May 5 in Connecticut Valley. (Tunis).

ONION THRIPS (Thrips tabaci) - CALIFORNIA - Built up to damaging numbers on bulb onions at La Puente, Los Angeles County; treatments required in April. (J. Wilcox).

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata) - OREGON - Abundant and necessitating control in hops in Josephine County. (Morrison).

THRIPS - UTAH - Unspecified species reported as very abundant on strawberry foliage in Washington County. (Knowlton). LOUISIANA - Unspecified species ranged 5-20 per head in strawberries in East Baton Rouge Parish. (Spink). NEW MEXICO - Frankliniella occidentalis continues to be a problem in untreated or improperly treated lettuce fields in Dona Ana County. (N. M. Coop. Rpt.).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - UTAH - Moths numerous in strawberry patches in Ogden-Riverdale area of Weber County. (Knowlton, Birmingham).

STRAWBERRY WEEVILS - NEW JERSEY - Unspecified species active in strawberries. (Ins.-Dis. Newsl., Apr. 26).

A SAP BEETLE (Lobiopa insularis) - LOUISIANA - First-generation adults moving into strawberry fields; 3 per 100 square feet found in some fields. (Spink).

CLOVER MITE (Bryobia praetiosa) - MAINE - Reported from early bed of strawberries in Orono, Penobscot County, April 23. (Boulanger).

SPIDER MITES (Tetranychus spp.) - NEW JERSEY - First egg hatch of T. telarius noted in strawberries in central area on April 28. (Ins.-Dis. Newsl.). CALIFORNIA - T. telarius continues serious on strawberries at Anaheim, Orange County; regular treatments required. (J. Wilcox). UTAH - T. atlanticus infesting foliage of strawberries at Orem in Utah County. (Davis).

TOBACCO INSECTS

APHIDS - NORTH CAROLINA - From 75-100 percent of tobacco plants in Columbus County infested with alate forms of unspecified species. (Guthrie).

BUDWORMS (Heliothis spp.) - NORTH CAROLINA - Untreated plots of tobacco with 30 percent of plants infested by first instars in Columbus County. (Guthrie).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - NORTH CAROLINA - Fifty percent of tobacco plants had one or more present. (Guthrie).

WIREWORMS (Conoderus spp.) - NORTH CAROLINA - Untreated tobacco plots in Columbus County 40 percent infested. (Guthrie).

COTTON INSECTS

THRIPS - ARIZONA - Infestations of unspecified species are medium to heavy on cotton, statewide; average 6-8 per plant in southeast and 3-6 per plant in central and southwest areas. Cotton plants still small and growth very slow, statewide, because of cool weather during past several days. This condition is favorable to thrips and feeding damage is noticeable on new growth. (Ariz. Coop. Sur.). NEW MEXICO - Frankliniella occidentalis becoming extremely numerous on seedling cotton plants. Counts often as high as 50 per seedling in fields checked in northern Dona Ana County. (N. M. Coop. Rpt.). TEXAS - Unspecified species reported medium to heavy in parts of Willacy County (Deer), light in Fort Bend County (Murray), found in 6 of 17 fields inspected in central area (Parencia) and light in Collin and Hunt Counties in north central area (Davis, Turney). GEORGIA - Heavy on cotton in Early County. (Johnson).

APHIDS - TEXAS - Caused moderate to heavy damage to cotton over much of lower Rio Grande Valley, with heaviest damage appearing in Willacy County (Deer); light to heavy in Bee and Live Oak Counties, southwest area (Edgar); light in Fort Bend County, with lady beetles building up (Murray); and very light to medium in central area, with parasites and predators taking over (Parencia). OKLAHOMA - Aphis gossypii light to medium, 4-15 per plant, on cotton in 2-leaf stage in Jackson County. (Hatfield).

FLEAHOPPERS - TEXAS - Unspecified species making appearance in many fields of cotton in west end of lower Rio Grande Valley (Deer), only 3 adults found in 17 fields examined in central area (Parencia) and light in Collin and Hunt Counties (Davis, Turney).

SPIDER MITES - TEXAS - Infestations of unspecified species light to heavy on cotton in Live Oak and Bee Counties (Edgar) and light in Brazos River area of Robinson County (Taylor).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Eleven moths emerged from cage tests at Tempe, Maricopa County, during past week. Primary emergence was from surface material and 2-inch burial, with only one moth emerging from material 6 inches deep. Three moths have emerged since April 29 in similar tests at Safford, Graham County. (Ariz. Coop. Sur.). NEW MEXICO - Total moth emergence in experimental cages at the State University during April was 19. (N. M. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Averaged one larva per 3 feet of row in some Yuma County cotton fields; lower in central and southeast sections. (Ariz. Coop. Sur.). TEXAS - Light to heavy infestations in Bee and Live Oak Counties (Edgar), light in Brazos River area of Robinson County (Taylor) and present in nearly all fields in southern Cameron County (Deer).

BOLLWORMS (Heliothis spp., et al.) - TEXAS - Found in nearly all fields in lower Rio Grande Valley, but no fields required treatments. (Deer). GEORGIA - First report of season of eggs on cotton in Dooly County. (Fulford, Apr. 30).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Light but general in central area; damage light in most cases. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Three adults collected in 3 cotton fields in central area and 3 were collected from flight screens in same area. (Parencia).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - CALIFORNIA - Ips sp., Dendroctonus valens and D. brevicomis have killed over 100 large, mature and saw timber ponderosa pines in the high value recreational Greenville Campground and adjacent private land at Greenville, Plumas County. (Cal. Coop. Rpt.). D. pseudotsugae caused complete kill of one to two mature Douglas-firs per acre in a 2,000-acre stand in the Willows district, Mendocino-North Coast area. This is the first report of increased activity in this area. D. brevicomis completely killed groups of two to six mature ponderosa pines in a 4,000-acre stand in the Willows district, Glenn County. (U. S. For. Serv.).

WHITE-PINE WEEVIL (Pissodes strobi) - WISCONSIN - Adult activity general in most of white pine areas. Noted first on April 21 in Burnett County, feeding and mating observed on April 22 and oviposition noted on April 25. (Wis. Coop. Sur.).

A SCOLYTID (Pseudohylesinus sp.) - IDAHO - First noted this season infesting wind-thrown Douglas-fir at Camp Creek, April 20. (Furniss).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - VERMONT - Tents prevalent. (MacCollom). PENNSYLVANIA - Heavy populations on trees in Dauphin, Cumberland, Adams, Lebanon, Carbon and Monroe Counties, April 29. (Drooz). Very light in northeast, May 5, where it was very heavy three years ago. (Gesell). DELAWARE - Very abundant on wild cherry and other hosts along roadsides throughout State. Severe defoliation in several places. (Burbutis, Mason). ALABAMA - Present in Lee County. (Guyton). FLORIDA - Adults very numerous in light trap collections in Gainesville area from April 25-May 7. (Denmark). INDIANA - Quite common on black cherry and other hardwoods in southwest. (Schuder, Fix). ILLINOIS - Apparently will be more abundant and widespread than last year. Small nests visible throughout northern area and quite prominent in south. (Ill. Ins. Rpt.). KANSAS - On ornamental plums in Riley County. (Gates).

FOREST TENT CATERPILLAR (Malacosoma disstria) - ALABAMA - Seriously defoliating tupelo, sweetgum and several associated hardwoods in the lower Alabama River bottom and surrounding pine-hardwood forest in Baldwin, Clarke, Washington and Mobile Counties. As much as 150,000 acres affected. The insect has been collected as far north as Auburn this year. (Morris). PENNSYLVANIA - On red oak at Harrisburg, Dauphin County. (Drooz).

TENT CATERPILLARS - NEW YORK - Unusually numerous in Orleans County, with tents being formed. (N. Y. Wkly. Rpt., May 2). NEW JERSEY - Abundant in all areas. (Ins.-Dis. Newsl., Apr. 26). VIRGINIA - Attacking wild cherry in Augusta County, April 29. Nests fairly common. (Woodside, Rowell).

A PINE SAWFLY (Neodiprion excitans) - FLORIDA - A few groups of third and fourth-instar larvae on loblolly pine near Alachua, Alachua County, May 2. First generation for season in the area. Defoliation negligible. Det. L. A. Hetrick. (Fla. Coop. Sur.). NORTH CAROLINA - Adults reared November 1959 from larvae taken from short-leaf pine and not found on loblolly pine in same stand. This is an unusual host record but has been rechecked. Det. B. Burks. (Whitfield).

SAWFLIES - VIRGINIA - Pine sawflies causing damage generally in several counties where they were a problem last spring. (Rowell). OKLAHOMA - Larvae of an unidentified sawfly caused medium to heavy defoliation of pin oaks in Stillwater. Some trees with up to 60 percent defoliation. Larvae now pupated. (Drew).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - CALIFORNIA - Infesting groups up to 30 Douglas-firs. Heavy infestation on a 40-acre area. (Springer, Peterson).

PINE BARK APHID (Pineus strobi) - NEW YORK - Abundant in nearly all parts of the State as of May 2. (N. Y. Wkly. Rpt.). VIRGINIA - Several reports and specimens of the species on white pine. (Rowell).

EASTERN SPRUCE GALL APHID (Chermes abietis) - PENNSYLVANIA - Egg masses on Norway spruce, May 2, in south central area. (Pepper).

PINE SPITTLEBUG (Aphrophora paralella) - ALABAMA - Present in Lee County. (Pearson).

PITCH MIDGES (Retinodiplosis spp.) - PENNSYLVANIA - Common and pupating at Mt. Holly, Cumberland County, on pitch pine. (Drooz).

PITCH MASS BORER (Vespa pini) - PENNSYLVANIA - Larvae common on Virginia pine at Dauphin, Dauphin County. (Drooz).

BIRCH LEAF MINER (Fenusa pusilla) - VERMONT - Adults observed ovipositing on birch in south Burlington. (MacCollom, May 2). NEW JERSEY - Adults appeared. (Ins.-Dis. Newsl., Apr. 26).

AN ASH BUG (Neoborus illitus) - CALIFORNIA - Ash trees in the Sequoia and Kings Canyon National Parks damaged to extent that many now losing foliage. (U. S. For. Serv.).

MAY BEETLES (Phyllophaga spp.) - ALABAMA - Extensive damage to pecan and oak trees throughout central and southern areas. Complete defoliation in some areas. As many as 800 adults were collected under two trees in one night in Chambers County. (Seibels). GEORGIA - Moderate infestation of oaks in Muscogee County, April 30. (McWhorter).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - DELAWARE - Scales and young crawlers abundant on native pink azaleas in Newark, New Castle County. (Burbutis, Mason). INDIANA - First crawlers found at West Lafayette, May 6. (Schuder). CALIFORNIA - Heavy on pink locust trees in Crockett, Contra Costa County. (Cal. Coop. Rpt.).

COCCIDS - IDAHO - Spotted, occasionally abundant, infestations of Pulvinaria innumerabilis on maples in Caldwell area. (Bechtolt). CALIFORNIA - Jeffrey pines in the Mt. Pinos-Los Padres National Forest showing considerable yellowing of foliage and some die-back as a result of a spring infestation of Matsucoccus fasciculensis. (Williams). Heavy populations of Pseudococcus adonidum on oleander at La Jolla, San Diego County. Stomacoccus platani heavy on sycamore trees in Crockett, Contra Costa County. (Cal. Coop. Rpt.). ALABAMA - Moderate infestations of Ceroplastes ceriferus on yaupon, Lepidosaphes camelliae on Burford holly and pseudococcids on magnolia in Lee County. Icerya purchasi very scarce for this time of year. (Guyton). Ceroplastes floridensis and Phenacaspis pinifoliae present in Lee County. (Pearson). LOUISIANA - Toumeyella liriodendri heavily infesting tulip-poplar trees in East Baton Rouge Parish. (Spink). WISCONSIN - A pine needle scale still in egg stage on April 28 on heavily infested Perrot State Park white pines. The same was true on Jefferson County Austrian and Scotch pines, but eggs about to hatch on May 4. (Wis. Coop. Sur.).

FALL CANKERWORM (Alsophila pometaria) - DELAWARE - Larvae causing light feeding injury to elms in Sussex County. (Burbutis, Mason). KANSAS - Presenting a problem in Garden City area of Finney County. Infestations found primarily on elms, particularly Chinese elms used for hedges. (DePew).

CANKERWORMS - KANSAS - Control partially completed in Manhattan, Riley County. Large numbers of larvae in Shawnee County. (Peters). MISSOURI - Some defoliation from Paleacrita vernata in southwest area. Reported very active in Kansas City area. Counts ranged 5-10 larvae per branch tip. (Barrows).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - CALIFORNIA - Heavy populations working on Chinese elm foliage in Paicines, San Benito County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEVADA - Adults active in Lovelock, Pershing County, and Mason Valley, Lyon County. No eggs observed to May 6. (Burge, Lauderdale). VIRGINIA - Numerous reports and specimens for identification received. (Rowell).

A LEAF BEETLE (Chrysomela interrupta) - NORTH CAROLINA - Adults feeding on foliage of weeping willow in Ashe County. (Gray, Farrier).

LOCUST LEAF MINER (Chalepis dorsalis) - ALABAMA - Present in Lee County. (Pearson).

A FALSE SPIDER MITE (Brevipalpus cardinalis) - CALIFORNIA - Medium infestations on ash trees in Lancaster, Los Angeles County. (Cal. Coop. Rpt.).

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

A CECIDOMYIID - OHIO - Elms in Belmont and Franklin Counties heavily infested with galls made by this insect. Galls prevented the setting of normal seed and were notable by their presence in the hundreds in individual small branches. (Holdsworth).

PAINTED MAPLE APHID (Drepanaphis acerifoliae) - DELAWARE - Alates with a few nymphs present on maples in Newark area, New Castle County. (Burbutis, Mason).

CORN EARWORM (Heliothis zea) - CALIFORNIA - Medium infestations on geranium plants in Malibu area, Los Angeles County. (Cal. Coop. Rpt.).

A COTONEASTER WEBWORM (Cremona cotoneasteri) - OREGON - Webbing and defoliating home plantings in the Salem area. (Heinis).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Present in Lee County. (Pearson).

A GALL MIDGE (Dasyneura gleditschiae) - MARYLAND - Severe on Moraine locust locally in Montgomery County, April 28. (U. Md., Ent. Dept.).

HACKBERRY NIPPLE GALL (Pachypsylla celtidis-mamma) - MARYLAND - Galls on hackberry at Cabin John, Montgomery County, April 22. (U. Md., Ent. Dept.).

A LEAF BEETLE (Calligrapha sigmoidea) - CALIFORNIA - Heavy on malva and hollyhock in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

A WEEVIL (Scyphophorus acupunctatus) - CALIFORNIA - Heavy infestation in Agave (century plant) in Encinitas, San Diego County. (Cal. Coop. Rpt.).

POTATO PSYLLID (Paratrioza cockerelli) - CALIFORNIA - Medium infestation on Jerusalem cherry plants on a nursery property in Fairfield, Solano County. (Cal. Coop. Rpt.).

APHIDS - MARYLAND - Macrosiphum rosae infesting rose buds in southern sections. (U. Md., Ent. Dept.). INDIANA - Aphid populations heavy on viburnum and euonymus in southwestern area. (Schuder, Fix). OKLAHOMA - Medium to heavy populations of several species continued on roses, tulips and a variety of other flowering plants throughout the State. (Okla. Coop. Sur.).

AZALEA LACE BUG (Stephanitis pyrioides) - MARYLAND - Nymphs on azalea foliage at University Park and at Baltimore, April 30, May 1. (U. Md., Ent. Dept.). ALABAMA - Severe infestation on azaleas in Lee County. (Guyton).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - DELAWARE - Aedes canadensis very abundant and annoying in woodland areas of Sussex County. (Burbutis, Mason). MARYLAND - Adults of Aedes trivittatus abundant and biting in a forested area near Accokeek, Prince Georges County. (U. Md., Ent. Dept.). MINNESOTA - In 164 larval collections made, 42 were Aedes vexans, 9 Culiseta inornata and 5 Culiseta spp. (Minn. Ins. Rpt.). WYOMING - Adults of Aedes sp. increasing in southeastern area. (Fullerton). CALIFORNIA - Populations of Culex tarsalis and other species were low in the coastal and southern area, medium in central and fairly heavy in the north. Late rains followed by warm weather activated mosquitoes. Highest populations of C. tarsalis occurred in Coachella Valley, Riverside County. (Cal. Coop. Rpt.).

FACE FLY (Musca autumnalis) - VERMONT - Activity reported. (MacCollom). VIRGINIA - Recent cool weather has slowed up activity in State. Only slight infestations in areas where last week the species was found in heavy populations. (Rowell). PENNSYLVANIA - Collected on animals in Crawford County, May 3. (Adams). ILLINOIS - First of the season collected from animals in east central area. Average of about two flies per animal. Det. H. H. Ross. Observed in northern area where population was less than one per animal but positive identification not made. (Ill. Ins. Rpt.).

HORN FLY (Siphona irritans) - SOUTH CAROLINA - Considerable outbreak on dairy cattle at Saluda, Saluda County, occurred last of April and early May. (Nettles et al.). ILLINOIS - Counts of 0-20 per animal in northern area and up to 100 per animal in south central. (Ill. Ins. Rpt.). NEW MEXICO - Heavy on untreated cattle herds throughout State. Good control from insecticide-treated back-rubbing devices. (N. M. Coop. Rpt.).

HORSE FLIES - LOUISIANA - Tabanus nigrovittatus very numerous in Plaquemines Parish. (Spink). OKLAHOMA - Heavy numbers of Hybomitra sp. throughout north-eastern area. Particularly heavy numbers on cattle in wooded areas where some counts ran up to 25 per animal (average of 8-10 per animal). (VanCleave, Ritter, Campbell).

A DEER FLY (Chrysops callida) - LOUISIANA - Very numerous and most annoying to people in Allen Parish. (Spink).

BLACK FLIES (Simulium spp.) - MAINE - Only occasional specimen observed in Orono area of Penobscot County. (Boulanger, Apr. 29).

CATTLE GRUBS (Hypoderma spp.) - UTAH - In Gunnison area of Sanpete County, 32 Hypoderma removed from backs of unsprayed cattle were all H. bovis. Grubs removed from cattle in the nearby Ephraim area were 4 H. lineatum and 5 H. bovis. Det. C. W. Sabrosky. (Knowlton).

AMERICAN DOG TICK (Dermacentor variabilis) - OREGON - Removed from neck of a child in Marion County, May 4. (Larson). VERMONT - On young boy at Jamaica, Windham County. (MacCollom). RHODE ISLAND - Unusually troublesome statewide on pets and people. (Hansen, Mathewson).

TICKS - LOUISIANA - Rhipicephalus sanguineus and Amblyomma americanum very numerous in areas of Rapides and Livingston Parishes. (Spink). OKLAHOMA - Dermacentor sp. and Amblyomma sp. continue to be numerous in eastern area. (Howell).

CATTLE LICE - NEW MEXICO - Heavy infestations on several herds of range cattle in Sierra County. (N. M. Coop. Rpt.). UTAH - About 15,000 cattle treated for cattle lice in Rich County and about 5,000 in Beaver County. (Knowlton).

STORED-PRODUCT INSECTS

Stored-grain Insects in Lee County, Alabama - Several species of SPIDER BEETLES collected in dairy feed. Heavy infestations of CONFUSED FLOUR BEETLE (Tribolium confusum), RED FLOUR BEETLE (T. castaneum), DARK MEALWORM (Tenebrio obscurus), YELLOW MEALWORM (T. molitor), CADELLA (Tenebroides mauritanicus), and RICE WEEVIL (Sitophilus oryza) observed in feed rooms. (Guyton).

A DERMESTID (Trogoderma parabile) - NEVADA - Light infestation in a home in Las Vegas, Clark County. (Barton).

BENEFICIAL INSECTS

LADY BEETLES - WYOMING - Unspecified species averaged 1 per 25 sweeps in alfalfa fields in southeastern area. (Fullerton). NEBRASKA - Counts of lady beetles, mostly Hippodamia convergens and Coleomegilla maculata lengi, ranged 0-3 per 10 sweeps in alfalfa and 0-1 per 10 sweeps in wheat, averaging 2 and less than 1, respectively. (Simpson). OKLAHOMA - Counts of H. convergens ranged 0.05-5 per linear foot in fields of small grain in Kingfisher and Major Counties. (Owens). Counts of this species also ranged 0.3-3 per sweep in fields of legumes throughout State. (Okla. Coop. Sur.). MISSOURI - Adults of C. maculata lengi, H. convergens and Cycloneda munda building up on pea aphid populations in southwest; very few larvae present. Counts in southwest ranged 1-6 adults per sweep, and counts in alfalfa in southeast ranged 5-13 per 10 sweeps. (Harrendorf). ILLINOIS - Counts vary 0-50 per 100 sweeps, with C. maculata and H. tredecimpunctata present in equal numbers. (Ill. Ins. Rpt.). WISCONSIN - Chilocorus stigma numerous and mating in scale infested Perrot State Park pines. (Wis. Coop. Sur.). SOUTH CAROLINA - Larvae and pupae of unspecified species unusually numerous on crimson clover at Greenwood, Greenwood County. (Nettles et al.).

NABIDS (Nabis spp.) - WYOMING - Averaged 1 per 100 sweeps in each of 10 alfalfa fields in Torrington-Lagrange area. (Fullerton). NEBRASKA - Averaged 2 per 10 sweeps in alfalfa in southwest. (Simpson). ILLINOIS - Ranged 0-10 per 100 sweeps in legume fields in northern area. (Ill. Ins. Rpt.).

A LACEWING (Chrysopa sp.) - OKLAHOMA - Light, 0.2 per sweep, in a field of buttonclover in Marshall County. (Vinson).

A FLOWER BUG (Orius insidiosus) - NEBRASKA - Few adults collected in alfalfa fields, with some late-instar nymphs present. Averaged less than 1 per 10 sweeps in southwest. (Simpson).

A HYMENOPTEROUS PARASITE (Comperia merceti) - MARYLAND - Adults of this egg parasite of Supella supellectilium collected in kitchen of a home at Hyattsville, Prince Georges County. (U. Md., Ent. Dept.).

AN ENSIGN WASP (Hyptia floridana) - FLORIDA - Collected at Cortez, Manatee County, on April 1 by E. H. Frederic. This is only second specimen in State Plant Board collection. (Fla. Coop. Sur.).

HONEY BEE (Apis mellifera) - NORTH CAROLINA - Severe winter caused necessity of importation of large numbers for apple pollination in Henderson County. (Stephen).

A CINNABAR MOTH (Tyria jacobaeae) - OREGON - Released at one site in Linn and Polk Counties to aid in control of tansy ragwort. Approximately 700 moths released May 5-6 and further liberations are anticipated. (Every).

A KLAMATHWEED BEETLE (Chrysolina gemellata) - CALIFORNIA - Adults and larvae plentiful on klamathweed in Willits area, Mendocino County. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

A CUBAN MAY BEETLE (Phyllophaga bruneri) - FLORIDA - First adults of season collected in blacklight traps at Miami on April 20. The first teneral adults also dug from soil on this date. Subsequent light trap collections in the known areas of infestation have produced numerous adults of this species. (Briggs).

ANTS - TEXAS - Mounds of Formica sp. - rufa group, very numerous along creek edges in north central Dallam County. This same group also observed in large numbers in Hutchinson County. Mounds of F. montana observed in same area as rufa group in Hutchinson County. (Russell, Preston).

TERMITES (Reticulitermes spp.) - IDAHO - Infestations reported from basement of a home at Wilder, Canyon County; also in a schoolhouse at Burley, Cassia County, and buildings at the airport at Burley. (Hart, Bodily). OKLAHOMA - Heavy numbers swarming throughout State. (Howell).

CLOVER MITE (Bryobia praetiosa) - OHIO - Complaints from many homeowners indicate exceptionally heavy infestations in and around homes in central area. (Blair, Holdsworth). UTAH - Entering homes in a number of communities in Carbon and Emery Counties. (Knowlton).

CHIRONOMIDS - DELAWARE - Very abundant in one area of Sussex County near a pond. Midges entering homes in large numbers through screens. These are nonbiting midges. (Burbutis, Mason).

CARPENTER BEE (Xylocopa virginica) - MARYLAND - Noted in a redwood house at Bethesda, Montgomery County. (U. Md., Ent. Dept.).

ORIENTAL COCKROACH (Blatta orientalis) - MARYLAND - Infesting homes at Chestertown, Kent County, and at Baltimore. (U. Md., Ent. Dept.). NORTH CAROLINA - Heavy infestations in 2 homes in Wake County. (Wray).

SILVERFISH (Lepisma saccharina) - NORTH DAKOTA - Heavy infestation reported in a Fargo apartment building. (N. D. Ins. Rpt.).

CORRECTIONS

CEIR 10(18):339 - Hatching of MEADOW SPITTLEBUG (Philaenus leucophthalmus) in northern Ohio should read April 21 rather than April 15.

CEIR 10(19):358 - GRAPE ERANIUM MITE should read GRAPE ERINEUM MITE.

CEIR 10(19):360 - Under STRAWBERRY LEAF ROLLER change frageriae to fragariae.

ADDITIONAL NOTES

WISCONSIN - First SIX-SPOTTED LEAFHOPPERS (Macrostelus fascifrons) swept from winter grain in Trempealeau County and the Spring Green area on May 4. Eggs of Melanoplus femur-rubrum in clear stage in Adams and Marquette Counties; M. confusus nymphs observed in Marquette County, May 1 and first and second-instar nymphs of an unspecified species were found in Sauk County, May 2. (Wis. Coop. Sur.).

TENNESSEE - ALFALFA WEEVIL (Hypera postica) found for first time in Washington County, where it almost completely killed first cutting. Weevils also found in 20 fields checked in same county. CLOVER LEAF WEEVIL (Hypera punctata) present in most fields of alfalfa checked for the previous pest in eastern part of State. There is a high mortality of PEA APHID (Macrosiphum pisi) in all fields of alfalfa checked, due to fungus. MEADOW SPITTLEBUG (Philaenus leucophthalmus) is light in alfalfa in Greene and Washington Counties. (Bennett, Mullett, Stanley).

GEORGIA - ALFALFA WEEVIL (H. postica) heavy on alfalfa in Hall, Haralson, Bartow and White Counties. (Rew, Davis, Holland, Chambers). Unspecified THRIPS heavy on rye in Grady County. (Crownover).

RHODE ISLAND - Populations of ALFALFA WEEVIL (H. postica) on alfalfa are low in the South Kingstown area; 5 adults per 100 sweeps, 2 early-instar larvae in sample. CLOVER ROOT CURCULIO (Sitona hispidula) adult activity very light in Kingston area on alfalfa, as is LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris). PEA APHID (Macrosiphum pisi) populations low in 10-inch alfalfa in Kingston area. (Hansen).

MASSACHUSETTS - ALFALFA WEEVIL (H. postica) adults active in small numbers (2-4 per 100 sweeps) on alfalfa in Hampshire, Worcester and Norfolk Counties. (Fischang).

IOWA - EUROPEAN CORN BORER (P. nubilalis) spring survival surveys completed. Survey is limited to examination of all corn debris in limited area units in randomly selected fields of spring-sowed oats on old corn stocks in 5 sections of State. Overwintering populations appear to be lower than have been present in many a year. The percent of live borers observed and average number of live borers per square yard by sections are as follows: Southwest - 50 percent and 0.04 per square yard; northwest - 73 percent and 0.22 per square yard; central - 60 percent and 0.12 per square yard; northeast - 65 percent and 0.22 per square yard; southeast - 70 percent and 0.2 per square yard. The average number of live borers per acre of corn debris in oatfields in 1960 was 726, compared with 3,049 in 1959. (Harris).

MICHIGAN - MEADOW SPITTLEBUG (Philaenus leucophthalmus) hatching prevalent as of May 6 in all of area south of Muskegon-Saginaw; about one week later than usual. Initial spring activity of EUROPEAN PINE SHOOT MOTH (Rhyacionia boulliana) larvae has passed through stage where insects are susceptible to sprays. Pest now well protected at Cadillac, Howell, Lansing, Coldwater, Sodus and Dundee. MEALY PLUM APHID (Hyalopterus arundinis) numerous on various ornamental plums on Michigan State University campus. Reports from Ionia, Pontiac, Ida, Coloma, Eau Claire and Grand Rapids indicate marked scarcity of APHIDS on apple trees. Fruit CURCULIO adults jarred from some peach trees on especially favorable site at Eau Claire on April 28. EUROPEAN RED MITE (Panonychus ulmi) mostly hatched at Arden, Buchanan, Coloma, Ida, Ionia and Grand Rapids. PEAR PSYLLA (Psylla pyricola) showing considerable activity at Eau Claire, Grand Rapids and Shelby. TARNISHED PLANT BUG (Lygus lineolaris) active on peach trees and strawberries at Sodus and Coloma. EUROPEAN PINE SAWFLY (Neodiprion sertifer) eggs hatched April 25 in Battle Creek and on April 28 at St. Johns. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) adults present in orchards at Pontiac, Monroe, Eau Claire and Grand Rapids. Egg masses easy to find, but have not reached black spot stage. BLACK CHERRY APHID (Myzus cerasi) building up rapidly around Eau Claire, Coloma and Bainbridge. (Hutson).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Feltia subterr.	Prod. ornith.	Perid. marg.	Laphyg. frug.	Heliothis zea. vires.	Proto. sexta
ALABAMA								
Fairhope 4/14	3							
Auburn 4/15,18,22,26, 5/3	13	2		2	4		4	1
ARIZONA								
Mesa 4/25-5/1				97	10		34	
FLORIDA								
Quincy 4/25	3	5	6				1	
Monticello 5/2			1	1				
Gainesville 4/27		1	5					
ILLINOIS								
Urbana 4/29-5/5	79	6			5			
INDIANA (Counties)								
Lawrence 4/25-29	32	1		2	5			
Tippecanoe 4/29-5/5	6	1						
KANSAS								
Garden City 4/19-24, 4/27-5/3	22	24			8		2	
Hays 4/20-21,23,26-27, 5/2-4	26	4			2			
Mound Valley 4/21,23,26, 28,5/3	17	25					2	
Wathena 4/20-5/4	32	12					4	
LOUISIANA								
Franklin 5/2,4		3	14	11				1
Baton Rouge 4/29-5/5	1	9	2	5	1			
MARYLAND								
Fairland 4/26-5/3	6				1			
MISSISSIPPI								
*Stoneville 4/29-5/5	129	23	5	1	4		10	
MISSOURI								
Sikeston 4/23-5/7	20				3	1		
NEBRASKA								
Lincoln 4/23-5/4	125	29			17			
North Platte 4/15-30	3	38			24			
SOUTH CAROLINA								
Charleston 4/25-5/8	16	40	4	7			5	2
Clemson 4/30-5/6	6	9	1	1	1		2	2
TENNESSEE (Counties)								
Monroe 4/26-5/2	50	4		1	3			
Madison 4/26-5/2	25	4						
Mauzy 4/26-5/2	10			2				
Robertson 4/26-5/2	8	2		5				
Cumberland 4/26-5/2	7			2				
Greene 4/26-5/2	1			3				
Blount 4/26-5/2	39	15		18	3			
TEXAS								
Brownsville 4/25-29		5	2	1		6	2	
Waco 4/30-5/6	14	6	23	8	31		18	
WISCONSIN								
Mazomanie 4/23,29-5/3		3			3			
Middleton 4/29-5/5		1			1			

* Two traps - Stoneville.

STATUS OF SOME IMPORTANT INSECTS IN THE UNITED STATES

A CLOVER HEAD WEEVIL (Hypera meles (F.))

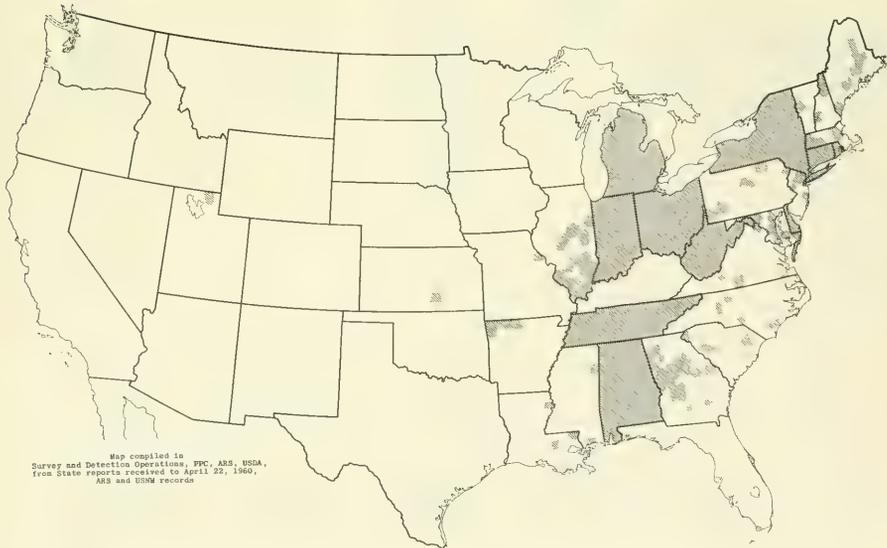
Economic Importance: This species is an important pest of various clovers, infesting the entire head of the plants. Damage by the pest lowers seed production. It has also been known to skeletonize bean foliage. The insect occasionally becomes abundant locally within its known range. H. meles was first recorded in the United States at Rockaway Beach, New York, in 1907. It has been known to occur in Europe for many years.

Hosts: Clovers are preferred. Has been recorded on red clover, crimson clover, alsike clover, alfalfa, black medic, and on snap beans.

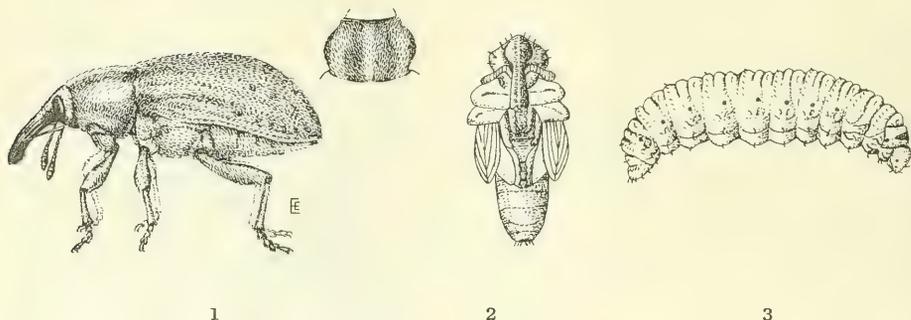
Distribution: Occurs throughout Europe, except Spain and Portugal, in parts of Siberia and Caucasia in the USSR, along the north coast of Africa, and in the United States (see map).

Life History and Habits: (In New York) Adults overwinter in debris. Females begin laying eggs in early spring in stalks or petioles of host plants. Oviposition by overwintering adults can extend over several months, from late April to end of July. Eggs hatch in 8-13 days and larvae emerge and feed in the florets. Maturity of the larva is reached in about 20 days, during which 3 molts take place. Larvae spend several days in a cocoon before pupating, the cocoon often being formed on the floral head of the host. Pupation takes 5-9 days. The duration from egg to adult is 39-46 days. In August, adults of first generation are numerous and may lay eggs as late as September 15. There may be a partial second generation.

DISTRIBUTION OF A CLOVER HEAD WEEVIL (Hypera meles)



Description: EGG - White or very pale-yellow when first laid, oval, sculptured with fine hexagonal depressions. Length 0.40-0.45 mm., width 0.25-0.30 mm. LARVA - Deep-green, first thoracic segment yellow, a long whitish-yellow median stripe interrupted on the posterior edge of each segment, another paler line below the black spiracles. Head yellow beneath, dark in front. Abdominal segments varying from yellow to clear-green or dirty-yellow, median line wide and evident. First thoracic segment with 3 rows of fine brownish tubercles. COCOON - Ovoid or oval, white or amber and remarkable for its reticulations. ADULT - Length (not including beak) 3.5-5 mm., width 1.7-2.1 mm. Black or reddish-black, elongate-oval, small, sides of elytra nearly parallel, scales cleft to the base, hairs never long and erect. Head small, finely, closely, regularly punctate, densely pubescent; beak long and slender, curved, longer than thorax in female. Eyes elongate-oval, large. Antennae yellowish-red or red. Scape reaches front margin of eyes, first funicle joint twice as long as second. Prothorax very wide, sometimes one-fourth wider than long. Dorsum almost flat, densely punctured, usually sparsely covered with metallic-gray or pale-brown scales. Elytra nearly rectangular, finely, striately punctate. Scales rather uniform in color over the elytra, but in some almost entirely tessellated with dark-brown on paler brown background. All scales sometimes metallic-green or gray or brown-gray or even dark brown. Abdomen beneath not so densely scaled. Legs short, femora stout, thickened. Femora darker than tibiae and tarsi but not black, remainder of legs reddish-yellow to nearly black, tarsi usually a little paler. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 10(20):5-13-60.



Adult (1), Pupa (2), and Larva (3) of Hypera meleles

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE



VOL. 10 NO. 21

MAY 20, 1960

SB
823
C77
Ent.

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 of Insect Conditions

GRASSHOPPER nymphs found in Texas, Oklahoma, Colorado and Wyoming. Heavy hatch recorded in central Texas. EUROPEAN CORN BORER winter mortality high in New Jersey, but infestation outlook highest in 6 years. Pupation recorded in south-eastern Missouri. (p. 397). CHINCH BUG light to heavy on sorghum and corn in Atascosa and Victoria Counties, Texas. ARMYWORM larvae present in small grains in Texas, Louisiana and Missouri. (p. 398). WHEAT CURL MITE heavy on small grains in areas of Utah and Idaho. (pp. 399, 414).

PEA APHID continues heavy on alfalfa in a number of states and increasing in others. (pp. 399, 414). ALFALFA WEEVIL larvae damaging alfalfa in areas of Pennsylvania, Maryland and North Carolina. (p. 400).

CODLING MOTH emergence appears general. Egg masses of RED-BANDED LEAF ROLLER heavy in areas of New York and Ohio. (p. 402). A MIRID caused serious reduction of potential pecan crop in some orchards in 3 Georgia counties. (p. 404).

No heavy buildup of BEET LEAFHOPPER expected in cultivated districts of San Joaquin Valley of California. (p. 406).

CORRECTIONS (p. 414).

ADDITIONAL NOTES (p. 414).

INSECT DETECTION: New State records reported were lesser clover leaf weevil in Louisiana (p. 401), Margarodes meridionalis in New Mexico (p. 402) and face fly in Maryland (p. 411). A possible new county record may be raspberry cane girdler in Wasatch County, Utah. (p. 407).

Some of the more important insects for 1959. (p. 417).

INSECTS not known to occur in the United States. (p. 421).

NOTE - Scientific name for VARIEGATED CUTWORM is now Peridroma saucia. (p. 401).

Reports in this issue are for the week ending May 13, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-MAY TO MID-JUNE 1960

The Weather Bureau's 30-day outlook for the period mid-May to mid-June calls for temperatures to average above normal over the northeast quarter of the Nation and also in the extreme Southwest. Below normal temperatures are expected along the Gulf Coast and over the Southeast, as well as in the Western Plateau States and Pacific Northwest. In unspecified areas near normal is predicted. Precipitation is expected to exceed normal over the northern half of the country from the Great Lakes westward to the Pacific Coast, and also over the Central Plains. Subnormal rainfall is indicated for the Middle-Atlantic States, the Tennessee Valley, and also 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 MAY 16

The mean temperature pattern this week reflected the meridional flow of sharply contrasting air masses. Much-above-normal temperatures covered the Plateau and Rocky Mountain States during most of the week, with new records for the highest temperature so early in the year established at numerous stations. Some of these records included Great Falls, Montana, 95°; Sheridan, Wyoming, 95°; Winslow, Ariz., 94° on May 12 and Pocatello, Idaho, 90° on May 11. Over a large area from the central Great Lakes through the Mississippi and Ohio Valleys and the Appalachians to the Gulf Coastal and South Atlantic States temperatures more like early March than May prevailed most of the week. Here again numerous temperature records were established, but for the lowest reading so late in the spring. Some of these records included New Orleans, Louisiana, 41°; Apalachicola, Florida, 50°; Meridian, Mississippi, 38° (these readings are also record lows for May); Birmingham, Alabama, 38°; Greenville, South Carolina, 39° on May 13 and Madison, Wisconsin, 27°; Shreveport, Louisiana, 42°; Springfield, Missouri, 30°; Waco, Texas, 45°; Little Rock, Arkansas, 40° on May 12.

Between these two areas of large temperature departures most of the Great Plains Region experienced rapidly changing temperature conditions, with the weekly mean ranging from below normal in eastern sections to above normal in the western portions. An example of extreme temperature changes occurred in west-central Texas, where San Angelo recorded 36° on Thursday morning followed by 107° on Saturday afternoon, both equalling record extremes for the month of May in 51 years of record there. Temperatures were near normal in the Pacific Northwest, and again somewhat above normal in New England. In the latter area, however, the most important weather feature was unusually heavy rains, particularly in Maine, where weekly totals of 3 to over 6 inches were reported. Cloudy, cool, and wet weather persisted most of the week from Ohio and eastern Kentucky northeastward to New England as a low pressure area remained over the area most of the week. Precipitation associated with the disturbance, in addition to the heavy falls in Maine, extended from northern Michigan and Wisconsin into the upper Ohio Valley and the Middle Atlantic States. Weekly totals were generally over 1/2 inch in this area, and local totals of over 2 inches were recorded in Upper Michigan, Pennsylvania, New York, and southern New England.

Cool and rainy weather covered the Pacific Northwest both early and late in the week. Precipitation totals ranged from 1 to 1-1/2 inches along the coast to 1/4 to 3/4 inch in the interior. No effective precipitation was recorded in much of the Plateau States, southern Great Plains, lower Mississippi Valley, and southern States. Thunderstorms on the 15th and 16th were reported from the central Great Plains into the central Mississippi Valley and the western Great Lakes, as a low pressure area developed in the Texas Panhandle and moved northeastward toward the Great Lakes. Heavy hail, accumulating to a depth of 1 foot, was reported in eastern Colorado, and heavy rains of up to 3 inches fell in local areas from Oklahoma northeastward to Illinois and Wisconsin. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - WISCONSIN - In Rock and Sauk Counties, Melanoplus femur-rubrum eggs in coagulated stage; same being true of M. differentialis eggs. However, eggs of Melanoplus sp., probably bilituratus, ranged from coagulated to segmented stages and when placed in a vial some hatched within one hour. It appears, due to numbers of eggs present, nymphs of this advanced species will soon be abundant in the Sauk County location. (Wis. Coop. Sur.). MINNESOTA - Observations on eggs in west central and northwest districts as follows: M. femur-rubrum clear to coagulated; M. bivittatus eye-spot to segmented; M. bilituratus eye-spot to segmented. In southeast district, M. femur-rubrum eggs coagulated. If weather stays warm, some hatching can be expected by May 20 on lighter soils with little ground cover. (Minn. Ins.Rpt.). MISSOURI - First grasshopper nymphs of season reported; size ranged from first to fourth instar. (Blickenstaff). OKLAHOMA - Counts of first-instar grasshopper nymphs ranged 7-15 per square yard in 3 roadside areas checked in Beaver County. (Owens). TEXAS - Aeoloplides turnbulli bruneri, M. bivittatus, M. packardii and M. bilituratus hatching in soil bank fields in Parmer County. First and second-instar nymphs averaging 15-20 per square yard in 6 fields checked. (Russell, Tapscott). Heavy hatch of undetermined species in central area of State. Nymphs still near hatching beds. (Texas Coop. Rpt.). COLORADO - One second-instar nymph of undetermined grasshopper found in 500 sweeps of alfalfa in Larimer County. (Colo. Ins. Sur.). WYOMING - First-instar grasshopper nymphs found on range in Pine Bluffs area, Laramie County. Averaged less than 1 per square yard. (Stanford).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW JERSEY - During April, 30 fields in Counties of Monmouth, Middlesex, Mercer, Burlington and Cumberland surveyed for overwintering larvae. Percent mortality in 1960 was 55.3 compared with 32.4 in 1959, 27.1 in 1958, 56.7 in 1957, 42.1 in 1956, 43.7 in 1955 and 20.2 in 1954. Mortality of larvae during winter of 1959-60 higher than previous 2 years. Average number of larvae per infested stalk was 2.36 in 1960, 1.73 in 1959, 1.29 in 1958, 2.12 in 1957, 1.43 in 1956 and 0.9 in 1955. Outlook for infestation this spring in potatoes and corn is highest in 6 years. Highest populations recorded in Mercer County. Bird feeding accounted for most of killing of larvae during winter months (72.3 percent). Parasitism of larvae remained a considerable factor, causing 27.7 percent mortality. (Econ. Ins. Sur.; N. J. Dept. of Agr.; College of Agr., Rutgers Univ.). DELAWARE - Pupation of overwintering larvae as follows: New Castle County - 60 percent; Kent County - 80 percent; Sussex County - 92 percent. Adult emergence started. Several empty pupal cases noted, a few adults collected in fields by sweeping and 5 adults collected in blacklight trap in Sussex County. (Burbutis, Mason). MISSOURI - First pupation of season reported in New Madrid County, southeastern area. (Fairchild).

CORN EARWORM (Heliothis zea) - GEORGIA - Light to moderate infestations in whorls of corn in Cook, Colquitt and Lowndes Counties. (Johnson). LOUISIANA - Larvae in white clover averaged 1 per 25 sweeps in Avoyelles Parish, 7 per 25 sweeps in Tensas Parish and 10 per 25 sweeps in Concordia Parish. Counts averaged 19 per 25 sweeps in crimson clover in Tensas and Concordia Parishes and 9 per 50 sweeps in vetch in Concordia Parish. (Spink). ARKANSAS - Eggs and/or larvae found on spring clovers in 49 counties prior to May 1; first eggs found on April 11. (Whitcomb, Boyer, Dowell). TEXAS - Counts average one per 9 corn plants in Bee and Live Oak Counties. (Edgar). Infestations averaged 1 per 5 sweeps in vetch in Kaufman County. (Randolph).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ARIZONA - Light infestations in some young corn and sorghum in central area. (Ariz. Coop. Sur.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Injuring sweet corn in Talbot County and common on field corn in Somerset and Worcester Counties. (U. Md., Ent. Dept.). NEW YORK - On May 5 in Ulster County, examination of 3,000 sweet corn seedlings revealed 40 adults; and at Poughkeepsie on May 6, inspection of 100 seedling sweet corn plants showed 6 adults. (N. Y. Wkly. Rpt.). DELAWARE - Adults causing very light feeding injury on sweet corn in southern Sussex County. (Burbutis, Mason). TEXAS - Adults present in most corn and grain sorghum fields, but infestations apparently not increasing. (Chada). UTAH - Damaging corn and sorghum in Washington County. (Knowlton).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - LOUISIANA - Caused severe damage to cornfield in Tensas Parish; replanting necessary. (Spink).

CHINCH BUG (Blissus leucopterus) - KANSAS - Found in wheat fields in Anderson, Coffey and Lyon Counties, east central area; counts ranged from less than 1 to 5 per linear foot of row. (Peters). TEXAS - Infestations in grain sorghum fields checked following heavy rains in north central area; bugs still found with ease. (Chada). Medium to heavy infestations on grain sorghum and corn in Atascosa County. (Texas Coop. Rpt.). Infestations ranged light to heavy on milo maize and corn in Victoria County. (Texas Coop. Rpt.).

ARMYWORM (Pseudaletia unipuncta) - MARYLAND - Extensive surveys in small grains negative to May 13. (U. Md., Ent. Dept.). MISSOURI - Larval counts in barley in southeast area ranged 0-2 per square foot. Larvae still very small. None found in small grain in southwestern area. (Munson, Thomas, Kyd). LOUISIANA - Larval counts 4 per 100 sweeps in field of oats in East Baton Rouge Parish. (Spink). TEXAS - Larvae (all stages) found in small grains and vetch fields (2-10 per square foot) in north central area. Damage not very apparent so far. (Chada, Randolph).

GREENBUG (Toxoptera graminum) - TEXAS - Infestations disappeared from fields of small grain in north central area due to parasites, predators and heavy rains. (Chada). OKLAHOMA - Populations continued to decrease as a result of parasite activity in oatfield in Marshall County; counts averaged 150 live and 50 mummies per linear foot. (Vinson). KANSAS - Counts in wheat, barley and oat fields in northeastern and east central areas ranged from less than 1 to 100 per linear foot of row. (Peters). MISSOURI - Counts remain light in wheat and barley in southwest. Counts in oats and orchardgrass increased slightly over previous week, ranging 3-6 per foot of row in oats and 3-7 per square foot in orchardgrass. (Munson, Thomas, Kyd). NEBRASKA - Averaged 2 per 10 sweeps in 1 field of barley in Sary County. (Simpson).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Medium infestation on grain sorghum in Wharton County. (Murray). Light and widespread on grain sorghum in McMullen County. Lady beetles present in large numbers. (Edgar). Infestations appear somewhat lighter on grain sorghum in Nueces, Bee and Live Oak Counties. (Nolan, Edgar).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - KANSAS - Counts in wheat, barley and oat fields in northeast and east central areas ranged 0-25 per linear foot of row. (Peters).

ENGLISH GRAIN APHID (Macrosiphum granarium) - KANSAS - Found in 1 wheatfield in Shawnee County; counts averaged less than 1 per linear foot of row. (Peters).

APHIDS - ILLINOIS - Undetermined species ranged 0-3 per linear foot in wheat and rye in White County; averaging 0.8 per linear foot. (Ill. Ins. Rpt.).

RICE STINK BUG (Oebalus pugnax) - LOUISIANA - Averaged 21 per 25 sweeps in oats in East Baton Rouge Parish. (Spink).

A GRASS BUG (Thyrillus pacificus) - OREGON - Causing damage to wheat in Wasco County; injury reported thus far has been to field margins. (Every).

BROWN WHEAT MITE (Petrobia latens) - COLORADO - Damaging numbers present in borders of wheat fields in Baca County. (Colo. Ins. Sur.). OKLAHOMA - Averaged 500 per linear foot in 3 wheat fields checked in Beaver County; causing heavy damage to plants. Plants in boot to heading stage. (Owens).

WHEAT CURL MITE (Aceria tulipae) - UTAH - Abundant on fall wheat in Cornish area of Cache County. (Knowlton).

A HYDROPHILID (Tropisternus sp.) - CALIFORNIA - Medium to heavy damage to newly planted sprouting rice in Colusa area, Colusa County. This water scavenger beetle uprooting rice plants. (Cal. Coop. Rpt.).

WIREWORMS - SOUTH DAKOTA - Undetermined species averaged 1 per 3 linear feet of row in wheat in Roberts and Grant Counties. (Mast).

PEA APHID (Macrosiphum pisi) - DELAWARE - Populations remain very high on alfalfa throughout State. Severe yellowing and stunting injury conspicuous in many fields. (Burbutis, Mason). MARYLAND - Continues abundant on alfalfa and clover in all sections; declining somewhat over previous weeks. (U. Md., Ent. Dept.).

PENNSYLVANIA - Beginning to appear in alfalfa in numbers in southern area; heavy in some fields. (Pepper). NEW YORK - Populations on alfalfa appear higher, compared with 2 previous years. (N. Y. Wkly. Rpt.). VIRGINIA - Many reports of damage to alfalfa. Conditions favorable for rapid buildup. (Rowell). OHIO - Exceptionally heavy in alfalfa in Sandusky County; controls recommended. (Holdsworth).

ILLINOIS - Counts ranged 30-60 per 100 sweeps in clover and alfalfa in Macoupin County. (Ill. Ins. Rpt.). MINNESOTA - Counts 1 per 20 sweeps on alfalfa in southeast. (Minn. Ins. Rpt.).

NEBRASKA - Increasing on alfalfa in southern and eastern areas. Heaviest numbers, 25 per 10 sweeps, in Douglas County in Elkhorn Valley. Average 4 per 10 sweeps in other fields in eastern area. (Simpson).

KANSAS - Counts in alfalfa in northeast and east central areas ranged 5-150 per sweep. (Peters). OKLAHOMA - Light to heavy populations, 6-25 per sweep and 4-600 per square foot, noted in 5 alfalfa fields in south central area. (Vinson). Light populations in alfalfa checked in Beaver, Okfuskee and Choctaw Counties and in some alfalfa checked in southwest area. (Owens, Meharg, Hatfield, Goin). No live aphids noted in field checked in Payne County. Many dead aphids found on plants. (Stiles).

TEXAS - Counts ranged 50-500 per 5 sweeps on vetch in Kaufman County and averaged 50 per sweep on alfalfa in Brazos and Burleson Counties. Parasites and predators very abundant in fields. (Randolph). COLORADO - Counts 10-50 per 100 sweeps in alfalfa, Mesa and Montrose Counties; 100-150 per 100 sweeps in Larimer and Weld Counties. (Colo. Ins. Sur.). WYOMING - Averaged 4 per 25 sweeps in alfalfa fields near Cody, Powell and Lovell. Averaged 1-2 per sweep in fields in Basin-Worland area. (Fullerton). UTAH - Building up in some Salt Lake County alfalfa fields. (Knowlton).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Generally light to medium, with heavy spotty infestations, in Eddy and Chaves Counties. Growers controlling heavy infestations. (N. M. Coop. Rpt.). TEXAS - Very scarce following heavy rains and abundance of parasites and predators in north central area. (Chada). OKLAHOMA - Light or noneconomic populations found in alfalfa fields checked in Beaver, Payne, Okfuskee, Harmon, Tillman, Comanche and Choctaw Counties and other fields checked in south central area. (Okla. Coop. Sur.).

SWEETCLOVER APHID (Therioaphis riehmi) - NEBRASKA - Low populations on yellow sweetclover in Cass, Sarpy, Douglas, Seward and York Counties; counts ranged 0-4 and averaged 2 per 10 sweeps. (Simpson). First nymphs of season collected April 22. First stem mother and reproductions found on May 9 in Lancaster County. (Manglitz).

COWPEA APHID (Aphis medicaginis) - NEW MEXICO - Medium to heavy, spotty infestations in alfalfa in Chaves County; increasing in some fields. (N. M. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - MARYLAND - Averaged 5 per sweep on red clover coming into bloom at Collington, Prince Georges County. (U. Md., Ent. Dept.). LOUISIANA - Total of 169 adults and 127 nymphs taken in 100 sweeps of crimson clover in Tensas Parish. (Spink). SOUTH DAKOTA - Counts averaged 1-3 per 10 sweeps on alfalfa in southeastern and east central areas. (Mast). MINNESOTA - Some noted on alfalfa in southeast. (Minn. Ins. Rpt.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Populations continue to build up in alfalfa statewide; counts average 15-40 per 10 sweeps in all areas. Heavy populations also present in central area on safflower. (Ariz. Coop. Sur.). NEW MEXICO - Generally light to medium in alfalfa in Chaves and Eddy Counties, averaging 16-20 per 100 sweeps. (N. M. Coop. Rpt.). WYOMING - Counts in alfalfa averaged 2-4 per 25 sweeps in Big Horn Basin and in Fremont County. (Fullerton). COLORADO - Counts 10 per 100 sweeps on alfalfa in Larimer and Weld Counties. (Colo. Ins. Sur.). OKLAHOMA - Light to medium, 3-8 per sweep, in 2 alfalfa fields in south central area. None noted in 3 other fields checked. (Vinson). Populations light to heavy, 0.25-2 per sweep, in 4 alfalfa fields surveyed in Choctaw County. (Goin).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - TEXAS - Counts of adults averaged 1 per 25 sweeps on alfalfa in Burtleson County. (Randolph).

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) - MINNESOTA - Light on alfalfa in southeast. (Minn. Ins. Rpt.).

RAPID PLANT BUG (Adelphocoris rapidus) - DELAWARE - Nymphs increasing on alfalfa and clover throughout State, averaging 2-3 per sweep in several fields. (Burbutis, Mason).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - DELAWARE - Nymphs present in alfalfa and clover fields throughout State; most now approximately two-thirds grown. (Burbutis, Mason). MARYLAND - Common, but not abundant, on red clover in Prince Georges and Talbot Counties. (U. Md., Ent. Dept.).

FALSE CHINCH BUGS (Nysius spp.) - ARIZONA - Medium populations in grain fields in Pinal County. (Ariz. Coop. Sur.). WYOMING - Averaged 2 per 25 sweeps in 18 alfalfa fields checked in Big Horn Basin. One field near Lovell and 1 field near Basin averaged 8 nymphs per square foot on ground near base of alfalfa plants. (Fullerton).

ALFALFA WEEVIL (Hypera postica) - NEW YORK - Adults ranged 5-10 per 25 sweeps in alfalfa in Dutchess and Putnam Counties on May 1. Several precocious, early second-instar larvae also picked up in net sweeps. Adults also found in Suffolk County (about 1 per sweep) and were numerous in Rondout Valley in Ulster County on May 5, with a few larvae present in latter area. (N. Y. Wkly. Rpt.). NEW JERSEY - First major hatch of larvae appearing May 10 in central area. Considerable acreage will be cut before treatments are required. (Ins.-Dis. Newsl.). PENNSYLVANIA - Beginning to appear and damage to alfalfa increasing in Fulton and Mifflin Counties. (Udine). DELAWARE - Untreated fields beginning to show heavy larval feeding injury in most areas. Fresh egg masses still present and hatching, with first-instar larvae very common in many fields. Third instars predominating, with a few older larvae and pupae noted. (Burbutis, Mason). MARYLAND - Heavy larval damage noted to alfalfa in southern Allegany County. Generally, however, not as abundant as in previous years. (U. Md., Ent. Dept.). NORTH CAROLINA - Causing heavy injury this year for first time in heavy alfalfa production area in northwestern Buncombe County. (Palmer). Some fields of clover so heavily damaged by larvae in central Piedmont that control would have been profitable this season. (Campbell). Active on clover in Gates County. (Newsom, Farrier). Adults reared from larvae collected on clover and grass pasture in Johnston County on April 29. (Carroll, Farrier). WYOMING - Adult activity increased in Big Horn Basin and in Fremont County. Average height of alfalfa 4-10 inches. In a total of 46 fields examined at 9 locations, an average of 1-3 adults found per 25 sweeps. One larva found near Worland. (Fullerton). COLORADO - Larvae ranged 1-10 per 100 sweeps in alfalfa in Montrose and Mesa Counties. No larvae found in 5 fields in Larimer and Weld Counties. (Colo. Ins. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - OHIO - Numerous in central area, with damage noted. Not serious enough to spray. (Holdsworth). Overwintering adults collected this spring and kept in insectary observed laying eggs April 20-25. Overwintering larvae started forming cocoons in insectary on May 2. (Sechriest). ILLINOIS - Larvae ranged 10-15 per square foot in Tazewell County. (Ill. Ins. Rpt.). WISCONSIN - Larvae present in low numbers. (Wis. Coop. Sur.). KANSAS - Counts less than 1 larva per sweep in alfalfa in northeastern and east central areas. (Peters).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - LOUISIANA - One adult found in crimson clover at Franklinton, Washington Parish. This is a new State record. (Spink, Apr. 28). MARYLAND - Larvae common in leaf axils and buds of red clover in Talbot County. (U. Md., Ent. Dept.). OHIO - Adults collected from hibernation first part of April and first eggs laid on April 12 in insectary. A collection of one stem from each of 12 clover plants taken on April 13, and 2 stems contained recently laid eggs deposited in stipules. In insectary, hatch first observed on April 25. A collection of stems from Wayne County on April 26 showed eggs on 51 percent of sprouts and one larva observed. In a Wayne County clover field, one adult observed per 75 sweeps on May 3. (Sechriest).

A CLOVER HEAD WEEVIL (Hypera meles) - OHIO - Female collected on clover in Wayne County on April 19 and a male collected on wild plum in Geauga County on May 4. (Sechriest, Rings).

A WEEVIL (Hypera sp.) - LOUISIANA - Averaged 1 larva per 100 sweeps in white clover in Avoyelles Parish and 7 per 25 sweeps in Tensas Parish. Other counts were 5 larvae per 25 sweeps in Concordia Parish, 1 adult per 25 sweeps in Concordia and Tensas Parishes and 3 adults and 139 larvae in 100 sweeps in crimson clover in Tensas Parish. (Spink).

CLOVER ROOT CURCULIO (Sitona hispidula) - KANSAS - Adults found in alfalfa field in Franklin County, southeast area. Counts averaged less than 1 per sweep. (Peters). NEBRASKA - Counts low in most alfalfa fields, averaging 1.5 per 10 sweeps. (Simpson).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NEBRASKA - Low populations, but well distributed in most counties. Counts average 2 and range 1-5 per 10 sweeps. One field in Cass County was 10 percent damaged with counts of 8 adults per 10 sweeps. (Simpson).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Counts averaged 6-10 per 10 sweeps on alfalfa in southeast and east central areas. (Mast).

VETCH BRUCHID (Bruchus brachialis) - LOUISIANA - Counts averaged 9 per 30 sweeps in field of vetch in Concordia Parish. (Spink). TEXAS - Averaged 2-10 per 5 sweeps in vetch in Kaufman County. (Randolph).

ARMY CUTWORM (Chorizagrotis auxiliaris) - SOUTH DAKOTA - Causing considerable damage to wheat in McPherson County. (Mast). UTAH - Killing out newly planted alfalfa acreage and damaging barley fields in Cornish area of Cache County. (Knowlton).

*
VARIEGATED CUTWORM (Peridroma saucia) - TEXAS - Infestations ranged 3-7 per square foot in vetch in a few fields of Kaufman County. (Randolph). CALIFORNIA - Heavy populations in alfalfa in Escondido, San Diego County. (Cal. Coop. Rpt.).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - WYOMING - Adults becoming numerous in alfalfa fields in Big Horn Basin. (Fullerton). OKLAHOMA - Light, 1 per sweep, in 2 alfalfa fields checked in south central and southeastern areas. (Vinson, Goin).

* Forbes, W. T. M., 1954. Lepidoptera of New York and neighboring states. Pt. 3, (Noctuidae): 51.

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Light, 1-1.5 per sweep, in 2 alfalfa fields in south central area. (Vinson). Light, 1 per sweep, in 1 field in Choctaw County. (Goin).

A CUTWORM (Feltia ducens) - WYOMING - Averaged less than one per square foot in 5 (1 square foot samples) in 16 alfalfa fields and 8 wheat fields in Big Horn Basin. (Fullerton).

A WEBWORM (Loxostege sp.) - OKLAHOMA - Light, averaged 1 per sweep, in alfalfa-field checked in south central area. (Vinson).

THRIPS - GEORGIA - Light to moderate infestations of unspecified species on peanuts in Crisp, Colquitt, Cook, Lowndes, Wayne and Tattall Counties. (Johnson). NEW MEXICO - Heavy populations of Frankliniella occidentalis on alfalfa throughout southern half of State. Seedling stands in Dona Ana County required controls. (N. M. Coop. Rpt.).

A SAWFLY (Dolerus sp.) - ILLINOIS - Larval counts were 10 and 90 per 100 sweeps in 2 of 5 grass fields surveyed in Urbana area. (Ill. Ins. Rpt.).

A GROUND PEARL (Margarodes meridionalis) - NEW MEXICO - Damaging Bermuda grass lawns in Las Cruces, Dona Ana County. (N. M. Coop. Rpt.). This is first ARS record of species in State.

A CHINCH BUG (Blissus sp.) - GEORGIA - Heavy infestations on centipedegrass in Grady County. (Crownover).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - DELAWARE - Adults observed emerging since May 5. (MacCreary). PENNSYLVANIA - Emerging in apple orchards in south central area. (Asquith). INDIANA - First cage emergence was May 4 in Vincennes area. (Cleveland). No moths noted to May 10 in Orleans area. (Marshall). ILLINOIS - Emergence nearly stopped May 7-8 in Carbondale area, due to cold weather, which means it is also too cold for egg laying. Continued cool weather will cut egg production. More moths will continue to emerge as weather permits and egg laying will probably occur over a longer period than usual. (Meyer). UTAH - Moth flight common in northern area orchards May 11-12. Maximum of 6 moths caught in Davis County trap, May 9; 12 in a trap at Roy, May 11; and 13 at Logan, May 12. (Davis, Knowlton). OREGON - Emerged in Milton-Freewater area May 10. (Brown). First moth caught in bait pan May 9 in Medford, Jackson County. (Gentner).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - NEW YORK - Largest number of moths caught so far this year taken in bait traps May 2 in eastern part of State. Egg laying increased markedly in Ulster County, but hatch may be late in relation to fruit development. Eggs more numerous in Columbia County than for past 2 years, with hatching observed May 10. Adults and eggs observed in lake zone orchards of Niagara County May 5. Very heavy emergence observed in Orleans County May 3-4 and egg masses readily observed May 4-5; one heavily infested orchard receiving treatment May 3-4, showed no moths and only occasional egg mass May 5. Very heavy flight occurred May 3-4 in Monroe County; egg masses first observed May 4; number of growers applied controls; sudden warm weather caused moths to emerge rapidly, but control application greatly reduced moth flight. Egg masses observed May 2 in orchards located as close as one-half mile from Lake Ontario. (N. Y. Wkly. Rpt.). MARYLAND - Light numbers noted on apple at Hancock, Washington County. (U. Md., Ent. Dept.). OHIO - Serious infestation found in apples in western Washington County, May 4; larvae ranged from newly hatched to full grown. (Stacy). Adults taken in traps in orchards and vineyards May 2 and eggs observed on apple trees May 5, all in Lake County (Still); eggs found in a Franklin County Orchard (Blair, Holdsworth); numerous egg masses reported from Ashtabula County May 9 (Bossley). ILLINOIS - Damage difficult to

find in the Carbondale area. Another leaf roller has appeared in many orchards in the area and in sufficient numbers in some to warrant control. Undetermined leaf roller being reared for identification. (Meyer). MISSOURI - First brood almost over in southeast area, but in Independence area feeding signs still noted. (Wkly. Rpt. Fr. Gr.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Emerging in large numbers in packing houses in Orleans area. (Marshall, May 10). ILLINOIS - No larvae have been found wilting twigs in Carbondale area as of May 11. (Meyer). OREGON - First moth of season collected in bait trap in Salem on May 9. (Larson).

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - Oldest larvae about 10 days old May 5, and emergence of matured larvae from peach drops to enter soil will begin at Ft. Valley, week of May 9. First-generation adults expected to begin emerging from soil middle of June and be ready to deposit second-generation eggs in peaches latter part of June or early July. (Snapp). DELAWARE - Injury to young peach and apple fruit noted. (MacCreary). NEW YORK - Number jarred from trees in eastern part of State on May 6 increased to 12. (N. Y. Wkly. Rpt.). INDIANA - One jarred from 3 abandoned apple trees at one location in Marshall County, May 4. (Matthew).

CALIFORNIA PEAR-SLUG (Pristiphora californica) - OREGON - Light infestation found on unsprayed home pear trees in Medford, Jackson County; larvae one-third to one-half grown. (Gentner).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Eggs ready to hatch in Orleans County; very few recently laid eggs found. Nymphs noted in some pear orchards in Oswego County. (N. Y. Wkly. Rpt., May 9).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - DELAWARE - Larvae rather common on apple foliage. (Burbutis, Mason). NEW YORK - Fairly common on young tree terminals in Ulster County. (N. Y. Wkly. Rpt., May 9).

OMNIVOROUS LEAF TIER (Cnephasia longana) - CALIFORNIA - Heavy infestations on apple in Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - MARYLAND - Well controlled in commercial apple orchards at Hancock, Washington County. (U. Md., Ent. Dept.).

CANKERWORMS - MISSOURI - Caused some damage to foliage of apple trees in west central area. (Wkly. Rpt. Fr. Gr.).

APPLE APHID (Aphis pomi) - INDIANA - Increasing rapidly on apples in Orleans area. (Marshall, May 10). MISSOURI - Rather general infestations noted in Kansas City area. (Wkly. Rpt. Fr. Gr.).

ROSY APPLE APHID (Anuraphis roseus) - MARYLAND - Abundant and increasing on apples in Hancock area, Washington County. (U. Md., Ent. Dept.). NEW YORK - Few noted in orchard in Monroe County. (N. Y. Wkly. Rpt.). OHIO - Curling leaves in southern, central and northern orchards, but not causing severe damage to May 11. (Stacy, Blair, Holdsworth, Bossley). INDIANA - Increasing rapidly on apples in Orleans area. (Marshall, May 10). COLORADO - Numerous in Delta and Montrose Counties. (Colo. Ins. Sur.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Building up in cracks and pruning wounds in unsprayed orchards throughout State. (N. M. Coop. Rpt.).

APHIDS - WISCONSIN - Unspecified species on apples have been reported, but weather has been sufficiently cold to keep populations from building up. (Wis. Coop. Sur.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - WISCONSIN - Heavy populations on apples reported in Langlade County. (Wis. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Feeding on apple buds in Columbia County, May 3. (N. Y. Wkly. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - MARYLAND - Populations have dwindled due to rain, but first-generation eggs are hatching. (U. Md., Ent. Dept.). NEW YORK - Appearing in large numbers in Ulster County where controls not applied; eggs very scarce in Orleans County; began hatching May 4 in Monroe County, but eggs and nymphs continue to be scarce. (N. Y. Wkly Rpt., May 9). OHIO - Building up to damaging numbers in orchards where controls have not been used this year in northeastern area. (Bossley). INDIANA - Eggs averaged more than 30 per leaf on untreated trees in Vincennes area. (Cleveland, May 9).

A FRUIT TREE MITE (Bryobia rubrioculus) - COLORADO - Numerous in apple trees in Montrose and Delta Counties. (Colo. Ins. Sur.).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Populations remain light in peach orchards in Mesa County. (Colo. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - COLORADO - Light populations present in Mesa County peach orchards. (Colo. Ins. Sur.). UTAH - Numerous in Cache Valley orchards; largely L. elisus. (Knowlton).

A SPIDER MITE - TEXAS - Light, widespread infestations of an unspecified species present on leaves of peach trees in Blanco County. (Massey).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - OREGON - Infestations common in Willamette Valley cherry orchards, with larvae now reaching maturity within webbed leaves. (Capizzi).

A SPRINGTAIL (Achorutes armata) - CALIFORNIA - This and Rhizoglyphus sp. occurred on roots of cherry trees on Mahaleb rootstock in Napa, Napa County. (Cal. Coop. Rpt.).

OLIVE LEAF MITE (Oxypleurites maxwelli) - CALIFORNIA - Heavy infestation occurring on olive trees in Corning area, Tehama County. Mites infesting blossoming olive and causing heavy blossom drop. (Cal. Coop. Rpt.).

PECAN NUT CASEBEARER (Acrobasis caryae) - FLORIDA - First eggs collected on young nuts at Monticello, Jefferson County, on May 4. (Phillips). TEXAS - Adults have emerged from overwintering forms in north central area. (Randolph). OKLAHOMA - Damaged 15 percent of twigs in a grove of native pecan trees surveyed in Johnston County. (Vinson).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - TEXAS - Causing some ragging of pecan leaves in College Station area, Brazos County. (Randolph).

FALL WEBWORM (Hyphantria cunea) - FLORIDA - First colony of young larvae observed feeding on pecan foliage at Monticello, Jefferson County, on May 4. (Phillips).

PECAN BUD MOTH (Gretchena bolliana) - FLORIDA - Larvae feeding on young pecan nuts in Jefferson County on May 4. Feeding damage similar to that caused by first-generation Acrobasis juglandis. (Phillips).

PECAN PHYLLOXERA (Phylloxera devastatrix) - TEXAS - Medium, widespread infestation present on pecans in Gillespie County. (Texas Coop. Rpt.).

A MIRID - GEORGIA - An unspecified species feeding on female flowers of pecans in Bibb, Crisp and Pierce Counties; has caused serious reduction of potential nut crop in some orchards. (Maxwell, Johnson).

SPITTLEBUGS - TEXAS - Medium, widespread infestations of unspecified species present on pecans in Edwards and Gillespie Counties. (Texas Coop. Rpt.).

APPLE MEALYBUG (Phenacoccus aceris) - OREGON - Survey begun May 4 disclosed many filbert orchards in Linn and Marion Counties infested; egg laying continues, but no hatching observed as of May 11. (Larson).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - Trapping activities geared to summer detection by moving McPhail traps from winter to summer host trees now that deciduous fruit trees have leafed out. Season bait spray treatment was resumed in mid-April, with 4,587 host trees and 3,666 roadside trees and shrubs treated. Bait spray will be applied at 21-day intervals during critical summer-fall season. All trap and fruit inspections have been negative. (Cal. Coop. Rpt.).

A FULGORID - TEXAS - An unspecified species causing light damage to citrus trees and fruit in Hidalgo County. (Plyler).

GRAPE FLEA BEETLE (Altica chalybea) - NORTH CAROLINA - Severe injury to grapes locally in Duplin and Sampson Counties. (Boyette, Boney, Farrier).

TRUCK CROP INSECTS

IMPORTED CABBAGEWORM (Pieris rapae) - DELAWARE - First and second-instar larvae average one per plant on cabbage in western Kent County. (Burbutis, Mason).
NEW YORK - Eggs 1-2 per plant on broccoli May 10 in Orange County, with hatching observed May 13. (N. Y. Wkly. Rpt.).

A FLEA BEETLE (Phyllotreta cruciferae) - DELAWARE - Adults on cabbage in eastern Kent County causing light feeding injury. (Burbutis, Mason).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Alates, with few small nymphs, common on cabbage in western Kent County and few alate forms on horseradish in eastern part of county. Alates present in most commercial potato fields over State. (Burbutis, Mason).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW YORK - Easily found in many fields of potatoes in Suffolk County around plants which have emerged; also present on early tomato plantings. (N. Y. Wkly. Rpt., May 9).
MARYLAND - All stages common on untreated potatoes in southern sections of State. (U. Md., Ent. Dept.).
GEORGIA - Light to moderate on tomatoes in Colquitt, Cook and Lowndes Counties and heavy on same crop in Tattnell County. (Smith).
LOUISIANA - Averaged one larva per plant in field of potatoes in Livingston Parish; only one adult was collected. Field required treatment. (Spink).

CUCUMBER BEETLES - LOUISIANA - Average counts per 100 sweeps on potatoes in Pointe Coupee Parish were 2 Acalymma vittata, 8 Diabrotica undecimpunctata howardi and 2 D. balteata. (Spink).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Adult numbers noticeably increased over past week, especially in southern New Castle and western Kent Counties; feeding injury rather heavy in these areas. (Burbutis, Mason).
MARYLAND - This species and E. hirtipennis very active on potatoes and tomatoes in southern sections. Heavy injury noted to 3-acre field of potatoes at Morganza, St. Marys County. (U. Md., Ent. Dept.).

LEAF MINERS - SOUTH CAROLINA - Occur rather generally on tomatoes, but damage light on 800 acres in Sumter County. (Nettles et al.).

POTATO APHID (Macrosiphum solanifolii) - DELAWARE - Alates present in most commercial potato fields in all counties and in a field of horseradish in eastern Kent County. (Burbutis, Mason).
MARYLAND - Light, but building up on potatoes and tomatoes on lower Eastern Shore. (U. Md., Ent. Dept.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - None found on Lycium in Larimer County. (Colo. Ins. Sur.).

SPRINGTAILS - MARYLAND - Unspecified species abundant on potatoes, beans and tomatoes in southern sections of the State; probably due to recent cool weather. (U. Md., Ent. Dept.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults abundant and damage conspicuous on snap beans in all sections. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Heavy on beans in Tift, Colquitt, Cook, Lowndes, Ware, Wayne and Schley Counties. (Girardeau, Reid, Johnson).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - The first nymphs of the spring generation were found March 7 near Coalinga and by March 21 nymphal populations were sufficient to warrant spraying in the breeding grounds adjacent to Coalinga and Maricopa. A total of 30,941 acres were treated in San Joaquin, Stanislaus, Merced, Fresno and Kern Counties. Population surveys began April 18 in cultivated areas in San Joaquin Valley to determine the extent of migrations. Compared with 1959 the population appeared slightly heavier from the foothills into the valley as far north as Delano. Counts ranged from 50 per 100 sweeps near the foothills to about 10 per 100 sweeps in the valley. In the Shandon area, counts averaged about 2 per foot of row on small beets and in the Salinas Valley no counts of consequence were found. Another survey of cultivated areas will be made in May, but unless adverse conditions develop, such as a second generation in some locations, no heavy buildup is expected. (Bur. Ent., Cal. Dept. Agri.).

GARDEN SYMPHYLID (Scutigerebella immaculata) - COLORADO - Causing considerable loss of stand in one field of sugar beets near Johnstown, Mesa County. (Colo. Ins. Sur.).

ASPARAGUS BEETLES (Crioceris spp.) - MARYLAND - C. asparagi and C. duodecimpunctata common on asparagus ferns in Talbot County. (U. Md., Ent. Dept.).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Most growers have larvae under control as harvest continues in Las Cruces-Hatch area of Dona Ana County. Light infestations have been controlled in Eddy County. (N. M. Coop. Rpt.).

CORN EARWORM (Heliothis zea) - CALIFORNIA - Medium on lettuce plantings in Nestor, San Diego County. (Cal. Coop. Rpt.).

THRIPS - MARYLAND - Moderate infestations of unspecified species on onions at 3 localities in Somerset and Worcester Counties. (U. Md., Ent. Dept.). NEW MEXICO - Frankliniella occidentalis continues to be a problem in most onion fields in Dona Ana and Luna Counties; most growers applying controls. (N. M. Coop. Rpt.).

MELON APHID (Aphis gossypii) - CALIFORNIA - Heavy populations occurring on vines of watermelon in Vina, Tehama County. (Cal. Coop. Rpt.).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - NEW YORK - Adults appeared in large numbers May 2 in an infested strawberry planting at Marlboro. Moths active and problem on only 1 or 2 farms in Ulster County where good control was not obtained against larval stage. (N. Y. Wkly. Rpt., May 9). INDIANA - Active on strawberries in Orleans area. (Marshall, May 10). WISCONSIN - Pupating in southeastern area of State. (Wis. Coop. Sur.).

STRAWBERRY CROWN BORER (Tyloderma fragariae) - INDIANA - Active on strawberries in Orleans area. (Marshall, May 10).

STRAWBERRY WEEVIL (Anthonomus signatus) - INDIANA - Active on strawberries in Orleans area. (Marshall, May 10). NEW YORK - Found in only one Suffolk County strawberry planting inspected. (N. Y. Wkly. Rpt., May 9).

STRAWBERRY APHID (Pentatrachopus fragaefolii) - DELAWARE - Apterous adults and young fairly common on strawberries in New Castle County. (Burbutis, Mason).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Present on early varieties of strawberries showing fruit buds in Oswego County. (N. Y. Wkly. Rpt., May 9).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - INDIANA - Not numerous on strawberries in Orleans area, but developed far enough to make control relatively easy. (Marshall, May 10).

SPIDER MITES - MARYLAND - Severe damage to several fields of strawberries, by unspecified species, observed near Salisbury, Wicomico County. (U. Md., Ent. Dept.)
NEW YORK - Injury by Tetranychus telarius serious in several Suffolk County strawberry plantings inspected May 3. Numbers being kept well below economic levels where controls begun early. (N. Y. Wkly. Rpt., May 9).

OBLIQUE-BANDED LEAF ROLLER (Archips rosaceana) - OREGON - Infesting 10 percent of tips of evergreen blackberry plantings in Salem-Keizer area. (Larson).

RASPBERRY CANE GIRDLER (Oberea bimaculata) - UTAH - Damaging raspberry plantings in Heber area, Wasatch County. This may be a new county record. (Davis, Knowlton, Daniels).

ROSE SCALE (Aulacaspis rosae) - CALIFORNIA - Occurring as a heavy infestation on raspberry bushes in Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light infestations on tobacco in Colquitt, Cook, Berrien, Ware, Pierce, Wayne, Tattnall and Candler Counties. (Johnson).

BUDWORMS (Heliothis spp.) - GEORGIA - Light infestations on tobacco in Colquitt, Cook, Berrien, Ware, Pierce, Wayne, Tattnall and Candler Counties. (Johnson).

FLEA BEETLES - SOUTH CAROLINA - Damage to leaves serious on newly set tobacco in Marion County. (Nettles et al).

WIREWORMS - SOUTH CAROLINA - Damage much heavier than usual on tobacco in Marion County. (Nettles et al.).

COTTON INSECTS

THRIPS - GEORGIA - Moderate infestations of unspecified species on cotton in Randolph, Calhoun, Dooly, Crisp, Turner and Wilcox Counties. (Maxwell). Moderate to heavy infestations in Colquitt, Cook, Berrien, Lowndes, Ware, Pierce, Wayne, Tattnall, Candler, Johnson and Washington Counties. (Johnson). MISSISSIPPI - Populations building up on oats, clover, vetch and other host plants. Little movement to cotton has occurred in delta area. Some cotton treatments underway, but counts do not indicate injurious infestations on cotton. (Merkl et al.). LOUISIANA - Present in most cotton fields in Tallulah area, especially in early planted fields where damage apparent. Counts made in 23 fields, all being infested, and averaged 0.48 per plant. Range was 0.08-1.30 per plant. Some controls underway in area. (Smith et al.). TEXAS - Infestations observed light to medium, with a general increase in progress from lower Rio Grande Valley to Waco area. Injury noted in Waco area and as far north as Red River in north central section. (Gaines). ARIZONA - Infestations declined sharply in all areas, particularly in central and southwest, where temperatures were high during past week. (Ariz. Coop. Sur.). NEW MEXICO - Heavy infestations of Frankliniella occidentalis continue to damage seedling cotton in untreated fields in Dona Ana County. Stands being reduced in spots in some fields. (N. M. Coop. Rpt.).

CUTWORMS - MISSISSIPPI - Infestations extremely spotty, with general counts running exceptionally low in delta counties. (Merkl et al.). TEXAS - Some damage noted in cotton in coastal bend, southwest and upper coastal areas. (Gaines). CALIFORNIA - Heavy infestations of Agrotis ipsilon in cotton in Buttonwillow area, Kern County. (Cal. Coop. Rpt.).

APHIDS - GEORGIA - Light to heavy infestations of Aphis gossypii on cotton in Randolph, Calhoun, Dooly, Crisp, Turner, Wilcox, Colquitt, Cook, Berrien, Lowndes, Ware, Pierce, Wayne, Tattnall, Johnson and Washington Counties. (Maxwell, Johnson). MISSISSIPPI - Very light aphid infestations general in delta counties; no serious infestations reported. (Merkl et al.). OKLAHOMA - Light populations of A. gossypii (4 and 6 per plant) noted in 2 cotton fields in Jackson and Tillman Counties. Plants still in 2-leaf stage. (Hatfield). TEXAS - Populations of unspecified species rather high in coastal bend, southeast, upper coastal and south central areas. A rapid buildup of lady beetles and other predators along with heavy rainfall decreased populations. (Gaines). NEW MEXICO - Light and spotty infestations of A. medicaginis on seedling cotton in Dona Ana County. (N. M. Coop. Rpt.).

FLEAHOPPERS - TEXAS - Counts increasing on cotton as the pest moves from alternate host plants. In lower Rio Grande Valley, counts averaged 4 or 5 per 100 terminals, with some counts as high as 40 percent. Nymphs noted as far north as Waco area. (Gaines). ARIZONA - High populations of Spanogonicus albofasciatus present in central and southeast area cotton. A problem may occur when squaring begins. (Ariz. Coop. Sur.).

BOLL WEEVIL (Anthonomus grandis) - MISSISSIPPI - No weevils found on seedling cotton in delta counties. Trap plants at 3 locations being checked 3 times a week. First weevil found on a trap plant on April 29 and 4 found on trap plants in same field on May 12. All weevils found on plants out in field. No activity noted on trap plants in or adjacent to hibernation areas. (Merkl et al.). LOUISIANA - Found in 1 of 3 fields examined in Tallulah area. Counts averaged 8 per acre, ranging 0-25 per acre. The percent boll weevil survival in hibernation cages for the week ending May 13 was 0.28 compared with 0.62 for the same period in 1959. (Smith et al.). TEXAS - Adults active and feeding in fields as far north as Waco. (Gaines). In McLennan and Falls Counties, counts found at average rate of 83 per acre in 33 fields inspected. This compares with 84 per acre in 26 fields during corresponding week of 1959. (Parenchia et al.).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - One moth collected in a light trap near Superior in northern Pinal County on May 8. This has been first collection since April 18. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Populations increased in central area on cotton, with considerable foliage damage in some fields. Diseased larvae noted throughout area. (Ariz. Coop. Sur.). TEXAS - Few reported in southern areas. (Gaines).

BROWN COTTON LEAFWORM (Acontia dacia) - TEXAS - Larvae observed on cotton in Live Oak County in southeast and McLennan and Falls Counties in central area. (Gaines).

BEET ARMYWORM (Spodoptera exigua) - ARIZONA - Light to medium infestations continue in young cotton in central area. (Ariz. Coop. Sur.).

BOLLWORMS (Heliothis spp., et al.) - GEORGIA - Egg counts 2-3 per 100 cotton terminals in Randolph, Calhoun, Dooly, Crisp, Turner and Wilcox Counties (Maxwell); and 1-3 per 100 terminals in Colquitt, Lowndes, Ware, Pierce, Wayne and Candler Counties. (Johnson). One larva per 100 terminals found in each of 2 fields in Calhoun and Randolph Counties. (Maxwell). MISSISSIPPI - Light trap catches low in delta area; no field activity reported. (Merkl et al.).

SPIDER MITES - TEXAS - Populations generally light, with a few isolated medium infestations. (Gaines).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

MOUNTAIN PINE BEETLE (Dendroctonus monticolae) - CALIFORNIA - Severe in lodgepole pine, killing single trees and entire stands of pole to mature trees in a 1,000-acre area east of Mt. Shasta in Shasta Trinity National Forest. (Prevey).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Total of 26 new spot locations found scattered throughout epidemic area by aerial detection flight on April 27. Controls continue in Hardin and Liberty Counties, but 54 spots lack control. One spot is at least 100 acres in size, and there are 6 spots with estimated 7,000 to 10,000 brood trees present. Three spots have nearly doubled in size since December. (Young).

RED TURPENTINE BEETLE (Dendroctonus valens) - MARYLAND - Adults on white pine at Bittering, Garrett County, May 7. (U. Md., Ent. Dept.).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - OKLAHOMA - Light in 15 areas checked in Pushmataha County. (Goin). Light numbers in some pine stumps in Broken Bow area. All stages except eggs found. (Okla. Coop. Rpt.).

DOUGLAS-FIR ENGRAVER (Scolytus unispinosus) - CALIFORNIA - Causing partial and complete kill of Douglas-fir in Redding area, Shasta County. New locality record for this species. Damage is associated with 2 years of drought. (Rippleye).

ENGRAVER BEETLES (Ips spp.) - TEXAS - Attacked pine on recently burned areas in Trinity County. (Young). OKLAHOMA - Light numbers in dead or dying limbs of native pines in 15 areas checked in Pushmataha County. (Goin). Common in a number of pines felled under electric lines along roadsides in southeast. (Okla. Coop. Rpt.).

PALES WEEVIL (Hylobius pales) - OKLAHOMA - Larvae and pupae light in a few pine stumps in Broken Bow area. (Okla. Coop. Rpt.).

A STRIPED OAKWORM - TEXAS - Defoliated oaks in Burleson County. (Young).

PINE SPITTLEBUG (Aphrophora parallela) - MARYLAND - Nymphs common on loblolly and Virginia pine in central and southern sections. (U. Md., Ent. Dept.).

PINE NEEDLE MINER (Exotelia pinifoliella) - INDIANA - Abundant in jack pine at Reynolds, White County. (Schuder).

A SCALE INSECT (Matsucoccus paucicatricis) - CALIFORNIA - Severely damaging sugar pine saplings; killing up to 50 percent in a 300-acre stand in Elk Creek, Glenn County. (Kulosa).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - WYOMING - Moderate infestations on pines in Lander-Riverton areas and near Green River. (Fullerton).

SAWFLIES - MARYLAND - Neodiprion pratti pratti denuding Virginia pines at several localities in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

NORTH CAROLINA - Neodiprion sp., probably pratti pratti, severely defoliated trees south of Kerr Lake in northwest Vance and northeast Granville Counties. Scattered defoliation elsewhere in vicinity and in Warrenton area. About three-fourths of the larvae have left the trees. (Jones). INDIANA - N. sertifer larvae hatched and feeding on first few needles in northern area. (Schuder). KANSAS - Arge spp. causing some defoliation of oak in Franklin County and elm in Riley County; more serious on elm than oak. (Thompson). DELAWARE - Larvae of Nematus ventralis still appearing, with some feeding injury present on willows in western Kent County. (Burbutis, Mason). CALIFORNIA - Susana cupressi heavy on Cupressus sp. in Fresno, Fresno County. (Cal. Coop. Rpt.).

A LEAFHOPPER - IDAHO - Unidentified species ovipositing on leaves of Populus trichocarpa along Boise River in Parma area. Egg masses on one tree ranged from 1-10 per leaf, with 1-8 eggs per mass. (Scott).

SATIN MOTH (Stilpnotia salicis) - OREGON - Adults appearing in Salem blacklight trap collections during May. (Larson).

A TUSSOCK MOTH (Hemerocampa sp., doubtfully leucostigma) - FLORIDA - Collected on live oak at St. Augustine Beach, St. Johns County, on May 1. Locally abundant at Anastasia State Park. Many larvae completed feeding on live oak foliage and making cocoons. Some cocoons contained pupae. (Hetrick).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Damaging trees in Barton County. Control applied in Iola, Allen County, and Ottawa, Franklin County. (Calkins). NEBRASKA - Larvae moderately damaging shade tree foliage and causing concern to homeowners. Control underway. (Simpson).

FOREST TENT CATERPILLAR (Malacosoma disstria) - LOUISIANA - Infestations dropping off but they are still found on oak and tupelo-gum in some areas including Iberia Parish. (Spink). PENNSYLVANIA - Recently hatched on maple in Somerset County. Numbers much less than last year in area where control applied in 1959. Larvae one-half grown on ornamental oaks in Greensburg, Westmoreland County. (Udine).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - NEW YORK - Larvae crawling about leaving wild cherry trees which are now mostly defoliated at Poughkeepsie. (N. Y. Wkly. Rpt.). PENNSYLVANIA - Leaves of wild cherry and other trees defoliated and immatures migrating in southwest area. Very heavy infestation present again this year. (Udine).

AN ARCTIID (Halisidota argentata) - OREGON - Reported defoliating fir trees in Corvallis area during early May. (Allen).

BIRCH LEAF MINER (Fenusa pusilla) - NEW YORK - On Long Island, adults have laid most of the eggs and mines had not been started in two areas. At Poughkeepsie, larvae had mined up to one-fourth inch and adults still abundant. (N. Y. Wkly. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - UTAH - Severe at Salt Lake City. (Knowlton).

FLEA BEETLES - NEW YORK - Damaging partly-developed elm leaves in Ithaca area where large numbers were present earlier. (N. Y. Wkly. Rpt.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - DELAWARE - Miners fairly heavy in unsprayed American boxwood trees in New Castle County. Pupation completed and adults emerging. (Burbutis, Mason).

CANKERWORMS - NEW YORK - Abundant and causing some damage to linden, elm and other trees on Long Island. On May 11, young larvae making small holes in leaves. (N. Y. Wkly. Rpt.).

A LOCUST LEAF ROLLER (Obolodiplosis robiniae) - DELAWARE - Larvae common on locust and rolling edges of leaves in western Kent County. (Burbutis, Mason).

MITES - NEW YORK - A taxus bud mite active in southeastern area. Lateral and terminal buds blasted and swollen but not developed and growing as uninfested buds. (N. Y. Wkly. Rpt.). NEW MEXICO - Tetranychus sp. heavy on arborvitae, juniper and cypress in many ornamental plantings throughout the State. (N. M. Coop. Rpt.).

OBLIQUE-BANDED LEAF ROLLER (Archips rosaceana) - PENNSYLVANIA - In Centre County 90 percent of hawthorn terminals infested. (Gesell).

APHIDS - OREGON - Prociphilus sp. abundant and curling leaves of ash in Salem area. Some parasitism evident May 10. (Capizzi). OKLAHOMA - Several species light on pines in southeast. Numbers apparently decreasing. (Okla. Coop. Rpt.). KANSAS - Unidentified species on unsprayed roses in Allen and Douglas Counties. (Calkins). MARYLAND - Aphids heavy on rose terminals in central sections. (U. Md., Ent. Dept.). DELAWARE - Macrosiphoniella sanborni abundant on chrysanthemums in Newark area of New Castle County. (Burbutis, Mason).

BAGWORM (Thyridopteryx ephemeriformis) - KANSAS - Eggs, examined in Franklin, Shawnee and Riley Counties, expected to hatch within two weeks from May 13. (Thompson).

A COSMOPTERYGID MOTH (Stagmatophora ceanothiella) - CALIFORNIA - Heavy on Ceanothus sp. in Santa Barbara County. (Cal. Coop. Rpt.).

DOGWOOD TWIG BORER (Oberea tripunctata) - NORTH CAROLINA - Larvae injuring dogwood locally in Carteret County. (Williams, Farrier).

COCCIDS - CALIFORNIA - A new genus and species of mealybug was collected by H. L. Wilson on Juniperus sp. in Coalinga area, Fresno County, and by G. Beevor in Rosamond, Kern County. Det. H. L. McKenzie. Lecanium corni complex heavy on California holly in Oakville, Napa County. L. kunoensis occurred on pyracantha and peach in Paradise, Butte County. Second Butte County location. (Cal. Coop. Rpt.). UTAH - Lepidosaphes ulmi severe on nursery plants of green ash and buffaloberry at Salt Lake City. (Knowlton).

A HOLLY LEAF MINER (Phytomyza sp.) - DELAWARE - Adults emerging from American holly throughout State. Adult feeding injury rather heavy on new foliage. (Burbutis, Mason).

JUNIPER WEBWORM (Dichomeris marginella) - NORTH CAROLINA - Severe injury to juniper locally in Camden County. (Teuten, Farrier).

A PSYLLID (Pachypsylla astericus prob.) - CALIFORNIA - Heavy on hackberry in Fresno, Fresno County. Collected by H. Dunnigan. Det. H. H. Keifer. (Cal. Coop. Rpt.).

ROSE CURCULIO (Rhynchites bicolor) - OREGON - Adults common on untreated rose bushes in Willamette Valley, May 10. (Capizzi).

A THRIPS (Frankliniella occidentalis) - NEW MEXICO - Damaging roses in most areas of State. Reinfestation is rapid on treated plants. (N. M. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

FACE FLY (Musca autumnalis) - MARYLAND - Collected on shrubbery, May 6, by B. D. Albuquerque, at Swallow Falls State Park, Garrett County. New record for State. Det. C. W. Sabrosky. (U. Md., Ent. Dept.). VIRGINIA - Cool weather slowing activity. (Turner). NEW JERSEY - Reported on horses and ponies and averaged 25 per dairy cow locally. (Ins.-Dis. News1.).

EYE GNATS (Hippelates spp.) - CALIFORNIA - Heavy populations of H. collusor and H. robertsoni causing severe irritation to residents and animals in Green Valley, Pauma Valley and Borrego Valley, San Diego County. Heavy in San Jacinto-Hemet Valley, in Barstow-Hinkley area of San Bernardino County, and severe in El Toro and Santa Ana areas. H. pusio also occurs in these areas in Orange County. Medium in Coachella Valley, Riverside County. Collected and determined by M. S. Mulla. (Cal. Coop. Rpt.).

MOSQUITOES - DELAWARE - First brood of adult Aedes sollicitans now emerged. (Darsie). MINNESOTA - Of 100 larval collections made May 1-7, 48 Aedes vexans, 13 Culiseta inornata and 2 Culiseta spp. were found. (Minn. Ins. Rpt.). UTAH - Anopheles freeborni and a few Aedes sp. annoying at Logan. Populations of mosquitoes very low in Weber County. Culiseta inornata is most numerous in trap catches, followed by Culex tarsalis. Larvae of Aedes dorsalis and A. nigromaculis present. Control applied on 390 acres. Mosquitoes troublesome at Moab and Green River in southeast. (Knowlton, Fronk).

HORN FLY (Siphona irritans) - OKLAHOMA - Counts averaged about 150 per cow and 500 per bull on range animals in the southeast. (VanCleave). INDIANA - Observed on cattle in pastures in Montgomery, Putnam, Owen, Greene, Martin and Dubois Counties, May 5. Counts ranged up to 20 flies per animal infested. (Dobson). UTAH - Annoying and numerous on cattle in Washington County. (Knowlton).

HORSE FLIES - OKLAHOMA - Unidentified species averaged 10 per animal on 8 calves in Choctaw County. (Goin).

CATTLE GRUBS (Hypoderma spp.) - NORTH CAROLINA - Cattle running from heel flies in Buncombe County. (Palmer).

BLACK BLOW FLY (Phormia regina) - INDIANA - Larvae common in dehorned cattle at one location in Dubois County, May 5. (Dobson).

STABLE FLY (Stomoxys calcitrans) - INDIANA - Appearing on cattle in Dubois County, May 5-6. (Dobson, Matthew).

AMERICAN DOG TICK (Dermacentor variabilis) - SOUTH DAKOTA - Numerous on pets in eastern area. (N. D. Ins. Rpt.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Common on foliage in wooded areas throughout the southeast. (Okla. Coop. Rpt.).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - WISCONSIN - Wintered well except in the Indian Head area. Packaged bees received from southern sources appear to have too many old bees for greatest success and are dwindling in numbers in many hives. Adverse spring weather has contributed further to decline of already weakened colonies, but properly tended colonies are expected. (Wis. Coop. Sur.). MINNESOTA - Colonies making satisfactory gains in spite of cool weather. Early packages gaining rapidly, averaging 4-5 frames of brood on May 10. Lack of ample feed is only drawback at this stage. Supplies of new queens may be fairly scarce due to lack of good mating weather and sufficient numbers of drones in some southern breeding apiaries. (Minn. Ins. Rpt.). CALIFORNIA - Inspection reports indicate less American foulbrood loss than in 1959, but average incidence of disease remains above 3 percent. Nosema disease has caused some difficulty in package bee operations. Insecticide losses continue as a major problem. Locoweed has caused losses in some areas and the condition known as "desert disease" caused severe losses in parts of Imperial County. Many colonies now at optimum population and swarming is about normal. Oranges yielded well in Tulare County, while in southern counties orange flow was of short duration; sage and buckwheat prospects are poor in most areas. Colonies are being moved onto alfalfa locations. Overcrowding is again anticipated in cultivated areas, increasing possibility of disease spread among migratory apiaries. (Cal. Coop. Rpt.).

HYMENOPTEROUS PARASITES- WISCONSIN - Adults of Ophion sp. numerous in light trap collections. (Wis. Coop. Sur.). COLORADO - Bathyplectes curculionis, a parasite of alfalfa weevil, averaged 4-8 per 100 sweeps in Larimer and Weld Counties. (Colo. Ins. Sur.). OKLAHOMA - Heavy populations of Aphidius testaceipes (6 wasps and 50 aphid mummies per linear foot) noted in field of oats infested with greenbug in Marshall County. (Vinson).

LADY BEETLES - MISSOURI - Counts of unspecified species in southeast area alfalfa averaged 0.5 adult per sweep; numbers swept from southwest area alfalfa lower because of extremely low temperature. (Munson, Thomas, Kyd). OKLAHOMA - Hippodamia convergens light (4 per square foot) in field of alfalfa in Beaver County (Owens); ranged 0-4 per square foot of crown area in 5 fields in southwest area (Hatfield); light to medium (0.5-6 per sweep) in 5 fields of alfalfa in south central area, with medium numbers noted in 2 small grain fields (Vinson); light to heavy (0.2-10 per sweep) in 8 Choctaw County fields (Goin); light (0.5-1.0 per sweep) in a field of alfalfa in Okfuskee County (Meharg). KANSAS - Hippodamia convergens and Coleomegilla maculata fuscilabris were present in most fields examined in the northeastern and east central areas of the State, with counts of less than one per sweep or per linear foot. (Peters). NEBRASKA - H. convergens and Coleomegilla maculata lengi populations low, but increasing gradually along with host insects. Averaged 3 per 10 sweeps in most fields of alfalfa and less than one per 25 sweeps in fields of wheat. (Simpson). WISCONSIN - Adults of unspecified species observed in good numbers feeding on aphid eggs. (Wis. Coop. Sur.). WYOMING - Unspecified species averaged 3 per 25 sweeps in 100 sweeps per field in alfalfa in the Big Horn Basin. (Fullerton). COLORADO - Hippodamia spp. averaged 4 per 100 sweeps in Weld and Larimer Counties. (Colo. Ins. Sur.). IDAHO - Adults of numerous species abundant in alfalfa checked in Moscow area (Manis); averaged one adult per sweep in fields of alfalfa checked in Canyon County (Bechtolt).

A CHRYSOMELID (Gastrophysa cyanea) - NORTH CAROLINA - Large numbers destroying dock in pastures in Montgomery County. (Bowers, Farrier).

A FLOWER BUG (Orius insidiosus) - NEBRASKA - Counts less than one per 25 sweeps in all crops. (Simpson).

LACEWINGS (Chrysopa spp.) - NEBRASKA - Counts less than one per 25 sweeps in all crops. (Simpson). KANSAS - Found in most northeastern and east central area fields examined; less than one per sweep or one per linear foot of row. (Peters). OKLAHOMA - Ranged 0-2 per square foot of crown area in 5 fields of alfalfa surveyed in southwest area (Hatfield); light to medium populations (0-2 per sweep) noted in 8 fields checked in Choctaw County (Goin).

NABIDS (Nabis spp.) - OKLAHOMA - Averaged 2 per square foot of crown area in a field of alfalfa checked in Comanche County (Hatfield); averaged 0-2 per sweep in 8 fields checked in Choctaw County (Goin). KANSAS - Counts were less than one per sweep or one per linear foot of row in most fields examined in northeastern and east central areas. (Peters). NEBRASKA - Average 4 per 10 sweeps in alfalfa. (Simpson). WYOMING - Averaged 1 per 25 sweeps in Big Horn Basin alfalfa fields; 100 sweeps made per field. (Fullerton).

SYRPHIDS - COLORADO - Averaged one larva per 100 sweeps in Larimer County alfalfa. (Colo. Ins. Sur.).

MISCELLANEOUS INSECTS

CUTWORM MOTHS - TEXAS - Chorizagrotis auxiliaris and other species have caused great concern to residents by coming to lights at night in Ward, Glasscock and other western counties. (Texas Coop. Rpt.). NEW MEXICO - Chorizagrotis sp. a nuisance around homes in Las Cruces and El Paso. (N. M. Coop. Rpt.).

CASEMAKING CLOTHES MOTH (Tinea pellionella) - MISSOURI - Heavy infestation reported in feathers in bottom of pigeon nests in a pigeon house. (Stone).

A FALSE CHINCH BUG (Nysius sp.) - ARIZONA - Medium populations reported about homes. (Ariz. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - DELAWARE - Continues to cause much annoyance in and around homes in New Castle County. (Burbutis, Mason). INDIANA - Numerous requests for control received during past few weeks. (Schuder).

TERMITES (Reticulitermes spp.) - MARYLAND - Reproductive forms of R. flavipes swarming in homes at 2 locations in Prince Georges County. (U. Md., Ent. Dept.). OREGON - R. hesperus found in large office building in Salem. (Larson).

MUSHROOM MITE (Tyrophagus lintneri) - CALIFORNIA - Light populations on cotton seed in Indio, Riverside County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 10(19):361 - BOLL WEEVIL (Anthonomus grandis) note from South Carolina should read as follows: "One adult observed April 11 in Spartanburg County and one adult captured April 20 in Union County."

CEIR 10(20):382 - Note on BANDED CUCUMBER BEETLE (Diabrotica balteata) from Florida should read as follows: "Insect not very abundant over most of winter vegetable crop season for 1959-60. Insect more abundant on April 27 than it had been during the current season and more abundant than for nearly a year. On May 3, the insect was more abundant than earlier this season; and it is not as abundant as it was over a year (13-14 months) ago." (Wolfenbarger).

ADDITIONAL NOTES

VERMONT - First specimens of a SPITTLEBUG observed on trefoil May 13, as well as a few individuals of TARNISHED PLANT BUG (Lygus lineolaris). EUROPEAN RED MITE (Panonychus ulmi) numerous in many orchards; egg hatch better than 75 percent complete in Shoreham area, Addison County, as of May 11. Heaviest prebloom population observed was 300-400 per spur. No pupation of overwintering CODLING MOTH (Carpocapsa pomonella) larvae as of May 16. CABBAGE MAGGOT (Hylemya brassicae) egg laying has begun. (MacCollum).

IDAHO - Overwintering adults of ALFALFA WEEVIL (Hypera postica) common on alfalfa checked near Moscow; few larvae reported from some Canyon County fields, but populations throughout southwest area of State continue quite low. ALFALFA LOOPER (Autographa californica) light in several Canyon County fields checked. PEA APHID (Macrosiphum pisi) populations much below normal on alfalfa in sharp contrast to population explosion in southwest area of State during 1959. Adults of a CLOVER BUD CATERPILLAR (Grapholitha conversana) active in Moscow area clover, with considerable mating activity noted. SWEETCLOVER WEEVIL (Sitona cylindricollis) populations normally heavy in Canyon County on all sweetclover. WHEAT CURL MITE (Aceria tulipae) infestations heavy on volunteer stands of barley near Moscow. Adults of a WIREWORM (Limoniopsis sp., probably canus) active and often abundant through many northern areas in the State. PEAR LEAF BLISTER MITE (Eriophyes pyri) infesting pear trees in a fruit-tree nursery near Moscow. ASPRAGUS BEETLE (Crioceris asparagi) adults appearing in southwest; injuring asparagus at Parma. CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) adults extremely numerous on mustard in Moscow area. ONION MAGGOT (Hylemya antiqua) populations increasing in southwestern area but still below economic levels. STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) attacking hop crowns in Parma-Wilder area; range 5-35 per crown. STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) adults active on strawberries near Moscow; no immature stages yet observed. (Manis, Bechtolt, Waters, Gittins, Scott).

MISSOURI - Counts of PEA APHID (Macrosiphum pisi) on alfalfa in southeastern area ran as high as 400 per sweep. From 30-50 percent of aphids in southeast show discoloration from disease. Counts on alfalfa in southwest ranged from 100 to over 600 per sweep. Extensive damage to alfalfa evident throughout southwest area. (Munson, Thomas, Kyd).

NORTH DAKOTA - GRASSHOPPERS - Survey in northwestern counties showed eggs of Melanoplus bivittatus and M. bilituratus in coagulated stage. Development showed no particular change since survey observations made week of April 11. However, range survey in an area northeast of Williston shows M. bilituratus eggs in advanced stages of segmentation. (N. D. Ins. Rpt.).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Prod. ornith.	Perid.* saucia	Laphyg. frug.	Protoparce sexta	quinq.	Helio. zea
<u>ARKANSAS</u>								
Morrilton 4/28-5/11	7	7						3
Kelso 4/28-5/11	2	6		1				2
Fayetteville 4/28-5/11	6	9		8				24
<u>FLORIDA</u>								
Quincy 5/2	96	7	4			1		
<u>ILLINOIS</u>								
Urbana 5/6-12	1							
<u>INDIANA (County)</u>								
Lawrence 5/2-5	56	10		4				
<u>KANSAS</u>								
Garden City 5/4, 6-10	22	20	16	18				
Hays 5/7, 9-10		4		5				
Manhattan 5/5	1							
Mound Valley 5/5, 7, 10	1			1				
Wathena 5/5-10	2	14						
<u>LOUISIANA</u>								
Franklin 5/9, 11	1	3	1	1				2
Baton Rouge 5/6-12		4	11	2				4
<u>MARYLAND</u>								
Fairland 5/11-15	3	1		1				
<u>MISSISSIPPI</u>								
Stoneville 5/6-12**	23	4	3	2		3		3
<u>NEBRASKA</u>								
Scotts Bluff 4/5-5/11		1		5				
Kearney 5/4-5	8	5		3				
North Platte 5/1-10	13	25		50				
Lincoln 5/5-13	63	10						
<u>NORTH CAROLINA</u>								
Faison 5/12	2	3						
<u>SOUTH CAROLINA</u>								
Charleston 5/9-15		10	7			1		1
Clemson 5/7-13	5	2						2
<u>TEXAS</u>								
Brownsville 5/3-6	2	20	2		5		5	6
Waco 5/7-13	17	3		20				15

Additional CollectionMISSISSIPPI - (Stoneville, 5/6-12); Heliothis virescens - 1.

* Forbes, W. T. M., 1954. Lepidoptera of New York and neighboring states. Pt. 3, (Noctuidae): 51.

** Two traps - Stoneville

SOME OF THE MORE IMPORTANT PESTS FOR 1959

Due to suggestions of cooperators, two categories of the more important pests of 1959 are summarized. These are "Crop and Forest Pests" and "Man and Household Pests". The majority of the states employed the two lists, while some chose to use a single listing. In the table below, where a state shows two lists, the first is for crop and forest pests and the second is for man and animal and household pests unless otherwise designated.

ARIZ.	Lycus bugs	Beet army-worm	Cabbage looper	Bollworm	Spotted alfalfa aphid	House fly	Spider mites	Common cattle grub	Green peach aphid	Southwestern corn borer
ARK.	Boll weevil	Corn ear-worm	Aphids	Southwestern corn borer	Stored-grain pests	Mites	Armyworm			
	Horn fly	Horse flies	Stable fly	Termites	Mosquitoes					
CALIF.	Lycus bugs	Heliothis zea	Mites	Two-spotted spider mite	Loopers	Western pine beetle	Mountain five-spined beetle	California Douglas-fir ips	Douglas-fir beetle	Fir engraver
	Horn fly	Cattle ticks (Haematopinus spp.)	Lice (Ixodes spp., Dermacentor spp.)	Tabanus spp.	Bird lice	Black blow fly	Mosquitoes	Termites		
COLO.	Two-spotted spider mite	Alfalfa weevil	Wheat curl mite	Grass-hoppers	Codling moth	Potato psyllid	Beet web-worm	Mexican bean beetle	Aphids	Corn ear-worm
DEL.	European corn borer	Corn ear-worm	Alfalfa weevil	European red mite	Green peach aphid	Green peach aphid beetle	Cabbage looper	Japanese beetle	Asparagus beetle	Red-banded leaf roller
	Eastern subterranean termite	Salt-marsh mosquito	Brown-banded roach	House fly	Clover mite	Horn fly	Stable fly	American dog tick	Face fly	Boxelder bug
FLA.	Chinch bug	Florida red scale and purple scale	Citrus rust mite	A serpentine miner	Spider mites on citrus	Corn ear-worm	Southern armyworm	Wireworms	Fall army-worm	Cabbage looper
GA.	Boll weevil	Corn ear-worm	peach tree borer	Tobacco borer	Aphids					
	Termites	Horn fly	House fly	Cockroaches	Lice					
IDAH0	Alfalfa weevil	Aphids (par-ticularly pea aphid, clover aphid)	Mites (par-ticularly two-spotted spider mite, clover mite)	Lygus bugs	Colorado potato beetle	Wireworms	Grass-hoppers	Clover beetles	elm leaf beetle	Douglas-fir beetle
	Clover mite	European earwig	Cattle lice	Mosquitoes	Deer flies	Rocky Mountain wood tick	Horn fly	Heel flies		
ILL.	Greenbug	Black cut-worm	Corn root aphid	European corn borer	Corn root-worms	Cicadas	Grass thrips	Wireworms	Corn seed insects	Corn ear-worm
	Termites	Powder post beetles	Carpet beetle	House fly	Brown-banded roach	Stable fly	Face fly	Ants	Mosquitoes	Horn fly

Some of the More Important Pests for 1959 (Continued)

KANS.	Wheat curl mite	Greenbug	Pea aphid	Corn ear- worm	Corn ear- grubs	Grass- hoppers	Sorghum web- worm	Smaller European elm bark beetle	Stored- grain insects	European corn borer	Soil insect complex
	House fly	Termites	Cattle lice	Cattle grubs	Cockroaches	Clothes moth, carpet beetles	Stable fly	Hog lice	Horn fly	Poultry lice and mites	
LA.	Boll weevil	Bollworm	Sugarcane borer	Southern corn root- worm	Fall army- worm	Stink bugs	Black tur- pentine beetle	Rice weevil	Cutworms	Sorghum midge	
	Horn fly	Reticulitermes spp.	Cockroaches	Mosquitoes	Tabanus spp.						
MAINE	Spruce bud- worm	White-pine weevil	Woolly pine aphid (pine leaf aphid)	Elm bark beetles	Aphid com- plex on potatoes	Apple aphid	Apple maggot	Cutworms	European corn borer	Cyclamen mite	
	Black flies	Mosquitoes	House fly	Stable fly	Deer flies	Chicken mite	Fleas	Face fly	Biting midges	German cock- roach	
MD.	Alfalfa weevil	Angoumois grain moth	European corn borer	Corn ear- worm	Dusky sap beetle	Flea beetles	Green peach aphid	Pea aphid	Pine saw- flies	Spider mites	
	American dog tick	Biting flies	Boxelder bug	Carpet beetles	Cattle grubs	Cockroaches	Eastern sub- terranean termite	House fly	Old-house borer	Salt-marsh mosquito	
MINN.	Greenbug	Apple maggot	Introduced pine sawfly aphid	Corn leaf worm	European corn borer	Spruce bud- worm	Larch sawfly	Grass- hoppers	Beet web- worm	Pea aphid	
	Mosquitoes	Biting flies	House flies	Ants	Cockroaches	Cat and dog fleas	Boxelder bug	Wasps and hornets	Cattle lice	Clothes moths carpet beetles	
MO.	Corn ear- worm	Greenbug	European corn borer	Sorghum web- worm	Spider mites	Hessian fly	Cutworms	Wireworms (Melanotus spp.)	Rice weevil	Saw-toothed grain beetle	
MONT.	Grass- hoppers	Alfalfa weevil	Beet web- worm	Aphids	Mites	Wireworms	Cutworms	Root mag- gots	Shelter Belt insects	Spruce bud- worm	
	Mosquitoes	Cattle lice	Horn fly, stable fly	Cattle grubs	Stored-grain insects	Demestids	Clover mites	Earwigs	Biting flies		
NEBR.	Grass- hoppers	European corn borer	Corn root- worms	Black cut- worm (on corn)	Hessian fly	Corn ear- worm	Greenbug	Potato leafhopper	Two-spotted spider mite	Sweetclover weevil	
	Mosquitoes	Stable fly	House fly	Horn fly	Cattle lice	Cattle grubs	Fleas	Chiggers	Sheep ked	Fowl mites	
NEV.	Pea aphid	Lygus bugs	Corn leaf aphid	Alfalfa weevil	Spider mites	Spotted alfalfa aphid	Cutworms	Onion mag- got	Bark beetles	Elm leaf beetle	
	Cattle grubs	Cattle lice	Mosquitoes	Horn fly	Ticks	Sheep ked	House fly	Eye gnats	Clover mite	Termites	

Some of the More Important Pests for 1959 (Continued)

N. J.	Alfalfa weevil	European red mite	Codling moth	Corn ear-worm	European corn borer	Cabbage looper	Elm bark beetles	Colorado potato beetle	Green peach aphid	Two-spotted spider mite
	Salt-marsh mosquito	Culex pipiens	House fly	Eastern sub-terranean termite	German cockroach	Pavement ant	Black car-pet beetle	Stable fly	Clover mite	Chicken mite
N. MEX.	Grass-hoppers	Spotted alfalfa aphid	Pea aphid	Thrips	Heliothis zea	Codling moth	Southwest-ern corn borer	Spruce budworm	Lygus bugs	Cabbage Looper
	Stored-grain pests	Horn fly	House flies	Cattle grubs	Sheep ked	Scraw-worm	Mosquitoes	Bot flies		
N. C.	Boll weevil	Cigarette beetle	Corn ear-worm	Mexican bean beetle	Rice weevil	Southern corn root-worm	Tobacco budworm	Tobacco hornworm	Tobacco wireworm	Two-spotted spider mite
	Cat flea	Chigger	A death-watch beetle (Xyletinus palliatus)	Eastern sub-terranean termite	German cockroach	Horn fly	House fly	Northern fowl mite	Salt-marsh mosquito	Stable fly
N. D.	Grass-hoppers	Wheat stem sawfly	Wireworms	Beet web-worm	Potato flea beetle	Leafhoppers (E. fabae, M. fasciatus)	Barley thirips	European corn borer	Sweetclover weevil	Sugar-beet root maggot
	Horn fly	House fly	Mosquitoes	Cattle lice	Cattle grubs	Stable fly	Northern fowl mite	Sheep ticks	Mange mite on hogs	Dermestids and bran beetles
OHIO	Corn leaf aphid	Bronzed out-worm	European red mite	Corn ear-worm	Cottony maple scale	Eastern tent cater-pillar	Black cut-worm	Apple maggot	Meadow spittlebug	Potato leafhopper
	House fly	Face fly	Stable fly	Horse flies	Cockroaches	Wasps and bees	Mosquitoes (Aedes spp.)	termites	Subterranean Sheep mite	Carpet beetles
OKLA.	Greenbug	Corn ear-worm	Sorghum webworm	Boll weevil	Spotted alfalfa aphid	Elm leaf beetle	Southwest-ern corn borer	Fall army-worm	Grass-hoppers	Corn leaf aphid
	Reticulitermes spp.	House fly	Cattle grub	Horn fly	Stable fly	Tabanus spp.	Lone star tick	Clothes moths	Cockroaches	Dermacentor spp.
OREG.	Codling moth	Pear psylla	Western cherry fruit fly	Aphids	Garden symphyliid	Spruce budworm	Bark beetles (Quadroctonus spp.)	Black pollen beetle	Gray garden slug	Corn ear-worm
	Cattle grubs	Horn fly	Cattle lice	Mosquitoes	Varied car-pet beetle	Termites	European earwig	Sheep ked	House flies	Cockroaches
PA.	Alfalfa weevil	Green peach aphid	Two-spotted spider mite	Bronzed cutworm	Red-banded leaf roller	Fales weevil	Forest caterpillar	Eastern tent cater-pillar	Meadow spittlebug	European pine shoot moth
	Face fly	Horn fly	Stable fly	House fly	Cluster fly	Black car-pet beetle	Powder post beetles	Fleas	Mosquitoes	Chigger

R. I.	Solitary oak leaf miner	Birch leaf miner	Potato flea beetle	Three-lined potato beetle	Eastern tent caterpillar	Apple maggot	Japanese beetle	Stalk borer	Orange-striped oakworm	Oystershell scale
	Eastern subterranean termite	Black carpenter ant	Mosquitoes	House fly	Black carpet beetle	Saw-toothed grain beetle	Fleas	Various vespids	American dog tick	European earwig
S. D.	Grass hoppers	European corn borer	Greenbug	Potato leafhopper	Six-spotted leafhopper	Soil pests of corn	Lygus bugs	Sweetclover weevil, alfalfa weevil	Corn earworm	Beet webworm
	House flies	Horn fly	Stable fly	Cattle lice	Stored-grain, cereal pests	Mosquitoes	Cockroaches	Cattle grubs	Fabric pests	Ants (in homes)
TEX.	Cotton fleahopper	Boil weevil	Bollworm	Grass-hoppers	Sorghum webworm	Rice weevil	Horn fly	Screw-worm	Cattle grubs	
UTAH	Bark beetles	Alfalfa weevil	Aphids on fruit	Pea aphid	Codling moth	Grass-hoppers	Lygus bugs	Tetrazychus spp.	Clover seed chalcid	Western harvester ant
	Stored-food beetles	Cattle lice	House flies	Termites	Cattle grubs	Mosquitoes	Wohlfahrtia opaca	Cockroaches	Horn fly	Sheep ked
VA.	Corn earworm	European corn borer	Nodiprion	Alfalfa weevil	Spotted cucumber beetle	Cabbage looper	Armyworm	Aphids	Angoumois grain moth	Tobacco hornworm
	House fly	Termites	Cattle grubs	Horn fly	Mosquitoes	Cockroaches	Cattle lice	Clothes moths	Fleas	Horse flies
WASH.	Tetrazychus mcdanieli	Cabbage maggot	Peach twig borer	Garden symphylid	Pear psylla	Orchard mites	Agriolimax agrestis	Corn earworm	Balsam woolly aphid	Grape mealy-bug
	Cattle grubs	Mosquitoes	Cattle lice	Cockroaches	House and stable flies	Rocky Mountain fly	Horn fly	Sheep ked	Hornets	Western subterranean termite
W. VA.	Alfalfa weevil	Meadow spittlebug	European corn borer	Corn earworm	Colorado potato beetle	Codling moth	Orchard mites	Eastern tent caterpillar	Forest tent caterpillar	
	Cattle grubs	Face fly	Horn fly	Stable fly						
WIS.	Greenbug	White-pine weevil	Cutworms	Corn earworm	Smaller European elm bark beetle	Six-spotted leafhopper	Larch saw-fly	Pea aphid	Codling moth	Cabbage maggot
	House fly	Mosquitoes	Ants	Carpet beetles	Stable fly	Horn fly	Deer and horse flies	Clover mites	Powder post beetles	Clothes moths
WYO.	Alfalfa weevil	Grass-hoppers	Potato psyllid	Lygus bugs	English grain aphid beetle	Mexican bean beetle	Pea aphid	Oystershell scale	A spider mite	A leaf blotch miner (Tetrazychus sp.)
	Cattle grubs	Cattle biting louse	Mosquitoes	Horn fly	Sheep ked	Bot flies (Gasterophilus spp.)	Stable fly	Deer flies	Clover mite	House fly

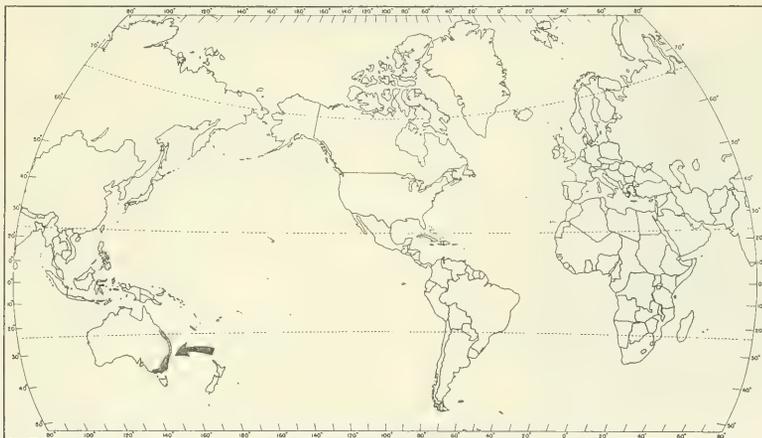
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

PRUINOSE SCARAB (Sericesthis pruinosa Dalman)

Economic Importance: This scarab is a pest of turf in the coastal districts of eastern Australia. The species is abundant in permanent pastures of central and southern coastal districts of New South Wales, and in recent years has become a pest in irrigated lawns and turf in the tablelands of New South Wales, particularly Canberra where biological and ecological studies have been made. This species was first studied by W. W. Froggatt in 1919 at Leura, New South Wales, where it caused severe damage to golf links fairways in 1918-1919. Damage to lawns, golf links and miscellaneous crops has been reported in subsequent years. The botanical composition of the turf, texture and moisture relations of the soil and the presence of shrubs or trees appear to be the most important factors influencing the susceptibility of the turf to infestation. In lawns consisting of both grasses and clovers, larvae are most plentiful in areas where the grasses predominate. Also, the lighter the soil the more prone the turf appears to infestation, and damage is more prevalent in comparatively moist areas of the sod. In addition, dense larval populations cause far less damage to vigorous turf than to weak, shallow-rooted turf. It has been found in Canberra, that certain eucalyptus, particularly Eucalyptus rubida, E. viminalis, the leaves of which are eaten by the adults, appear to be associated with spread of the species in the city. Larvae have not been found in turf unless such trees were growing in the vicinity.

Hosts: Adults feed on trees and shrubs (see above). Larvae feed on roots of turf plants, especially grasses.

Distribution: The species is endemic to the coastal plain of eastern Australia and to the eastern slopes of the Great Dividing Range. It is distributed southwards from Bowen, Queensland, along the whole of New South Wales coast, across southern Victoria, and as far west as the southeastern district of South Australia.



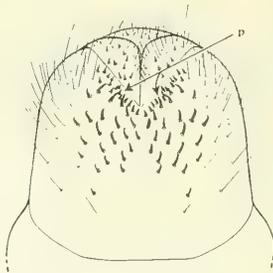
General Distribution of Sericesthis pruinosa

Life History and Habits: Pruinose scarab has a one-year life cycle. The adults fly and oviposit during the summer. There are 3 larval instars; of these, the first two are short and the final instar is commonly entered in early autumn. The latter is the overwintering state. Towards the end of the winter an immobile prepupal stage occurs, followed by pupation in the spring or early summer. Flights of adults begin at dusk and continue for one-half to one hour. The flight season varies according to the area; they probably occur in late October or early November in southern Queensland, in late November and early December at Leura in the Blue Mountains of New South Wales and from early to mid-January at Canberra. The adults feed on leaves of trees or shrubs at night, spending daylight hours under fallen bark or leaf litter. Gravid females burrow among or just below roots of turf and lay 20-40 eggs. The third-instar larvae feed on roots of grasses in March or April, completely severing the roots from the plants at times. Infestations are usually detected at this time. The turf dies off in irregular patches within a few days. Severely infested turf has a pronounced sponginess when walked on and may be picked up and rolled back carpetwise to expose a resting stage. They pupate in cells about an inch or so below the feeding level. The newly emerged adults remain in their pupal cells until shortly before emergence flight.

Description: ADULT - Head and pronotum reddish-brown, with purplish-green iridescence, particularly on the pronotum. Elytra brownish-yellow; between the rows of punctures there are four broad smooth intervals. The surface has characteristic dull sheen, or bloom from which the insect takes it trivial name. LARVA - Certain characters of the raster (shown below) and antennae distinguish the species from several closely related species. The raster bears palidia, consisting of two rows of specialized setae (pali) arranged in the form of a V having a basal angle of approximately 80 degrees. Palidia of this form are common to many species of *Sericesthis* and *Anodontonyx* (a genus closely related to, if not synonymous with, *Sericesthis*), but in most species the pali are so arranged that their sockets lie on a straight line; in *S. pruinosa*, as can be seen in the figure below, they are appreciably staggered. In this group of pasture scarabs, the penultimate segment of the larval antenna commonly bears a conspicuous anteroventral projection; in *S. pruinosa*, this is reduced to a short, blunt prominence. Using these characters, both second and third-instar larvae can be recognized. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U. S. National Museum). CEIR 10(21):5-20-60.



A



B

Figures of *Sericesthis pruinosa*: A - Adult. B - Raster of third-instar larva.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE



VOL. 10 NO. 22

MAY 27, 1960

513
823
C77
Ent.

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 of Insect Conditions

GRASSHOPPER nymphs present in Kansas, Nebraska, South Dakota, North Dakota and Wisconsin. Heavy infestation of Aeoloplides turnbulli present in Bailey County, Texas; counts estimated at 600 per square yard on margins and 100 per square yard in field. (p. 425).

ARMYWORM larvae present in Maryland and first adult of season collected in South Dakota. (p. 426). CORN EARWORM larvae infesting corn in Louisiana, Texas, Oklahoma and Arizona. (p. 427). Adults of SOUTHERN CORN ROOTWORM collected in Nebraska and South Dakota. (p. 428).

PEA APHID continues heavy and damaging to alfalfa in a number of states. (pp. 428, 429, 449). SPOTTED ALFALFA APHID collected in Washington. (p. 429). LESSER CLOVER LEAF WEEVIL heavy in red clover in Illinois and Indiana. (p. 431).

COLORADO POTATO BEETLE moderate to heavy on potatoes in areas of Maryland and Delaware. (p. 436). PEA WEEVIL damaging peas at Quincy, Washington; first economic damage in eastern area of the State. (p. 437).

APHIDS causing some heavy damage to cotton in South Carolina. (p. 440).

PINE SAWFLIES causing defoliation of pines in areas of North Carolina and Virginia and a large and serious outbreak of ELM SPANWORM apparently underway in eastern Tennessee. (p. 442). EASTERN TENT CATERPILLAR unusually abundant in New York and prevalent in Vermont, but appears light in Rhode Island. (p. 443, 449).

HORN FLY counts averaged 1,000 per cow and 3,000-4,000 per bull in range areas of Noble and Payne Counties, Oklahoma. (p. 445).

CORRECTIONS (p. 449).

ADDITIONAL NOTES (p. 449)

INSECT DETECTION: A deer fly (Silvius pollinosus) recorded in Nevada for first time. (p. 445). Alfalfa weevil reported from Knox, Loudon, Jefferson, Cocke and Hawkins Counties, Tennessee, and soybean cyst nematode collected in Isle of Wight County, Virginia, for the first time. (pp. 431, 432).

WEATHER OF THE WEEK ENDING MAY 23

Mean temperatures this week were generally above normal in the eastern half of the Nation and below normal in the Western States. A large outbreak of cold air moved southward from the Pacific Northwest and the northern Rocky Mountain region to cover most of the West for several days. Record-low temperatures for so late in the spring were recorded late this week in much of Washington, Oregon, Idaho, and Montana, and in scattered sections from Utah to New Mexico. Mean temperatures averaged 6° or more below normal from Utah and the Sierras of California northward, while slightly above-normal readings continued along the central and southern California coast. Many minimum readings were near or below the freezing level as far south as Utah and New Mexico, and the cool weather slowed development of ranges and crops. Some minor frost damage to tender crops was reported in the Plateau States.

Precipitation was heavy in coastal areas of the Pacific Northwest and in northwestern Montana and Idaho, light to moderate in showers and thunderstorms in the central Plateau States, and very light or absent from central and southern California to southern New Mexico and the trans-Pecos area of Texas. Locally heavy snow fell in northwestern Colorado, where 17 inches were measured at Meeker. Warmer weather prevailed from the Great Plains eastward, ranging from slightly below normal in Nebraska and along the Texas coast to more than 6° above normal in the lower Ohio Valley and central Appalachians (where much-below-normal temperatures were the rule last week), Upper Michigan, western New York, and small sections of Alabama and eastern Virginia.

Precipitation was absent or light and widely scattered in the Southeastern States, where sunshine and record or near-record hot weather replaced the unseasonably low readings of last week. Many areas are becoming very dry, but crops are generally not seriously affected yet. Persistent cloudiness remained over New England most of the week, but precipitation amounts there were generally light. Severe squall lines or thunderstorms, accompanied locally by damaging winds, hail, some tornadoes, and locally excessive rains swept across portions of the Great Plains, the Mississippi and Ohio Valleys, the Great Lakes and middle Atlantic regions. In Oklahoma, 7.19 inches of moisture were recorded at Wilburton on the 19th, and 9.94 inches fell at Mena, Arkansas, during the week. Very heavy thunderstorms left local rainfall amounts of 7 to 10 inches in 48 hours on Friday and Saturday in southern Minnesota, 2.09 inches in 30 minutes at La Crosse, Wisconsin, on the 16th, and 2.50 inches at Gettysburg, South Dakota, in less than 1/2 hour.

Moderate to heavy precipitation in the Middle Atlantic States ranged up to 3.50 inches in southern Pennsylvania. Damaging hail was reported from local areas in eastern Wyoming and Colorado, northern Texas, Oklahoma, Nebraska, Kansas, the Dakotas, West Virginia, and Pennsylvania. The Oklahoma Panhandle-southwestern Kansas-southeastern Colorado area is extremely dry, and wheat is showing the effect of inadequate moisture. In contrast, surplus soil moisture in Illinois is at a record high for May, and fieldwork has been held up in much of the Midwest, the Pacific Northwest, and the Middle Atlantic States because of too much moisture. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - NEVADA - Adults of Trimerotropis sp. spotted, with heaviest counts 1-2 per square yard along cultivated field margins in Fish Lake Valley, Esmeralda County. Most females gravid. (Bechtel, May 13). UTAH - Grasshoppers hatching in Blue Creek and Snowville area on May 6; all first instar. Adults of Trimerotropis common in Moab area and in scattered localities elsewhere in Boxelder County. Nymphs and some Trimerotropis sp. adults present on farms at Beaverdam, Tremonton and Collinston, Box Elder County, and Ogden and Roy, Weber County. Light hatch of first and second-instar grasshoppers quite general on south slopes in northern area. (Knowlton, Thornley). COLORADO - Nymphs of Melanoplus sp. ranged 1-3 per 5 square yards in Huerfano and Pueblo Counties on rangeland and 0-30 per 100 sweeps in Prowers and Bent Counties on alfalfa. No nymphs found on rangeland in El Paso, Kiowa, and Lincoln Counties. (Colo. Ins. Sur.). TEXAS - Heavy infestation of Aeoloplides turnbulli in Bailey County; counts estimated at 600 per square yard on margins and 100 per square yard in field. (Hatchett, Yeary). Dominant species reported in Randall and Swisher Counties A. turnbulli and Melanoplus bivittatus. Averaged 3 per square yard in margins and less than 1 per field in Randall County. Averaged 18 per square yard in field and 32 in margin in one field checked. Also M. bilituratus believed present. (Russell, Tapscott). OKLAHOMA - Nymphal grasshopper surveys conducted in 9 western counties including 3 panhandle counties (Beaver, Cimarron and Texas). Hatch complete or almost complete for several species and just getting underway for a number of other species. Populations on all short grass rangeland generally noneconomic, ranging from less than 1 to not more than 6 per square yard. Species involved were Ageneotettix deorum, Aulocara elliotti, Amphitornus coloradus and a few lesser important species. Nymphal development on rangeland about 25 percent first instar, 50 percent second, 15 percent third, and 10 percent fourth instar. Heaviest concentration of recently hatched nymphs found on conservation reserve land (soil bank) and roadside and field margin areas in predominant cropland areas. Species infesting such areas largely M. bivittatus, M. packardii and A. turnbulli. Other species low in numbers. Counts varied 1-20 per square yard, but averaged less than 10 per square yard. Conditions existing now in this habitat suggest light to threatening, spotted infestations will occur in this 9-county area. In soil bank land habitats, nymphal development approximately 40 percent first instar, 30 percent second, 20 percent third and 10 percent fourth instar. Unhatched egg pods, particularly M. differentialis and M. bivittatus, found in this habitat suggest that hatch is not complete. Heaviest nymphal populations encountered in this survey confined to small isolated, local rangeland and soil bank land acreages along Beaver and Cimarron Rivers in Cimarron, Beaver, Harper and Woods Counties. (VanCleave, PPC). KANSAS - Early instar grasshopper nymphs (first and second instars) collected on alfalfa in Finney County; populations light, 1-3 per 25 sweeps. (DePew). NEBRASKA - Fourth-instar nymphs of M. confusus and adult Eritettix tricarيناتus common on pastures in Butler, Platte and Colfax Counties, but less than 1 per square yard. (Simpson).

SOUTH DAKOTA - A few first-instar M. bivittatus and M. bilituratus nymphs hatched out in sandy soil near Timber Lake in Dewey County on May 11. No hatch found in Sully, Potter, Ziebach and Perkins Counties. (Burge). NORTH DAKOTA - Egg development survey conducted in rangeland areas of McKenzie and Golden Valley Counties. Eggs of rangeland grasshoppers 50 percent in coagulated stage and 50 percent in segmented stage. First-instar nymphs of M. confusus observed in sandy rangeland of southeastern area week of May 10. (Wilson, Olson, PPC). MINNESOTA - Eggs of M. femur-rubrum in coagulated stage in southeast and in central and east central areas coagulated to early eye-spot. M. bivittatus eggs in eye-spot in southeast. (Minn. Ins. Rpt.). WISCONSIN - Eggs of M. femur-rubrum in coagulated stage in Waukesha and Green Lake Counties; early hatching species, M. viridipes, M. confusus M. borealis, advanced to third instar in Marquette County wastelands, where first M. bivittatus nymphs (first instar) found this season. M. bilituratus nymphs in first instar in at least 2 Sauk County fields. (Wis. Coop. Sur.). MASSACHUSETTS - Nymphs of Melanoplus spp. averaged 2 per 100 sweeps in several alfalfa fields in Hampden County on May 16. (Fischang).

ARMYWORM (Pseudaletia unipuncta) - MARYLAND - Larvae light on red clover at Princess Anne, Somerset County. First report of season. (U. Md., Ent. Dept.). MISSOURI - None found in small grain in north central area. (Munson, Thomas, Kyd). SOUTH DAKOTA - First adult of season found in Brookings, Brookings County. (Severin). LOUISIANA - Larvae (2-5 instars) collected in oats in East Baton Rouge Parish, 61 per 600 sweeps. (Spink).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Present but not numerous in field of wheat west of Corinne. Also causing damage to some dryfarm wheat in San Juan County. (Knowlton). COLORADO - Counts 0-3 per linear foot in wheat in Prospect Valley, Weld and Adams Counties. None observed in Kiowa and Prowers Counties. (Colo. Ins. Sur.). OKLAHOMA - Counts averaged 150 and 200 per linear foot in 2 fields of wheat in Texas County (Owens) and limited populations noted in wheat in Beaver County (VanCleave, Pela).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Survey in 18 counties in central, southwest and south central areas showed planted wheat to be almost entirely free of this mite. Only scattered individual wheat plants showing symptoms of wheat streak mosaic observed. These found in Sandy Land area of Stafford County. Most fields of volunteer wheat mentioned in earlier reports have been cultivated and mites destroyed before they moved into planted wheat. (Somsen).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Counts averaged 6 and 10 per linear foot in 2 wheat fields surveyed in Garfield and Kay Counties, respectively. None noted in 5 other fields checked in north central area. (Owens). KANSAS - Found in 1 field of wheat in Greenwood County; counts averaged less than 1 per linear foot of row. (Peters). INDIANA - Occasional winged adults found on winter oats in Spencer County and on barley in Daviess County. (Wilson).

GREENBUG (Toxoptera graminum) - OKLAHOMA - Counts averaged 5-15 per linear foot in 4 fields of wheat in Garfield, Grant and Kay Counties; none noted in 3 other fields checked in same area. (Owens). KANSAS - Light, 0-5 per 25 sweeps, in 3 fields of wheat in Finney County. Also collected in air-sock trap at the station. (DePew). Colonies observed in experimental barley plots at Garden City Experiment Station, Finney County. Colonies of 8-10 individuals infesting occasional plants, possibly 1 colony per square yard. (Somsen). ILLINOIS - Very small numbers of what is believed to be this species found in wheat fields in southern area. Only nymphs collected. (Ill. Ins. Rpt.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - KANSAS - Found in many small grains in southeastern area; counts ranged 0-45 per linear foot of row. (Peters).

A WHEAT SAWFLY (Pachynematus sp., prob. sporangax) - CALIFORNIA - Heavy larval infestation in a squirreltail grass, Sitanion sp., in Willow Springs, Kern County. Positive identification depends on male adults which are scarce and have not been collected in area. (Cal. Coop. Rpt.).

SAY STINK BUG (Chlorochroa sayi) - NEVADA - Light in Fish Lake Valley, Esmeralda County. Very heavy on cruciferous plants and grain fields in southern half of Pahrum Valley, Nye County. (Bechtel, May 13).

A RICE DELPHACID (Sogata orizicola) - LOUISIANA - Surveys for this vector of hoja blanca disease of rice started in St. James, St. Mary and Terrebonne Parishes during week ending April 16. These surveys, together with additional surveys made in other parishes, bring total acreage surveyed during April to 1,887 in 6 parishes. All acreage surveyed found infested during 1959, except 2 properties of about 190 acres in Vermilion Parish. Surveys made during periods of warm weather when vectors would be feeding. No trace of S. orizicola found in any fields. (PPC, So. Reg., Apr. Rpt.). Collections from 1,100 sweeps of volunteer rice on 3 properties in St. Marys, Iberville and Assumption Parishes were negative. (Spink).

A LEAFHOPPER (*Dikraneura carneola*) - UTAH - Light to moderately numerous in wheat fields in eastern Box Elder County. (Knowlton).

CHINCH BUG (*Blissus leucopterus*) - TEXAS - Attacking corn and grain sorghum in Bee and Live Oak Counties; counts as high as 100 per plant. (Edgar). OKLAHOMA - Light, occasional to 0.12 per stalk, in 2 fields of corn checked in Okmulgee County. (Robinson). KANSAS - Abundant in late wheat in Osage County (Gates) and found in few small grain fields in southeastern areas; counts averaged less than 1 per linear foot of row (Peters).

A FALSE CHINCH BUG (*Nysius* sp.) - WYOMING - Averaged 2 adults and 1 nymph per 25 sweeps in alfalfa. Adults averaged 2 per 25 sweeps in wheat in Laramie and Goshen Counties. (Fullerton). UTAH - Abundant and widespread in Box Elder County. (Thornley).

CORN EARWORM (*Heliothis zea*) - LOUISIANA - Of untreated sweet corn at Diamond, 85-95 percent infested with eggs or first-instar larvae. (Spink). TEXAS - Feeding as budworms in corn in Brazos County; 60-95 percent of plants infested in one field. (Randolph). Medium in Jim Wells County; attacking corn. (Texas Coop. Rpt.). OKLAHOMA - Light, 4 per 100 stalks, in field of corn in Johnston County. (Vinson). KANSAS - Larvae found in few fields of alfalfa in southeastern area; counts less than 1 per sweep. (Peters). ARIZONA - Infesting 50 percent of stalks as budworms in Yuma County corn. (Ariz. Coop. Sur.).

EUROPEAN CORN BORER (*Pyrausta nubilalis*) - DELAWARE - Pupation apparently completed in most areas throughout State, with adults fairly common. Freshly laid egg masses common on potatoes in 2 widely separated areas of Kent and Sussex Counties on May 17. (Burbutis, Mason). ILLINOIS - Pupation ranges 4-8 percent in central and north central area. (Ill. Ins. Rpt.). NORTH DAKOTA - Survival survey in southeastern counties showed an average mortality of 50 percent. (N. D. Ins. Sur.). NEBRASKA - Checks of overwintering larval populations revealed following percent mortality: Platte County, stop one - 40, stop two - 50; Colfax County, stop one - 20, stop two - 30; Dodge County, stop one - 20, stop two - 40. (Simpson). KANSAS - Examination of corn stalks in Jefferson and Shawnee Counties showed that 38 percent of larvae had pupated during week of May 8-14. (Burkhardt).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - ARIZONA - Light trap data indicates that moth emergence is now heavy in central area. Field infestations in corn and sorghum still very light and apparently several weeks later than in 1959. (Ariz. Coop. Sur.)

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - LOUISIANA - Some damage to corn observed in East Feliciana Parish. (Spink).

STALK BORER (*Papaipema nebris*) - NORTH CAROLINA - Larvae injuring corn in Pender County. (Rabb, Honeycutt).

A NOCTUID (*Prodenia* sp.) - NORTH CAROLINA - Damaging corn stalks in Pender County. (Honeycutt, Rabb).

SUGARCANE BORER (*Diatraea saccharalis*) - LOUISIANA - During week ending May 13, no egg masses found, but average of 14 dead hearts per acre found at survey stations in 101 fields in 13 parishes; these are first dead hearts of season for first-generation larvae. During week ending May 20, no egg masses observed, but an average of 32 dead hearts per acre found at survey stations in 101 fields. The accumulative total number of dead hearts for the 2-week period was 46 per acre. (Spink).

CORN LEAF APHID (*Rhopalosiphum maidis*) - TEXAS - Building up in corn and grain sorghum in Brazos County. (Randolph). Attacking milo maize in Hays and Caldwell Counties, with predators and parasites plentiful in these areas. (Massey)

OKLAHOMA - Counts averaged 10 per linear foot in wheat and barley fields checked in Garfield County (Owens); light to medium (up to 20 per stalk) in young corn, 6-15 inches high, in 2 fields in Johnston and Marshall Counties (Vinson); light in field of grain sorghum in Cotton County (Hatfield); medium to heavy in Johnson grass in Stephens County (Hatfield) and Pushmataha County (Goin); and light in 2 corn fields in Okmulgee County (Robinson).

SOUTHERN CORN ROOTWORM (*Diabrotica undecimpunctata howardi*) - LOUISIANA - Three fields of corn in East Feliciana Parish severely damaged. (Spink). TEXAS - Averaged 1 per plant in Sabine County, with 90 percent of corn infested in bottomland field checked. (Thompson, Garner). NEBRASKA - First adult of season found on alfalfa in Butler County. (Simpson). SOUTH DAKOTA - First adult of season taken in Yankton County alfalfa. (Mast).

CORN FLEA BEETLE (*Chaetocnema pulicaria*) - DELAWARE - Adults fairly abundant on young sweet corn in Sussex County, with 3-4 per plant. Feeding injury moderately heavy. (Burbutis, Mason). PENNSYLVANIA - Causing severe injury to field corn in 2-leaf stage in southern York County. (Pepper). ILLINOIS - Adults vary 2-6 per plant in few fields of early corn in southern area. (Ill. Ins. Rpt.). MISSOURI - Feeding on sweet corn in garden in Columbia. (Wingo).

DESERT CORN FLEA BEETLE (*Chaetocnema ectypa*) - NEVADA - Averaged 1 per linear foot of row in seedling grain fields in Virgin Valley, Clark County. (Bechtel, May 13). UTAH - Adults abundant and damaging corn and related crops in Toquerville-Santa Clara area of Washington County. (Knowlton, Hughes).

SUGARCANE BEETLES (prob. *Euethola rugiceps*) - NORTH CAROLINA - Injury caused to corn in Wayne and Columbus Counties. (Lamm, Spaulding).

A WEEVIL (*Anacetrinus deplanatus*) - TEXAS - Laying eggs in grain sorghum in McLennan County. (Goode).

BILLBUGS - NORTH CAROLINA - Injury beginning to appear in fields planted to corn for third year in southeastern counties. (Kelley et al.).

WIREWORMS - TEXAS - Undetermined species medium to heavy in Fort Bend County corn. (Texas Coop. Rpt.). NORTH CAROLINA - Injury by undetermined species appearing in fields of corn planted for third year in southeastern counties. (Kelley et al.). WISCONSIN - Moderate numbers of unspecified wireworms and white grubs reported from Green Lake, Calumet and Marinette County fields. (Wis. Coop. Sur.).

PEA APHID (*Macrosiphum pisi*) - OREGON - Populations remain low, 2 per 10 sweeps, in Umatilla, Union, Baker and Malheur Counties. (Capizzi, Goeden). CALIFORNIA - Medium on Ladino clover and alfalfa in Florin area, Sacramento County. (Cal. Coop. Rpt.). NEVADA - Populations remain extremely low in all areas checked as follows: Fallon (Churchill County), 0-3 per sweep; Schurz (Mineral County), 0-5 per sweep; Fish Lake Valley (Esmeralda County), 0-4 per sweep; Pahump Valley (Nye County), 0-6 per sweep; Lathrop Wells, 0-4 per sweep; Moapa and Virgin Valleys (Clark County), 0-8 per sweep. (Bechtel, May 13). UTAH - Generally present in northern area alfalfa fields, generally 1-7 per sweep. Populations generally light in Kane County and moderate in Washington County alfalfa fields. (Knowlton). WYOMING - Averaged 1 per sweep in each of 20 alfalfa fields checked in southeastern area. (Fullerton). COLORADO - Counts 30-400 per 100 sweeps in alfalfa in Arkansas Valley and 10-150 per 100 sweeps on Western Slope. None found in San Luis Valley. (Colo. Ins. Sur.). NEW MEXICO - Heavy infestations causing damage in certain areas of alfalfa in Torrance and Valencia Counties. (N. M. Coop. Rpt.). TEXAS - Medium to heavy on vetch in Kaufman County; very heavy, 700 per 5 sweeps, in untreated fields. (Davis). Averaged 25-75 per sweep in Brazos County. (Randolph). OKLAHOMA - Counts in local alfalfa and clover fields were as follows: Averaged 10-30 per sweep in alfalfa in Beaver and Harper Counties (VanCleave, Pela), 3-10 per sweep in alfalfa in Kay and Garfield Counties (Owens), 0.3 per sweep in Tillman

and Cotton Counties (Hatfield), 15 per sweep and 50 per square foot in alfalfa in Love County and 60 per sweep in Johnston County (Vinson), 3 per sweep in clover in Pushmataha County (Goin), and 50-100 per sweep in Muskogee and Okmulgee Counties (Robinson). KANSAS - Populations of 2-3 per sweep present in alfalfa plots on Sandy Land Experiment Station in Stafford County. (Somsen). Counts in alfalfa and sweetclover in southeastern area ranged from 1 to over 400 per sweep. Higher counts in fields not cut. Plants in bud stage in these fields and only very small percentage of plants flowering. Deposits of honeydew heavy in some fields. Many of alfalfa fields cut early due to heavy populations. Cutting troublesome due to heavy deposits of honeydew. From 1-5 percent of aphids browned due to fungus disease. Lower counts in harvested fields. Regrowth in these fields ranged 4-10 inches high. Counts in sweetclover averaged 135 per sweep. (Peters). NEBRASKA - Low populations found in most alfalfa and red clover in Butler, Platte, Colfax and Douglas Counties. Counts ranged 2-30 per 10 sweeps, averaging about 1 per sweep. (Simpson). Surveys of alfalfa in Cass, Otoe, Nemaha, Richardson, Pawnee and Johnson Counties in southeast showed range of 20-450 per 100 sweeps and averaged 26. (Howe, Stevens, Manglitz, Kinder). SOUTH DAKOTA - Average per 10 sweeps was 3 in Union County, 2 in Turner County, 7 in Lincoln County and 3.5 in Clay County. (Mast). NORTH DAKOTA - Average 1-2 per 100 sweeps in southeastern area alfalfa and sweetclover fields. (N. D. Ins. Sur.). MINNESOTA - Small numbers present in southern area May 10 and at St. Paul on May 13. Counts on May 17 were 0-10 per 100 sweeps and by May 20 averaged 5-10 per 10 sweeps in southeast, with counts ranging 0-50. Low populations present in central and east central districts. (Minn. Ins. Rpt.). WISCONSIN - Ranged 1-20 per sweep in alfalfa in Waukesha County, but averages in all fields never exceeded 7 per sweep. Numbers low in Green Lake County and ranged 0-5 per 5 sweeps. In Sauk County, averages of 10 and 12 per sweep recorded on May 16 in 2 fields and on same day 2 Richland County fields averaged 2 per sweep. (Wis. Coop. Sur.). ILLINOIS - In southern area, populations increasing in red clover, but numbers declining in alfalfa because of fungus disease. Counts range 0-3,600 per 100 sweeps in clover and from 240-1,200 per 100 sweeps in alfalfa. In central area, population in alfalfa ranges 400-10,000 per 100 sweeps. (Ill. Ins. Rpt.). MISSOURI - Building up in north central area, with little evidence of disease. Counts in alfalfa and red clover ranged 20-50 per sweep. (Munson, Thomas, Kyd). MASSACHUSETTS - Moderate to low infestation in all alfalfa fields in Hampden County May 16, with 273 per 100 sweeps the maximum number. Alate females observed in very small numbers. (Fischang). DELAWARE - Numbers tremendously reduced in alfalfa over State. (Burbutis, Mason). MARYLAND - Heavy on red clover at Salisbury. Populations generally declining on alfalfa and red clover in all sections due to a fungus disease. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (*Therioaphis maculata*) - WASHINGTON - Single immature specimen swept from alfalfa May 5 at Brownstown, Yakima County. This is first record this year. Two previous collections in 1958 and 1959 were not taken until October of each year. (Hagel). NEVADA - Only occasional specimens found in Fallon area, Churchill County. None found in Schurz, Mineral County, or Fish Lake Valley, Esmeralda County. Counts averaged 2 per stem in drier fields and only trace numbers in other fields in Pahrump Valley, Nye County, and averaged 4 per stem in Lathrop Wells, Nye County. Populations in Virgin Valley, Clark County, remained in trace numbers but declined from a high of 30 per stem to less than 1 per sweep in Moapa Valley, Clark County. (Bechtel, May 13). UTAH - Populations light in Washington and Kane County alfalfa fields. (Knowlton). KANSAS - Not found in southeastern area. (Peters). OKLAHOMA - Counts averaged 1-5 per sweep in alfalfa in Beaver and Harper Counties. (VanCleave, Pela). Counts in local alfalfa fields were as follows: 5 per linear foot in Beaver County and 2 and 10 per sweep in Garfield and Kay Counties, respectively (Owens); 30 per square foot of crown area and 8 per sweep in Tillman County and 10 per sweep in Cotton County (Hatfield); 5 and 15 per sweep and 25 per square foot in Love and Johnston Counties (Vinson); 5-8 per sweep in Morris area of Okmulgee County (Robinson). TEXAS - Light to medium in alfalfa in Brazos County (Randolph) and light in field checked in Dawson County (Whitaker).

SWEETCLOVER APHID (Therioaphis riehmi) - NORTH DAKOTA - Observed in sweetclover field near Kindred in southeastern area. (N. D. Ins. Sur.).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - DELAWARE - Nymphs fairly common in alfalfa over State; most nearing end of nymphal stage. (Burbutis, Mason). MARYLAND - Nymphal populations vary moderate to heavy on red clover in Queen Annes and Talbot Counties. (U. Md., Ent. Dept.). MASSACHUSETTS - First and second-instar nymphs found in several alfalfa fields in Hampden County on May 16. Most severe infestation averaged 33 nymphs per 100 alfalfa stems. (Fischang). ILLINOIS - Nymphs varied 20-200 per 100 stems in alfalfa and clover in northern area. (Ill. Ins. Rpt.). WISCONSIN - Suppressed hatching and development continues. A Waukesha County report indicates population is heavy. (Wis. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - First nymphs of season noted in southern New Castle County. (Burbutis, Mason). ILLINOIS - First nymph of season observed. (Ill. Ins. Rpt.). MISSOURI - Adults ranged 2-6 per sweep in alfalfa and red clover in north central area. (Munson, Thomas, Kyd). WISCONSIN - Scarce, 1 per sweep recorded in Sauk County. (Wis. Coop. Sur.). MINNESOTA - Hatching just beginning and nymphs in first instar and average 5 per 100 sweeps. (Minn. Ins. Rpt.). SOUTH DAKOTA - Average per 10 sweeps was 2.5 in Union County, 2 in Lincoln County, 2 in Turner County and 1 in Clay County. (Mast). NEBRASKA - Ranged 3-7 and averaged 4 per 10 sweeps in alfalfa. (Simpson).

LYGUS BUGS (Lygus spp.) - OREGON - Abundant, 5-7 adults per 10 sweeps, with large numbers of nymphs appearing. (Capizzi, Goeden). NEVADA - In alfalfa, nymphs and adults averaged 4-6 per sweep in Schurz, Mineral County; 4 per sweep in Fish Lake Valley, Esmeralda County; and 1-4 per sweep in Moapa and Virgin Valleys, Clark County. In Pahrump Valley, Nye County, counts averaged 4-6 per sweep in alfalfa and 10-20 per sweep in Russianthistle and 6-8 per sweep in alfalfa in Lathrop Wells, Nye County. (Bechtel, May 13). UTAH - Common on rangeland in Box Elder County. (Thornley). COLORADO - Nymphs ranged 0-150 per 100 sweeps in alfalfa in Arkansas Valley, 0-10 in San Luis Valley and 5-10 on Western Slope. (Colo. Ins. Sur.). WYOMING - Adults averaged 4 per 25 sweeps in Wheatland-Torrington area and 2 per 25 sweeps in Pine Bluffs area in alfalfa. Few nymphs also found. (Fullerton). OKLAHOMA - Averaged 1 and 2 per sweep in 2 fields of alfalfa in Love and Johnston Counties (Vinson) and 0.2 per sweep in field of clover in Pushmataha County (Goin). NORTH DAKOTA - Adults present in southeastern legume fields; ranging 0-4 per 100 sweeps. (N. D. Ins. Sur.).

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) - MINNESOTA - Widely distributed in at least southern third of State, but average only 2-6 per 100 sweeps in alfalfa and grasses. (Minn. Ins. Rpt.). NORTH DAKOTA - First adults of season collected May 20 from alfalfa and sweetclover in southeastern counties. Numbers range 0-4 per 100 sweeps. (N. D. Ins. Sur.).

PLANT BUGS - ILLINOIS - Nymphs ranged 10-200 per 100 sweeps in clover and alfalfa, with Adelphocoris rapidus predominating. (Ill. Ins. Rpt.). MINNESOTA - Nymphs of A. rapidus and A. lineolatus hatching on alfalfa in Mower and Fillmore Counties on May 17. Nymphs, first and second instars, average 10-15 per 100 sweeps. Leptopterna dolabratus, Stenotus sp. and other mirids (first to third instars), also occur on alfalfa and grass-mixtures in southern area and average 50 per 100 sweeps. (Minn. Ins. Rpt.). DELAWARE - Nymphs of A. rapidus continue to increase in alfalfa in southern New Castle County (3 per sweep). (Burbutis, Mason).

LEAFHOPPERS (Empoasca spp.) - NEBRASKA - Two specimens of Empoasca sp. collected on alfalfa in Cass County, one from Richardson County and 15 from Lancaster County. Species will be reported when known. (Howe, Stevens, Manglitz, Kindler). MINNESOTA - One specimen, believed to be E. fabae, collected on alfalfa on May 17

in Mower County. (Minn. Ins. Rpt.). ILLINOIS - E. fabae present throughout the State, ranging 0-5 per 100 sweeps in north to a high average of 100 per 100 sweeps in central section, decreasing again to the southward. Range in E. fabae population is 0-280 per 100 sweeps in heavier area. (Ill. Ins. Rpt.).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - SOUTH DAKOTA - Light populations found in Yankton County. (Mast).

A FLEAHOPPER (Spanogonicus albofasciatus) - NEVADA - Averaged 1 per sweep in alfalfa in Lathrop Wells, Nye County. (Bechtel, May 13).

ALFALFA WEEVIL (Hypera postica) - MASSACHUSETTS - Adults ranged 1-4 per 100 sweeps in alfalfa in Hampden County on May 16, with larval counts in one field averaging 29 per 100 sweeps. (Fischang). DELAWARE - Larval numbers in untreated alfalfa remain abundant, with over 20 per sweep in a few uncut fields in all 3 counties. Severe feeding injury prompted early cutting of alfalfa in many areas. (Burbutis, Mason). MARYLAND - Pupation of first generation underway on Eastern Shore. A few new adults noted. Larval damage on alfalfa has been generally light to moderate this season, with an occasional field being heavily injured. Larval feeding noted on Ladino clover in Worcester County. (U. Md., Ent. Dept.). SOUTH CAROLINA - Considerable damage to alfalfa reported in Laurens County and alfalfa acreage in Newberry County reduced by more than half in just 3 years as a result of this weevil. (Nettles et al.). TENNESSEE - Found for first time in Knox, Loudon, Jefferson, Cocke and Hawkins Counties. (Mullett, May 17). COLORADO - Larval counts 10-700 per 100 sweeps in Arkansas Valley on alfalfa. Heavy populations in Otero County. A treated field at Branch Experiment Station has 50-300 per 100 sweeps. Untreated field at Experiment Station has 500-700 per 100 sweeps. On Western Slope, larvae number 1-60 per 100 sweeps. (Colo. Ins. Sur.). WYOMING - Adults averaged 2 per 25 sweeps in each of 20 alfalfa fields checked in southeastern area. Only 6 larvae found in 20 fields. Alfalfa averaged 12-14 inches in height. (Fullerton). MONTANA - Present in about normal numbers to May 15. (Roemhild). UTAH - Larvae common, but seldom numerous in Weber, Box Elder, Davis and Cache County alfalfa. Larvae one-fourth to one-half grown mostly, a few larger. (Knowlton, Haws). OREGON - Adults averaged 2 per 10 sweeps in Umatilla, Union, Baker and Malheur Counties, May 8. First-instar larvae noted May 13, Malheur County. (Capizzi, Goeden).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ILLINOIS - Larvae killing terminal buds and preventing development of heads in 40-100 percent of red clover stems in southern one-half of State. Adults vary 0-40 per 100 sweeps. (Ill. Ins. Rpt.). INDIANA - Very abundant on red clover in southern area. (Wilson). MARYLAND - Adults light on alfalfa at Ellicott City and red clover in Worcester County. (U. Md., Ent. Dept.).

CLOVER LEAF WEEVIL (Hypera punctata) - ILLINOIS - Pupating in southern half of State; disease prevalent and larval numbers decreasing rapidly. (Ill. Ins. Rpt.). KANSAS - Larvae found in alfalfa in Greenwood, Woodson and Allen Counties; counts averaged less than 1 per sweep. (Peters). MISSOURI - Most larvae in alfalfa and red clover in north central area nearly full grown; counts 0-3 larvae per crown of alfalfa and red clover. (Munson, Thomas, Kyd).

A CLOVER HEAD WEEVIL (Hypera meles) - ILLINOIS - Adults range 0-10 per 100 sweeps in red clover in southern one-half of State. (Ill. Ins. Rpt.).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - OREGON - Averaged 1 per sweep in Ontario area sweetclover checked May 11-12. Light to moderate foliage injury evident. (Capizzi). UTAH - Attack noticeable on sweetclover foliage generally in Cache, Box Elder, Weber, Davis and Salt Lake Counties. (Knowlton). NORTH DAKOTA - Activity about 3-4 weeks later than usual in southeastern area. Light feeding injury noted in year-old-stands in Traill County. In Cass County, a sweetclover field near Kindred showed feeding injury on 100 percent of plants, but percent defoliation only a trace. (N. D. Ins. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidula) - NEBRASKA - Adults well distributed in most counties checked and ranged 2-4 per 10 sweeps. (Simpson).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Counts per 10 sweeps averaged 12 in Yankton County, 5.5 in Union County, 7 in Turner County, 3 in Lincoln County and 10.5 in Clay County. (Mast). MINNESOTA - Counts 1-5 per 10 sweeps on alfalfa in east and east central areas and 1-10 per 10 sweeps in southeast. (Minn. Ins. Rpt.).

VETCH BRUCHID (Bruchus brachialis) - TEXAS - Heavy on vetch in Hunt County. (Davis).

A THRIPS (Frankliniella occidentalis) - NEW MEXICO - Seriously curled terminal growth of alfalfa in northern Dona Ana County. (N. M. Coop. Rpt.).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - SOUTH DAKOTA - Adults noted in alfalfa fields in southeast area. (Mast). KANSAS - Larvae found in several fields of alfalfa in southeastern area; counts less than 1 per sweep. (Peters). WYOMING - Adults numerous in alfalfa in Wheatland-Torrington area. (Fullerton).

CLOVER HEAD CATERPILLAR (Grapholitha interstinctana) - INDIANA - Very abundant on red clover in southern area. (Wilson).

VARIEGATED CUTWORM (Peridroma saucia) - ILLINOIS - Larvae present in southern one-half to two-thirds of State, ranging 0-20 per 100 sweeps in alfalfa and clover. (Ill. Ins. Rpt.). CALIFORNIA - Heavy on alfalfa in Escondido, San Diego County. (Cal. Coop. Rpt.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - COLORADO - Larval counts 1-10 per square foot on alfalfa in Rio Grande County. (Colo. Ins. Sur.) UTAH - Scarce in areas around Snowville and elsewhere in Box Elder County, where they were formerly numerous to injurious to range and crop lands. (Thornley, Knowlton).

PALE WESTERN CUTWORM (Agrotis orthogonia) - MONTANA - Present on several thousand acres of cereal and forage crops in Liberty County; controls being applied where needed. (Roemhild, May 15).

SPIDER MITES (Tetranychus spp.) - NEVADA - Light infestation of Tetranychus sp. in some alfalfa fields in Pahrump Valley, Nye County. (Bechtel, Gallaway, Zoller; May 13). ARIZONA - Light to medium infestations of T. cinnabarinus on Yuma County corn and alfalfa. (Ariz. Coop. Sur.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - VIRGINIA - First infestation confirmed in Isle of Wight County during April. Infestation involved 31 acres. Infestations also found in 15 additional properties, totaling 1,086 acres, in Nansemond County during April. (PPC, East. Reg., Apr. Rpt.).

A MIRID (Labops hesperius) - WYOMING - Small infestation found south of Pine Bluffs; averaging 3 per sweep in 200 sweeps of a mixture of native grasses. (Fullerton).

WESTERN HARVESTER ANT (Pogonomyrmex occidentalis) - NEW MEXICO - Nests average 20-30 per acre in rangeland near Corona, Lincoln County. (N. M. Coop. Rpt.).

AN ERIOPHYID MITE (Aceria n. sp.) - CALIFORNIA - This mite causing heavy damage to local Bermuda grass stands by tufting, stunting and browning of grass in El Centro-Brawley area, Imperial County. (V. Roth).

GROUND PEARLS - SOUTH CAROLINA - Very heavy populations in centipedegrass lawn in Barnwell County; hundreds present in small sample of soil. (Griffith).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - ILLINOIS - Adults began emerging rapidly on May 13 in Carbondale area, after cool weather had slowed down emergence. Egg laying by previously emerged moths in the same area probably began on same date. Therefore, egg hatch is expected to begin in quantity May 23 in this area. (Meyer). INDIANA - Following heavy emergence on May 5, daily activity at Vincennes very light until May 14, due to unfavorable weather. Since that date, adults have been emerging in large numbers. Oviposition expected to increase if temperature remains above 50° F. at dusk. Entries into fruit expected about May 25. (Hamilton, May 16). Moth emergence in packing houses in Orleans area increasing rapidly. (Marshall, May 17). OHIO - First adults of season emerged in cages, May 16. (Cutright). WISCONSIN - No moth flight has been detected in the State. (Wis. Coop. Sur.). MISSOURI - Adult emergence in cages reported from vicinity of Cape Girardeau. Emergence in orchards and packing sheds will occur soon. (Wkly. Rpt. Fr. Gr.). COLORADO - Averaged 100 moths per 5 traps in Mesa County. Moth emergence has begun in Delta County. (Colo. Ins. Sur.). OREGON - Moths emerged May 5 in Marion County. Weather conditions since that date have been unfavorable for egg laying. (Goeden). MARYLAND - Moth emergence underway at Hancock, Washington County. (U. Md., Ent. Dept.). NEW JERSEY - Will be more severe on apples during June if temperatures are high and rainfall low. (Ins.-Dis. Newsl., May 17).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MASSACHUSETTS - Egg masses abundant in some apple orchards May 13; hatching began by May 17. (Crop Pest Cont. Mess.). OHIO - Light infestations general in northern part of State. (Cutright). Eggs hatching as of May 16 in Ashtabula County. (Bossley). MISSOURI - Further developments indicate that first brood divided and larvae of all sizes found in most parts of State. Well-sprayed orchards appear to have excellent control and leaf rollers hard to find. In poorly or untreated orchards, plenty of larvae of all sizes easily found, especially on inside sprouts. (Wkly. Rpt. Fr. Gr.). WISCONSIN - Heavy moth populations laying eggs in Door County apples. (Wis. Coop. Sur.). COLORADO - Emerging in Delta County. (Colo. Ins. Sur.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Eggs hatching, larvae entering terminals of branches in Vincennes area. (Hamilton, May 16). Peak emergence from apples in packing houses in Orleans area, May 17. Larvae entering twigs of peach trees in same area. (Marshall). ILLINOIS - Larvae caused peach twigs to wilt in Carbondale area. Larvae approximately three-fourths grown; infestation generally very light. (Meyer). MISSOURI - Southeast area of State is through one brood. In vicinity of Columbia, Boone County, half-grown larvae still in terminals of untreated peaches; also reported from Kansas City area. (Wkly. Rpt. Fr. Gr.). LOUISIANA - Larvae infesting plums in Baton Rouge. (Spink). NEW JERSEY - Injury on peaches easy to find. (Ins.-Dis. Newsl., May 17).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - ILLINOIS - Entering pupal stage in Carbondale area. (Meyer, May 18).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - WISCONSIN - Entering buds May 15 in Door County orchards. (Wis. Coop. Sur.).

PLUM CURCULIO (Conotrachelus nenuphar) - ILLINOIS - Recent warm weather has brought new adults into orchards in Carbondale area from outside sources of infestation where they have previously been known to arise this season. (Chandler). INDIANA - Controls still required in Vincennes area. (Hamilton, May 16). MISSOURI - Adult activity appears about over; at least one orchard in central part of State suffered considerable damage. (Wkly. Rpt. Fr. Gr.).

CALIFORNIA PEAR-SLUG (Pristiphora californica) - COLORADO - Larvae damaging blossoms and foliage in Delta County. (Colo. Ins. Sur.).

PEAR PSYLLA (Psylla pyricola) - MASSACHUSETTS - Adults and nymphs abundant in some locations, May 17. (Crop Pest Cont. Mess.).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - ILLINOIS - Undetermined species reported under the red-banded leaf roller note in CEIR 10(21):403 from Carbondale area determined as this species. Pest also found in Johnson, Jackson, Union, Randolph, Marion, St. Clair, Jersey and Calhoun Counties in light to moderate numbers. (Meyer, May 18). INDIANA - A definite threat in Orleans area apple orchards. Populations especially heavy in untreated orchards and far too many present in well-kept orchards. (Marshall, May 17).

ROSY APPLE APHID (Anuraphis roseus) - INDIANA - Certain infestations in Vincennes area severe enough to warrant controls. Many aphids in curled leaves. (Hamilton, May 16). Population pressure decreasing with or without controls on apples in Orleans area. Predator and parasite populations heavy where no controls have been applied. (Marshall, May 17). OHIO - Noted in many orchards, but not serious. (Cutright). Common in Ashtabula County, with orchards requiring controls. (Bossley). MARYLAND - Continues to build up in untreated apple orchards in Hancock area, Washington County. Well controlled in treated orchards. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - UTAH - Moderate problem in Washington County apple orchards and moderate to damaging in orchards in Kane County. (Knowlton). Abundant, conspicuously curled peach foliage in Moab area, Grand County. (Thornley).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - CALIFORNIA - Heavy on almond and plum in Chico, Butte County. (Cal. Coop. Rpt.). MINNESOTA - Populations, which have been so high for several years on apples during prebloom period, not present this year. (Minn. Ins. Rpt.).

APHIDS - WISCONSIN - Not numerous in Waukesha County apple orchards May 13, but all eggs may not have hatched. Eggs hatching May 15 in Door County orchards. (Wis. Coop. Sur.). UTAH - Damagingly abundant on pecan trees in Hurricane-St. George area of Washington County. (Knowlton, Hughes).

APPLE LEAFHOPPER (Empoasca maligna) - OHIO - Nymphs abundant in 2 apple orchards in Ashtabula County. (Bossley, May 16).

AN APPLE TREE BORER (Chrysobothris sp.) - MONTANA - Severely damaged several hundred plum and apple trees in Sanders County. (Roemhild, May 15).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - WISCONSIN - Populations high on older apple trees in Waukesha County, but present no problem on well-treated younger orchards. (Wis. Coop. Sur.).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Although localized into very small areas (even to a single leaf spur), has begun to spread rapidly at Orleans. No apparent reason why usual tremendous June 15 population pressure will not develop. Bronzing of entire trees may occur as early as June 15-18. Controls should be applied June 5-11. (Marshall, May 17). OHIO - First summer eggs present on or near May 7. (Cutright). Number sufficiently abundant in Ashtabula County May 16 to require controls. (Bossley). MARYLAND - Eggs of first brood began hatching May 18 at Hancock, Washington County. (U. Md., Ent. Dept.). NEW JERSEY - Will be more severe on apples if temperatures are high and rainfall low during June. (Ins.-Dis. Newsl., May 17). MASSACHUSETTS - Numerous in many apple orchards. (Crop Pest Cont. Mess., May 13).

ORCHARD MITES - INDIANA - Mobile populations of unspecified species are relatively low in Vincennes area, due to unfavorable weather conditions. (Hamilton, May 16). MISSOURI - Surveys to determine status of spider mites on apples and peaches was negative. It appears early control was successful. (Wkly. Rpt. Fr. Gr.).

A GEOMETRID (Sabulodes caberata) - CALIFORNIA - Heavy larval population causing considerable damage to a few avocado trees on a ranch near Orange Cove, Tulare County. (Cal. Coop. Rpt.).

CATFACING INSECTS - ILLINOIS - Stink bugs increased on peaches in Carbondale area. Fruit past stage where serious catfacing will result. (Meyer). INDIANA - Injuries abundant in Vincennes area where controls have not been adequate. (Hamilton, May 16). Stink bugs very active on peaches in Orleans area. (Marshall, May 17). MASSACHUSETTS - Lygus lineolaris numerous about peach orchards as of May 13. (Crop Pest Cont. Mess.).

SHOT-HOLE BORER (Scolytus rugulosus) - COLORADO - Emerging in Delta County. (Colo. Ins. Sur.).

PLUM WEB-SPINNING SAWFLY (Neurotoma inconspicua) - MISSOURI - Heavily infesting plums in central area of State. (Wkly. Rpt. Fr. Gr.).

OLIVE LEAF MITE (Oxypleurites maxwelli) - CALIFORNIA - Heavy population on olive trees in Corning, Tehama County. (Cal. Coop. Rpt.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Infesting 20 percent of twigs in a grove of native pecan trees checked in Cotton County; none found in another grove checked in Stephens County. (Hatfield). First-generation larvae entering small nut clusters in south central area. Egg counts ranged 0-7 per nut cluster and first-instar larvae averaged 0.2 per nut cluster in a pecan grove checked in Love County. (Vinson).

A LACE BUG (Corythucha juglandis) - PENNSYLVANIA - Quite heavy on 4 Persian walnut trees in Bradford County. (Gesell).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - In chemical control and free zones in States of Nuevo Leon, Sonora and Baja California, surveys conducted on 80,153 citrus trees on 952 properties. Included in trees inspected are 24,218 nursery trees in Sonora. A total of 344 infested trees found on 24 properties as follows: 332 on 22 properties at Allende and 12 on 2 properties in Municipio Linares, Nuevo Leon. Inspections were negative at General Teran, Nuevo Leon, Hermosillo, Sonora, and at Tecate and vicinity, Baja California. In biological control zone in State of Tamaulipas, infestations being held to low level by parasites. Spraying continued in Allende, and treatments expected to resume second week of May at Linares, Nuevo Leon. (PPC, Mex. Reg., Apr. Rpt.). TEXAS - Total of 28,893 citrus trees inspected in Cameron and Hidalgo Counties during April, with negative results. (PPC, So. Reg., Apr. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - At Tijuana, Tecate and Ensenada, Baja California, total of 1,750 traps were in use on 872 properties during April. A total of 6,791 trap inspections made, with negative results. Visual inspections for larvae in locally grown guavas, oranges, grapefruit and saptas made, with negative results. (PPC, Mex. Reg., Apr. Rpt.). TEXAS - During April, 866 traps operated on 55 properties in Brooks, Cameron, Dimmit, Frio, Hidalgo, La Salle, Webb, Willacy and Zavala Counties. Trap inspections totaled 2,984 and resulted in trapping 66 A. ludens (31 males and 35 females, 11 of which were gravid) in the following Counties: Brooks, 1; Hidalgo, 57; Cameron, 7; and Willacy, 1. No other species of Anastrepha taken during month. A. spatulata, which was the most prevalent throughout the season, completely disappeared so far as trapping was concerned in April. Eight A. ludens larval infestations, all in Hidalgo County, were found; making a total of 10 for the season. All larval infestations discovered as of April 30 have been very light, with no commercial loss. Infestations ranged 1-8 infested fruit on 1-6 infested trees. (PPC, So. Reg., Apr. Rpt.).

LEAD CABLE BORER (Scobicia declivis) - CALIFORNIA - Heavy on fruitless mulberry in Concord, Contra Costa County. (Cal. Coop. Rpt.).

BLACK-HEADED FIREWORM (Rhopobota naevana) - WASHINGTON - Eggs in advanced stage of development in cranberry bogs at Grayland, Grays Harbor County. Large percentage already hatched by May 5. (Servoss).

IMPORTED CURRANTWORM (Nematus ribesii) - MISSOURI - Heavy infestation on gooseberries at Columbia, Boone County. (Wkly. Rpt. Fr. Gr.).

A STINK BUG (prob. Euthyrhynchus floridanus) - NORTH CAROLINA - Nymphs injuring grapevines locally in Beaufort County. (Jones, Farrier).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Very numerous on cabbage at Norwalk, Los Angeles County, and at San Juan Capistrano, Orange County. (J. C. Elmore). TEXAS - Heavy infestation attacking cantaloupe in Milam County. (Texas Coop. Rpt.).

IMPORTED CABBAGEWORM (Pieris rapae) - DELAWARE - Larvae present in field of cabbage in Sussex County, causing light feeding injury. (Burbutis, Mason).

CABBAGE APHID (Brevicoryne brassicae) - CALIFORNIA - Damaging cabbage at Artesia, Los Angeles County. (M. W. Stone).

GREEN PEACH APHID (Myzus persicae) - WISCONSIN - Populations high enough to cause injury to coldframe cabbage seedlings in a Dane County location. (Wis. Coop. Sur.). DELAWARE - Alates and nymphs common on potatoes, tomatoes and cabbage over State, with a slight increase in numbers noted over previous week. Alates present on cucumbers in New Castle County. (Burbutis, Mason). CALIFORNIA - Populations heavy on potatoes in Shafter area, Kern County. (Cal. Coop. Rpt.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Moderate to heavy on untreated potatoes in central and southern areas. (U. Md., Ent. Dept.). DELAWARE - Adults, eggs and young larvae abundant on potatoes and tomatoes on a truck farm in Sussex County; feeding injury moderately heavy. (Burbutis, Mason). PENNSYLVANIA - Light infestations present in some fields of potatoes in York County. (Pepper). NORTH CAROLINA - Injuring potatoes in Hoke County. (Chadwick). Larvae on potatoes in Duplin County approaching last instar, with not over 5 percent of untreated plants infested. (Farrier). TEXAS - Average of 8-10 adults per vine attacking potatoes in Hays County. (Massey). IDAHO - Nearly mature larvae common on small potato plants in vicinity of Caldwell, Canyon County. (Bechtolt).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Adult numbers decreased in potatoes over State. However, present on tomatoes in New Castle County and fairly abundant on same crop in Sussex County, with noticeable feeding injury. Adults common on snap beans in Kent County and present on snap and lima beans in Sussex County. (Burbutis, Mason). PENNSYLVANIA - Abundant on potatoes in York County. (Pepper). WISCONSIN - Populations exceptionally high, causing wilting soon after potted tomato plants were planted on May 15 in a Dane County location. (Wis. Coop. Sur.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Medium infestation on tomatoes in King City, Monterey County. (Cal. Coop. Rpt.).

POTATO APHID (Macrosiphum solanifolii) - DELAWARE - Numbers slightly increased over previous week, but not very common on potatoes throughout State. Adults and nymphs first noted on tomatoes in New Castle County. (Burbutis, Mason). MARYLAND - Light to moderate on tomatoes in all sections. (U. Md., Ent. Dept.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - On Lycium, averaged 40-50 adults per 100 sweeps and 3-6 eggs and 2-3 nymphs per leaf in Bent and Otero Counties. None found on Convolvulus (bindweed). Averaged one per 20 sweeps at Manassa, Conejos County. (Colo. Ins. Sur.).

WHITEFLIES - DELAWARE - Adults of unspecified species noted on potatoes in southern New Castle County. (Burbutis, Mason).

BULB MITE (Rhizoglyphus echinopus) - CALIFORNIA - Heavy infestations on potato plants in Wasco, Kern County. (Cal. Coop. Rpt.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults continue to cause moderate to heavy damage to snap bean foliage in all sections. (U. Md., Ent. Dept.). DELAWARE - Adults on snap beans in Kent and Sussex Counties and on lima beans in Sussex County, causing light feeding injury. (Burbutis, Mason).

MEXICAN BEAN BEETLE (Epilachna varivestis) - NORTH CAROLINA - Active in gardens in Hoke County. (Chadwick).

PEA LEAF WEEVIL (Sitona lineata) - WASHINGTON - Damaging peas at Quincy, Grant County. This is the first economic damage caused by this pest reported in eastern portion of the State. (Miller).

PEA APHID (Macrosiphum pisi) - DELAWARE - Remains present in treated peas but heavy (15 per sweep) in an untreated field in southern New Castle County. Present on snap beans in Kent County. (Burbutis, Mason).

LIMA-BEAN POD BORER (Etiella zinckenella) - CALIFORNIA - Very common on annual lupine in Orange County and on perennial lupine in Ventura County. Larvae of all sizes found in pods. (M. W. Stone).

GARDEN FLEAHOPPER (Halticus bracteatus) - DELAWARE - First adults of season noted on snap beans in central Kent County. (Burbutis, Mason).

SALT-MARSH CATERPILLAR (Estigmene acrea) - CALIFORNIA - Light on sugar beets in Salinas area, Monterey County. (Cal. Coop. Rpt.).

FLEA BEETLES - UTAH - Population of an unspecified species heavy and widespread on mustards throughout Box Elder County, and damaging some sugar beet fields. (Knowlton, Thornley). Unspecified species also damaging young sugar beets in area west of Lewiston, Cache County, with moderate damage occurring in Box Elder County at Fielding, Elwood and Bothwell; light to moderate damage present on radishes, turnips, beets and onions in Weber, Davis, Box Elder, Cache and Salt Lake Counties. (Knowlton, Haws). WYOMING - Larvae of unspecified species damaging sugar beets in Torrington area, Goshen County. Sugar beets average one inch in height and are being cut off below the ground surface. Damage is occurring in beet fields that were in beans during 1959. (Robb). Adults of Psylliodes convexior damaging radishes in Torrington area. (Fullerton). MARYLAND - Epitrix spp. common on potatoes and tomatoes in all sections of State. (U. Md., Ent. Dept.).

BEET LEAFHOPPER (Circulifer tenellus) - UTAH - Averaged one per 25 feet of row in sugar beets at North Garland, Box Elder County. (Knowlton).

GARDEN SYMPHYLID (Scutigerella immaculata) - COLORADO - Several occurrences on sugar beets reported in Larimer and Weld Counties. Replanting necessary in some cases. (Colo. Ins. Sur.).

MIRIDS - WYOMING - An unspecified species infesting sugar beets that average 1-2 inches in height. A survey of 1,000 sugar beet plants, using 100 plants at farm locations in each of 5 fields, showed an average of one adult per 10 plants. (Fullerton). UTAH - An unspecified species is extremely numerous on mustards in Box Elder County, with as many as 400 or more per square foot. (Thornley).

SPINACH LEAF MINER (Pegomya hyoscyami) - WASHINGTON - Larvae, probably this species, mining 4-leaf stage of sugar beets at Parker, Yakima County. Infestation light, earlier than usual. (Landis).

CUCUMBER BEETLES - PENNSYLVANIA - Diabrotica undecimpunctata howardi and Acalymma vittata numerous in southeastern area of State. (Menusan). MARYLAND - Adults of A. vittata appearing on volunteer squash at Brinklow, Montgomery County. (U. Md., Ent. Dept.). NORTH CAROLINA - Unspecified species injuring gardens in Hoke County. (Chadwick).

LEAFHOPPERS - NORTH CAROLINA - Unspecified species active in gardens in Hoke County. (Chadwick). ARIZONA - Heavy populations of Empoasca spp. damaging Yuma County cucurbits. (Ariz. Coop. Sur.). COLORADO - Macrostelus fascifrons averaged 20 per 100 sweeps on Descurainia (tansymustard) at the Colorado-Kansas State line in Prowers County. (Colo. Ins. Sur.).

SEED-CORN MAGGOT (Hylemya cilicrura) - NEW JERSEY - Some larval damage to asparagus reported in Gloucester and Salem Counties area. (Ins.-Dis. Newsl., May 17). CALIFORNIA - Very abundant in a 4-acre field of turnips at Artesia, Los Angeles County; 10-15 percent of crop was unmarketable. (M. W. Stone).

SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) - DELAWARE - Adults becoming common in asparagus in northern Kent County. (MacCreary).

ONION THRIPS (Thrips tabaci) - TEXAS - Estimated to average 100 per onion plant in Floyd County. (Hatchett, Yeary).

VARIEGATED CUTWORM (Peridroma saucia) - CALIFORNIA - Generally severe on carrots; feeding on crown and scarring carrot. An estimated 50 percent in some fields not marketable. (V. Roth).

CARROT WEEVIL (Listronotus oregonensis) - NEW JERSEY - Eggs of first brood easily found in Cumberland County on overwintered parsley on May 11. (Ins.-Dis. Newsl.).

APHIDS - MARYLAND - Unspecified species heavy on radish at 2 localities in Prince Georges County. (U. Md., Ent. Dept.).

EUROPEAN EARWIG (Forficula auricularia) - RHODE ISLAND - Reported as troublesome in home vegetable gardens in Westerly area, Washington County. (Hansen).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - UTAH - Damaging strawberries at Brigham City, Box Elder County. (Knowlton). IDAHO - Very severe infestations noted in commercial strawberry plantings at Bonners Ferry, Boundary County. (Portman). WASHINGTON - Caused heavy damage to peppermint roots at Outlook, Sunnyside and Grandview in lower Yakima Valley, where soil treatments not used. Full-grown larvae, pupae and newly emerged adults now appearing. (Frick).

A SAP BEETLE (Lobiopa insularis) - LOUISIANA - Approximately 3 percent of plants infested in 2 fields of strawberries examined at Ponchatoula, Tangipahoa Parish. (Spink).

CORN EARWORM (Heliothis zea) - CALIFORNIA - Causing light damage to strawberries in Orange County. (A. F. Howland).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - WISCONSIN - Nymphs appearing in strawberry plantings May 13 in Waukesha County. (Wis. Coop. Sur.).

SPIDER MITES - MARYLAND - Severe injury to a 2-acre field of strawberries by unspecified species noted in Burtonsville, Montgomery County. (U. Md., Ent. Dept.). NORTH CAROLINA - Tetranychus sp. severe on some plants in a planting of strawberries in Burke County. (Parton, Farrier). WISCONSIN - Tetranychus telarius populations high in Waukesha County strawberry plantings on May 13. (Wis. Coop. Sur.). ARIZONA - Infestations of T. cinnabarinus heavy in some Yuma County

watermelon fields, with considerable damage evident in center area of most hills; populations on cantaloup light. (Ariz. Coop. Sur.)

RASPBERRY ROOT BORER (*Bembecia marginata*) - MONTANA - Severely injured a large commercial planting of raspberries in Sanders County. (Roemhild, May 15).

TOBACCO INSECTS

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - MARYLAND - Light to moderate larval injury on tobacco in beds in Calvert and St. Marys Counties. (U. Md., Ent. Dept.).

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - MARYLAND - Numbers generally light this spring on tobacco in beds. (U. Md., Ent. Dept.).

WIREWORMS - SOUTH CAROLINA - More numerous this year in tobacco fields in Williamsburg County. (Nettles et al.).

CUTWORMS - SOUTH CAROLINA - More numerous in tobacco fields than in many years in Berkeley County. (Nettles et al.).

SPRINGTAILS - MARYLAND - Continue to cause light damage to tobacco in beds. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Movement light in Florence area due to cool weather. No cut buds observed in one 20-acre field examined. (Taft, Hopkins, Jernigan). MISSISSIPPI - One field out of 20 examined in delta counties infested. Infested field had 50 weevils per acre. New weevils found in trap plants on 3 days, all on plants out in the field. No evidence of weevil activity noted on cotton plants in or immediately adjacent to hibernating areas. (Merkl et al.). LOUISIANA - Weevils found in 1 of 3 fields examined in Tallulah area. An average of 8 per acre found, ranging 0-25 per acre. All fields received treatments for thrips control. Activity of boll weevil low during period after very low temperatures over past weekend that were followed by dry weather and northerly winds. Percentage of boll weevil survival in hibernation cages to May 20 was 0.48 compared to 0.80 at same time in 1959. (Smith et al.). TEXAS - Activity increased, with reports from lower Rio Grande Valley that punctured squares were as high as 25 per 100 squares. Larvae observed as far north as Bee County in south central area and movement of weevils from hibernation quarters reported in Waco area. (Gaines). Counts per acre in Waco area averaged 58 in 31 fields inspected compared with 72 in 34 fields during corresponding week of 1959. (Parenchia et al.).

THRIPS - SOUTH CAROLINA - Some damage reported in Florence area. (Taft, Hopkins, Jernigan). MISSISSIPPI - Numerous on alternate host plants in delta counties. Movement to cotton relatively slow. Many growers treating although counts still do not indicate populations high enough to give economic damage. (Merkl et al.). LOUISIANA - Counts made in 36 fields in Tallulah area; all infested. Average per plant was 1.41, ranging 0.03-7.62 per plant. Average per plant in treated fields was 0.43 per plant and in untreated fields was 2.20 per plant. (Smith et al.). TEXAS - Infestations reported generally light, but increasing. Some isolated heavy numbers observed in many areas. (Gaines). ARIZONA - Infestations generally low in cotton statewide. (Ariz. Coop. Sur.). NEW MEXICO - Populations of Frankliniella occidentalis decreasing in cotton; ratio of 1 adult to 2 larvae found. (N. M. Coop. Rpt.). CALIFORNIA - Light populations of F. occidentalis on cotton plants in Five Points, Fresno County. (Cal. Coop. Rpt.).

APHIDS - SOUTH CAROLINA - Present in practically every cottonfield in Allendale County; serious in some fields. Natural enemies giving some control. (Nettles et al.). Heavy damage reported in Florence area. Many growers applied treatments. (Taft, Hopkins, Jernigan). MISSISSIPPI - Light infestations present in delta counties. (Merkl et al.). OKLAHOMA - Aphis gossypii light to medium, 5 per linear foot and 30 per plant in 2 cotton fields in Tillman County. (Hatfield). NEW MEXICO - Occasional infestation of A. gossypii found in cotton in Dona Ana County. (N. M. Coop. Rpt.).

FLEAHOPPERS - NEVADA - Occasional Spanogonicus albofasciatus collected from seedling cotton, but averaged 2-5 per sweep on Russianthistle at field borders. (Bechtel, May 13). ARIZONA - Infestations of S. albofasciatus continue to increase in central area cotton. Counts very low in Yuma County cotton. Counts of Psallus seriatus average 2 per 10 sweeps in Yuma County cotton. (Ariz. Coop. Sur.). TEXAS - Populations of P. seriatus continue to increase with a higher count of nymphs noted in College Station and Waco area than previous week. (Gaines). In Waco area, average number per 100 terminals in 31 fields inspected was 4.7 and ranged 0-28.5. (Parenchia et al.).

BOLLWORMS (Heliothis spp., et al.) - MISSISSIPPI - Moth catch of H. zea extremely low for time of year. No activity indicated in cotton fields in delta counties. (Merkl et al.). LOUISIANA - Eggs found as early as May 2 on late March-planted cotton in Tallulah area. Several damaged terminals with small larvae found. Cotton in presquare stage and treated twice for thrips. (Smith et al.). TEXAS - Activity observed to be only slight, with eggs and some young larvae observed in coastal and southwest areas. (Gaines).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Infestations medium in central area cotton, with heavy foliage damage in few fields. Yuma County infestations low. (Ariz. Coop. Sur.). NEW MEXICO - Occasional larva found in cotton in Luna and Dona Ana Counties. (N. M. Coop. Rpt.). TEXAS - Ragging leaves in many areas; as far north as the College Station area. (Gaines).

BET ARMYWORM (Spodoptera exigua) - NEW MEXICO - Light infestations in cotton near Hatch, Dona Ana County. (N. M. Coop. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - During period May 9-13, 37 moths emerged from experimental cages at New Mexico State University. (N. M. Coop. Rpt.).

CUTWORMS - MISSISSIPPI - An occasional outbreak reported in cotton in delta counties, but populations generally light. (Merkl et al.).

SPIDER MITES - MISSISSIPPI - Very light infestations spotty over delta counties. (Merkl et al.). ARIZONA - Light infestations of Tetranychus cinnabarinus present in some cotton fields in central and southwest areas. (Ariz. Coop. Sur.). NEVADA - Heavy infestation of Tetranychus sp. in seedling cotton in 3 fields in Pahrump Valley, Nye County. (Bechtel, Galloway, Zoller; May 13).

TOBACCO WIREWORM (Conoderus vespertinus) - SOUTH CAROLINA - Caused severe damage to some cotton fields in Darlington County. Some damage reported in Florence County. Probably amplified by damping off and generally poor growing conditions. (Taft, Hopkins, Jernigan).

A FLEA BEETLE (Systema sp.) - ARIZONA - Infestations of 2 per 10 sweeps present in Yuma Valley cotton. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) - IDAHO - First attacks of season noted on freshly-cut Douglas-fir logs, May 9, on south fork of the Salmon River in Valley County. Although this date somewhat earlier than last year, it is considerably later than average for last 4 years. Foliage of standing trees which were infested during 1959 now strongly faded. Damage continues to be concentrated in particular areas and tends to exceed somewhat last year's level. (Furniss).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - NORTH CAROLINA - About one-fourth acre of pines under attack following lightning strike in Brunswick County and activity beginning in logging areas in sandhills. (St. John, Arnold).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - NORTH CAROLINA - Adults caught in flight in Alleghany County but no evidence of attacked trees. (Davidson).

ENGRAVER BEETLES (Ips spp.) - NORTH CAROLINA - Minor outbreaks on ice-damaged trees and in logging areas in Richmond and Scotland Counties. (St. John, Arnold). Some infestation in shortleaf and Virginia pines reported in Gaston County (Perry) and on storm-damaged pines in northwestern counties. (Maxwell). VIRGINIA - Activity on one-fourth acre of Virginia pine in Bedford County. (Va. Div. For. Sur. Rpt.; Apr. Sum.). MONTANA - I. lecontei killed several ponderosa pines about 50 feet high near Ashland. (Tunnock, May 15).

WHITE-PINE WEEVIL (Pissodes strobi) - NORTH CAROLINA - Injuring white pine in northwestern counties. (Maxwell). VIRGINIA - Eggs present locally in Patrick County. Adults on several trees in April in two areas in Roanoke County. (Va. Div. For. Sur. Rpt.; Apr. Sum.) WISCONSIN - Oviposition continuing in Sauk County, May 18. Some hatching occurred and larval injury is noticeable. Apparently about 15 percent of trees in white-pine planting infested. (Wis. Coop. Sur.).

PALES WEEVIL (Hylobius pales) - VIRGINIA - Caused extensive damage in a loblolly pine plantation in Buckingham County. (Va. Div. For. Sur. Rpt.; Apr. Sum.).

A WEEVIL (Pissodes fasciatus) - IDAHO - Adults unusually abundant on stumps of freshly cut Douglas-fir at Camp Creek, Valley County. (Furniss).

A WEEVIL (Scythropus sp.) - MONTANA - Adults have been chewing chunks out of the needles of many ponderosa pines in Long Pines area, Custer National Forest. (Tunnock, May 15).

PINE SAWFLIES (Neodiprion spp.) - NORTH CAROLINA - A serious outbreak of what appears to be N. excitans on shortleaf pine in Union County. Survey for extent is planned. Adults reared from larvae collected last year determined by B. D. Burks as this species even though on shortleaf pine. (Whitfield, Farrier). Scattered defoliation by N. pratti in old epidemic areas in Wake, Durham, Orange, Vance and Granville Counties. Defoliation heavy in some areas, especially northwest Vance County. (Kiser). VIRGINIA - The outbreak of N. pratti continued at a somewhat reduced rate in stands suffering heavy defoliation for two successive years. Defoliation has increased this year in Farmville area of Prince Edward County (between the two areas of major defoliation of 1958-59) where it had been relatively light for the previous two years. (Va. Div. For. Sur. Rpt.; Apr. Sum.). OHIO - Neodiprion sp. abundant on white pines in two locations in Athens County. Control required. (Stehr). WISCONSIN - Eggs of N. nanulus reported to have hatched in La Crosse and Columbia Counties. (Wis. Coop. Sur.).

SAWFLIES - MARYLAND - Unspecified species defoliating Virginia and loblolly pines at scattered localities in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MONTANA - Females with eggs on shrubby ornamental pine in Missoula during March and on Englemann spruce in Choteau. On many ponderosa pines near Ekalaka on Custer National Forest. (Tunnock). MINNESOTA - Immatures active on needles. (Minn. Ins. Rpt.).

PHYCITID (Dioryctria sp.) - MONTANA - Damaged twigs containing pupal skins inside pitch nodules evident on numerous old-growth ponderosa pines around Rexford area. (Tunnock, May 15).

LARCH CASEBEARER (Coleophora laricella) - WISCONSIN - Larval numbers low on larch in Sauk County; pupation occurred on larch in Dane County. (Wis. Coop. Sur.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - INDIANA - First pupa found in Scotch pine at Elkhart, Elkhart County, May 18. (Schuder).

ELM SPANWORM (Ennomos subsignarius) - TENNESSEE - A large and serious outbreak of the species is apparently underway in the eastern mountainous areas. Last year 860,000 acres were reported infested. Hardwood trees starting to die at high elevations in Polk County. Parasitic flies are plentiful. (Lusby, Mullett; May 17).

FOREST TENT CATERPILLAR (Malacosoma disstria) - WISCONSIN - Low populations in Ashland County. (Wis. Coop. Sur.). DELAWARE - Feeding heavily on roses in many areas. (Burbutis, Mason). MARYLAND - Minor feeding on white oaks at Adelphi, Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Active on scarlet oak on two ridges in Frederick County, with only minor defoliation. A roadside egg survey was conducted in Frederick and Shenandoah Counties, March 29-30. Although a slight buildup apparently was expected, no alarming populations predicted. (Va. Div. For. Sur. Rpt.; Apr. Sum.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - RHODE ISLAND - Outbreak appears light in most areas. (Hansen, Kerr; May 16). DELAWARE - Feeding heavily on roses. (Burbutis, Mason). NORTH CAROLINA - Defoliating wild cherry in Scotland County. (Alford). OHIO - Tents exceptionally numerous in Ross County, infesting walnut trees on May 14. (Glass). Wild cherries defoliated in Stark, Tuscarawas, Carroll, Coshocton and Muskingum Counties. Nearly mature larvae migrating, but feeding extensively on roses and to some extent in apple orchards, May 17. (Holdsworth). WISCONSIN - Reported from many counties. While quite numerous in some areas, populations appear near normal. Price County is the northernmost report for this year. Diseased larvae observed in Sauk County, May 18. (Wis. Coop. Sur.). NORTH DAKOTA - Infestations on chokecherry in sandhills area of southeast. (N. D. Ins. Rpt.). VERMONT - Prevalent. (MacCollom).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - UTAH - Defoliating poplars in Moab area of Grand County. (Thornley, Knowlton). Still conspicuous and damaging cottonwoods in Washington County, Rockville to Santa Clara. Also a pest at Bluff, San Juan County. (Dorst, Knowlton).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Scouting for egg masses in upstate areas completed during April around all positive trap sites in Herkimer, Oneida and Delaware Counties. In Westchester County, scouting around 5 positive trap sites was negative, while on Long Island, one new egg cluster found in Southampton Township. A rapid survey in rough, mountainous areas of Essex County, just west of the regulated area, failed to confirm presence of infestation that was reported present. Hatching of eggs observed April 15 in Rensselaer County, April 25 in Albany County and April 29 in Suffolk County. MASSACHUSETTS - Egg hatching observed April 26 in western area. (PPC, East. Reg., Apr. Rpt.). VERMONT - Prevalent on many ornamentals and in young orchards. (MacCollom).

CANKERWORMS - SOUTH DAKOTA - Larvae in shade trees in Bon Homme County. (Hantsbarger). MISSOURI - Larvae still abundant and severely damaged elms in parts of central area. (Wkly. Rpt. Fr. Grs.). PENNSYLVANIA - Many calls received about Alsophila pometaria and Paleacrita vernata on trees and ornamentals in south central section, May 18. (Pepper).

FALL WEBWORM (Hyphantria cunea) - LOUISIANA - Infestations appear to be heavy on many kinds of trees from St. Landry Parish to East Carroll Parish. (Spink).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEW MEXICO - Larvae damaging weeping willow at Lordsburg, Hidalgo County. (N. M. Coop. Rpt.). MISSOURI - Larvae feeding on elms in park at Hannibal, north central area. (Munson, Thomas, Kyd).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Adults active generally in State, May 16. (Kerr).

APHIDS - PENNSYLVANIA - Hamamelistes spinosus abundant on leaves of Betula sp., Blair County, May 12. (Udine). DELAWARE - Eriosoma lanigerum on elms in Sussex County. (Burbutis, Mason). LOUISIANA - Cinara carolina infesting a stand of young slash pine in Natchitoches Parish. (Spink). OKLAHOMA - Unidentified aphids light to heavy on verberna and snapdragon at Perry. (Stiles). NEVADA - Light to moderate infestations of Periphyllus negundinis on boxelder in Fallon, Churchill County. (Bechtel, May 13). CALIFORNIA - E. lanigerum medium on pyracantha in Paradise, Butte County. Heavy populations of Prociphilus fraxinifolii on ash in San Diego, San Diego County. (Cal. Coop. Rpt.).

EUROPEAN ELM SCALE (Gossyparia spuria) - DELAWARE - Eggs fairly abundant and some first-instar larvae on elms in Sussex County. (Burbutis, Mason).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Heavy populations damaging acacia trees in Chula Vista, San Diego County, and medium on acacia in Thousand Oaks, Ventura County. (Cal. Coop. Rpt.).

POPLAR BORER (Saperda calcarata) - WISCONSIN - Pupae in poplar stems in Dane County. (Wis. Coop. Sur.).

LEAF BEETLES (Chrysomela spp.) - MISSOURI - Larvae, C. scripta complex, on most willows in north central area. Little damage noticeable as larvae still small. Adults numerous around willows. (Munson, Thomas, Kyd). OKLAHOMA - C. interrupta medium to heavy on willows in Stillwater area. (Drew).

SCOLYTID BEETLES - IDAHO - Hylurgops spp. and Trypodendron sp. adults very abundant around Camp Creek, Valley County, May 9. Large flights observed. (Furniss).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - NEVADA - Surveys at Fallon, Churchill County, and at Schurz and Hawthorne, Mineral County, were negative. (Bechtel, May 13). WISCONSIN - Emerging. Total of 4 cases of Dutch elm disease diagnosed in 1960 from Milwaukee, Racine and Waukesha County elms. (Wis. Coop. Sur.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEVADA - Adults numerous and active in Fallon, Churchill County, and at Schurz and Hawthorne, Mineral County. No eggs observed to May 13. (Bechtel). UTAH - Infesting some elms west and south of Ogden, Weber County. (Knowlton). ILLINOIS - Laying eggs in south central area. (Ill. Ins. Rpt.). OKLAHOMA - Hatch of first generation underway in Stillwater area. (Drew). First-generation larvae on elms in cities of Tulsa, Cushing, Stillwater, Perry and Guthrie in central and north central areas. (Howell). DELAWARE - Eggs fairly common, some first-instar larvae on elms in Sussex County. (Burbutis, Mason).

MAPLE BLADDER GALL MITE (Vasates quadripedes) - MISSOURI - On maples at Flat River, east central area. (Stone). WISCONSIN - Many inquiries concerning this mite. (Wis. Coop. Sur.).

JAPANESE BEETLE (Popillia japonica) - TENNESSEE - All known infested areas now treated. Acres now total 6,817.5 since treatments first started in State. (PPC, So. Reg., Apr. Rpt.). ILLINOIS - Control program in Sheldon area started on April 4 and completed on April 22. Total of 28,190 acres treated, 60 of which were in town of Milford. (PPC, Cent. Reg., Apr. Rpt.).

JUNIPER WEBWORM (Dichomeris marginella) - DELAWARE - Larvae heavily webbing leaves of juniper in Newark area of New Castle County. (Bray).

A LEAF MINER (Recurvaria juniperella) - PENNSYLVANIA - Fairly heavy infestation on juniper, May 11, Allegheny County. (Udine).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - OHIO - An infestation in one block of upright yews in Lake County; 40 percent in pupal stage, May 9. (Walker).

SOUTHERN RED MITE (Oligonychus ilicis) - DELAWARE - Very abundant with 10-15 per leaf on American holly in northern New Castle County. (Burbutis, Mason).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - DELAWARE - Pupated over the State. (Burbutis, Kelsey).

LILAC LEAF MINER (Gracilaria syringella) - COLORADO - Numerous in Larimer County. (Colo. Ins. Sur.).

LILAC BORER (Podosesia syringae syringae) - COLORADO - Causing considerable damage in Larimer County. (Col. Ins. Sur.).

IRIS BORER (Macronoctua onusta) - INDIANA - Larvae invading iris leaves on May 14 at West Lafayette. (Schuder).

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - A few newly hatched larvae on arborvitae in Stillwater area. (Drew).

BOXWOOD PSYLLID (Psylla buxi) - MARYLAND - Active and typical cupping on boxwood at Brinklow, Montgomery County. (U. Md., Ent. Dept.).

A BLUEBERRY STEM GALL INSECT (Hemadas nubilipennis) - OHIO - Adult emergence started May 9 at Perry, Lake County. Heavy emergence from one nursery infestation. (Walker).

A HONEYLOCUST POD GALL (Dasynyrea sp.) - NEBRASKA - Many homeowners requesting information on the pest in the Lincoln area. (Simpson).

AZALEA LACE BUG (Stephanitis pyrioides) - DELAWARE - Abundant on azaleas and causing moderately heavy feeding injury in Sussex County. (Kelsey).

A LOOPER (Coryphista meadi) - CALIFORNIA - Larvae heavy on leaves of Mahonia in Chico, Butte County. (Cal. Coop. Rpt.).

THRIPS (Frankliniella spp.) - CALIFORNIA - F. occidentalis heavy on cultivated Antirrhinum sp. in Newman, Stanislaus County. (Cal. Coop. Rpt.). LOUISIANA - F. tritici heavily infesting roses in Baton Rouge and doing considerable damage to the buds. (Spink).

SCALE INSECTS - MARYLAND - Pseudaulacaspis pentagona severe on mulberry trees at Bushwood, St. Marys County. (U. Md., Ent. Dept.). DELAWARE - Lepidosaphes ulmi very abundant on lilac in New Castle County. (Burbutis, Mason). CALIFORNIA - Medium infestation of Toumeyella liriodendri on liriodendron in San Jose, Santa Clara County. (Cal. Coop. Rpt.). MONTANA - Pulvinaria vitis present on twigs of several silver maples in Missoula during March. (Tunnoch).

INSECTS AFFECTING MAN AND ANIMALS

A DEER FLY (Silvius pollinosus) - NEVADA - Adults very numerous and biting in Virgin Valley, Clark County. Previous records of Silvius sp. from Virgin Valley refer to this species. This is a new record for the State. Det. C. B. Philip. (Bechtel, May 13).

HORN FLY (Siphona irritans) - TEXAS - Averaged 300 adults per animal on beef cattle in Kaufman County. (Davis). OKLAHOMA - Medium to heavy on range cattle checked in Beaver and Harper Counties. Counts per animal ranged as follows: up to 800 on cows and 3,000 on bulls. (VanCleave, Pela). Counts averaged 750-1,000 per animal on cows and 3,000-4,000 per animal on bulls on range areas in Payne and Noble Counties. (Howell). In Stephens County, counts were 600-700 per animal on range cattle. (Hatfield). KANSAS - Counts per head averaged 75 on cows and 250 on bulls in southeastern area. (Peters).

MOSQUITOES - CALIFORNIA - Culex tarsalis and other mosquitoes show a decided increase in many areas including rural and irrigated pasture areas along Sacramento River. Heaviest populations still occurring in Coachella Valley, Riverside County; Diablo Valley, Contra Costa County; and Red Bluff, Shasta County. (Vect. Cont.). UTAH - Some mosquito annoyance at Wellsville, Cache County. (Knowlton). MINNESOTA - A total of 100,099 acres of confirmed mosquito breeding sites treated between March 1 and May 15. Up to May 15, an average of 3-5 larvae per dip were collected whereas in 1959 dip collections commonly ranged from 100-200. (Minn. Ins. Rpt.). WISCONSIN - Mosquitoes appeared on May 15 according to a Marinette County report, but predicted heavy emergence of Aedes vexans has not occurred yet. A. dorsalis expected to emerge in Dane County during week ending May 27 and A. vexans expected the following week. (Wis. Coop. Sur.).

LITTLE HOUSE FLY (Fannia canicularis) - OKLAHOMA - Present in houses and buildings in Stillwater area. (Howell).

AMERICAN DOG TICK (Dermacentor variabilis) - SOUTH DAKOTA - Numerous on humans and pets in eastern edge of State. (Mast). WISCONSIN - Moderate numbers reported from Ashland, Burnett, Door, Eau Claire, Iron, Lincoln, Marinette, Price, Sawyer, and Shawano Counties. Populations appear lower than last year. (Wis. Coop. Sur.). OKLAHOMA - Continued to be problem on dogs and humans in Stillwater area. (Howell). Higher than average populations in Dewey and Blaine Counties. (Stevenson). RHODE ISLAND - Specimens in Providence County at Esmond on May 7 and at Lincoln, May 9. This may indicate a northerly extension of the species in the State. Ticks continue to be unusually severe. (Mathewson).

FLEAS - OKLAHOMA - Adults of Pulex irritans and Ctenocephalides felis causing concern in homes where pets are present in Stillwater area. (Howell).

LIVESTOCK PESTS - UTAH - In western Box Elder County, 12,000 cattle dipped to control small scabies outbreak and for cattle lice. In San Juan County, 6,000 head of cattle treated for lice. OKLAHOMA - Heavy infestations of cattle lice continued on cattle at community sales in Beaver County. (Strom).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - ARIZONA - During April, 2 infestations found; one each in Maricopa and Gila Counties. (PPC, West. Reg., Apr. Rpt.).

A MEALWORM (Tenebrio sp.) - NEW MEXICO - Very abundant on old sacks and stored grain in several feed stores in Socorro and Catron Counties. (N. M. Coop. Rpt.).

Stored-grain Insects in Montana - Infestations during 1960 have been down generally from what they were during 1959. (Roemhild, May 15).

BENEFICIAL INSECTS

LADY BEETLES - TEXAS - An unspecified species averaged 2-6 per square foot of lawn in Lubbock County. (Weigle). OKLAHOMA - Spot checks of average populations were as follows: Adults and larvae of Hippodamia convergens up to 0.6 per sweep in Beaver and Harper Counties (VanCleave, Pella); 3-5 per linear foot in small grain and 5 per sweep in alfalfa in north central area (Owens); 0.6-1.0 per sweep and 1.5 per square foot of crown area in alfalfa in southwest (Hatfield); 2-4 per sweep in alfalfa and 0.01 and 0.5 per stalk in corn in south central area (Vinson); heavy (1 per sweep), compared to aphid population, in a Pushmataha County cloverfield and 0.12 per whorl in Johnson grass in same area (Goin); from less than one to 2 per sweep in east central alfalfa (Robinson). KANSAS - Counts, primarily H. convergens, ranged 0-1 adult and 0-2 larvae per sweep in southeastern area alfalfa. Counts on small grain averaged less than one adult and one larva per sweep. (Peters). NEBRASKA - H. convergens, H. tredecimpunctata and Coleomegilla maculata lengi becoming more abundant, especially in alfalfa; ranged 0-5 per 10 sweeps. (Simpson). SOUTH DAKOTA - Occasional adult of unspecified species found in southeast area alfalfa. (Mast). WYOMING - Unspecified species averaged 2 per 25 sweeps in 20 fields of alfalfa in southeastern area. (Fullerton). UTAH - Unspecified species present but not numerous in alfalfa in northern part of State, where pea aphid is present. (Knowlton). COLORADO - Hippodamia spp. averaged 10-30 per 100 sweeps on alfalfa in Kiowa, Prowers, Bent, Otero and Crowley Counties. (Colo. Ins. Sur.). NEVADA - Population levels of unspecified species remain high in fields of alfalfa in southern and western portions of the State. (Bechtel, May 13). MINNESOTA - Unspecified species averaged 1-15 per 100 sweeps in Fillmore and Mower Counties, May 17. (Minn. Ins. Rpt.). ILLINOIS - Adult counts of unspecified species varied 10-500 per 100 sweeps in clover and alfalfa throughout State. Larvae observed for first time this season. (Ill. Ins. Rpt.). SOUTH CAROLINA - High populations of unspecified species noted in several fields of cotton in the Coastal Plain area. (Nettles et al.).

PREDACIOUS BEETLES - IDAHO - Trees and logs of Douglas-fir being attacked by Douglas-fir beetle on south fork of Salmon River in Valley County, contain fairly high numbers of a clerid, Enoclerus sphegeus, and an ostomid, Temnochila virescens chlorodia. Another clerid, Thanasimus undulatus, also present but in very small numbers. (Foote).

FLOWER BUGS (Orius spp.) - KANSAS - Counts of O. insidiosus in alfalfa in southeastern part of State averaged less than one per sweep. (Peters). UTAH - O. tristicolor not generally numerous in alfalfa infested with pea aphid in northern area. (Knowlton).

BIG-EYED BUGS (Geocoris spp.) - NEVADA - Populations in alfalfa continue at high levels in southern and western portions of the State. (Bechtel, May 13).

MINUTE PIRATE BUGS - NEVADA - Populations of unspecified species continue high in fields of alfalfa in southern and western areas. (Bechtel, May 13). UTAH - Present but not conspicuous in alfalfa fields infested with pea aphid in northern area. (Knowlton).

LACEWINGS (Chrysopa spp.) - OKLAHOMA - Very light numbers noted in fields of alfalfa surveyed in Beaver and Harper Counties. (VanCleave, Pela). Averaged 0.3 per sweep and 0.5 per square foot of crown area in 2 fields of alfalfa surveyed in the southwest area. (Hatfield). KANSAS - Averaged less than one per sweep in southeastern area alfalfa. (Peters). UTAH - Not numerous in fields of alfalfa infested with pea aphid in northern part of State. (Knowlton).

NABIDS (Nabis spp.) - OKLAHOMA - Averaged 0.5-1.5 per sweep in alfalfa fields surveyed in Beaver and Harper Counties (VanCleave, Pela), 0.2 per sweep in a field of alfalfa in Cotton County (Hatfield) and 0.5 per sweep in a field of alfalfa in Johnston County (Vinson). Medium populations noted in a field of alfalfa in Muskogee County. (Robinson). KANSAS - Counts were much less than one per sweep in alfalfa in southeastern part of State. (Peters). NEBRASKA - Averaged about 5 per 10 sweeps in all fields of alfalfa checked. (Simpson). SOUTH DAKOTA - Averaged 4 per 10 sweeps in southeast area alfalfa. (Mast). WYOMING - Averaged 2 per 25 sweeps in 20 fields of alfalfa in southeast area. (Fullerton). UTAH - Present but not generally numerous in pea aphid infested alfalfa fields in northern part of State. (Knowlton). COLORADO - N. fesus averaged 30-40 per 100 sweeps on alfalfa at the Colorado-Kansas State line in Prowers County. (Colo. Ins. Sur.). NEVADA - Populations remain high in alfalfa in western and southern parts of State. (Bechtel, May 13). ILLINOIS - Nymphs observed for first time this season. (Ill. Ins. Rpt.).

SYRPHIDS - ILLINOIS - Larvae observed for first time this season. (Ill. Ins. Rpt.). KANSAS - Larval counts averaged one per sweep in southeastern area alfalfa. (Peters). UTAH - Larvae present but not numerous in northern area alfalfa fields. (Knowlton).

HONEY BEE (Apis mellifera) - SOUTH DAKOTA - Honey production has been very slow due to cold, wet weather. (Mast). MINNESOTA - Queen shipments for requeening and for making colony divisions arriving steadily, with supplies of late packages improved. Supplies of queens will be liberal after May 25. Inspectors finding very little disease, but some strong colonies show swarming preparations. (Minn. Ins. Rpt.). RHODE ISLAND - American foulbrood detected in 11 out of 461 colonies examined May 16-17. (Hansen).

HYMENOPTEROUS PARASITES - NEW YORK - In Schenectady County, 20-25 percent of gypsy moth eggs parasitized by Ooencyrtus kuwanai. Spring emergence of adults from forest litter began April 22; some noted on egg masses. (PPC, East, Reg., Apr. Rpt.). OKLAHOMA - Scattered reports of heavy populations of unspecified species received from southern half of State. Wasps noted attacking aphids in alfalfa, clover and Johnson grass. (Hatfield, Vinson, Goin).

MISCELLANEOUS INSECTS

CUTWORMS - TEXAS - Moths of an unspecified species have emerged in very heavy numbers from pastures and rangelands in western portion of the State. Moths have been reported as far north as Lubbock and from the Big Bend area to the south. These moths are very annoying to residents in these areas, as large numbers have gained entrance to homes and soiled furnishings. One report stated that moths clustered on shrubbery during day, resembling swarms of bees. Specimens have been forwarded to Washington for determination. (Texas Coop. Rpt.). NEW MEXICO - Adults of Chorizagrotis sp. very numerous and a nuisance around lights and in homes in Socorro, Socorro County. (N. M. Coop. Rpt.).

TENT CATERPILLARS (Malacosoma spp.) - NEW JERSEY - Large numbers have become a household problem. (Ins.-Dis. Newsl.) DELAWARE - M. disstria and M. americanum are a nuisance around homes in many areas. (Burbutis, Mason).

A CARABID (Harpalus sp.) - COLORADO - A mass migration occurred into the business section of Ft. Collins, Larimer County. (Colo. Ins. Sur.).

LEAD CABLE BORER (Scobicia declivis) - CALIFORNIA - Severely damaging red wood panels made from 80-year-old wine vats; paneling in expensive new home at North Fresno, Fresno County, nearly ruined. (G. Spittler, A. Yerrington).

WHARF BORER (Nacerdes melanura) - PENNSYLVANIA - Numbers present in basement of a home in Lehigh County. (Menusan).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - An additional 5,000 acres found infested in Union County, ARKANSAS, during April. Treatments applied to more than 250,000 acres in 7 states. A total of 143,535 acres treated in GEORGIA, and in addition about 20,000 acres received first application of two-application treatment. LOUISIANA was second, with slightly more than 58,000 acres treated and 21,608 additional acres received first of 2 applications. ALABAMA was third, with about 12,600 acres treated; followed by MISSISSIPPI, with approximately 8,000 acres; TEXAS, with about 7,000 acres; NORTH CAROLINA, with about 2,000 acres; and SOUTH CAROLINA, with slightly under 500 acres. Inspections made in 22 eastern and 7 western OKLAHOMA counties during April with negative results. (PPC, So. Reg., Apr. Rpt.).

RED HARVESTER ANT (Pogonomyrmex barbatus) - OKLAHOMA - Mound activity has resumed in established nests in Stillwater area, Payne County. (Howell).

ANTS - NORTH DAKOTA - Reports of home infestations in the Fargo area, Cass County, have been above normal this season. (N. D. Ins. Sur.).

BROWN-BANDED ROACH (Supella supellectilium) - NORTH CAROLINA - Heavy infestation present in a house in Forsyth County. (Wright).

TERMITES - MONTANA - Unspecified species have been reported from Lewis and Clark County and from Custer County. (Roemhild, May 15). PENNSYLVANIA - An unspecified species swarming in basement of a church in Lancaster. (Pepper).

A LITTLE HOUSE FLY (Fannia sp.) - CALIFORNIA - Adults continue to collect on fruit trees, shrubs and vegetable plants, as well as on buildings; dying from the fungus Entomophthora muscae. This condition is general over the State. (Cal. Coop Rpt.).

CLOVER MITE (Bryobia praetiosa) - MONTANA - Spring infestations have been common. (Roemhild, May 15).

CORRECTIONS

CEIR 9 (Index):27 - Melanoplus bivittatus should be Melanoplus bivittatus.

CEIR 9 (Index):32 - Rhizoglyphus echinops should be Rhizoglyphus echinopus.

CEIR 10(16):292 - AN ANT - TEXAS - Formica montana should read Formica cinerea lepida. Specimens have been restudied and determined by M. R. Smith.

CEIR 10(20):386 - PINE SPITTLEBUG (Aphrophora paralella) should read PINE SPITTLEBUG (Aphrophora paralela).

CEIR 10(21):404 - PECAN BUD MOTH (Gretchena bolliana) - FLORIDA - Last sentence should read: "Feeding damage similar to that caused by first-generation Acrobasis caryae."

ADDITIONAL NOTES

VERMONT - PEA APHID (Macrosiphum pisi) abundant on trefoil and alfalfa in many areas and MEADOW SPITTLEBUG (Philaenus leucophthalmus) hatching rapidly. (MacCollom).

MASSACHUSETTS - A few CODLING MOTH (Carpocapsa pomonella) adults emerged in Amherst and Waltham. Egg laying expected to start when temperatures at dusk are 60 degrees F. or higher. SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) and ASPARAGUS BEETLES are active. (Crop Pest Cont. Mess.).

TENNESSEE - Scattered local infestations of small ARMYWORMS present in grass and small grain fields in Montgomery County. Peak of ALFALFA WEEVIL (Hypera postica) past in State. (Horton, Mullett).

VIRGINIA - Reports of PEA APHID damage to alfalfa continue to be received. In Stafford County, damage is medium to severe, with growers cutting alfalfa rather than using chemical controls. In Shenandoah County, damage is medium and spotty, but best well under control. In Smyth County, present on alfalfa over county, with damage medium to severe. WHITE GRUB damage severe in one 35-acre cornfield in King William County and SPITTLEBUG masses found in an alfalfafield near Monterey in Highland County. TOBACCO FLEA BEETLE (Epitrix hirtipennis) adults on newly set tobacco at Chatham, 3-8 per plant in a 5-acre planting. VEGETABLE WEEVIL (Listroderes costirostris obliquus) attacking lima beans in Pittsylvania County, with damage medium (Rowell et al.).

NEW YORK - LEAFHOPPERS appeared heavy in vineyards in Ulster County. CODLING MOTH adults taken in bait traps at Middle Hope and Clinton Corners on May 18 in eastern area; first of season. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) eggs hatching in Columbia, Monroe, Orleans and Wayne Counties; and moderate egg laying injury to apples by EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) reported in Orange County on May 13. Summer eggs of EUROPEAN RED MITE (Panonychus ulmi) noted in Orange and Clinton Counties and FRUIT TREE LEAF ROLLER (Archips argyrospila) abundant on all fruits in Columbia County and present in Niagara County. PLUM CURCULIO (Conotrachelus nenuphar) adults moved to host trees on May 19 in western area and first egg laying observed on that date on sweet cherry, although dissection indicated that very few females contained mature eggs. Marked activity can be expected with next period of favorable weather. EUROPEAN CORN BORER (Pyrausta nubilalis) moth emergence noted in cages on May 18 at Poughkeepsie. In Westchester County, FLEA BEETLES reported heavy on sweet corn and flea beetles showing up in numbers on cabbage and tomatoes in Wayne County. LACEBUGS active on butternut and walnut trees and should be expected on various deciduous and evergreen plants. APHIDS observed in early stages of population buildup on deciduous trees and shrubs, and also on spruce twigs on Long Island. EASTERN TENT CATERPILLAR (Malacosoma americanum) unusually abundant in many sections, causing complete defoliation to trees 20-30 feet tall. IMPORTED WILLOW LEAF BEETLE (Plagioderia versicolora) causing damage and laying eggs. (N. Y. Wkly. Rpt.).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Prod. ornith.	Perid. saucia	Protoparce sexta	quinq.	Heliothis zea	vires.
ARIZONA								
Mesa 5/9-15			159	6				49
FLORIDA								
Gainesville 5/13,17	1		3					
ILLINOIS								
Urbana 5/13-19	350	18		7				
INDIANA (Counties)								
Lawrence 5/7,9,16,17	42	6		7				
Tippecanoe 5/13-19	3	37		1				1
KANSAS								
Garden City 5/10,12-13	8			24				
Hays 5/11,13-14,16-18	212	10		10		1		
Manhattan 5/14-19	154	27		22				
Wathena 5/14-15	12			8				
LOUISIANA								
Franklin 5/16,18		6		4	5			6
Baton Rouge 5/13-19	10	3	20	2				12
Tallulah 5/14-20	2	6	1					1
MARYLAND								
Fairland 5/15-19	5	4						
MISSISSIPPI								
*Stoneville 5/13-19	53	55	10	6	21			28
NEBRASKA								
North Platte 5/11-17	137	29		152				
Lincoln 5/14-20	132	7		1				
Kearney 5/9-18	57	18		24				
NORTH CAROLINA								
Faison 5/12-18	10	8	3		1	3		
SOUTH CAROLINA								
Charleston 5/16-22	1	31	15	3	8		7	2
Clemson 5/14-20	22	17		1	6	5	60	
TENNESSEE (Counties)								
Monroe 5/3-16	48	2		1				
Madison 5/3-16	67	3						
Maury 5/3-16	32	2		2				
Robertson 5/3-16	10	1		1				
Cumberland 5/3-16	12	5						
Greene 5/10-16	2							
Blount 5/3-16	47	9	3	4				6
Johnson 5/3-16	30	31		1				
TEXAS								
Brownsville 5/9-13	1	3	1					3
Waco 5/14-20	25	3	13	53				51

* Two traps - Stoneville.

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

The background of the document is a light tan color with a repeating pattern of various insects in a muted green color. The insects include several butterflies of different sizes and patterns, a large beetle with prominent stripes on its back, a fly with long legs and wings, a ladybug, and several smaller beetles and larvae. The pattern is scattered across the entire page.

VOL. 10 NO. 23

JUNE 3, 1960

SB
823
c77
Ent.

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 of Insect Conditions

Some heavy nymphal GRASSHOPPER populations recorded in Arizona, New Mexico and Texas. (p. 453). BILLBUGS damaged corn in areas of North Dakota, Wisconsin and Alabama; and WIREWORM damage noted in Missouri, Ohio and Virginia. (p. 454). PEA APHID continues to damage alfalfa, but fungus disease, parasites and predators increasing. (p. 456). Controls for SPOTTED ALFALFA APHID being applied in area of New Mexico. (p. 457). ALFALFA WEEVIL damage to alfalfa very heavy in Alabama. (p. 458).

EASTERN TENT CATERPILLAR very abundant on untreated apple trees in Connecticut. SPRING CANKERWORM reaching outbreak proportions in southwestern Ohio. ROSY APPLE APHID building up in Delaware and numerous in eastern panhandle of West Virginia. (p. 461). A MITE (Oxypleurites maxwelli) causing serious damage to flowers of olive in Tehama County, California. (p. 462).

BEAN LEAF BEETLE and MEXICAN BEAN BEETLE increasing and causing damage to beans in several states. GARDEN SYMPHYLID damaging 1,000 acres of mint in areas of Washington. (p. 465).

In Georgia, HORNWORM eggs heavy in some tobacco fields; and TOBACCO BUDWORM moderate to heavy on tobacco in several counties. TOBACCO FLEA BEETLE adults 3-5 per newly set tobacco plant in 2 Maryland counties. (p. 466).

THRIPS damage to cotton noted in South Carolina and Alabama, and APHIDS and WIREWORMS causing damage to cotton in Florence area of South Carolina. (p. 467). VARIEGATED CUTWORMS and WESTERN YELLOW-STRIPED ARMYWORMS heavy on cotton at Lamont, Kern County, California. (p. 468).

ELM SPANWORM defoliation of deciduous trees started in Cherokee County, North Carolina; and CANKERWORMS expected to cause considerable defoliation to hardwoods in New Haven County, Connecticut. (p. 469).

AMERICAN DOG TICK heavy and causing considerable annoyance in several states. (p. 471).

HAWAIIAN INSECT NOTES (p. 476).

INSECT DETECTION - New state records reported are A MEALYBUG (Pseudococcus olivaceus) in California (p. 471), and A MIRID (Microphylellus modestus) in Delaware (p. 474). New county records reported were brown wheat mite in Lincoln and White Pine Counties, Nevada (p. 455); and European pine sawfly in Franklin and Jefferson Counties, Indiana (p. 468). In Hawaii, beet leafhopper and Eupelmus popa reported for first time. (pp. 476,477).

WEATHER BUREAU 30-DAY OUTLOOK

JUNE 1960

The Weather Bureau's 30-day outlook for June calls for temperatures to average above seasonal normals over the Great Lakes Region and over the western half of the Nation except for below normal in the Pacific Northwest. Near-normal temperature averages are expected in the remainder of the Nation except for slightly below normal in the Middle Atlantic States. Precipitation is expected to exceed normal in the Pacific Northwest, the Western Great Lakes Region, and the Middle and North Atlantic States. Subnormal amounts are anticipated for the Plateau States, the Far Southwest, and in states bordering the Gulf of Mexico. In unspecified areas, near-normal rainfall is 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 MAY 30

Temperatures averaged much below normal this week in most of the Far West, generally below normal from the western Great Lakes to the middle Atlantic coast and southern New England, and much above normal in northern Maine. Precipitation was locally heavy along the Pacific coast in northern California and Oregon, in the extreme northern Rocky Mountains, and in many areas from the Great Plains eastward. Cloudy and cool weather with frequent showers prevailed over the northwestern corner of the Nation and cool, generally dry weather was the rule over the Plateau States. Minimum temperatures fell below freezing on several days east of the Cascades and Sierras from central portions of Nevada and Utah northward. Weekly average temperatures were generally 6° or more below normal from south-central California to portions of Washington, Idaho, and western Montana. Frost caused additional damage to alfalfa, fruit and wheat in scattered areas of the Plateau States, and the generally cool temperatures and locally high winds slowed plant development and caused some crop damage. Precipitation over the southern areas of the Plateau States and California again was absent or very light. All of this area needs rain for ranges.

Moderate to heavy rains in the northern Great Plains improved the soil moisture outlook in the Dakotas, northern Wyoming, and eastern Montana. Local totals of more than 3-1/2 inches in North Dakota and over 2 inches in South Dakota were recorded. Continuing rains in the northern Mississippi Valley again slowed progress of fieldwork in many areas. Soil moisture is at very high levels in the Iowa-Illinois-Indiana area. Widespread local thunderstorms from central Texas northeastward to the central Great Plains, the central Mississippi and Ohio Valleys, and in sections of the Southern States left moderate to heavy precipitation totals in many areas, ranging up to near 3 inches in southeastern Kansas, northeastern Oklahoma, and central Illinois and to over 4 inches in central Kentucky. Some places in the Southeast, missed by the scattered thunder-showers, continue dry, however, and local areas in Florida, Georgia, South Carolina, and Tennessee urgently need rain. Fieldwork made good progress over this area during the past week. Shower and thunderstorm activity from the Carolinas to New England left variable precipitation totals of 1/4 to near 5 inches in North Carolina, 1-1/2 inches in Maryland, 1/2 to 1-1/2 inches in Pennsylvania and New York, and over 2 inches locally in southern Maine, Vermont, and New Hampshire. Mostly cloudy skies kept temperatures a few degrees below normal in the Maryland-Pennsylvania area. Unusually high temperatures were recorded in northern Maine, averaging 12° above normal at Caribou, where the 91° reading on May 29 was a record high there for so early in the year. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - MINNESOTA - Development is as follows: Melanoplus femur-rubrum eye-spot; M. bivittatus and possibly M. bilituratus all eye-spot. Few first-instar nymphs of Melanoplus sp. present in southeast. No general egg hatch noted. (Minn. Ins. Rpt.). WISCONSIN - M. femur-rubrum eggs all in coagulated stage May 17 in Pepin, Clark, Portage and Adams Counties except for one Pepin County egg pod where eggs had advanced to eye-spot stage. First-instar nymphs of M. bilituratus observed in La Crosse, Portage and Adams Counties and first-instar nymphs of M. bivittatus observed in only one alfalfa field in Portage County, but nymphs of the latter species in third-instar on Clark County roadsides. (Wis. Coop. Sur.). NORTH DAKOTA - Survey in southeast and south central counties showed first and second-instar grasshopper nymphs present at most stops. M. bilituratus ranged 1-36 per square yard at scattered locations in Cass, Sargent and Dickey Counties. M. bivittatus nymphs present at most stops but numbers generally did not exceed 10 per square yard. Egg development showed M. bilituratus in segmented stage and M. bivittatus in coagulated to eye-spot stage. (N. D. Ins. Sur.). SOUTH DAKOTA - Light hatching of M. bivittatus and M. differentialis in Union and Clay Counties during week ending May 21. (Komanetsky). Only one M. bivittatus taken in alfalfa in Sanborn County. (Mast). NEBRASKA - Large hatches of rangeland grasshoppers in southwest, up to 20 per square yard at North Platte. Several species involved, but mostly Amphitornus coloradus, Ageneotettix deorum and M. bilituratus. (Pruess). WYOMING - Several species of grasshoppers hatching in Glendo study area; mostly first instar. Species reported were as follows: Aulocara elliotti, Cordillacris occipitalis, Amphitornus coloradus, A. deorum and M. occidentalis. (Pfad). OKLAHOMA - Light populations of first-instar nymphs on 3 grassland areas checked in Major and Woodward Counties. (Owens). Counts of first to third-instar Melanoplus spp. averaged 2-5 per square yard in margins and from less than 1 to 2.5 per square yard in the field in alfalfa checked in east central area. (Robinson). TEXAS - Heavy numbers of small grasshopper nymphs observed in pastures and on roadsides in Falls and Williamson Counties. (Texas Coop. Rpt.). NEW MEXICO - Grasshoppers generally moderate to heavy in permanent pastures and in alfalfa fields in Rio Arriba and Taos Counties. (N. M. Coop. Rpt.). ARIZONA - Counts of M. bilituratus averaged 55 per square yard in alfalfa in western Maricopa County, with 30 percent damage in one large field. (Ariz. Coop. Sur.). UTAH - Grasshopper adults fairly common on rangeland in Grand and southern Emery Counties. (Knowlton).

CORN EARWORM (Heliothis zea) - ALABAMA - Moths plentiful on corn in Baldwin County. (Eden, May 24). LOUISIANA - Field corn just beginning to tassel, less than 10 percent infested in St. Martin Parish. In untreated field of sweet corn at Diamond, 100 percent larval infestation of silks observed, while at Arnaudville, a field of sweet corn 80 percent infested with eggs and 10 percent infested with larvae on silks. (Spink). TEXAS - Light to medium populations attacking corn in early tassel stage in Bee and Live Oak Counties. (Edgar). Larvae, all stages, found on about 50 percent of corn plants in many fields of Caldwell and Hays Counties. (Massey).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW JERSEY - First eggs of season noted May 19 on sweet corn. (Ins.-Dis. News.). DELAWARE - Egg masses and few first-instar larvae present on early sweet corn in Kent and Sussex Counties. (Burbutis, Mason). OHIO - Pupation 55 percent near Columbus, but only 11 percent near Van Wert. (Triplehorn). ILLINOIS - Pupation 50 percent in north, 75 percent in central and 100 percent in southern area, with 0-4 percent moth emergence in southern area. (Ill. Ins. Rpt.). WISCONSIN - Pupation began in southern sections. In standing corn stalks, pupation 40 percent in Iowa County and 50 percent in Grant County on May 24. (Wis. Coop. Sur.). MINNESOTA - Pupation observed in southern area. Apparently first-generation development will be ahead of corn. (Minn. Ins. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Of whorls of corn examined at Diamond, 10 percent found infested. Counts per 100 sweeps in Acadia Parish were 32 in grass on levees and 12 in rice. (Spink).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - One egg mass found at survey check points in 101 fields in 13 parishes. New deadhearts totaled 166 per acre and accumulative total now averages 212 per acre. (Spink).

CUTWORMS - NEBRASKA - Very light infestations of Agrotis orthogonia found in wheat in Box Butte and Kimball Counties. Larvae almost mature and less than 1 per 50 feet of row. Also, very light infestations of Euxoa messoria and Agrotis sp. found in Box Butte County. Pupation of Chorizagrotis auxiliaris near completion and early moth flights beginning at North Platte. (Pruess).

MISSOURI - Feltia subgothica killing stand of corn in Holt County. (Munson, Thomas, Kyd). OKLAHOMA - Peridroma saucia light, 0.25 per square foot, in field of rye (also heavily infested with armyworms) in Enid area. Very light numbers of a climbing cutworm noted in a limited number of fields of small grain throughout north central and parts of central area. (VanCleave, Owens).

A SUGARCANE SCALE (Pulvinaria elongata) - LOUISIANA - Heavy infestation developed on sugarcane grown in the greenhouse in Baton Rouge. (Spink).

BILLBUGS - NORTH DAKOTA - Moderate infestation of undetermined species in corn in Harnett County; some spot replanting required. (Wilson). WISCONSIN - Damage to corn noted in Grant County. (Wis. Coop.Sur.). ALABAMA - Calendra sp. damaged late-planted corn in central area. Damage much more prevalent than in past several years. (Grimes, Guyton; May 24). FLORIDA - C. callosa collected on corn at Quincy, Gadsden County, on April 28; 60 percent of field infested. Det. R. E. Warner. (Tappan).

WIREWORMS - NEBRASKA - Adults of undetermined species found in nearly all alfalfa fields checked in northeast; highest counts averaged 2 per 10 sweeps. (Simpson). MISSOURI - Melanotus spp. reduced stands of corn in southwest; some required replanting. (Munson, Thomas, Kyd). OHIO - Unspecified species damaging field corn and sugar beets in Sandusky County. (Holdsworth). VIRGINIA - Severe infestation of unspecified species reported in field of early planted corn in Loudoun County. (Rowell).

FLEA BEETLES - DELAWARE - Chaetocnema pulicaria populations vary considerably between fields, with earliest corn appearing to have highest numbers. Several smaller fields of sweet corn with rather heavy feeding injury. Epitrix cucumeris fairly common on young soybean plants in Sussex County. (Burbutis, Mason). MARYLAND - C. pulicaria adults averaged 2-6 per sweet corn plant at several locations in Calvert and St. Marys Counties. (U. Md., Ent. Dept.). OHIO - Unspecified species damaging field corn. (Holdsworth). ILLINOIS - C. pulicaria maximum population in corn in East St. Louis area 12 per plant. (Ill. Ins. Rpt.). OKLAHOMA - None to medium infestations of C. pulicaria noted in 5 fields of corn in east central area. (Robinson). NEVADA - C. ectypa averaged 1 adult per linear foot of row in young barley in Pahrnagat Valley, Lincoln County. (Bechtel, May 20).

CHINCH BUG (Blissus leucopterus) - TEXAS - Light nymphal infestations in grain sorghum in Hunt County. Adults and nymphs damaging corn, grain sorghum and broomcorn in Bee and Live Oak Counties. (Edgar). Medium to heavy infestations in 2 fields of grain sorghum in Zavala County. (Prucia). OKLAHOMA - Populations appear to be increasing in some east central areas. Heaviest infestations noted along field margins of corn, where counts ranged 1-4 per stalk. Counts out in the fields ranged 0.15-0.20 per stalk. (Robinson). KANSAS - Found in a few fields of wheat in McPherson County. Counts averaged less than 1 per foot of row. (Peters). ILLINOIS - Populations varied 0-7 adults per linear foot in thin stands of grain in central area. (Ill. Ins. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEVADA - Light, scattered infestation on barley in Pahrnagat Valley, Lincoln County. (Bechtel, May 20).

CORN BLOTCH LEAF MINER (Agromyza parvicornis) - DELAWARE - Small miners starting in corn in Sussex County. (Burbutis, Mason).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Light to moderate, spotted infestations on wheat and barley. Also found on grasses and alfalfa in Lincoln and White Pine Counties. These are new county records. (Bechtel, May 20). COLORADO - Averaged 100-300 per 100 sweeps in borders of some fields of wheat in Weld County; no evidence of damage. (Colo. Ins. Sur.).

ARMYWORM (Pseudaletia unipuncta) - ILLINOIS - Maximum populations 2 per square foot in small grains and grasses. (Ill. Ins. Rpt.). MISSOURI - Present in barley and wheat in southeast; counts ranged 0-3 larvae per square foot and averaged 1 per square foot. (Munson, Thomas, Kyd). OKLAHOMA - Occasional to light numbers noted in roadside areas and fields of small grain throughout north central area and parts of central area. Damaging numbers noted in isolated fields in Kingfisher and Garfield Counties, where counts averaged 1-12 per square foot. Some fields treated in area as well as in Canadian County. Damaging infestations usually found in fields having rank growth. (VanCleave, Owens, Cupp). Light to medium in 5 fields of wheat in Tillman County. (Hatfield).

WHEAT HEAD ARMYWORM (Faronta diffusa) - COLORADO - Larvae averaged 50 per 100 sweeps in wheat near Prospect Valley, Weld County. (Colo. Ins. Sur.).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - LOUISIANA - One larva per rice stool found in field in St. Landry Parish. (Spink).

COWPEA APHID (Aphis medicaginis) - NEBRASKA - Low numbers present in Lancaster and Cass Counties; averaged less than 3 per 10 sweeps. (Manglitz).

ENGLISH GRAIN APHID (Macrosiphum granarium) - NEVADA - Averaged 5-10 per head in most wheat fields in Pahrump Valley, Nye County. (Bechtel, Lauderdale, Zoller; May 20). MINNESOTA - Few noted on oats in southeast. (Minn. Ins. Rpt.). DELAWARE - Abundant in field of oats in Kent County and present on cereals in most areas of State. (Burbutis, Mason).

GREENBUG (Toxoptera graminum) - NEBRASKA - Low populations present in 40 percent of fields in northeastern counties. (Simpson). KANSAS - Counts in wheat, barley and oats in central and north central areas ranged from less than 1 to 10 per foot of row. (Peters).

A RICE DELPHACID (Sogata orizicola) - LOUISIANA - None found in 1,900 sweeps taken in 7 rice fields in St. Landry Parish. (Spink).

RICE STINK BUG (Oebalus pugnax) - LOUISIANA - Adults, 132 per 10 sweeps, collected in southern wildrice, Zizaniopsis miliacea, in Vermilion Parish; and 5 adults per 100 sweeps collected in rice in St. Landry Parish. (Spink).

SAY STINK BUG (Chlorochroa sayi) - NEVADA - Infestations remain heavy on wheat in Pahrump Valley, Nye County. One field had over 30 percent damage. (Bechtel, Lauderdale, Zoller; May 20). UTAH - Adults occasionally present in Fielding-Brigham area wheat and alfalfa fields. (Knowlton).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Heavy infestations on mature small grain in Baldwin County. (Eden, May 24).

A GRASS BUG (Thyrillus pacificus) - WASHINGTON - Damaging roadside grasses and margins of small grains in Whitman County. (Telford).

MEADOW PLANT BUG (Leptopterna dolabratus) - MISSOURI - Heavy nymphal populations in bluegrass across north central area of State; counts ranged 8-30 per sweep. (Munson, Thomas, Kyd).

A CHINCH BUG (Blissus leucopterus insularis) - LOUISIANA - Beginning to appear in St. Augustine grass lawns in East Baton Rouge Parish. (Spink).

A SAWFLY (Dolerus sp.) - OHIO - Larvae sufficiently numerous in bluegrass field in Delaware County to be taken for armyworms. Damage inconsequential. Also common in Franklin County in mixed alfalfa-clover fields. No damage noted. (Blair). ILLINOIS - Larvae more abundant than normal throughout State in small grains and grasses; maximum populations in wheat fields 400 per 100 sweeps. (Ill. Ins. Rpt.).

A SCARAB (Phyllophaga anxia) - NEVADA - Damaging pasture in Elko County. Det. P. O. Ritcher. (Lauderdale, Menke; May 20).

PEA APHID (Macrosiphum pisi) - MARYLAND - Although populations declining due to fungus disease, damage to first-growth alfalfa in central area has been severe. (U. Md., Ent. Dept.). WEST VIRGINIA - Extremely heavy populations in alfalfa in eastern panhandle and northern counties. (W. Va. Ins. Sur.). VIRGINIA - Medium infestations in Carroll County; larger than usual. (Rowell). ALABAMA - Heavy infestations on alfalfa in Baldwin County and common on peas, vetch and alfalfa in central area. (Eden, Guyton; May 24). OHIO - Populations and damage variable; one field of alfalfa stunted, yellowed and complete loss at a height of 10 inches. In Lorain County, 7 fields checked and 2 badly damaged. In southeastern area, populations heavy, but little or no damage observable (over 500 per sweep). Numerous on alfalfa in Ottawa County, but controls not necessary. (Blair, Holdsworth, Grimm). RHODE ISLAND - Population continues light on alfalfa in South Kingstown. (Hansen). MISSOURI - Infestations in southern half of State reduced greatly by disease, parasite and predator activity; most alfalfa in southern area has been cut. Counts ranged 10-25 per sweep. (Munson, Thomas, Kyd). ILLINOIS - Populations in alfalfa decreasing in southern one-third of State, ranging 100-1,000 per 100 sweeps. Disease reducing populations rapidly. In northern two-thirds of State, populations range 200-10,000 per 100 sweeps. Disease and predators just beginning to be active. (Ill. Ins. Rpt.). WISCONSIN - Increase noted in alfalfa, counts averaged 50 per sweep in Grant County and 55 in Crawford County. (Wis. Coop. Sur.).

MINNESOTA - Generally low in southeast, 1-25 per 10 sweeps (average 5); 1-10 per 10 sweeps in south central area. (Minn. Ins. Rpt.). NORTH DAKOTA - Low in most legume fields in southeast and central sections. (N. D. Ins. Sur.). SOUTH DAKOTA - Low in alfalfa surveyed in central and east central areas; county averages per 10 sweeps are as follows: Davison - 18; Sanborn - 7; Beadle - 6; and Kingsbury - 4. (Mast). NEBRASKA - Increasing on alfalfa and clover in all areas checked. Most counts ranged 10-30 per 10 sweeps in northeast, with highest counts 75 per 10 sweeps in Cuming County. Counts in Lancaster and Cass Counties averaged 59 per 10 sweeps in alfalfa and clover. (Manglitz, Simpson). KANSAS - Counts in alfalfa in central and north central areas ranged 5-125 per sweep. (Peters). OKLAHOMA - Light to heavy, 10-75 per sweep, in alfalfa following first cutting in central and north central areas. Light in Tillman County fields checked (Hatfield); light in field of alfalfa in Johnston County; medium in field of hairy vetch in Love County (Vinson); and ranged 5-50 per sweep in 6 fields surveyed in Okmulgee, Tulsa and Wagoner Counties (Robinson). TEXAS - Counts as high as 100 per sweep on alfalfa in Brazos County. (Randolph). COLORADO - Counts 50-300 per 100 sweeps in alfalfa in Larimer, Weld, Adams and Morgan Counties; and 10-100 per 100 sweeps in Mesa, Delta and Montrose Counties. (Colo. Ins. Sur.). WYOMING - Averaged 2 per 25 sweeps in field of alfalfa near Rock River, Albany County. (Fullerton). UTAH - Low to moderate in Fillmore area of Millard County. (Knowlton). NEVADA - Averaged 5 per sweep in Glendale-Moapa area, Clark County; 3 per sweep in Pahrangat Valley and 6 per sweep in Panaca, Lincoln County; and 2-8 per sweep in White Pine County. (Bechtel, May 20).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Averaged 2 per stem most heavily infested fields in Glendale-Moapa area, Clark County. Only occasional specimens found in Pahrnanagat Valley, Lincoln County. None found in Panaca, Lincoln County; or in Baker, Ely, Lund or Preston, White Pine County. (Bechtel, May 20). NEW MEXICO - Light to damaging infestations in alfalfa in Chaves and Eddy Counties; many growers treating. (N. M. Coop. Rpt.). KANSAS - Collected in air-sock trap at Garden City Experiment Station, Finney County. In addition, one specimen collected in yellow-pan trap at the station. As yet, none collected from sweepings of alfalfa in same general area. (DePew). Not found in alfalfa checked in central and north central areas. (Peters). OKLAHOMA - Light, up to 5 per sweep, in alfalfa in central and north central areas (VanCleave); none to light in alfalfa surveyed in Washita and Kiowa Counties (Hudson); 15 per sweep in alfalfa in Jackson County (Presgrove); averaged 10, 20 and 75 per square foot of crown area in 3 fields of alfalfa in Tillman County (Hatfield); 10 per sweep in field of alfalfa in Johnston County (Vinson); and none to very light in alfalfa checked in Okmulgee, Tulsa and Wagoner Counties (Robinson). TEXAS - Infestations averaged 35-50 per sweep in alfalfa in Brazos County. (Randolph).

SWEETCLOVER APHID (Therioaphis riehmi) - NEBRASKA - Low numbers found in Lancaster and Cass Counties; averaged less than 3 per 10 sweeps. (Manglitz). INDIANA - Collected on sweetclover May 19, Ripley County. (Wilson).

YELLOW CLOVER APHID (Therioaphis trifolii) - INDIANA - Collected May 19 on red clover in Jennings County. (Wilson).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Slight increase in nymphs noted most alfalfa fields. (Burbutis, Mason). INDIANA - Nymphs and adults very abundant in Daviess County. (Wilson). ILLINOIS - Adults ranged 0-40 per 100 sweeps in clover and alfalfa. (Ill. Ins. Rpt.). MISSOURI - Counts on alfalfa in southeast and southwest ranged 0-5 per sweep, averaged 1.5 per sweep. (Munson, Kyd, Thomas). LOUISIANA - Counts averaged 16 adults and 65 nymphs per 100 sweeps on white clover in East Carroll Parish. (Spink). MINNESOTA - Counts per 10 sweeps ranged 1-4 in southeast and averaged 0.5 in south central area. (Minn. Ins. Rpt.). SOUTH DAKOTA - Occasionally found in alfalfa in central area. (Mast).

LYGUS BUGS (Lygus spp.) - NORTH DAKOTA - Populations in legumes ranged 0-18 adults per 100 sweeps in southeast and south central counties. (N. D. Ins. Sur.). COLORADO - Counts 10-120 per 100 sweeps in alfalfa in Larimer, Weld, Adams and Morgan Counties. (Colo. Ins. Sur.). WYOMING - Adults averaged 1 per 25 sweeps in irrigated meadows near Baggs, Carbon County. (Fullerton). UTAH - Numerous in alfalfa in Willard-Perry area of Box Elder County. (Knowlton). ARIZONA - Heavy in alfalfa statewide; counts average 17-30 adults and nymphs per 10 sweeps. (Ariz. Coop. Sur.).

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) - MINNESOTA - Very light in southeast and south central areas. (Minn. Ins. Rpt.). NORTH DAKOTA - In legumes and small grains, counts 0-10 adults per 100 sweeps in southeast and south central counties. (N. D. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - MINNESOTA - Appears to be localized south of the Twin Cities area; 8 per 100 sweeps at Austin and 1 per 200 sweeps near Owatonna and Zumbrota. Counts averaged 1 per 150 sweeps in southeast and 3 per 140 sweeps in south central area. (Minn. Ins. Rpt.). WISCONSIN - Swept from alfalfa in southwestern area for first time this season. Counts about 3 per 100 sweeps. (Wis. Coop. Sur.). ILLINOIS - Populations in alfalfa and clover in northern area 0-20 per 100 sweeps; an area in a band from Champaign to East St. Louis ranged 80-400 per 100 sweeps; and in southern area 0-80 per 100 sweeps. (Ill. Ins. Rpt.). DELAWARE - First adults of season present on alfalfa in eastern Kent County. (Burbutis, Mason).

PLANT BUGS (Adelphocoris spp.) - MINNESOTA - A. rapidus hatching in southeast and south central areas and A. lineolatus in southeast. First and second instars present in south central district. (Minn. Ins. Rpt.). SOUTH DAKOTA - A. rapidus found occasionally in alfalfa in east central and central areas. (Mast).

DELAWARE - Adults of A. rapidus present on alfalfa over State, with nymphs fairly common and averaging 5-7 per sweep. (Burbutis, Mason).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - WISCONSIN - Averaged 4 nymphs per 10 stems in alfalfa in Lafayette County, 6 in Iowa County, 4 in Grant County and 3 in Crawford County. Hatching and development continues extended and slow. (Wis. Coop. Sur.). ILLINOIS - Nymphs ranged 0-190 per 100 stems in alfalfa and clover. (Ill. Ins. Rpt.). OHIO - Light in Lawrence and Ottawa Counties, but heavy in Lorain County. (Grimm, Holdsworth). MARYLAND - Nymphs averaged 8-12 per 10 stems on red clover in Frederick and Washington Counties. (U. Md., Ent. Dept.). DELAWARE - First adults of season present on alfalfa in eastern Kent County. (Burbutis, Mason).

ALFALFA WEEVIL (Hypera postica) - ALABAMA - Active throughout east area; adults more numerous than larvae. Damage to alfalfa tremendous this year. (Guyton, Grimes; May 24). DELAWARE - In few alfalfa fields left uncut all stages present, with one field in Kent County having approximately 100 larvae per sweep. Feeding injury heavy in untreated fields. (Burbutis, Mason). MARYLAND - Heavy larval damage appearing on alfalfa in Montgomery and Howard Counties. Pupation underway. Larvae damaging second-growth alfalfa in Howard County. (U. Md., Ent. Dept.). PENNSYLVANIA - Very severe on alfalfa in Mifflin and Bedford Counties; control generally ineffective. (Udine). RHODE ISLAND - Adults and larvae active in South Kingstown, only light injury observed. (Hansen). COLORADO - Larval counts 50-100 per 100 sweeps in alfalfa in Weld, Larimer, Adams and Morgan Counties; 10-130 per 100 sweeps in Mesa, Delta and Montrose Counties. Larvae 50-80 percent parasitized by Bathyplectes curculionis. (Colo. Ins. Sur.). WYOMING - Adults averaged 2 per 25 sweeps in alfalfa near Baggs, Carbon County. No larvae found. (Fullerton). UTAH - Larvae damaging some untreated alfalfa fields in south Box Elder and Weber Counties and damaging alfalfa at Green River and Moab in southeastern areas. (Knowlton). NEVADA - Larvae averaged 2-6 per sweep in White Pine County. Adults variable, with highest counts 6-10 per sweep in Lund-Preston area, White Pine County. Most adult females gravid and egg laying still in progress. (Bechtel, May 20). WASHINGTON - All stages of larvae damaging roadside alfalfa at Asotin and Clarkston. (Telford). OHIO - Survey of 9 fields in Lawrence and Athens Counties in southern area negative. (Blair).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ALABAMA - Adults plentiful on maturing clover throughout central area. (Guyton, Grimes; May 24). MARYLAND - Heavy larval damage to red clover buds and axils noted in many fields in central and western sections. (U. Md., Ent. Dept.). OHIO - In a Wayne County clover field on May 12, 9 eggs and 8 larvae collected on an average of 24 stems per square foot. First cocoon this year spun on May 20 in insectary. (Sechriest).

CLOVER LEAF WEEVIL (Hypera punctata) - ILLINOIS - Adults ranged 0-40 per 100 sweeps in clover. (Ill. Ins. Rpt.). NORTH CAROLINA - Destroyed one-half acre of 2-acre field of Ladino clover in Columbus County. (Read, Gurkin). RHODE ISLAND - Mature larvae light on alfalfa and red clover in South Kingstown area. (Hansen).

A CLOVER HEAD WEEVIL (Hypera meles) - ALABAMA - Adults plentiful on maturing clover throughout central area. (Guyton, Grimes; May 24). LOUISIANA - Counts averaged 103 adults and 28 larvae per 100 sweeps collected on white clover in East Carroll Parish. (Spink).

CLOVER ROOT CURCULIO (Sitona hispidula) - UTAH - Damaging sweetclover in Spanish Fork Canyon. (Knowlton).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - MINNESOTA - Feeding noted. (Minn. Ins. Rpt.). NEBRASKA - Counts in Lancaster and Cass Counties averaged 5.6 per 10 sweeps in clover fields. (Manglitz). UTAH - Damage common in Box Elder and Weber Counties. (Knowlton).

A WEEVIL (Sitona scissifrons) - MINNESOTA - Present in alfalfa in southeast. (Minn. Ins. Rpt.). SOUTH DAKOTA - Populations in alfalfa averaged 0-6 per 10 sweeps in central and east central counties. (Mast).

VETCH BRUCHID (Bruchus brachialis) - ALABAMA - Heavy on vetch in Lee County. (Guyton, May 24).

A WEEVIL - WYOMING - Adults of an undetermined species averaged 4 per 25 sweeps in 3 fields of alfalfa near Savery, Carbon County. These were only fields in which this weevil was found. (Fullerton).

SPIDER MITES - MARYLAND - Moderate on red clover at Urbana, Frederick County. (U. Md., Ent. Dept.).

THRIPS - GEORGIA - Moderate infestations on peanuts in Tift, Berrien, Cook, Colquitt, Brooks, Lowndes, Ware, Pierce, Wayne, Tattnall and Candler Counties. (Johnson). UTAH - Numerous in alfalfa in Willard-Perry area, Green River and Price. (Knowlton). NORTH DAKOTA - Adults of Limothrips denticornis present in rye throughout southeast area; numbers average 1 per sweep. (N. D. Ins. Sur.). NEVADA - Frankliniella sp. extremely abundant on alfalfa in Lovelock, Pershing County. (Martinelli, May 20). Moderate to heavy infestations on alfalfa, barley and wheat, with light damage in some fields in Lincoln and White Pine Counties. (Bechtel, May 20).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - SOUTH DAKOTA - Adults numerous in alfalfa in southeastern one-fourth of State. (Mast). WYOMING - Few adults flying in alfalfa in Carbon County. (Fullerton). OKLAHOMA - Occasional larva noted in isolated alfalfa throughout north central area. (VanCleave).

CLOVER HEAD CATERPILLAR (Grapholitha interstinctana) - NEBRASKA - Adults averaged 5 per 10 sweeps in alfalfa and clover in Cuming County. (Simpson). ILLINOIS - Adults ranged 0-20 per 100 sweeps in clover and alfalfa. (Ill. Ins. Rpt.).

FORAGE LOOPER (Caenurgina erechtea) - ILLINOIS - Larvae ranged 0-20 per 100 sweeps in alfalfa and clover. (Ill. Ins. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - ILLINOIS - Larvae ranged 0-40 per 100 sweeps in clover and alfalfa. (Ill. Ins. Rpt.).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - CALIFORNIA - Heavy larval population of this species and Vanessa sp. on alfalfa in McFarland area, Kern County. (Cal. Coop. Rpt.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - NORTH CAROLINA - Light infestation in soybeans in Carteret County, nearly every plant with some leaf injury. (Branan).

BEAN LEAF BEETLE (Cerotoma trifurcata) - DELAWARE - Adults very common on very young soybeans in southwest Sussex County (1-2 per plant) and causing moderately heavy feeding injury. (Burbutis, Mason).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - DELAWARE - First fruit entry (apple) noted in Sussex County. (MacCreary). MARYLAND - Moths continue to emerge at Hancock, Washington County. (U. Md., Ent. Dept.). WEST VIRGINIA - Emerging in eastern panhandle area; few stings noticeable on apple. (W. Va. Ins. Sur.). OHIO - Very heavy cage emergence May 20-21. Cool weather slowing egg laying. Emergence over 50 percent in southwest. (Cutright). First adult noted in Ashtabula County. (Bossley). INDIANA - Although adults began emerging in overwintering cages May 10, none were taken in bait traps in commercial orchards in Vincennes area prior to May 15. Light egg hatch likely to occur in area May 25-28, and is expected to

increase about June 1. First hatch for area is late. (Hamilton, May 23). Numbers increasing from apples in packing sheds at Orleans. Peak of packing-house emergence occurred May 29-June 2 during 1959. (Marshall, May 24). ILLINOIS - Larval entries found May 23 as predicted in Carbondale area; entries found May 25 all appeared to be 2 days old. Hatch expected to increase and continue for another 2 weeks. (Meyer). MISSOURI - First adult of season caught in trap at Cape Girardeau on May 19. Larvae expected early next week in southeast area. (Wkly. Rpt. Fr. Gr.). WISCONSIN - Light to moderate overwintering populations now in last larval instar and pupal stages in Door County apples; not yet reported in southern and western counties. (Wis. Coop. Sur.). COLORADO - Few moths trapped in Delta and Montrose Counties. (Colo. Ins. Sur.).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - WEST VIRGINIA - Last instar difficult to control on apple in eastern panhandle area. (W. Va. Ins. Sur.). OHIO - Hatching continues in northeast area; most larvae still in first instar. (Cutright). First brood almost all hatched in Ashtabula County. (Bossley). ILLINOIS - Larvae half to full grown in Carbondale area; generally well controlled. (Meyer, May 25). MISSOURI - Severe injury reported in an orchard in St. Joseph area, which apparently had little or no trouble with this pest in 1959. (Wkly. Rpt. Fr. Gr.). MINNESOTA - Egg hatch occurring on apple in southeast area. (Minn. Ins. Rpt.). WISCONSIN - Moderate numbers of adults began egg laying first week of May in Door County apples. (Wis. Coop. Sur.).

FRUIT TREE LEAF ROLLER (*Archips argyrospila*) - NEW MEXICO - Damaging fruit trees in unsprayed orchards near Espanola, Rio Arriba County. (N. M. Coop. Rpt.). WISCONSIN - Light populations of first-instar larvae present in Door County. (Wis. Coop. Sur.).

LEAF ROLLERS - NEW JERSEY - Reports of a larger-than-usual species on apples have been received from many sources. (Ins.-Dis. Newsl., May 24). INDIANA - Adults of *Platynota flavedana* began coming to bait traps in peach orchards in Vincennes area during period May 17-23. (Hamilton). All size larvae of an unspecified species found feeding on apple foliage in Orleans area. (Marshall, May 24). MISSOURI - An unidentified species, apparently not red-banded leaf roller nor fruit tree leaf roller, has caused much inquiry and some damage in apple orchards in most parts of the State. Also attacking other plants. (Wkly. Rpt. Fr. Gr.).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - NEW JERSEY - Many small larvae present in peaches in an unsprayed block in Burlington County, May 19. This and other reports seem to indicate this species may be more numerous this year than during 1958 and 1959. (Ins.-Dis. Newsl., May 24). OHIO - First twig damage of season noted in Marietta, Washington County, May 21. (Stacy). INDIANA - Adults of overwintering brood still coming to bait traps in Vincennes area. Twig injury by first-brood larvae has been light; however, there is a moderate degree of twig injury in a few orchards. (Hamilton, May 23). Continues to emerge in large numbers from apples at packing sheds in Orleans area. (Marshall, May 24). ILLINOIS - Larvae full grown; some pupation beginning. Very light generally in commercial orchards in Carbondale area. (Meyer, May 25). MISSOURI - Very young larvae which apparently had just entered new twig growth found May 22 in Cape Girardeau. Next brood well underway. (Wkly. Rpt. Fr. Gr.).

UNSPOTTED TENTIFORM LEAF MINER (*Callisto geminatella*) - ILLINOIS - Larvae maturing and many have spun cocoons for pupating; several moths observed May 25 at Carbondale. (Meyer). DELAWARE - Light infestations noted in Sussex County on apple. (Kelsey).

EYE-SPOTTED BUD MOTH (*Spilonota ocellana*) - MAINE - Infestations found in Oxford County; numbers and damage light. Feeding reported as stopped May 18. (Boulanger). WISCONSIN - Light to moderate numbers of third-instar larvae present in apples in Door County; began feeding in buds of cherries first week of May. (Wis. Coop. Sur.).

TENT CATERPILLARS (Malacosoma spp.) - CONNECTICUT - M. americanum very abundant on unsprayed apples, many trees completely defoliated. There was considerable migration before larvae attained full growth. (Johnson, May 24). OHIO - Tents of M. americanum exceptionally numerous in Summit, Lake, Geauga and Knox Counties; defoliating wild cherries and occasionally found in untreated apple and plum trees. (Rings). M. americanum continues exceedingly abundant in Athens, Meigs, Vinton and Jackson Counties, mostly on wild cherry and in old orchards (Stehr); migrating larvae pupating in Coshocton County (Chambers). UTAH - M. disstria damaged some sweet cherries at Perry, Box Elder County. (Knowlton).

FALL CANKERWORM (Alsophila pometaria) - OHIO - Light to moderate throughout the State. (Rings).

SPRING CANKERWORM (Paleacrita vernata) - OHIO - Populations reaching outbreak proportions in southwestern area of State; defoliating untreated fruit and shade trees. Light to moderate in central and northern sections. (Rings).

GEOMETRIDS - INDIANA - An unidentified species feeding on terminal foliage of apples near Lafayette, Tippecanoe County. Apparently of little concern on mature trees, but causing significant damage to young transplants. Alsophila pometaria and, to a lesser extent, Paleacrita vernata found in the same situation. (Chandler).

PLUM CURCULIO (Conotrachelus nenuphar) - NEW JERSEY - Activity pretty well past in southern peach orchards. (Ins.-Dis. Newsl., May 24). MARYLAND - Noticeably damaging apples at Hancock, Washington County. Has been abundant on peaches on Eastern Shore. (U. Md., Ent. Dept.). OHIO - No injury noted to apple as of May 27. (Cutright). Populations appear heavy in southwestern area; moderate in central and northern areas. First emerged in Cincinnati area April 22, in central area April 28 and in northern part of State on May 4. (Rings). Adults common in Ashtabula County. (Bossley). INDIANA - Specimen taken in light trap at Lafayette, Tippecanoe County. (Matthew). ILLINOIS - Adults laying eggs during past week at Carbondale in unsprayed orchards; few still appearing in commercial orchards. (Meyer, May 25). MISSOURI - Larvae, all sizes, found in untreated plums in southeast area. Considerable damage has occurred in some poorly treated orchards. (Wkly. Rpt. Fr. Gr.). GEORGIA - First-generation adults have not yet started to emerge from the soil at Ft. Valley. They are looked for about mid-June this year. (Snapp).

A CURCULIONID (Sciopithes setosus) - CALIFORNIA - Adults heavy on newly planted pear trees in Hopland, Mendocino County. (Cal. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - First generation nearing maturity in Wenatchee and Yakima districts; some new adults present in earlier areas. Serious infestations present in many orchards in Yakima Valley; required treatment. (Burts, May 17).

ROSY APPLE APHID (Anuraphis roseus) - DELAWARE - Populations building up on poorly treated trees in Kent County. (Kelsey). WEST VIRGINIA - Numerous on apple in eastern panhandle area. (W. Va. Ins. Sur.). INDIANA - Infestations remain present and a problem in a few Vincennes area orchards. (Hamilton, May 23). OHIO - Infestations light to May 27. (Cutright). Unusual numbers present in Hamilton, Clermont and Warren Counties as of May 18. (Stacy). ALABAMA - Limited numbers reported on apples in Lee County. (Guyton, May 24). WASHINGTON - Not nearly as prevalent as in 1959; light infestation found in orchard near Yakima. (Wash. Coop. Rpt.).

APPLE APHID (Aphis pomi) - MAINE - Infestations light in Oxford County; generally in nymphal stages, with no adults observed. (Boullanger, May 20). NORTH CAROLINA - Heavy infestations, probably this species, on seedling apples in Scotland County. (Alford).

APPLE MEALYBUG (Phenacoccus aceris) - MAINE - Moderate infestations of overwintered female nymphs found in Wilton area, Franklin County. Male overwintered forms appear dead from natural causes. No knowledge of specific cause, although insect appears to be on downside of its periodic cycle. (Boulanger, May 20).

WHITE APPLE LEAFHOPPER (Typhlocyba pomaria) - NEW MEXICO - A leafhopper, probably this species, damaging foliage in apple orchards in Rio Arriba County. (N. M. Coop. Rpt.).

ITALIAN PEAR SCALE (Epidiaspis piricola) - CALIFORNIA - Heavy on apple in Martinez, Contra Costa County. (Cal. Coop. Rpt.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - MAINE - Heavy on apple in Lewiston area, Androscoggin County. (Boulanger, May 20). MINNESOTA - Hatching of crawlers expected during week of May 29. (Minn. Ins. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - WISCONSIN - Numbers light to medium on Door County apples; eggs hatching by May 15. (Wis. Coop. Sur.). MICHIGAN - When eggs first hatched, rapid buildup of large populations indicated; however, as of May 23, populations decreased, due to rainy weather. (Hutson). INDIANA - Control in treated orchards in Vincennes area generally very good. In untreated orchards, newly hatched nymphs abundant. (Hamilton, May 23). MISSOURI - Few present on apple foliage in southeast area. (Wkly. Rpt. Fr. Gr.). OHIO - First summer eggs hatching at Wooster on May 21. (Cutright). DELAWARE - Nymphs numerous on Red Delicious apples in one area of Kent County. (Kelsey). NEW JERSEY - Unusually high in some apple orchards as far north as Sussex County. (Ins.-Dis. Newsl., May 24). MASSACHUSETTS - A problem in some orchards. (Crop Pest Cont. Mess.). MAINE - Moderate infestations present in Oxford, Kennebec and Androscoggin Counties; generally in nymphal stages; no adults seen. (Boulanger, May 20).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MICHIGAN - Infestations beginning at Sodus, Grand Rapids and Muskegon; extremely spotted. (Hutson, May 23). MISSOURI - No reports. (Wkly. Rpt. Fr. Gr.). MARYLAND - Infestations becoming noticeable on apple at Hancock, Washington County. (U. Md., Ent. Dept.).

ORCHARD MITES - WEST VIRGINIA - Populations low on apple in eastern panhandle area. (W. Va. Ins. Sur.). INDIANA - Several of the more important species will excite but little attention for next 2-3 weeks in Orleans area; however, bronzing expected in apple orchards by mid-June. (Marshall, May 24). NEW MEXICO - Light to heavy infestations of Bryobia rubrioculus found in orchards in Lincoln and Rio Arriba Counties. (N. M. Coop. Rpt.). WASHINGTON - Tetranychus mcdanieli populations low or nonexistent in all orchards checked in lower Yakima Valley; larvae or young nymphs when present. Apparently winter adults are dead; oviposition and development had been suppressed by cold weather. Few heavy infestations found in upper Yakima Valley, especially near Tieton. (Wash. Coop.Rpt.).

AN OLIVE LEAF MITE (Oxypleurites maxwelli) - CALIFORNIA - Causing serious damage to olive orchards in Red Bluff-Corning area, Tehama County. Flower drop has been serious enough that meetings have been called to cope with the present condition. This mite normally occurs on the foliage, with little or no damage. (Cal. Coop. Rpt.).

PEACH TREE BORERS (Sanninoidea spp.) - WASHINGTON - Few heavy infestations of S. exitiosa graefi in peach, prune and apricot near Sawyer, Yakima County; various-sized larvae, some pupating. None found where trunk treatments applied last season. (Wash. Coop. Rpt.). UTAH - Sanninoidea sp. damaging peach, apricot and plum trees at North Ogden; up to 17 larvae removed from seriously damaged young trees. (Knowlton).

PEACH TWIG BORER (Anarsia lineatella) - COLORADO - Adult emergence complete in Mesa County. (Colo. Ins. Sur.).

JAPANESE BEETLE (Popillia japonica) - SOUTH CAROLINA - Damaging peach fruits in Spartanburg County. (Nettles et al, May 25).

CATFACING INSECTS - MICHIGAN - Lygus lineolaris reported as more numerous in pear orchards at Newport, Pontiac and Grand Rapids than for many years. (Hutson, May 23). OHIO - L. lineolaris populations have declined in most orchards and are no longer troublesome (Rings); common in Ashtabula County peach orchards (Bossley). First adults of Neolygus caryae found in Cincinnati area May 19. Populations of Acrosternum hilare and Euschistus sp. are light on Prunus throughout the State. (Rings). COLORADO - Lygus spp. averaged 105 per 100 sweeps in Mesa County peach orchards. (Colo. Ins. Sur.).

APHIDS - MICHIGAN - Myzus cerasi noticeable on sweet cherry trees at Baroda, Traverse City and Grand Rapids. (Hutson, May 23). WISCONSIN - Aphid populations low on apples in Door County. (Wis. Coop. Sur.). COLORADO - M. persicae averaged 0-4 colonies per peach tree in Mesa County. (Colo. Ins. Sur.). UTAH - Aphids severely curling peach foliage on some young trees at Willard; numerous on plums at Mapleton and Green River. (Knowlton). OREGON - Myzocallis coryli population on filberts remains low in Willamette Valley; much reduced from this period in 1959. (Jones). CALIFORNIA - Anuraphis helichrysi light to medium on prune trees in the Red Bluff and Los Molinas areas of Tehama County. (Cal. Coop. Rpt.).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - NORTH CAROLINA - Injuring pecans in Wayne County. (Jones, Farrier).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Counts averaged 10 percent of twigs infested in a pecan grove surveyed in Duncan area, Stephens County. (Hatfield). TEXAS - Eggs and first-instar larvae observed in pecan-growing area of Guadalupe, Gonzales, Fayette, Hays and Brazos Counties. Controls underway in many sections. (Hancock, Massey).

PECAN PHYLLOXERA (Phylloxera devastatrix) - OKLAHOMA - Causing concern to some pecan growers in south central and east-south central areas. (Howell).

FALL WEBWORM (Hyphantria cunea) - GEORGIA - Light on pecan trees throughout southern area. (Johnson).

A THRIPS (Isoneurothrips australis) - CALIFORNIA - Adults light on lemon in Martinez, Contra Costa County. (Cal. Coop. Rpt.).

CHERRY FRUITWORM (Grapholitha packardii) - NEW JERSEY - Moths active in blueberries; larval entries expected May 31. (Ins.-Dis. Newsl., May 24).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Moths laying eggs on blueberry; larval entries expected week of May 27. (Ins.-Dis. Newsl., May 24).

BLUEBERRY BUD MITE (Aceria vaccinii) - NORTH CAROLINA - Causing nearly 20 percent loss to blueberry crop, estimated at \$400,000. (Smith).

A GRAPE LEAFHOPPER (Erythroneura sp.) - NEW MEXICO - Beginning to build up on grape foliage in southern counties. Nymphs very abundant on grape foliage in Las Cruces, Dona Ana County. (N. M. Coop. Rpt.).

TRUCK CROP INSECTS

IMPORTED CABBAGEWORM (Pieris rapae) - DELAWARE - Causing light feeding injury to cabbage in eastern Kent County. (Burbutis, Mason). VIRGINIA - Present on cabbage on Eastern Shore. (Hofmaster, May 17). ALABAMA - Numbers appearing on cabbage in Lee County. (Guyton, May 24).

CABBAGE LOOPER (Trichoplusia ni) - ALABAMA - Numerous on cabbage in Lee County. (Guyton, May 24). NEW MEXICO - Light to moderate infestations in late lettuce fields in Dona Ana County. Few growers still applying controls. (N. M. Coop. Rpt.).

DIAMONDBACK MOTH (Plutella maculipennis) - VIRGINIA - Present on cabbage on Eastern Shore, May 17. (Hofmaster). ALABAMA - More numerous than past 10 years in Lee County. (Guyton, May 24).

CABBAGE MAGGOT (Hylemya brassicae) - WASHINGTON - Populations extremely high; early plantings of cole crops destroyed in Lake Sammamish and Puyallup Valley areas, despite repeated treatments with chlorinated hydrocarbons. (Howitt).

HARLEQUIN BUG (Murgantia histrionica) - ALABAMA - Heavy on kale in Lee County. (Guyton, May 24). TEXAS - Medium to heavy infestations on cabbage and turnips locally in Bee County. (Edgar).

CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) - CALIFORNIA - Medium on mustard and wild radish in Duncan Mills, Sonora County. (Cal. Coop. Rpt.).

WIREWORMS - OHIO - Unspecified species damaged cabbage in Sandusky County. Replanting and soil treatment required. (Holdsworth).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - DELAWARE - Numerous adults collected May 23 in blacklight trap at Bridgeville, Sussex County; very common on small plantings of cucurbits May 25 in same county. (Burbutis, Mason). MARYLAND - Adults common on cucumbers on Eastern Shore and on acorn squash at Brinklow, Montgomery County. (U. Md., Ent. Dept.). MINNESOTA - Common in wooded situations in Castle Rock area, Dakota County. (Minn. Ins. Rpt.).

DARKLING BEETLES - ARIZONA - Light larval populations of unspecified species damaging rind of cantaloups where they touch the ground in some central area fields. (Ariz. Coop. Sur.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - RHODE ISLAND - Oviposition occurring on potato in Kingston area. (Kerr). MARYLAND - Common on potatoes in all sections; heavy infestations are spotty. (U. Md., Ent. Dept.). VIRGINIA - Quite numerous throughout Eastern Shore area. (Hofmaster, May 17). TEXAS - Medium infestation of larvae in various stages observed on weeds in wasteland of Lubbock County. (Weigle). Few larvae observed on various weeds in Bailey County. (Hatchett).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Slight increase noted on potatoes in New Castle County; also present on same crop in Kent County. Remains fairly common on tomatoes in New Castle County. Common on snap beans in Sussex and Kent Counties and on cucurbits in Sussex County. (Burbutis, Mason). MARYLAND - Has been abundant on potatoes and tomatoes in western and central areas of the State. (U. Md., Ent. Dept.). RHODE ISLAND - Adults active on potatoes and tomatoes in South Kingstown area. (Kerr). WISCONSIN - Appears to be increasing in several sections. Heavy populations reported from Grant County on early potatoes. (Wis. Coop. Sur.).

FLEA BEETLES - MASSACHUSETTS - Unspecified species abundant and causing damage to potatoes. (Crop Pest Cont. Mess.). MARYLAND - Epitrix hirtipennis has been abundant on potatoes and tomatoes in central area of State. (U. Md., Ent. Dept.). OHIO - Unspecified species required control on potatoes and tomatoes in central and southern sections. (Stehr, Holdsworth). UTAH - Unspecified species moderately numerous on sugar beets at Springville, Utah County. (Knowlton).

POTATO APHID (Macrosiphum solanifolii) - DELAWARE - Abundant on direct seeded pepper plants, 1-2 inches high, in Bridgeville, Sussex County. Common on tomatoes in New Castle County. (Burbutis, Mason). MARYLAND - Light to moderate on potatoes and tomatoes in all sections. (U. Md., Ent. Dept.). VIRGINIA - Numerous throughout the Eastern Shore area. (Hofmaster, May 17).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Abundant on 1-2-inch high direct seeded pepper plants in Bridgeville, Sussex County. Appearing on pepper transplants and common on tomatoes in New Castle County. (Burbutis, Mason).

Aphids on Potatoes - MAINE - Mature stem mothers of Aphis abbreviata, Myzus persicae and Macrosiphum solanifolii present on buckthorn, hawkweed and Canada plum, week ending May 20. (Boulanger). DELAWARE - Alates and nymphs of M. persicae common on potatoes in New Castle and Kent Counties; slightly reduced in numbers in other areas of State. M. solanifolii decreased in most areas over previous week except in New Castle County, where it is still common. (Burbutis, Mason).

GARDEN FLEAHOPPER (Halticus bracteatus) - DELAWARE - Adults on potatoes in New Castle County and on snap beans in Kent County. (Burbutis, Mason).

LEAFHOPPERS - MISSOURI - Unspecified species appear to be more numerous on potatoes this year in the southeast area than at this time during 1959. (Wkly. Rpt. Fr. Gr.). DELAWARE - Macrosteles fascifrons present on potatoes in one area of Sussex County. (Bray). First Empoasca fabae adults of season noted on potatoes in one area of Sussex County; noted on snap beans in Kent County and on peas in New Castle County. (Burbutis, Mason).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Ranged 10-40 per 100 sweeps on Lycium in Weld County; eggs number 0-4 per leaf. None found in early potato fields. (Colo. Ins. Sur.).

PAVEMENT ANT (Tetramorium caespitum) - MARYLAND - Chewing into leaf stems of potato plants and killing leaves, at Easton, Talbot County. (U. Md., Ent. Dept.).

TOMATO FRUITWORM (Heliothis zea) - GEORGIA - Light on tomatoes in Tattnall County. (Johnson).

BEAN LEAF BEETLE (Cerotoma trifurcata) - DELAWARE - Adults generally increased on snap and lima beans over previous week. (Burbutis, Mason). MARYLAND - Moderate to heavy foliage injury to snap and lima beans has occurred in all sections. (U. Md., Ent. Dept.). VIRGINIA - Fairly numerous on young snap and lima beans on Eastern Shore. (Hofmaster, May 17). ALABAMA - Moderate infestation present in Lee County and activity is moderate to heavy in Covington County. (Guyton, Grimes; May 24).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Infestation moderate in Lee County and moderate to heavy activity observed in Covington County. (Guyton, Grimes; May 24). GEORGIA - Moderate to heavy on beans in Colquitt and Brooks Counties. (Johnson). SOUTH CAROLINA - Unusually abundant on beans in Sumter and Jasper Counties. (Nettles et al, May 25). MARYLAND - Light feeding noted on beans in St. Marys County. (U. Md., Ent. Dept.). DELAWARE - First adults of season present in several small fields of beans in Sussex County. (Burbutis, Mason).

PEA APHID (Macrosiphum pisi) - UTAH - Light to moderately numerous in canning peas at Mapleton, Utah County; 50 percent of aphids are winged forms in these fields. (Knowlton). WISCONSIN - Averaged less than one per sweep in 6-inch peas in Iowa County. Counts averaged a little more than two per sweep on 10-inch peas in Sauk County on May 25. On the same date, one winged form per 10 plants (2-inch peas) was recorded for Richland and Sauk County fields, many having begun to reproduce. Weather favorable for a buildup. (Wis. Coop. Sur.).

ONION MAGGOT (Hylemya antiqua) - MINNESOTA - Adults noted in margins of onion fields in Castle Rock area, Dakota County. (Minn. Ins. Rpt.).

GARDEN SYMPHYLID (Scutigerella immaculata) - WASHINGTON - Damaging about 1,000 acres of mint in Fargher Lake, Orchards and Longview areas. Also causing heavy damage to rhubarb plantings in Puyallup Valley. (Howitt).

A LOOPER - TEXAS - Various larval stages of an unidentified species damaging mint in Lubbock County. (Weigle).

STRAWBERRY WEEVIL (Anthonomus signatus) - INDIANA - Damage to strawberries continues in Orleans area, but will subside rapidly. (Marshall, May 24).

STRAWBERRY LEAF ROLLER (Ancylics comptana fragariae) - MICHIGAN - Adults very noticeable and first and second-instar nymphs appearing at Grand Rapids, Charlotte, South Haven and Farmington. (Hutson, May 23). WISCONSIN - Populations light in Door County; pupae and last-instar larvae present. Adult emergence expected soon. Leaf folding should appear soon in southern and western areas. (Wis. Coop. Sur.).

OBLIQUE-BANDED LEAF ROLLER (Archips rosaceana) - PENNSYLVANIA - A problem on strawberries in southeast area. (Menusan).

STRAWBERRY APHID (Pentatrachopus fragaefolii) - OREGON - Low numbers present on untreated bearing strawberry plants in Willamette Valley; counts estimated at 0-2 per 10 plants, week ending May 20. Lady beetles more abundant, 2-5 adults per 10 plants. (Rosenstiel).

SPITTLEBUGS - MICHIGAN - Infestations very evident on all susceptible crops. There is great variation in size of nymphs in different infestations. Infestation general over southern half of State. (Hutson, May 23). OHIO - Philaenus leucophthalmus numerous on untreated strawberries in southern area. (Stehr). OREGON - P. leucophthalmus nymphs reaching maturity week of May 21 on strawberries; above average in abundance. Counts of 2-30 spittle masses recorded for 12 Willamette Valley fields. (Rosenstiel).

A THRIPS (Frankliniella occidentalis) - CALIFORNIA - Adults medium on strawberry in Chatsworth, Los Angeles County. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - WISCONSIN - Continues to infest strawberries in Waukesha County. (Wis. Coop. Sur.).

A STRAWBERRY SAWFLY (Empria maculata) - INDIANA - Larvae causing considerable damage to strawberries in older plantings in Lafayette area, Tippecanoe County. Damage in 2-year-old plantings confined to field margins. (Chandler).

SLUGS - WASHINGTON - Populations of various species unusually high; damaging vegetable crops in Puyallup Valley. (Howitt). OREGON - Primarily Derocerus reticulatum, damaging several crops in Willamette Valley. Cool, wet weather has encouraged development and infestations are reported on strawberries, cauliflower and seedling truck crops. (Capizzi).

TOBACCO INSECTS

HORNWORMS (Protoparce spp.) - GEORGIA - Eggs found in fields of tobacco in Tift, Berrien, Cook, Colquitt, Brooks, Lowndes, Ware, Pierce, Wayne, Tattnall and Candler Counties. Egg deposition heavy in some fields. (Johnson). Light larval infestations present in Tift County. (Girardeau). NORTH CAROLINA - First egg of season found May 24 in Pitt County. (Neunzig). First catch of season in light trap at Oxford was P. quinquemaculata on May 2. (Chamberlin).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to moderate on tobacco in Tift, Berrien, Cook, Colquitt, Brooks and Lowndes Counties; moderate to heavy in Ware, Pierce, Wayne, Tattnall and Candler Counties. (Johnson).

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Infestations very light on tobacco in Tift, Berrien, Cook, Colquitt, Brooks, Lowndes, Ware, Pierce, Wayne, Tattnall and Candler Counties. (Johnson).

SOUTHERN GREEN STINK BUG (Nezara viridula) - GEORGIA - Light on tobacco in Evans County. (Powell).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults averaged 3-5 per plant on newly set tobacco in Calvert and St. Marys Counties. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (Anthrenus grandis) - SOUTH CAROLINA - Activity remains light in Florence area; a few adults cut buds in one field in Darlington County. (Taft, Hopkins, Jernigan). GEORGIA - Adult counts ranged 0-4 per 100 cotton plants in Tift, Berrien, Cook, Colquitt, Brooks, Lowndes, Ware, Pierce, Wayne, Tattnall and Candler Counties (Johnson); and 1-3 per 100 plants in Coffee County (Keen). ALABAMA - Overwintering adults appearing in cotton in moderate numbers in southeast area. (Grimes, May 24). MISSISSIPPI - Adults found in 2 of 20 fields examined in delta counties. Average rate per infested field was 75 per acre. Activity on trap plants increased markedly during week with more than 20 weevils on 8 plants in 1 field under observation and activity noted first time in a second field where trap plants are located. In this field, 11 found on trap plants. All weevils in both fields on cotton plants out in field away from hibernating area. (Merkl et al.). LOUISIANA - Weevils found in 1 of 11 fields examined in Tallulah area. An average of 11 per acre found and ranged 0-125 per acre. All fields had received treatments for thrips control. Movement at minimum, due to hot, dry weather. Only 3 weevils recovered from 3 trap plantings and 2 from 3 flight screen traps during period. Percentage of survival in hibernation cages to May 27 was 0.48 compared with 1.34 at same time in 1959. (Smith et al.). ARKANSAS - Winter survival 21.5 percent in southeast area. (Lincoln, Black). TEXAS - Populations mostly light. (Gaines). Counts averaged 59 per acre in McLennan and Falls Counties. (Parenacia, Cowan, Davis).

WIREWORMS - SOUTH CAROLINA - Severe damage reported in some fields in Florence area in combination with damping off; some replanting required. In other fields, most cotton now outgrowing damage. Many larvae pupating so major damage probably now past. (Taft, Hopkins, Jernigan).

THRIPS - SOUTH CAROLINA - Damage to cotton noted in Sumter and Richland Counties. (Nettles, et al.). ALABAMA - Causing severe damage to seedling cotton in Houston, Coffee and Geneva Counties. (Grimes, May 24). MISSISSIPPI - Damage and infestations up over previous week, but still generally light in delta counties. Counts ranged 0-2 per plant, with average count less than 0.3 per plant. Most older cotton out of danger, but younger cotton still susceptible to attack and damage. (Merkl et al.). LOUISIANA - Counts averaged 2.81 per plant in Tallulah area, with counts in untreated fields averaging 3.63 per plant and those in treated fields averaging 0.89 per plant. (Smith et al.). TEXAS - Infestations generally light throughout State, with medium to heavy populations observed in untreated fields. (Gaines). OKLAHOMA - Light infestation of Frankliniella sp., 25 per linear foot, in field in Tillman County. (Hatfield). NEW MEXICO - Light to heavy infestations of F. occidentalis in cotton fields near Tularosa, Otero County. Moderate infestations of same species damaging cotton foliage in Socorro County. (N. M. Coop. Rpt.).

FLEAHOPPERS - ARIZONA - Counts of Spanogonicus albofasciatus averaged 10-20 per 100 sweeps in central area cotton which is just beginning to square. (Ariz. Coop. Sur.). OKLAHOMA - Light infestations of Psallius seriatus, 2 and 3 per linear foot, noted in 2 fields of cotton in Tillman County. (Hatfield). TEXAS - P. seriatus activity increased across State, with nymphs observed in some fields in Hunt County in north central area. (Gaines). Infestation averaged 2.9 per 100 terminals in treated fields and 17.5 in untreated fields in McLennan and Falls Counties. (Parenacia, Cowan, Davis).

APHIDS - SOUTH CAROLINA - Many growers treating in Florence area; considerable damage reported. (Taft, Hopkins, Jernigan). MISSISSIPPI - Very light infestations in delta counties. (Merkl et al.). GEORGIA - Aphis gossypii very light on cotton in 13 counties; heavy in Pierce County. (Johnson). OKLAHOMA - A. gossypii very light in 1 field of cotton and none in 2 others surveyed in Tillman County. (Hatfield). NEW MEXICO - Light and spotty infestations of A. medicaginis in cotton near Tularosa, Otero County. (N. M. Coop. Rpt.).

BOLLWORMS (*Heliothis* spp., et al.) - GEORGIA - Eggs ranged 3-10 per 100 terminals in Tift, Berrien, Cook, Colquitt, Brooks, Lowndes, Ware, Pierce, Wayne, Tattnall and Candler Counties; and larvae ranged 2-8 per 100 terminals. (Johnson). Larval counts per 100 terminals ranged 2-4 in Dooly County (Fulford) and 0-2 in Coffee County (Keen). TEXAS - Infestations continue light but increasing in some sections of coastal bend, southwest and south central areas. (Gaines).

CABBAGE LOOPER (*Trichoplusia ni*) - CALIFORNIA - Medium infestations locally on cotton in Arvin area and heavy on cotton in Lamont, Kern County. (Cal. Coop. Rpt.). ARIZONA - Infestations very low in cotton statewide. (Ariz. Coop. Sur.). TEXAS - Increasing in many areas. (Gaines).

CUTWORMS - SOUTH CAROLINA - Have been unusually damaging to cotton in Jasper County. (Nettles et al.). MISSISSIPPI - Light infestations reported in delta counties. (Merkel et al.). CALIFORNIA - *Peridroma saucia* larvae heavy in cotton in Lamont, Kern County. (Cal. Coop. Rpt.).

WESTERN YELLOW-STRIPED ARMYWORM (*Prodenia praefica*) - CALIFORNIA - Heavy larval populations on cotton in Lamont, Kern County. (Cal. Coop. Rpt.).

BEE T ARMYWORM (*Spodoptera exigua*) - CALIFORNIA - Medium infestations locally on cotton in Arvin area, Kern County. (Cal. Coop. Rpt.).

CELERY LEAF TIER (*Udea rubigalis*) - CALIFORNIA - Heavy on cotton in Old River area, Kern County. (Cal. Coop. Rpt.).

SPIDER MITES - ALABAMA - Causing moderate to heavy damage to seedling cotton in Lee County. (Rawson, May 24). MISSISSIPPI - Very light infestations general in delta area. (Merkel et al.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SAWFLY (*Neodiprion sertifer*) - INDIANA - Found for first time in Franklin and Jefferson Counties in southern area. (Schuder). MICHIGAN - One-fourth inch long on red and Austrian pines in Washtenaw County, May 5. (Hutson).

PINE SAWFLIES - VIRGINIA - Reports continue regarding pine sawfly damage in several counties. (Rowell). OHIO - Infestations of a pine sawfly reported from northeastern area. (Bossley). Infestations in central and southern areas in scattered Christmas tree plantings. (Holdsworth). MARYLAND - *Neodiprion pratti* continues to feed on Virginia pine at many localities in central and southern areas. (U. Md., Ent. Dept.). NEVADA - Epidemic populations of *Neodiprion edulicolus* on pinon pine in a 75-square-mile area north of Pioche, Lincoln County. (Washburn, May 20).

SPRUCE BUDWORM (*Choristoneura fumiferana*) - MAINE - Heavy infestations in Ashland-Portage area of Aroostook County; 175,000 acres to be treated in June. (Boulanger, May 20). MINNESOTA - Now in fourth instar on St. Paul campus. (Minn. Ins. Rpt.).

SPRUCE BUD MOTH (*Zeiraphera ratzeburgiana*) - MAINE - Moderate infestations. Attacking white spruce in Boothbay-Pemaquid area; damage moderate to tree tips. (Boulanger, May 20).

EUROPEAN PINE SHOOT MOTH (*Rhyacionia buoliana*) - MAINE - Infestations and damage light to moderate on red pine in coastal areas from Freeport to Bath. (Boulanger, May 20).

NANTUCKET PINE MOTH (*Rhyacionia frustrana*) - ALABAMA - Common in Lee County, May 24. (Guyton). GEORGIA - Heavy infestation on pines locally in Colquitt County, May 12. (Miller).

A TUSSOCK MOTH - NEVADA - An epidemic infestation covering about 5,000 acres of white fir present in Snake Range, White Pine County. (Washburn, May 20).

PALES WEEVIL (Hylobius pales) - NORTH CAROLINA - Moderate infestation in pines in Davie County. (Wray).

PINE ROOT COLLAR WEEVIL (Hylobius radicis) - MINNESOTA - Extensive injury to Scotch pine Christmas tree plantation near Brainerd, Crow Wing County. (Minn. Ins. Rpt.).

WHITE PINE WEEVIL (Pissodes strobi) - MARYLAND - Leaders of white pine injured locally in Montgomery County. (U. Md., Ent. Dept.).

SOUTHERN PINE SAWYER (Monochamus titillator) - NORTH CAROLINA - Feeding on white pine needles in Cabarrus County. (Scott).

PINE BARK APHID (Pineus strobi) - INDIANA - Common on white and Scotch pines in Dubois, Harrison and Dearborn Counties. (Schuder). MINNESOTA - Hatching. (Minn. Ins. Rpt.).

PINE LEAF APHID (Pineus pinifoliae) - MAINE - Infestations and damage severe in Freeport area as well as in sections of Somerset, Washington and eastern Penobscot Counties. (Boulanger, May 20).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MINNESOTA - Crawlers on ornamental evergreens such as spruce, white and mugho pines in southern area. (Minn. Ins. Rpt.). WYOMING - Light infestation on pines near Baggs and Rawlins in Carbon County. (Fullerton).

PINE TORTOISE SCALE (Toumeyella numismaticum) - ALABAMA - Moderate to heavy infestations in Cullman County. (Pinkston, May 24).

PINE SPITTLEBUG (Aphrophora parallela) - INDIANA - Locally heavy in pine plantings in Dubois, Harrison and Dearborn Counties. (Schuder). MARYLAND - Common on Virginia and loblolly pines in central and southern sections. An increase noted over recent years. (U. Md., Ent. Dept.). DELAWARE - Nymphs fairly common in several areas of Sussex County on Virginia and loblolly pines. (Burbutis, Mason).

A SPITTLEBUG - ALABAMA - Moderately damaging young pines in Cullman County. (Grimes, May 24).

PINE NEEDLE MINER (Exoteleia pinifoliella) - DELAWARE - Adults emerging in Sussex County. (Burbutis, Mason).

ELM SPANWORM (Ennomos subsignarius) - NORTH CAROLINA - Larvae started defoliation of deciduous trees in Cherokee County this year. (Neave).

FALL CANKERWORM (Alsophila pometaria) - INDIANA - Numerous on deciduous trees in Lafayette area. Damage negligible. (Chandler). WEST VIRGINIA - Heavy defoliation of elm in Ohio County. (W. Va. Ins. Sur.).

CANKERWORMS - CONNECTICUT - Abundant on foliage of oak and other hardwoods in New Haven County. Considerable defoliation expected. (Johnson). MISSOURI - Continue troublesome on elms, roses and other ornamentals. (Wkly. Rpt. Fr. Grs.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - CONNECTICUT - Very abundant on wild cherry, many trees completely defoliated. (Johnson). MAINE - Hatched late in April. Moderate in Kennebec County, particularly in Readfield and moderate on roadside brush in Fairfield Center area of Somerset County. (Boulanger, May 20).

LEAF ROLLERS - PENNSYLVANIA - Argyrotaenia velutinana and Archips rosaceana a problem on trees in southeast. (Menusan). Depredation by an oak leaf roller on oak, found in Clinton and Lycoming Counties, may be very extensive across the upper half of State. (Drooz). COLORADO - Unidentified species of a leaf roller numerous on trees and shrubs in Denver. (Colo. Ins. Sur.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - NEW MEXICO - Larvae damaging elms and cottonwood trees in Albuquerque area of Bernalillo County. (N. M. Coop. Rpt.).

A GALL MITE (Aceria parapopuli) - CALIFORNIA - Heavy on Populus fremontii in the area west of Lone Pine, Inyo County. (Cal. Coop. Rpt.).

COLUMBIAN TIMBER BEETLE (Corthylus columbianus) - INDIANA - Actively invading soft maples in Dubois County, May 25. (Schuder).

A BARK BEETLE (Pseudopityophthorus pubipennis) - CALIFORNIA - Heavy on deciduous oak in Lafayette, Contra Costa County. (Cal. Coop. Rpt.).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - MINNESOTA - Active in southeastern counties. (Minn. Ins. Rpt.). WISCONSIN - Emerging in large numbers. (Wis. Coop. Sur.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OREGON - Abundant, with larvae present at Eagle Point, Jackson County. (Goeden). UTAH - Damaging elm foliage near Granger, Salt Lake County. (Knowlton). MINNESOTA - Active in Twin City area. (Minn. Ins. Rpt.). OKLAHOMA - Feeding activity increased in central area. Control underway in some cities in area. (Howell). NORTH CAROLINA - Heavy feeding on elms in Columbus County. (Wray).

ELM CALLIGRAPH (Calligrapha scalaris) - OKLAHOMA - Hatch of first-generation larvae well underway in south central area. Overwintered adults still present in light numbers in same area. (Vinson).

LOCUST LEAF MINER (Chalepous dorsalis) - MARYLAND - Adults feeding on black locust foliage in several southern counties. (U. Md., Ent. Dept.). OHIO - Feeding by adults noticeable in Belmont County. (Walker).

ELM LEAF MINER (Fenusa ulmi) - PENNSYLVANIA - General and quite heavy on elm in the southeast. (Menusan).

BIRCH LEAF MINER (Fenusa pusilla) - OREGON - Adults emerged and ovipositing in birch plantings at several Portland nurseries. (Nicolaison). OHIO - Eggs and first larvae in Stark County. (Walker).

AN ASH BUG (Neoborus illitus) - CALIFORNIA - Heavy populations on sycamore and Modesto ash in Valley Springs, Calveras County. (Cal. Coop. Rpt.).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - VIRGINIA - Silver maples in Abingdon, Washington County unusually severe. (Derting). NORTH DAKOTA - Galled leaves on soft maple from mite infestations common in Fargo area. (N. D. Ins. Sur.).

BOXWOOD PSYLLID (Psylla buxi) - RHODE ISLAND - Nymphs moderate on boxwood in Wakefield. (Kerr).

BOXELDER APHID (Periphyllus negundinis) - NEVADA - Light on boxelder in White Pine County and Pioche, Lincoln County; moderate to heavy in southern Washoe County and very heavy in Panaca, Lincoln County. Severe damage to trees in latter area. (Bechtel, May 20). UTAH - Becoming numerous in localities of Davis County. (Knowlton).

ROSE-SLUG (Endelomyia aethiops) - MISSOURI - Damage to roses in Columbia. (Wood). Heavy infestations on multifloral roses in southwest area. (Munson, Thomas, Kyd).

A MEALYBUG (Pseudococcus olivaceus) - CALIFORNIA - Infestation on yucca in a nursery property in Brea, Orange County. First report for State. Collected by C. Jackson and W. Amling. Det. R. F. Wilkey. (Cal. Coop. Rpt.).

A LEAF BEETLE (Calligrapha sigmoides) - WASHINGTON - Adults damaging hollyhock at Pullman. (James).

A FLEA BEETLE (Altica viridana) - PENNSYLVANIA - Eating many holes in leaves of ornamentals in a nursery. Especially severe on laurel and rhododendron near woods, May 6 at Avonmore, Westmoreland County. Det. D. M. Weisman. (Udine).

SCALE INSECTS - SOUTH CAROLINA - Two thousand azalea plants affected with a peony scale. (Nettles et al.). MAINE - Gossyparia spuria crawlers reported hatched in Orono area. (Boulanger, May 20). NEVADA - An unspecified species scattered, but moderately to heavily infesting pinon pine in Wheeler Peak area, White Pine County. What appears to be same insect present on pinon pine in Mountain Springs Summit area, Clark County. Smaller trees have lost and expected to lose most of their needles due to the pest. (Bechtel, Washburn; May 20). CALIFORNIA - Lepidosaphes ulmi heavy on lilacs in Auburn, Placer County. Aspidiotus perniciosus medium on birch and prune in San Diego, San Diego County. Heavy populations of Asterolecanium sp., prob. arabidis, on Ceanothus sp. in Ukiah, Mendocino County. (Cal. Coop. Rpt.). WASHINGTON - Lecanium fletcheri on arborvitae in Prosser, Benton County; previously recorded on arborvitae at Pullman, Whitman County, in 1958. (Johansen).

LACE BUGS - NEW JERSEY - Generally active on andromeda and active on azaleas in southern area. (Ins.-Dis. Newsl., May 24). MARYLAND - Severe injury to azalea by Stephanitis pyrioides at several locations in Prince Georges and Montgomery Counties. (U. Md., Ent. Dept.).

APHIDS - NEVADA - Cinara sp. light, scattered infestations on pinon pine in Mountain Springs Summit area, Clark County. (Bechtel, Lauderdale, Washburn; May 20). MISSOURI - Unidentified aphids damaging roses and chrysanthemums. (Wkly. Rpt. Fr. Grs.). MARYLAND - Unspecified species abundant on rose, chrysanthemum, pyracantha and other ornamentals over State. (U. Md., Ent. Dept.).

SPIDER MITES - GEORGIA - Heavy on oxalis and azaleas in Grady County, May 21. (Crowover).

INSECTS AFFECTING MAN AND ANIMALS

AMERICAN DOG TICK (Dermacentor variabilis) - MAINE - Heaviest infestation ever seen by natives in Oxford-Otisfield area (Oxford and Cumberland Counties), also common in Yarmouth area of Cumberland County. Attacking humans in both places. (Boulanger, May 20). RHODE ISLAND - General infestations continue high throughout State causing local concern. (Hansen, Mathewson). KENTUCKY - Various specimens collected in central and northern areas. At least one case of tick paralysis reported to be diagnosed on sheep. (Rodriguez). NORTH CAROLINA - Annoying to humans in Wake County. (Wray). INDIANA - Nymphs active in Dubois and Dearborn Counties. (Schuder). MINNESOTA - Very abundant in Twin City area. One report of heavy infestations on riding horses. (Minn. Ins. Rpt.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Counts per animal averaged 4 on calves, 20 on cows and 30 on bulls in a herd of 142 beef animals in Johnston County. (Vinson). Counts of 15 per animal on beef cows in Pushmataha County. (Goin).

BLACK FLIES - MAINE - Simulium sp. annoying in Kennebec County, May 7 and reported biting on May 13. Abundant in Orono area, May 20. (Boulanger). UTAH - Simuliids annoying horses and swarming about people in areas of Box Elder County. (Knowlton).

MOSQUITOES - MAINE - Becoming numerous over most of State, May 20. (Boulanger). DELAWARE - Aedes sollicitans rather abundant and annoying in one area of eastern Kent and Sussex Counties. (Burbutis, Mason). WISCONSIN - Annoying numbers of mosquitoes emerged in several areas. (Wis. Coop. Sur.). MINNESOTA - Of 627 larval mosquito collections made during May 15-21, 236 were Aedes vexans and 246 Culiseta inornata. Following the heavy mid-May emergence in the Itasca State Park area, Aedes intrudens, A. communis, A. trichurus and A. implicatus are causing most of the nuisance now. (Minn. Ins. Rpt.). NEBRASKA - Culiseta inornata abundant in areas where permanent water exists. Mosquito populations late due to climatic conditions. (Rapp). TEXAS - Culiseta inornata was taken throughout Jefferson County in April but disappeared in May. Mansonia perturbans taken in light traps in May. (Thompson). UTAH - Mosquitoes annoying in areas of Carbon County, at Green Bay in Emery County and at Moab in Grand County. (Knowlton). NEVADA - Heavy adult population of Aedes dorsalis present and biting in Alamo and Panaca, Lincoln County. Light populations of Anopheles freeborni in Panaca. (Bechtel, May 20). CALIFORNIA - Sharp increase in mosquito populations in many areas of Sacramento Valley. Aggressively biting residents and farm animals. Late local rains apparently contributing to increase. (Vect. Cont.)

HORN FLY (Siphona irritans) - WEST VIRGINIA - Population increasing on cattle generally over State. (W. Va. Ins. Sur.). KANSAS - Light in one herd of cows in Washington County. (Gates, Peters). OKLAHOMA - Counts remained constant on range cattle checked in Payne and Noble Counties. Counts per animal averaged 750-1,000 on cows and 3,000-4,000 on bulls. (Howell). Counts per animal averaged 125 on cows and 500 on bulls in a herd of 142 animals in Johnston County (Vinson) and 500 on cows and 800 on bulls in a herd of beef cattle in Pushmataha County (Goin). NEW MEXICO - Populations appear to be decreasing on range herds in southern counties. (N. M. Coop. Rpt.).

BITING MIDGES - UTAH - Ceratopogonids annoying people on farms in Box Elder and Weber Counties near the Great Salt Lake. Troublesome in areas of Carbon and Grand Counties. (Knowlton).

CATTLE GRUBS (Hypoderma spp.) - VIRGINIA - Annoying dairy cattle considerably in Montgomery County. (Turner).

FACE FLY (Musca autumnalis) - VIRGINIA - An average of 10 flies per head on herd in Montgomery County. (Turner).

HOUSE FLY (Musca domestica) - NEBRASKA - Populations increasing in Omaha stockyard area. (Rapp).

FALSE STABLE FLY (Muscina stabulans) - NORTH DAKOTA - Accidental intestinal myiasis in a child reported at Fargo. (N. D. Ins. Sur.).

A BLOOD-SUCKING CONENOSE (Triatoma sp.) - NEW MEXICO - Heavy infestation in a home near La Cruces. Members of family report being bitten. (N. M. Coop. Rpt.).

STORED-PRODUCT INSECTS

CARPET BEETLES - NORTH CAROLINA - Anthrenus verbasci heavy in a mill in Mecklenburg County. (Johnston, Wray). TEXAS - Cast skins of Attagenus piceus 2-3 inches deep on floor of a mill in Lubbock County. (Payne). Heavy infestations (90 percent adults) widely distributed throughout a mill in same county. (Hanson).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - MAINE - Heavy infestations reported in food supplies in the Augusta area; damage not estimated. (Boulanger, May 20).

A LESSER RICE BORER (Sitophilus sasakii) - NORTH CAROLINA - Previously reported in the State by Floyd and Newsom (Ann. Ent. Soc. Amer., 52(6):687-659). Generally distributed over the Piedmont and Coastal Plain in stored grain. (Campbell).

BENEFICIAL INSECTS

LADY BEETLES - ILLINOIS - Adults of unspecified species range 10-280 per 100 sweeps and larvae 0-240 per 100 sweeps in alfalfa and clovers. (Ill. Ins. Rpt.). KANSAS - Hippodamia convergens adult and larval counts averaged less than one per sweep in alfalfa and less than one per foot of row in wheat, barley and oats in central and north central sections. (Peters). OKLAHOMA - Populations of various species continued to build up over State. Heavy in central and north central area small grains; medium to heavy in alfalfa surveyed over State. Populations materially reducing aphid populations in a few areas. (Okla. Coop. Sur.). COLORADO - Counts of H. convergens, H. parenthesis and H. quinguesignata ranged 10-40 per 100 sweeps in Larimer, Weld, Adams and Morgan Counties. (Colo. Ins. Sur.). WYOMING - Hippodamia sp. adults averaged one per 25 sweeps in alfalfa near Baggs, Carbon County. (Fullerton).

A FLOWER BUG (Orius sp.) - ARIZONA - Averaged 5-10 per 10 sweeps in alfalfa in central section. (Ariz. Coop. Sur.).

LACEWINGS (Chrysopa spp.) - ARIZONA - Counts very high in Yuma County cotton fields; average 9 per 10 sweeps. Populations average 5-10 per 10 sweeps in alfalfa statewide. (Ariz. Coop. Sur.). ILLINOIS - C. oculata adults range 0-10 per 100 sweeps in alfalfa and clovers. (Ill. Ins. Rpt.).

NABIDS (Nabis spp.) - ILLINOIS - Counts ranged 0-40 per 100 sweeps in alfalfa and clovers. (Ill. Ins. Rpt.). OKLAHOMA - Numbers continued to increase gradually throughout State. Populations ranged light to medium, these being the second most common beneficial insects. (Okla. Coop. Sur.). SOUTH DAKOTA - Few found on alfalfa in east central and central areas. (Mast). WYOMING - Adults averaged 2 per 25 sweeps in 12 fields of alfalfa in Carbon County near Baggs. (Fullerton). ARIZONA - Counts very high; 8-15 per 10 sweeps in alfalfa statewide. (Ariz. Coop. Sur.).

SYRPHIDS - COLORADO - Larvae ranged 0-20 per 100 sweeps on alfalfa in Adams, Weld, Morgan and Larimer Counties. (Colo. Ins. Sur.).

PREDATORS - MINNESOTA - Populations of various species generally low in alfalfa. (Minn. Ins. Rpt.).

HONEY BEE (Apis mellifera) - RHODE ISLAND - Many swarms observed throughout the State. (Hansen, Matthewson).

HYMENOPTEROUS PARASITES - COLORADO - Blathypectes curculionis ranged 20-30 per 100 sweeps of alfalfa in Larimer, Weld, Morgan and Adams Counties. (Colo. Ins. Sur.).

MISCELLANEOUS INSECTS

SCARABAEIDS - MICHIGAN - Adults of unspecified species coming to lights for past 8 days at East Lansing. (Hutson, May 23). MAINE - Phyllophaga sp. found in light trap at Orono, May 21 and 22. Also reported flying in York County on May 16 and first flight observed in Augusta area on May 17. (Boulanger). FLORIDA - Two specimens of Phyllophaga infidelis, a very rare species, were collected in a light trap at Monticello, Jefferson County, on May 17 by A. M. Phillips. (Fla. Coop. Sur.). Large numbers of P. debilis taken at lights in Gainesville, Alachua County, May 23. (Woodruff).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - First adult of season found May 23 in New Hanover County. (Sessions, White).

ELM LEAF BEETLE (Galerucella xanthomelaena) - MAINE - Moderate numbers reported troublesome in homes in southern part of State, when leaving overwintering quarters. (Boulanger, May 20).

FURNITURE CARPET BEETLE (Anthrenus flavipes) - DELAWARE - Several infestations found in homes in New Castle County. (Burbutis, Mason).

WHITE-LINED SPHINX (Celerio lineata) - TEXAS - Heavy numbers crossing highway in Childress County; crossing area covered about one mile. (Preston).

NOCTUIDS - OREGON - Blacklight trap collections at Salem reveal frequent flights of Agrotis ipsilon and Autographa californica. (Larson).

A MIRID (Microphylellus modestus) - DELAWARE - Adults and nymphs abundant on terminal leaves of elm in Sussex County. This is the first report of this species from the State. (Burbutis, Mason).

ORIENTAL COCKROACH (Blatta orientalis) - OHIO - A common pest of homes in Columbus area. (Holdsworth).

LITTLE HOUSE FLY (Fannia canicularis) - CALIFORNIA - Large populations continue to occur on plants, trees and around houses; dead and dying from the fungus Entomophthora muscae. (Cal. Coop. Rpt.).

CARPENTER BEE (Xylocopa virginica) - MARYLAND - Observed in eaves of a house in Olney, Montgomery County. (U. Md., Ent. Dept.). NORTH CAROLINA - Nesting in timbers of a house in Wake County. (Wray).

PAVEMENT ANT (Tetramorium caespitum) - MARYLAND - Troublesome around homes in Prince Georges, Montgomery and Howard Counties. (U. Md., Ent. Dept.).

A CARPENTER ANT - NORTH DAKOTA - Adult flights of an unspecified species occurring in Fargo area; numerous inquiries received from homeowners. (N. D. Ins. Sur.).

TERMITES - OHIO - Reports of swarms received daily throughout May from Franklin County. (Holdsworth). NORTH CAROLINA - A subterranean species, probably Reticulitermes flavipes, swarming in several locations in Scotland County and heavier than in previous years. (Alford).

HOUSE CENTIPEDE (Scutigera coleoptrata) - RHODE ISLAND - Causing concern in houses in Narragansett. (Hansen).

SLUGS - MAINE - Unspecified species troublesome around homes in Portland, Cumberland County; infestations moderate and damage light. (Boulanger, May 20). PENNSYLVANIA - On the increase and general in southeast area. (Menuzan).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Prod. ornith.	Perid. saucia	Protoparce sexta	quinq.	Heliothis zea	vires.
ALABAMA								
Auburn 5/6,10,17	2	1	1	1			6	1
ARKANSAS								
Morrilton 5/12-25		8		4			41	
Kelso 5/12-25	17	27					10	
Fayetteville 5/12-25	4	4		2			8	
FLORIDA								
Quincy 5/17			2		2			
Gainesville 5/24	2	4					4	
ILLINOIS								
Urbana 5/20-26	133	8		13				
INDIANA (Counties)								
Lawrence 5/18,19,23,24	62	6		3				
Tippecanoe 5/21-26	84	6		3				
KANSAS								
Garden City 5/14-20	20	8		16		1		
Hays 5/19-23	37	7						
Manhattan 5/20-25	103	31	7	3				
Wathena 5/17-20	20	6		4				
LOUISIANA								
Franklin 5/23,25		5	1		3		1	
Baton Rouge 5/20-26	7	10	51	11	2		35	
Tallulah 5/21-27	3						1	1
MARYLAND								
Fairland 5/23-26	10	4					2	
MISSISSIPPI								
*Stoneville 5/20-26	16	53	41	19	38		42	1
NEBRASKA								
North Platte 5/18-24	283	68		299				
Kearney 5/19-24	67	39		19				
Lincoln 5/22-27	435	47		14				
NORTH CAROLINA								
Faison 5/26		6	13		3	3	2	
SOUTH CAROLINA								
Charleston 5/23-29	9	19	24	8	9		6	1
Clemson 5/21-27	37	12	31		25	30	94	
TENNESSEE (Counties)								
Monroe 5/17-23	14	2					1	
Maury 5/17-23	18	6	6	2	2	4	14	
Cumberland 5/17-23	14	4						
Greene 5/17-23	7							
Blount 5/17-23	65	31		1			23	
Johnson 5/17-23	436	130		10			2	
TEXAS								
Brownsville 5/16-20		395	15		1	1	121	
Waco 5/21-27	10	2	9	19			12	2

* Two traps - Stoneville

HAWAIIAN INSECT NOTES - JANUARY-MAY 1960

AN ICHNEUMONID (Coccygomimus punicipes) - A female was reared from a cocoon of a noctuid, Catabena esula, on lantana in May 1959 on Maui, by Dr. George Butler, Jr. (Fullaway, Jan.). AN OLETHREUTID (Episimus argatanus) - Specimens of a moth whose larvae feed on Brazil peppertree (Schinus terebinthifolia) were determined as this species by Dr. J. D. Bradley of the British Museum (Natural History), London. A CICADELLID (Acinopterus angulatus) - A male of this migrant leafhopper was collected from roadside vegetation near Ewa, Oahu, on February 4. The species appears to be established on Oahu, although seemingly quite rare as yet. It was first reported there in August 1958 from a single female taken in a H,S,P.A. light trap at Ewa, and again in August 1959 from a specimen collected by Ford in a light trap at Hickam Air Force Base. (Beardsley, Feb.). A GEOMETRID (Anacamptodes fragilaria) - While visiting the Waianae district, Oahu, on January 21, a serious defoliation of Laucaena glauca was noted in the vicinity of Keaau Beach Park. Defoliation was 100 percent in some areas, followed by damage to klu (Acacia farnesiana) and kiawe (Prosopis chilensis). The larvae involved in this outbreak appeared to be second brood and between first and third instars. (Davis, Garth; Feb.). A TINGID (Teleonemia scrupulosa) - Attention was called to the fact that this insect, an American species purposely introduced, is still feeding and breeding extensively on Myoporum sandwicense, a native plant, on the coral plains of Barbers Point, Oahu. This species was first recorded on this host at Barbers Point in 1954 and it is deemed worth recording that it can still be found because of the apparent danger that Myoporum will soon disappear from the area in consequence of its development as an industrial site. The Teleonemia-Myoporum relationship seems now well established in other areas of Oahu and Hawaii besides Barbers Point, indicating a permanent modification of the habits of Teleonemia. A COCKROACH (Diploptera punctata) - Branches of a croton hedge were extensively decorticated, presumably by this species, which was found in large numbers in litter accumulated around the base of the bushes. Although other plants are often damaged by this insect in a similar manner, this appears to be the first record of damage to crotons. (Bianchi, Feb.). A LACEBUG (Corythucha morrilli) - Was reported as causing rather severe damage to Gazania rigens in Honolulu. (Dr. Hardy, Feb.).

AN EULOPHID WASP (Zagrammosoma flavolineata) - Reared from Sida fallax heavily infested with larvae of a leaf mining GRACILARIID (Parectopa marginestrigata) and to a lesser degree by the larvae of a bud-feeding OLETHREUTID (Crocidosema plebeiana). The former species is believed to have been the host of this parasite, which has been reported only once before in Hawaii in 1950, as a parasite of a honeysuckle leaf miner (Swezeyula lonicerae). Several other species of eulophid wasps were also reared, but were species previously reported as parasites of P. marginestrigata by Swezey in 1954. BEET LEAFHOPPER (Circulifer tenellus) - Was collected February 25 on Atriplex sp. on margin of a sugarcane field near Barbers Point, Oahu. This was the first report of the species in the State. About a dozen specimens were collected by sweepings of this weed and several dozen more specimens were secured in subsequent visits to the area, indicating that this species is definitely established in the vicinity. Determination was made by Mr. Beardsley. A NOCTUID (Catabena esula) - An adult was collected on a window screen at Mapulehu, Molokai, during January, an indication that this imported enemy of lantana is probably established on the island. A FUNGUS DISEASE (Empusa sp.) - Large numbers of PEA APHID (Macrosiphum pisi) were found February 11 in an alfalfa field at Ewa, Oahu, in a dead and dying condition. Laboratory examination revealed that the aphids were infested with a fungus disease. Mr. Tamashiro of the University of Hawaii expressed the opinion that the fungus was probably a species of Empusa, several species of which are known to attack this aphid species elsewhere. Large numbers of THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) and a MEMBRACID (Vanduzea segmentata) have been observed on several occasions infesting alfalfa at Ewa, Oahu. (Beardsley, Mar.). A TEPHRITID (Acinia fucata) - A pair of this species was recovered from floral heads of Pluchea odorata collected

February 15, at Waiau, Oahu. This is the first recovery of this introduced insect since its liberation at Waiau on October 6, 1959, and would indicate its establishment on this host in the area. (Davis, Mar.). A STEM BORING WEEVIL (Apion antiquum) - Heavily infested Emex in an area at Makahalau, Parker Ranch. A patch of approximately 200 square feet of Emex was heavily riddled by adult feeding. Approximately 4 pounds of emex plants were collected and to March 14 over 2,000 weevils have emerged. The species was introduced from Durban, South Africa, and was liberated on Parker Ranch on January 24, 1957. (Fullaway, Holloway, Tanda, Davis, Baybrook; Mar.). A SPRINGTAIL - An unspecified species appeared during the week of March 6-12 in one of the Mokuleia fields of Waialua Plantation, causing alarm among field men by its unprecedented abundance. (Bianchi, Mar.). A TENEBRIONID (Diaperis maculata) - A colony was discovered March 9 at the Department of Agriculture and Conservation Nursery, clustered in a fungus, Fomes sp., growing on an old piece of log. The first record of this beetle being present in the State was exhibited by Dr. Pemberton in 1947. A single specimen of this species, at that time unidentified, was taken at Iroquois Point in a light trap. It was later identified as this species by Dr. R. E. Blackwelder. (Kim, Mar.). A CERAMBYCID (Chlorophorus annularis) - A specimen of this species, which feeds on bamboo, was collected on the ground at the Department of Agriculture and Conservation Nursery on March 9. (Kim, Mar.). A SCARABAEID (Onthophagus catta) - Specimens were collected in cow dung at Waianae on March 2. The species was introduced by Noel Krauss from Umtali, Rhodesia, in 1957. These beetles are similar to those caught in light traps by Mr. Beardsley at Waipio in August 1959. The species was also found on Waikane, Oahu, March 10. These are the first records of the species from Waianae and Waikane, Oahu. (Kim, Mar.).

BEEF LEAFHOPPER (Circulifer tenellus) - Confirmation on the identification of this species collected in February was received from J. P. Kramer. The species was also collected at several locations on Molokai on March 17. (Beardsley, Apr.). The first attempt for virus transmission with locally collected specimens was negative. (Dr. Carter, Apr.). DIPTERA - Considerable numbers of Scenopinus adventicia and Lucidomphrale lucida were found on Atriplex infested with Circulifer tenellus at Waipio Peninsula, Oahu. (Dr. Gressitt, Apr.).

AN EUPELMID WASP (Eupelmus popa) - Specimens were reared from sorghum heads infested with SORGHUM MIDGE (Contarinia sorghicola), which were collected near Waipahu, Oahu, May 4. E. popa has not previously been reported from Hawaii. (Beardsley, May). A CUCUJID (Psammoecus sp.) - Apparently has not previously been collected in Hawaii. There are two species reported in Fauna Hawaiiensis; however, local collections have specimens of P. insularis, which is the common species. P. pallidipennis was also reported from Oahu. If the present specimens are P. pallidipennis, this is the first report of this species being collected since 1885. A SCOLYIID - An unspecified species, not previously reported from Hawaii, was collected in Wahiawa in February. The species was apparently utilizing the tunnels and the fungus therein for its own use, even though the original infestation was Xyleborus fornicatus in dead Erythrina. AN EULOPHID PARASITE - An unspecified species was reared from an undetermined species of Xyleborus collected in Sapadinus in Halona Valley, Oahu, August 1959. Apparently this is the first record of hymenopterous parasites of adult Xyleborus in Hawaii. (Ford, May).

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE



VOL. 10 NO. 24

JUNE 10, 1960

SB
823
C77
Ent.

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 of Insect Conditions

GRASSHOPPERS moderate to heavy and damaging crops in area of San Miguel County, New Mexico; controls in progress. Adults of Melanoplus bilituratus defectus and nymphs of Oedaleonotus enigma heavy in local areas of California. (pp. 481, 503). EUROPEAN CORN BORER larvae present in areas of Delaware and Maryland. (pp. 481, 490). CORN EARWORM heavy in corn in Laurens County, Georgia, and in Tennessee Valley of Alabama. (pp. 482, 502). ARMYWORM infestations heavy in wheat in localized areas of Custer County, Oklahoma. (p. 482). BROWN WHEAT MITE heavy in wheat in areas of Utah and Idaho. (p. 503). MEADOW SPITTLEBUG moderate to heavy on red clover in central and western Maryland and high populations present along Ohio River in southeastern Ohio. (p. 485). ALFALFA WEEVIL damage increasing and becoming more prevalent in areas of Utah, Nevada and Idaho. (pp. 486, 503, 504). SWEETCLOVER WEEVIL damage to seedling sweetclover heavy in southwestern South Dakota. (p. 486). TOBACCO THRIPS causing considerable damage to peanuts in southeastern Alabama. (p. 502).

CODLING MOTH emergence reported over a wide area. (p. 488). APPLE CURCULIO injury to apple reported near Kansas City, Missouri, and EUROPEAN APPLE SAWFLY heavy on apple trees in areas of New York. (p. 489).

GREEN PEACH APHID heavy and difficult to control on peppers in Hidalgo County, Texas. BEET LEAFHOPPER averages 3.4 per foot of sugar beet row in Sevier and Sanpete Counties, Utah. (p. 503).

THRIPS infestations and damage noticeable in cotton in several states. (p. 493).

BLACK PINE NEEDLE SCALE heavy on about 2,000 acres of jack pine in Wisconsin (p. 495); CANKERWORMS heavy on trees on Long Island, New York, and in Cranston area of Rhode Island; and ELM LEAF BEETLE skeletonizing elm leaves in areas of Illinois (p. 496). MOUNTAIN PINE BEETLE and WESTERN PINE BEETLE infestations on ponderosa pine continue high in area of Washoe County, Nevada. (p. 504).

FACE FLY annoying cattle in Vermont, Indiana and Ohio. (pp. 498, 504).

GREATER WAX MOTH has been a serious problem in New Mexico in weakened honey bee colonies. (p. 503).

INSECT DETECTION: A mint aphid (Phorodon menthae) recorded for first time in Virginia. (p. 492). Two scale insects, Mycetococcus ehrhorni and Aspidiotus osborni, collected for first time in Contra Costa County, California, and another scale insect, A. densiflorae, collected for first time in El Dorado County, California. (p. 497).

CORRECTIONS (p. 500)

ADDITIONAL NOTES (pp. 502-504)

Status of some IMPORTANT INSECTS in the United States. (p. 505).

WEATHER OF THE WEEK ENDING JUNE 6

Warm, dry weather, with temperatures normal to much above normal, was general over most of the western half of the Nation this week, extending eastward into the central Great Plains. Temperatures in other sections averaged near normal, except for continued much-above-normal readings in northern New England. Extremely hot temperatures, with drying winds, were recorded in the central valleys of California during much of the week, extending to the central coast on June 2, when readings of 110° at Sacramento, and 108° at Bakersfield were record-high temperatures for so early in the year, and 102° at the San Francisco Airport and 95° downtown were record-high readings for June there. A large mass of cool air moved southward from the North Central States over the weekend, dropping temperatures appreciably from the central Rocky Mountains to the Great Lakes. Some light frost was recorded in northern Wisconsin.

Precipitation west of the Rocky Mountains fell as very light and scattered showers in isolated sections, but no appreciable amounts were reported as moisture deficits continue to build in several areas. No moisture at all or only very light showers were recorded in southern portions of Texas and Louisiana, Nebraska, the western Dakotas and Montana, and in a small area of northern Alabama and Georgia where extremely dry conditions have developed. Precipitation in most other areas east of the Rocky Mountains fell mainly as local showers and thunderstorms. Amounts ranged from light to heavy with widely varying totals in relatively short distances. Fieldwork made good progress although showers continued to delay activity locally. Some hail, wind, or lightning damage was recorded in local sections of the Middle West, Middle Atlantic States, and New England. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - IDAHO - Range grasshoppers of some species commencing to hatch in numerous southern range areas. (Gittins, May 27). CALIFORNIA - Melanoplus bilituratus defectus adults heavy on alfalfa in Calipatria area, Imperial County; Trimerotropis pallidipennis light on rangeland in Winter area, Yolo County; and Oedaleonotus enigma nymphs heavy on rangeland at Vacaville, Solano County. (Cal. Coop. Rpt.). COLORADO - Melanoplus sp. averaged 1 per 10 square yards on rangeland in Logan County and 10-30 per square yard on conservation reserve land along Prowers-Kiowa County line. In wheat, Melanoplus sp. nymphs ranged 0-1 per square yard in borders in Phillips County; and in alfalfa, M. bilituratus ranged 3-5 per square yard in Washington County. All counts were of second and third-instar nymphs. (Colo. Ins. Sur.). TEXAS - First and second-instar nymphs of Aeoloplides turnbulli, M. bruneri, M. bivittatus and M. packardii averaged 320 per square yard in soil bank margins of Dallam County. (Russell). OKLAHOMA - Light counts of Melanoplus spp., 0-4 per square yard, in pastureland and margins in Roger Mills and Beckham Counties. (Hudson). NEBRASKA - Hatch well underway. Dominant crop species include M. bivittatus and M. bilituratus. Range species include Ageneotettix deorum and Amphitornus coloradus, with adults of M. confusus and Aeropedellus clavatus also present. Populations in Morrill County up to 60 per square yard. (Bell). SOUTH DAKOTA - Nymphal surveys show light populations in central area; average counts 2-3 per square yard along roadsides, although one spot northeast of Pierre showed a population of up to 50 nymphs of M. bivittatus per square yard. Light hatching of first, second and third-instar nymphs of M. confusus noted in southwestern area. (Burge). NORTH DAKOTA - Survey in southwestern counties showed no economic infestations in cropland and in rangeland. First-instar M. bivittatus nymphs observed in an unworked summer-fallow field in Adams County. Nymphs of rangeland species, first to fifth instars, averaged 3-7 per square yard in several locations in Golden Valley and Billings Counties. Moisture now adequate over most of southwest. (Olson). MINNESOTA - Egg development in west central district as follows: M. bivittatus - segmentation complete, some light hatch observed; M. bilituratus - eye-spot to segmentation complete; M. femur-rubrum - coagulated to eye-spot. On light, sandy soils and protected sites, egg development more advanced and some light hatch observed in central, west central and southwest districts. (Minn. Ins. Rpt.). WISCONSIN - M. femur-rubrum eggs coagulated, with a few eye-spot, in light soil areas of Columbia, Green Lake, Waushara, Waupaca, Shawano, Portage and Marquette Counties. M. differentialis eggs also ranged from coagulated to eye-spot in Green Lake County. (Wis. Coop. Sur.). ILLINOIS - Grasshoppers, adults and first-instar nymphs, collected in northern area on alfalfa and clover. (Ill. Ins. Rpt.). DELAWARE - Nymphs of undetermined species common on clover in New Castle County and on soybeans in Sussex County, causing light feeding injury. (Burbutis, Mason).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEBRASKA - Spring survival survey completed in Hall and Cuming Counties, with the percent winter mortality, plus tillage, reported as follows: Hall County (1959-60) - 98.8, (1958-59) - 93.4; Cuming County (1959-60) - 94.5, (1958-59) - 92.3. The average number of borers per acre was as follows: Hall County (fall 1959) - 28,998, (spring 1960) - 346; Cuming County (fall 1959) - 26,169, (spring 1960) - 1,429. (Webb). KANSAS - Examination of cornstalks in Jefferson County on May 26 showed the following: 13 percent of borers in larval stage and 87 percent pupated; 40 percent already emerged. Corn small; little first-brood infestation expected. (Burkhardt). MINNESOTA - Pupation observed in central and west central districts. Corn development slow and behind European corn borer. (Minn. Ins. Rpt.). WISCONSIN - Pupation 8 percent in Fond du Lac County and in excess of 60 percent in Dane County on May 31. (Wis. Coop. Sur.). IOWA - Pupation 92 percent at Ankeny on May 27; no emergence noted. (Iowa Ins. Inf.). ILLINOIS - Pupation complete in central and southern areas; emergence 0-40 percent. Pupation in northern area ranged 50-95 percent, with trace emergence. (Ill. Ins. Rpt.). OHIO - Pupation 100 percent in Franklin County. (Triplehorn). MARYLAND - Small larvae in leaf stalks locally in Dorchester County on May 27. (U. Md., Ent. Dept.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Pupation 80 percent on May 30 in northwest area. (Whitcomb). OKLAHOMA - Moths present in corn in Stillwater area. (Arbuthnot).

CORN EARWORM (Heliothis zea) - GEORGIA - Heavy infestations in whorls of corn in Laurens County; corn approximately 24 inches high. (Johnson). LOUISIANA - Approximately 85-95 percent of sweet corn in southern half of State infested with larvae. In some cases infestations run as high as 100 percent. (Spink). OKLAHOMA - Very light infestations in corn and alfalfa in east central area. (VanCleave, Robinson). TEXAS - Damaging popcorn tassels and tender parts of terminal buds in Guadalupe County (Massey); medium and damaging corn in Zavala County (Prucia).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - New deadhearts averaged 278 per acre at survey points in 101 fields of stubble sugarcane checked in 13 parishes. The accumulative total now averages 490 per acre. No egg masses present. Approximately one percent of first-generation larvae pupated. Infestations in corn less than 1 percent in East Baton Rouge Parish. (Spink).

BLACK CUTWORM (Agrotis ipsilon) - IOWA - Larvae active in western area on field crops. (Iowa Ins. Inf., May 31). NEBRASKA - Cutworms, probably this species, infesting 40 percent of fields checked in Saline, Fillmore, Lancaster, Gage, Pawnee, Johnson, Nemaha and Richardson Counties; and show from less than one to 50 percent injury. Some plants have only a few holes in leaves, while others cut off at soil level. (Simpson). OHIO - Damage to corn, probably by this species, observed in 3 fields in Ross County. (Blair).

DINGY CUTWORM (Feltia subgothica) - MISSOURI - Found in variety of field crops, with most extensive damage to corn. Marginal rows of soybeans and grain sorghum show some injury. Approximately 1 percent of corn in northwest shows considerable damage. (Munson, Thomas, Kyd).

CUTWORMS (undetermined) - ILLINOIS - Reported from various localities in southern one-half of State, with maximum 40 percent damage in one cornfield. Occasional instances of sod webworm damage also reported. (Ill. Ins. Rpt.).

ARMYWORM (Pseudaletia unipuncta) - OKLAHOMA - Isolated infestations, light to heavy (up to 20 per linear foot), in limited number of wheat fields in Washita County; none noted in most fields checked in county. (Hudson). Heavy infestations in localized areas of Custer County; wheat fields affected primarily those having rank growth in river bottoms. (Patrick). KANSAS - Reported on wheat in Sedgwick County. (Gates). MINNESOTA - None found. (Minn. Ins. Rpt.). ILLINOIS - Approximately one-fourth to one-half-grown larvae appearing in small numbers in grain and grass fields. One infestation averaged 4 larvae per linear foot. (Ill. Ins. Rpt.). DELAWARE - First larvae of season present in New Castle County. (Burbutis, Mason).

WHEATHEAD ARMYWORM (Faronta diffusa) - COLORADO - Moths averaged 4 per day in light trap at Rocky Ford, Otero County. (Colo. Ins. Sur.).

CHINCH BUG (Blissus leucopterus) - KANSAS - Abundant in several fields of wheat in Marion County. (Gates). OKLAHOMA - Danger of damage decreasing in east central area. (VanCleave, Robinson). TEXAS - Medium to heavy infestations in corn and grain sorghum in Lee County. (Texas Coop. Rpt.).

BARLEY APHIDS - OREGON - Spring barley continues practically free of barley yellow dwarf virus aphid vectors. This is believed to be result of cold weather in March, reducing overwintering vectors on perennial grasses and winter cereals; and high populations of coccinellid adults. Field infestations range none to 4 percent of plants infested. This contrasts with 1958 and 1959, when infestations at this stage of development were 23 percent and 29 percent, respectively. (Dickason).

ENGLISH GRAIN APHID (Macrosiphum granarium) - NEBRASKA - Low number of this species and Rhopalosiphum fitchii present in a few grain fields; highest counts less than 5 per 10 sweeps. (Simpson). WISCONSIN - In northeastern Dane County, 24-inch rye had 6 per 50 sweeps. Counts in oats ranged 2-3.5 per 100 sweeps in Fond du Lac, Winnebago and Green Lake Counties. (Wis. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEBRASKA - Counts in sorghum in Otoe, Gage and Lancaster Counties averaged 20 per foot of row. Very low numbers of winged forms present on young corn plants. (Simpson). KANSAS - Large numbers collected in air-sock and air-maze traps at Garden City Experiment Station, Finney County. Light in barley plots on the station and barley fields in Garden City area. (DePew).

A RICE DELPHACID (Sogata orizicola) - LOUISIANA - Negative results from 1,200 sweeps of 300 acres of rice in St. Landry Parish. (Spink).

RICE STINK BUG (Oebalus pugnax) - LOUISIANA - Averaged 117 per 10 sweeps on grasses associated with rice in St. Landry Parish. (Spink).

HESSIAN FLY (Phytophaga destructor) - MICHIGAN - Emergence complete May 23 at East Lansing and Cassopolis, with only a few stragglers appearing daily. (Hutson).

CORN FLEA BEETLE (Chaetocnema pulicaria) - NEW YORK - Counts fewer than 1 per 100 sweet corn plants on May 26 in Stone Ridge-Hurley area of Ulster County. In Dutchess County on May 27, counts in Poughkeepsie vicinity numbered 6 to as high as 18 per 100 sweet corn plants, with marks ranging from 75 percent to about 100 percent on the 3 lower leaves. Stewart's disease present in 5 of 1,000 plants examined in one field and 2 of 500 in another at Poughkeepsie. (N. Y. Wkly. Rpt.). MARYLAND - Common and injuring sweet corn in Calvert, Baltimore and Montgomery Counties. (U. Md., Ent. Dept.). NORTH CAROLINA - Light infestation in cornfield in Duplin County. (Albertson, Lauffer). ILLINOIS - Varies 12-100 per 100 corn plants in southern area. (Ill. Ins. Rpt.). KANSAS - Several fields of corn infested in Jefferson and Shawnee Counties; counts ranged 11-14 adults per seedling plant of corn. (Burkhardt, May 28).

A CARABID (Clivina sp.) - SOUTH DAKOTA - Injuring corn seed planted in Butte County; estimates as high as 50 percent loss of seed in some areas. (Hantsbarger).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - LOUISIANA - Larvae averaged 23 per stool in one rice field and 8 per stool in another field in Allen Parish. (Spink).

WHITE GRUBS - ILLINOIS - Destroyed 3 fields of corn; one in Douglas, one in Livingston and one in La Salle County. (Ill. Ins. Rpt.). SOUTH DAKOTA - Scattered infestations of Phyllophaga sp. appearing in corn, flax and small grains adjacent to shelterbelts throughout east central area. Severely damaged spots range 2-15 acres, with populations up to 30 grubs per acre. Treatment underway. (Hantsbarger).

WIREWORMS - NORTH CAROLINA - Wireworms, chiefly Melanotus communis, infesting 5-30 percent of corn in 6 fields in Roanoke River Valley. M. communis, Conoderus lividus and Glyphonx sp. all actively feeding on corn in Hyde County. Two fields, 70 percent infested, plowed under and an adjacent field 40 percent infested. (Kulash). SOUTH CAROLINA - Several specimens of Horistonotus uhlerii found damaging peanuts in Allendale County; none found this season in Colleton, Bamberg and Hampton Counties. (Nettles et al.). ILLINOIS - Light infestations of unspecified species on corn in several southern locations. (Ill. Ins. Rpt.). WISCONSIN - Counts in lowland cornfield averaged 20 per 100 corn plants. (Wis. Coop. Sur.). IDAHO - Undetermined species have so seriously reduced a 600-acre wheat stand in Power County that replanting required. Light injury also observed in some wheat and barley in Bingham County. (Bishop, May 27).

CHINCH BUGS (Blissus spp.) - NEW JERSEY - Overwintered adults of B. leucopterus hirtus active in lawns in Bergen County. (Ins.-Dis. News1.). SOUTH CAROLINA - An early outbreak of B. leucopterus insularis found in lawns in Jasper County. (Nettles et al.).

A WHITE GRUB (Phyllophaga ephilida) - MARYLAND - Damaged a lawn at Kensington, Montgomery County. (U. Md., Ent. Dept.).

ERIOPHYID MITES - ARIZONA - Evidence of severe injury observed in many lawns in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

MEADOW PLANT BUG (Leptopterna dolabratus) - MARYLAND - Common on orchardgrass hay in Montgomery and Howard Counties. (U. Md., Ent. Dept.).

PEA APHID (Macrosiphum pisi) - NEW YORK - Counts per 100 sweeps in Oswego County on May 26 were 415 on red clover and 5,400 on alfalfa. (N. Y. Wkly. Rpt.).

DELAWARE - Present in alfalfa in Kent County; averaged 2 per 10 sweeps. (Burbatis, Mason). MARYLAND - Light on second-growth alfalfa in Howard, Calvert and Harford Counties. (U. Md., Ent. Dept.). ILLINOIS - Ranged from 10 per 100 sweeps in northern area to 100-15,000 in central area in alfalfa and clover. (Ill. Ins. Rpt.). WISCONSIN - Counts per sweep in alfalfa by counties during period May 26-June 1 were as follows: Jefferson - 100 plus; northeastern Dane - 15; Columbia - 14; Dodge - 23; Fond du Lac - 5; Marquette - 25; Green Lake - 22; Waushara - 3; Winnebago - 30; Waupaca - 1. (Wis. Coop. Sur.). MINNESOTA - Populations in alfalfa low in central, west central and southwest districts; counts ranged 1-10 per 10 sweeps. (Minn. Ins. Rpt.). NORTH DAKOTA - Continues low in legumes, although a slight increase noted in southeast; counts average 1 per net sweep. (N. D. Ins. Sur.). NEBRASKA - Building up in all southeastern counties; infestations range 200-1,000 per 10 sweeps and average 700. First cutting complete in 30 percent of fields. (Simpson). Averaged 794 per 100 sweeps in sweetclover in Cass and Lancaster Counties. (Manglitz). KANSAS - Heavy on alfalfa in Sedgwick County. (Burkhardt). OKLAHOMA - Light infestations, 1-10 per sweep, in alfalfa in east central area (VanCleave, Robinson); light to medium, 18-110 per sweep, in alfalfa and clover in Choctaw County (Goin); light, 5-15 per sweep, in alfalfa in Johnston and Carter Counties (Vinson); light in Pontotoc County (Hailey); light in fields checked in southwest area (Hatfield); light in Noble County (Hesser); medium, 60-150 per sweep, in Garfield and Major Counties (Owens); very light in alfalfa in Woodward County (Howell). Fungi reported controlling aphid populations in an alfalfa field in Payne County during mid-May determined by Dr. E. A. Steinhaus as Entomophthora aphidis and E. thaxteriana. (Howell).

ARKANSAS - Infestations in alfalfa very low compared with infestations a few weeks ago. Averaged only 25 per 25 sweeps of 5-inch net in Washington County. (Boyer). MISSOURI - Populations remain constant; counts in alfalfa and red clover range 10-50 per sweep. (Munson, Thomas, Kyd). CALIFORNIA - Very light on alfalfa in Lakeview area, San Diego County. A new parasite, Aphidius sp., was recently released in abundance. Predators (Nabis sp., Chrysopa sp., Orius sp., Geocoris sp., and coccinellids) also very prevalent. (A. Deal). NEVADA - Averaged 6 per sweep in alfalfa in Reno-Sparks area, Washoe County; averaged 1-2 per sweep in Kings River Valley, Humboldt County. (Parker, Lauderdale; May 27). OREGON - Populations extremely low in legumes in Willamette Valley and in central area. (Dickason). IDAHO - Populations in alfalfa in southwestern and south central areas very low, averaging 1 per sweep in some fields. (Gittins, May 27).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - None found in Reno-Sparks area, Washoe County, or Kings River Valley, Humboldt County. (Lauderdale, Parker; May 27). KANSAS - Building up in Sedgwick County area. (Burkhardt). OKLAHOMA - None noted in alfalfa in east central area (VanCleave, Robinson); only very light infestations, 1-3 per sweep, noted in alfalfa in Choctaw County (Goin); light, up to 4 per sweep, in alfalfa in Johnston and Carter Counties (Vinson); light to medium, 40-500 per square foot of crown area, in alfalfa in southwest (Hatfield);

averaged 10-20 per sweep in alfalfa in Major and Garfield Counties (Owens); very low in alfalfa in Noble County (Hesser); and none noted in alfalfa in Woodward County (Howell). TEXAS - Causing medium damage to alfalfa in El Paso and Houston Counties. (Texas Coop. Rpt.).

SWEETCLOVER APHID (*Therioaphis riehmi*) - NEBRASKA - Counts in clover average 6 per 100 sweeps. (Manglitz). NORTH DAKOTA - Populations in mature sweetclover stands continue low in southeast. (N. D. Ins. Sur.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - NEW YORK - Counts per 100 sweeps in Oswego County on May 26 were 158 in red clover and 55 in alfalfa. (N. Y. Wkly. Rpt.). MARYLAND - Abundant on red clover and alfalfa in central and western sections. (U. Md., Ent. Dept.). DELAWARE - Adults averaged 3-5 per 10 sweeps in alfalfa in Kent and Sussex Counties. Adults and nymphs fairly common in clover in New Castle County. (Burbutis, Mason). MINNESOTA - Nymphs hatching in alfalfa; counts range 0-30 per 10 sweeps in central, west central and southwest districts. (Minn. Ins. Rpt.). MISSOURI - Adults present in all alfalfa checked in north central area; counts ranged 1-6 per sweep. (Munson, Thomas, Kyd).

LYGUS BUGS (*Lygus* spp.) - NEVADA - Averaged 5-8 nymphs per sweep in alfalfa in Reno-Sparks area, Washoe County. (Parker, May 27). ARIZONA - Heavy in alfalfa in Maricopa, Pima, Pinal and Yuma Counties. (Ariz. Coop. Sur.). COLORADO - Adults and nymphs, 40-50 per 100 sweeps, in Logan, Sedgwick and Washington Counties on alfalfa; 100 per 100 sweeps in Montrose County. (Colo. Ins. Sur.). OKLAHOMA - Counts 1-2 per sweep in alfalfa in south central area (Vinson), light in southwest area (Hatfield) and 0.4-1 per sweep in alfalfa in east central area (VanCleave, Robinson). NORTH DAKOTA - Counts average 2 adults per 10 sweeps and 1 nymph per sweep in southeastern legume fields. (N. D. Ins. Sur.).

SIX-SPOTTED LEAFHOPPER (*Macrostelus fascifrons*) - NORTH DAKOTA - Adults continue low in southeast. Survey in small grains and legumes showed 0-16 per 100 sweeps. Counts in many fields averaged 1 per 10 sweeps. (N. D. Ins. Sur.). MINNESOTA - Rarely found in either alfalfa or small grains. (Minn. Ins. Rpt.).

MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) - MARYLAND - Moderate to heavy nymphal populations on red clover in central and western sections. Adults now appearing. (U. Md., Ent. Dept.). DELAWARE - Adults average 2 per 10 sweeps in alfalfa in northwestern Kent County and present in soybeans in New Castle County. Adults abundant on clover, 10 per sweep, in New Castle County. (Burbutis, Mason). OHIO - High populations of nymphs on alfalfa and sweetclover along Ohio River in southeastern area. (Treece). WISCONSIN - Masses becoming more apparent; moderate numbers reported in Crawford, Fond du Lac, Waukesha and La Crosse Counties in alfalfa, but large numbers reported in Lafayette County. (Wis. Coop. Sur.).

POTATO LEAFHOPPER (*Empoasca fabae*) - MARYLAND - Adults averaged 1 per 10 sweeps on second-growth alfalfa in Calvert and Harford Counties. (First of season on alfalfa). (U. Md., Ent. Dept.). DELAWARE - Adults averaged 3-5 per 10 sweeps in Kent County alfalfa. (Burbutis, Mason). ILLINOIS - Populations constant in alfalfa and clover; 0-10 per 100 sweeps in northern area and 40-320 in central area. (Ill. Ins. Rpt.). NORTH DAKOTA - None found. (N. D. Ins. Sur.).

CLOVER LEAFHOPPER (*Aceratagallia sanguinolenta*) - WISCONSIN - Adults averaged 2-3 per 100 sweeps. (Wis. Coop. Sur.). DELAWARE - Adults averaged 4 per 10 sweeps in field of alfalfa in Kent County. (Burbutis, Mason).

RAPID PLANT BUG (*Adelphocoris rapidus*) - MARYLAND - Abundant on red clover and alfalfa in central and western sections. (U. Md., Ent. Dept.). DELAWARE - Adults and nymphs numerous in field of clover in New Castle County. (Burbutis, Mason). WISCONSIN - Nymphs observed May 31 in northeastern Dane County alfalfa (2 per sweep) and averaged 1 per sweep in Dodge and Green Lake County alfalfa. (Wis. Coop. Sur.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - DELAWARE - First adults of season noted in alfalfa in Kent County. (Burbutis, Mason).

PLANT BUGS - NEBRASKA - Nymphal populations heavy in all fields; counts ranged 40-150 per 10 sweeps. (Simpson). ILLINOIS - Ranged 30-70 per 100 sweeps in northern and central areas; about one-half Adelphocoris rapidus and one-half A. lineolatus. (Ill. Ins. Rpt.). MINNESOTA - Hatch of Adelphocoris spp. continues in alfalfa; counts range 1-50 per 10 sweeps in central, west central and southwest districts. Predator populations in alfalfa low in these districts. (Minn. Ins. Rpt.).

ALFALFA WEEVIL (Hypera postica) - NEW YORK - Increasing in Ulster County, with some damage indicated on approximately 5 percent of alfalfa plants. One field in Rockland County had extensive damage by larvae. (N. Y. Wkly. Rpt., May 31). MARYLAND - Larvae averaged 3-10 per sweep in second-growth alfalfa in Calvert and Harford Counties. Damage apparent; cocoons and new adults present. (U. Md., Ent. Dept.). DELAWARE - Larvae, all instars, very common in second-growth alfalfa in Kent and Sussex Counties, with counts averaging 2-3 per sweep. New adults present, with an average of 1.5 per 10 sweeps in Kent County. (Burbutis, Mason). OHIO - Survey in Columbiana, Jefferson, Belmont, Monroe, Noble, Guernsey and Tuscarawas Counties negative. (Treece, May 27). COLORADO - Larvae 10 percent parasitized in alfalfa; counts 5,000 per 100 sweeps in Pueblo, Otero and Crowley Counties. Adults, 2-3 per 100 sweeps, in Prowers County. Larvae, 250-350, and adults, 2-3, per 100 sweeps in Logan, Sedgwick and Washington Counties; 10 percent parasitized. Larvae, 25-30 per 100 sweeps, in Montrose and Garfield Counties. (Colo. Ins. Sur.). IDAHO - Adults extremely abundant, with considerable mating activity but no egg laying, in field near Moscow. Population of overwintering adults greater than previously recorded in area. Moderate infestations causing fairly heavy damage to 30 acres of alfalfa in Kamiah area. (Manis, Dailey; May 27). NEVADA - Heavy larval populations causing moderate to heavy damage in untreated alfalfa fields in Mason Valley, Lyon County, and averaged 8-12 larvae per sweep in several fields in Reno-Sparks area, Washoe County. (Dale, Parker; May 27).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - MARYLAND - Cocoons common in heads and bracts of red clover in central counties. (U. Md., Ent. Dept.). DELAWARE - Larvae present in clover in New Castle County. (Burbutis, Mason). ILLINOIS - Adults vary 0-10 in northern area and 0-40 in central area. (Ill. Ins. Rpt.). WISCONSIN - Adults averaged 2 per 10 sweeps in Dane and Winnebago County red clover. (Wis. Coop. Sur.). IDAHO - Adult feeding general in red clover fields in Canyon and Owyhee Counties. First and second-instar larvae very common and infesting as high as 90 percent of plants examined in some fields. (Waters, May 27).

CLOVER LEAF WEEVIL (Hypera punctata) - OHIO - First emergence of new adults observed in insectary in Wood County on May 28. (Sechriest).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - SOUTH DAKOTA - Damage to seedling sweetclover heavy in southwestern area. (Hantsbarger). NORTH DAKOTA - Injury to sweetclover light in southeast area. (N. D. Ins. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidula) - NEW YORK - Counts per 100 sweeps in Oswego County on May 26 were 6 in red clover and 34 in alfalfa. (N. Y. Wkly. Rpt.).

CLOVER SEED WEEVIL (Miccotrogus picrorostris) - NEW YORK - Counts per 100 sweeps in Oswego County on May 26 were 18 in red clover and 7 in alfalfa. (N. Y. Wkly. Rpt.). ILLINOIS - Averaged 50 per 100 sweeps in white clover locally near Fulton, Whiteside County. (Ill. Ins. Rpt.). WISCONSIN - Adults low in number in Dane County red clover; averaged 5 per 10 sweeps in Winnebago County. (Wis. Coop. Sur.).

A CLOVER WEEVIL (Tychius stephensi) - ILLINOIS - Averaged 4 per 100 sweeps in red clover and alfalfa in northern area. (Ill. Ins. Rpt.).

VARIEGATED CUTWORM (Peridroma saucia) - MISSOURI - Small larvae present most fields of alfalfa, red clover and improved pastures in north central and northwest areas. Populations light, 0-5 larvae per square foot, and averaged 0.5 per square foot. (Munson, Thomas, Kyd). KANSAS - Damaging alfalfa in Sedgwick and Cowley Counties; populations heavy enough to prevent regrowth. Also reported on wheat in Sedgwick County area. (Burkhardt, Gates).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - ARKANSAS - Only about 1 per 50 sweeps of 5-inch net found in alfalfa in Washington County. (Boyer). OKLAHOMA - Very light, up to 0.2 per sweep, noted in small percentage of alfalfa checked in south central, southeast, and east central areas. (VanCleave et al.).

GREEN CLOVERWORM (Plathypena scabra) - ARKANSAS - Only about 1 per 50 sweeps of 5-inch net found in alfalfa in Washington County. (Boyer). OKLAHOMA - Very light, 0-0.6 per sweep, in alfalfa in east central area. (VanCleave, Robinson). Medium in field of alfalfa in Choctaw County; none noted in other fields checked in same area. (Goin). DELAWARE - First larva of season present in alfalfa in Kent County. (Burbutis, Mason).

CLOVER HEAD CATERPILLAR (Grapholitha interstinctana) - ILLINOIS - Adults varied 0-60 per 100 sweeps in northern area and 0-40 in central area. (Ill. Ins. Rpt.). WISCONSIN - Adults averaged 2-3 per 10 sweeps. (Wis. Coop. Sur.).

A CLOVER BUD CATERPILLAR (Grapholitha conversana) - IDAHO - Adults exceedingly abundant, with considerable mating activity noted, in Moscow, Troy, Deary and Harvard areas of Latah County. (Gittins, May 27).

CABBAGE LOOPER (Trichoplusia ni) - OKLAHOMA - Increasing in east central area; counts ranged occasional to 0.6 per sweep in alfalfa. (VanCleave, Robinson). Averaged 0.5 in field of alfalfa in Choctaw County; none found in other fields surveyed in area. (Goin).

FORAGE LOOPER (Caenurgina erechtea) - ILLINOIS - Ranged 0-10 per 100 sweeps in central and northern area. (Ill. Ins. Rpt.).

WEBWORMS (Loxostege spp.) - OKLAHOMA - Very light populations, occasional to 0.1 per sweep, in alfalfa in east central area. (VanCleave, Robinson).

MITES - NEVADA - Medium to heavy infestation on alfalfa in Fallon area, Churchill County, and Lovelock, Pershing County. (Martinelli, Sebbas, Snyder, York; May 27).

THRIPS - GEORGIA - Moderate to heavy infestations on peanuts in Laurens, Burke, Jenkins, Screven and Bulloch Counties. Heavy on field peas in Jenkins County. (Johnson). OKLAHOMA - Continue to increase in alfalfa in southwest area; infestations 15-500 per square foot of crown area. (Hatfield).

VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) - LOUISIANA - Adult found on Louisiana State University campus. (Spink).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Adults common on soybeans in St. Marys County. (U. Md., Ent. Dept.). ARKANSAS - Small numbers, 1 per 25 sweeps of 5-inch net. (Boyer). ILLINOIS - Averaged 1 per linear foot in soybeans. (Ill. Ins. Rpt.). DELAWARE - Adults very common on young soybeans in Kent and Sussex Counties and present on same crop in New Castle County, with noticeable feeding injury along edges of fields. (Burbutis, Mason).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Very common in a field of soybeans in northwestern Kent County. (Burbutis, Mason).

PALE-STRIPED FLEA BEETLE (Systema blanda) - DELAWARE - First adults of season noted in soybeans in Kent County; feeding injury very light. (Burbutis, Mason).

GARDEN FLEAHOPPER (Halticus bracteatus) - DELAWARE - Adults present in soybeans in New Castle County. (Burbutis, Mason).

FRUIT INSECTS

CODLING MOTH (*Carpocapsa pomonella*) - VERMONT - Overwintering forms pupating rapidly, but little emergence has occurred as yet. Moth flight can be expected by June 4-5. (MacCollom, May 31). MASSACHUSETTS - Egg laying has begun. (Crop Pest Cont. Mess.). NEW JERSEY - Entries appearing in apples in southern portion of State. First-brood activity will pick up with first warm days. (Ins.-Dis. Newsl., May 31). NEW YORK - Conditions generally unfavorable for moth flight at Poughkeepsie until May 26; bait trap catches indicated flight activity was slight. Very few eggs found up to May 27, all in early stages of development. Fruit entry probably will not occur in area before June 7 or later. No emergence from cages as of May 27 in Monroe County. (N. Y. Wkly. Rpt., May 31). MARYLAND - Emergence 50 percent in field cages at Hancock, Washington County. First entries in apples noted June 1. (U. Md., Ent. Dept.). MISSOURI - First entry in State reported May 26 near Gray Summit, Franklin County. Fresh entries have been noted since that date in all sections of the State except in the north-west. (Wkly. Rpt. Fr. Gr.). INDIANA - Packing house emergence of adults at Orleans, as indicated by light trap catches, was 80 for May 24-30. This indicates the peak is at hand or has just passed. Delayed first-brood larval entries in apples will occur June 3-8. Frequent rains favor successful entry. (Marshall, May 31). ILLINOIS - Larvae ranging from newly hatched to one-third-grown on apples in Carbondale area June 1. Hatch expected to continue another week as cage emergence has only recently dropped off. (Meyer). MICHIGAN - Began emerging at Grand Rapids on May 29. (Hutson). WISCONSIN - Adults emerging in southeastern area. Four adults taken in blacklight traps at Gays Mills, Crawford County, May 31 and 2 taken in similar trap at Middleton, Dane County, on same night. Moths observed flying on night of May 30 at Gays Mills, but pupation occurred week ending May 28 in Door County. Egg hatching should occur in counties where moths are now present about June 10-15 if weather is warm enough. (Wis. Coop. Sur.). COLORADO - Emergence general in Delta, Mesa, Montrose and Garfield Counties. (Colo. Ins. Sur.). OREGON - First specimens of season noted in bait pots at Hood River, Hood River County, on June 1. (Ellertson).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - WISCONSIN - High populations of adults and eggs reported May 28 in Door County. (Wis. Coop. Sur.). MICHIGAN - Hatching complete on May 28 at Eau Claire, Coloma and Benton Harbor. Hatching 50-75 percent complete at Muskegon, Ionia and Pontiac. (Hutson, May 31). ILLINOIS - Larvae mature in Carbondale area and going into pupal stage. (Meyer, June 1). MISSOURI - Some full-grown larvae found in Kansas City area on June 1. Few partly grown larvae still being found in central area. Quite a few pupae present in Booneville area on untreated trees. Moderate to heavy infestations in northwest area, especially on water sprouts. Continuous protection appears to be indicated. (Wkly. Rpt. Fr. Gr.). NEW YORK - Hatch appears complete in Ulster County; number of orchards infested relatively small. Hatch also complete in Monroe County, except in lake orchards. (N. Y. Wkly. Rpt., May 31). VERMONT - Hatching has begun. (MacCollom, May 31).

FRUIT TREE LEAF ROLLER (*Archips argyrospila*) - IDAHO - Larval populations common to abundant in an abandoned orchard near Moscow. Sampled larvae predominantly third and fourth instars. (Manis, May 27).

OBLIQUE-BANDED LEAF ROLLER (*Archips rosaceana*) - OREGON - Overwintering larvae nearing maturity; pupation will probably occur during next week in Willamette Valley. Abundance is about normal, but prolonged spring rains prevented usual early spring control applications. (Rosenstiel).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - INDIANA - Packing house emergence past peak at Orleans. (Marshall, May 31). ILLINOIS - Larvae have nearly all left twigs and moth emergence is probably beginning in Carbondale area. (Meyer, June 1). MISSOURI - Fresh twig damage remains evident, although peak has passed. (Wkly. Rpt. Fr. Gr.). CALIFORNIA - Heavy infestation in peach in Woodville, Tulare County. This area has not previously had heavy populations. (Cal. Coop. Rpt.). NEW YORK - Traps placed in 3 peach orchards in Rockland County, May 16, averaged 8 per trap at 2 locations and 20 per trap at one location on May 23. (N. Y. Wkly. Rpt.).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - IDAHO - Larvae very abundant; predominantly in last instar, with pupation beginning at Moscow. (Manis, May 27). WISCONSIN - Populations in Door County cherries ranged moderate to heavy May 28, nests being formed in terminal leaves. (Wis. Coop. Sur.). MAINE - Light infestation and damage reported from Aroostook County on apples. (Boulanger, May 27).

PLUM CURCULIO (Conotrachelus nenuphar) - VERMONT - Egg laying began about May 28-29. (MacCollom). MASSACHUSETTS - Remains number one pest of apples. (Crop Pest Cont. Mess.). NEW YORK - Damaging cherries and other fruits in Suffolk County. (N. Y. Wkly. Rpt., May 31). MARYLAND - Mature larvae noted in plum and peach fruits locally in Harford County. (U. Md., Ent. Dept.). WISCONSIN - Light to moderate adult populations present in Door County apple orchards by the open cluster stage (May 28) and in cherries May 25. (Wis. Coop. Sur.). MISSOURI - Some early feeding injury noted in Booneville area. Larvae leaving fruit to pupate in southeast area. (Wkly. Rpt. Fr. Gr.). GEORGIA - No emergence of first-generation adults at Ft. Valley as of June 1. Dry weather may delay emergence somewhat. (Snapp). TEXAS - Few larvae observed in wild plums in Caldwell County. (Massey).

APPLE CURCULIO (Tachyterellus quadrigibbus) - MISSOURI - A single instance of injury reported from near Kansas City. This pest is rare in the State. (Wkly. Rpt. Fr. Gr.).

ROSY APPLE APHID (Anuraphis roseus) - NEW JERSEY - Very heavy in one untreated apple orchard in southern part of State; half of fruit clusters infested. (Ins.-Dis. Newsl., May 31). NEW YORK - Reported to be present in several Monroe County orchards. (N. Y. Wkly. Rpt., May 31). INDIANA - Caused serious damage in apple orchards in Orleans area where no controls were applied. (Marshall, May 31). MISSOURI - Reports received from west central and southeast areas. (Wkly. Rpt. Fr. Gr.). OREGON - Populations well below normal in Willamette Valley. (Jones).

APPLE APHID (Aphis pomi) - MAINE - Stem mothers generally light; no colonies observed; no injury to May 27. (Boulanger). NEW JERSEY - Appearing in some southern apple orchards. (Ins.-Dis. Newsl., May 31). MISSOURI - Present in nearly all orchards. (Wkly. Rpt. Fr. Gr.). ILLINOIS - Generally well under control in Carbondale area. (Meyer, June 1).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Heavy on apple at Lone Pine, Inyo County, and in Springville, Tulare County. (Cal. Coop. Rpt.).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - NEW YORK - Heavy injury on apple trees in Newburgh area and injury extensive in central part of Orange County. (N. Y. Wkly. Rpt., May 31).

EUROPEAN RED MITE (Panonychus ulmi) - WISCONSIN - High populations of all active stages in Door County, May 28. (Wis. Coop. Sur.). MISSOURI - Some reports from southeast area. (Wkly. Rpt. Fr. Gr.). MAINE - First generation about 20 percent in adult stage. No summer eggs found as of May 26. (Boulanger, May 27). VERMONT - Remains a problem in some orchards, with heavy summer cycle egg laying. (MacCollom, May 31). NEW YORK - Laying eggs where controls not applied in Ulster County. Buildup appears strong in several Monroe County orchards. (N. Y. Wkly. Rpt., May 31).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - CALIFORNIA - Light on pear trees at Stockton, San Joaquin County. (Cal. Coop. Rpt.). RHODE ISLAND - Infestation on pear in Lincoln area. (Hansen).

PEACH TREE BORERS - INDIANA - Adult emergence of Synanthedon pictipes expected soon in Orleans area (Marshall, May 31) and emergence of Sanninoidea exitiosa recorded last of May in Lafayette area (Chandler).

WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - OREGON - First adult of season emerged at The Dalles, Wasco County, May 30. (Ellertson).

WESTERN STRIPED CUCUMBER BEETLE (Acalymma trivittata) - CALIFORNIA - Heavy on peach leaves in Red Bluff, Tehama County. (Cal. Coop. Rpt.).

PECAN NUT CASEBEARER (Acrobasis caryae) - GEORGIA - Light infestation on pecans in Albany area, Dougherty County. (Livingston). TEXAS - More than 100 larvae per pecan tree observed in some areas of De Witt County. (Smith).

PECAN PHYLLOXERA (Phylloxera devastatrix) - OKLAHOMA - Causing concern throughout the pecan-growing area of the State. (Howell et al.).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - First and second instars of first-generation larvae present on pecans in De Witt County. (Smith).

A TENT CATERPILLAR (Malacosoma sp.) - TEXAS - Heavy infestations observed on pecan trees in Ft. Bend County. (Murray).

EUROPEAN FRUIT LECANIUM (Lecanium corni complex) - OKLAHOMA - Medium infestation noted on pecan trees checked in Stephens County. (Hatfield).

A BLUEBERRY FLEA BEETLE (Altica sylvia) - MAINE - Larvae, tentatively identified as this species, found in heavy concentrations in several Hancock County locations; damage reported to be severe. (Boulanger, May 27).

A BLUEBERRY THRIPS (Frankliniella vaccinii) - MAINE - Appearing in many fields in Hancock County; injury and infestations light. (Boulanger, May 27).

LEAFHOPPERS - NEW YORK - Overwintering adults of unspecified species appear to be more abundant than usual in many Ulster County vineyards. (N. Y. Wkly. Rpt., May 31).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - VERMONT - Laying eggs on newly emerged potatoes week ending May 31. (MacCollom). NEW YORK - Numerous on May 27 in Orleans County although there were no potato plants in the vicinity. Numerous adults and egg masses easy to find in Suffolk County. (N. Y. Wkly. Rpt.). NEW JERSEY - Hatching in central area week ending May 31. (Ins.-Dis. Newsl.). MARYLAND - Larval stages very injurious to untreated potatoes in southern area. (U. Md., Ent. Dept.). DELAWARE - Eggs abundant on tomatoes locally in western Kent County. (Burbutis, Mason). NORTH CAROLINA - First-generation adults beginning to emerge in Duplin County. (Farrier).

THREE-LINED POTATO BEETLE (Lema trilineata) - RHODE ISLAND - Recently emerged adults active in commercial potato fields in southern portion of State. (Kerr).

FLEA BEETLES - VERMONT - Abundant on tomatoes and potatoes week ending May 31. (MacCollom). NEW YORK - Still numerous in Suffolk County on many crops. (N. Y. Wkly. Rpt.). MARYLAND - Epitrix spp. moderate to heavy on untreated potato and tomato plantings in Calvert, Baltimore and Harford Counties and on eggplant in Montgomery County. (U. Md., Ent. Dept.).

A CHRYSOMELID (Lema californica) - CALIFORNIA - Light on eggplant in Huntington Beach, Orange County. (Cal. Coop. Rpt.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - Larvae, mostly first instar with one second instar, found in potato vines in several fields in Kent County. Several new egg masses also noted. (Burbutis, Mason).

TOMATO FRUITWORM (*Heliothis zea*) - SOUTH CAROLINA - Damaging beans in Clarendon County week ending June 1. (Nettles et al.) LOUISIANA - Heavy damage to untreated tomatoes, but little damage to peppers. (Spink).

POTATO TUBERWORM (*Gnorimoschema operculella*) - CALIFORNIA - Generally light in potato fields in the Chino area, San Bernardino County. Heavy in one volunteer field northeast of Chino. (A. Deal).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Thirty per 100 sweeps on Lycium, Fort Collins, Larimer County. (Colo. Ins. Sur.).

POTATO LEAFHOPPER (*Empoasca fabae*) - MARYLAND - Occasional adult noted on potatoes in Calvert and Dorchester Counties. First of season June 2. (U. Md., Ent. Dept.).

POTATO APHID (*Macrosiphum solanifolii*) - MARYLAND - Light to moderate on tomatoes in central and southern sections. (U. Md., Ent. Dept.). DELAWARE - Fairly common on lower leaves of potatoes and tomatoes in all counties, slight buildup on tomatoes in New Castle County and northern Kent County. (Burbutis, Mason).

GREEN PEACH APHID (*Myzus persicae*) - TEXAS - Heavy on peppers in Hidalgo County; very difficult to control. (Deer). DELAWARE - Fairly common on lower leaves of potatoes and tomatoes in all counties. (Burbutis, Mason).

PEA APHID (*Macrosiphum pisi*) - WISCONSIN - Counts on peas were as follows: Rock County - 1 per 20 4-inch plants and less than 1 per 10 sweeps on 6-8-inch plants; Dane County - 1 per 20 4-inch plants; Columbia County - 2 per 5 sweeps on 6-inch plants; Dodge County - 1 per 10 4-inch plants and 19 per 10 sweeps in 8-10-inch plants; Fond du Lac County - 1 per 10 plants and Green Lake County 1 per 10 plants. (Wis. Coop. Sur.). OREGON - Winged migrants of this and other aphid species appearing on bean and pea crops in Willamette Valley. (Morrison).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - MARYLAND - Adults and eggs in large numbers on snap beans in Harford and Montgomery Counties. (U. Md., Ent. Dept.). NEW YORK - Adults on beans in three-leaf stage. Few eggs and no larvae present. (N. Y. Wkly. Rpt.). NORTH CAROLINA - Twenty-five per 10 feet of row of untreated beans in Scotland County. (Alford).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - MARYLAND - Adults abundant and foliage damage evident on large acreages of snap beans in Baltimore County. (U. Md., Ent. Dept.).

WESTERN SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata*) - OREGON - Abundant on beans and requiring control in Benton County. (Morrison).

PEA WEEVIL (*Bruchus pisorum*) - OREGON - Reached peak of emergence from winter hibernation in Willamette Valley. (Every).

CABBAGE MAGGOT (*Hylemya brassicae*) - NEW JERSEY - Damage reported only from muck soil area of Warren County. (Ins.-Dis. News1., May 31).

IMPORTED CABBAGEWORM (*Pieris rapae*) - DELAWARE - One mature larva per 10 heads of cabbage found in western Kent County. (Burbutis, Mason).

DIAMONDBACK MOTH (*Plutella maculipennis*) - IDAHO - Larvae common on rangeland stands of tumbledustard (*Sisymbrium altissimum*) in south central area, with pupation commencing in Rogerson area of Twin Falls County on May 21. (Gittins).

CABBAGE LOOPER (*Trichoplusia ni*) - OKLAHOMA - Chemical controls applied to some greens in Bixby area. (Marshall).

CUCUMBER BEETLES - LOUISIANA - Heavy infestations on turnips at Baker. (Spink).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - MARYLAND - Adults injurious to cucumber in Anne Arundel County. (U. Md., Ent. Dept.). DELAWARE - Adults abundant and causing heavy feeding injury in one field of squash in Kent County. Also present in one commercial field of cucumbers in New Castle County. (Burbutis, Mason).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - TEXAS - Heavy on wild gourd in Lubbock County. (Weigle).

SQUASH BEETLE (Epilachna borealis) - LOUISIANA - Heavy on squash and pumpkins at Baker. (Spink).

SQUASH VINE BORER (Melittia cucurbitae) - LOUISIANA - At least one-fourth of squash plants at Baker show wilting signs due to this insect. (Spink).

LEAF MINERS - ARIZONA - Continue to infest cantaloups and watermelons in some parts of Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

ONION MAGGOT (Hylemya antiqua) - NEW YORK - Damaging treated onions in Orange County; infestation normal. (N. Y. Wkly. Rpt., May 31)

ONION THRIPS (Thrips tabaci) - NEVADA - Averaged 0-5 per onion plant in Reno, Washoe County, week ending May 27. (Parker).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Light to moderate on onions and garlic in Reno, Washoe County, week ending May 27. (Bechtel, Parker).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - LOUISIANA - Averaged 139 adults per 50 sweeps on sweetpotatoes in St. Landry Parish. (Spink).

A MINT APHID (Phorodon menthae) - VIRGINIA - Collected and determined by Dr. M. D. Leonard from a home planting of spearmint in Arlington County on May 29. This is the first record of the species in the State. (Rowell).

HOP APHID (Phorodon humuli) - OREGON - Though abundant in hop yards at this time in 1959, have not yet appeared in Willamette Valley this year. (Morrison).

STRAWBERRY WEEVIL (Anthonomus signatus) - MAINE - Girdling numerous plantings, mostly home plots; damage light to moderate, week ending May 27. (Boulanger).

OMNIVOROUS LEAF TIER (Cnephasia longana) - OREGON - Appearing in somewhat heavier infestations than usual in strawberries in Willamette Valley. (Rosenstiel).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - MICHIGAN - Hard to find despite an earlier indication of abundance. (Hutson). IOWA - Active on strawberry plants week ending May 31. (Iowa Ins. Inf.).

SPIDER MITES - MARYLAND - Serious problem on strawberries in most sections. (U. Md., Ent. Dept.).

TOBACCO INSECTS

HORNWORMS (Protoparce spp.) - GEORGIA - Light to moderate on tobacco in Jenkins and Bulloch Counties. (Grimes, Johnson).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Moderate to heavy on tobacco in Jenkins and Bulloch Counties. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Adults averaged 3-8 per plant on newly set tobacco in Prince Georges, Calvert and St. Marys Counties. (U. Md., Ent. Dept.).

COTTON INSECTS

THRIPS - SOUTH CAROLINA - Severe damage noted in some late-planted cotton in Florence area. (Taft, Hopkins, Jernigan). **ALABAMA** - Damage very noticeable on cotton throughout State. (Grimes). **TENNESSEE** - Unusually light for time of year on cotton in western area; present in all fields surveyed. (Locke). **MISSISSIPPI** - Populations increased markedly in cotton in delta counties; counts ranged 0.2-5.6 per plant in experimental plots. Older cotton past damage stage, but young cotton still being damaged in some fields. (Merkl et al.). **LOUISIANA** - Counts made in 50 fields in Tallulah area, all of which were infested. Average counts per plant were 5.14 in treated fields, 8.53 in untreated fields and 6.63 in all fields. Populations increased rapidly in late-planted cotton during past 7-10 days; many farmers used controls. (Smith et al.). **TEXAS** - Damage in McLennan and Falls Counties heavy in all late-planted cotton. (Parencia et al.). **OKLAHOMA** - Light to medium infestations of *Frankliniella* spp., 20-50 per linear foot, in cotton in Harmon and Jackson Counties (Hatfield); medium in field in Marshall County (Vinson); heavy, 6-8 per plant, in 2 fields of cotton in Choctaw County (Goin); light in cotton in east central area (VanCleave, Robinson). **NEW MEXICO** - Light to heavy infestations of *F. occidentalis* still found in cotton in Dona Ana and Luna Counties. Counts in untreated experimental plots in northern Dona Ana County 0.2-0.5 adults and 2.5-11 larvae per plant. (N. M. Coop. Rpt.).

BOLL WEEVIL (*Anthonomus grandis*) - NORTH CAROLINA - Few weevils appearing in older cotton. (Cott. News Lett.). **SOUTH CAROLINA** - Movement of weevils increasing in Florence area; peak not reached as yet. Some cut buds observed in older cotton. (Taft, Hopkins, Jernigan). **GEORGIA** - Adults ranged 0-4 per 100 cotton plants, averaging 3 per 100 plants. Square infestation counts not made. (Johnson). **ALABAMA** - Active in central and southern areas; however, fruiting not advanced enough to make square infestation counts. (Grimes). **TENNESSEE** - None found in southwestern area. (Locke). **MISSISSIPPI** - Weevils found in 4 of 20 fields examined in delta counties. Number per acre ranged 50-150 in infested fields and averaged 75. No fields of cotton have sufficient squares for square infestation counts. (Merkl et al.). **LOUISIANA** - Weevils found in 1 of 3 fields examined in Tallulah area; averaged 8 per acre and ranged 0-25 per acre. Activity below normal, but expected to increase rapidly by week ending June 10. Percentage of survival in hibernation cages to June 3 was 0.72, compared with 2.22 at same time in 1959. (Smith et al.). **OKLAHOMA** - First weevils of season noted in Choctaw County on May 27 and in Muskogee County on June 1. (Goin, Robinson). **TEXAS** - Weevils averaged 313 per acre in 16 untreated fields and 62 per acre in treated fields in McLennan and Falls Counties. Oviposition occurring in some more advanced fruiting fields. (Parencia et al.).

FLEAHOPPERS - ARIZONA - Counts of *Spanogonicus albofasciatus* very high in most cotton in parts of Pima, all of Maricopa and Pinal Counties; averaged 10-60 per 100 sweeps. Blasted square counts in Maricopa County averaged 3-7 blasted squares per plant. (Ariz. Coop. Sur.). **OKLAHOMA** - Light infestation of *Psallus seriatus*, 0.1 per plant, in cottonfield in Choctaw County. (Goin). **TEXAS** - Migration to cotton by *P. seriatus* occurred in McLennan and Falls Counties. Infestation averaged 10 per 100 terminals in 38 fields, with infestations exceeding 25 per 100 terminal level in 2 fields. (Parencia et al.).

BOLLWORMS (*Heliothis* spp., et al.) - GEORGIA - Egg counts in 12 southeast fields ranged 5-48 per 100 terminal buds and averaged 15 per 100 terminals. Larval counts ranged 2-25 per 100 terminal buds and averaged 8 per 100 terminals. Older cotton now squaring. (Johnson). Moderate to heavy infestation on cotton in southwest. (Jordan). **MISSISSIPPI** - Occasional larvae reported damaging terminal buds of cotton in delta counties; light trap catches low. (Merkl et al.).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - During May, a total of 75 adults collected from cages at Brownsville Laboratory Experimental plots at New Mexico University Farm. This makes a total of 94 moths collected so far this year. (N. M. Coop. Rpt.).

BEE T ARMYWORM (Spodoptera exigua) - CALIFORNIA - Medium on cotton in Rosedale area, Kern County. (Cal. Coop. Rpt.). NEW MEXICO - Occasional larvae on young cotton near Deming, Luna County. (N. M. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Light to medium on cotton at Pond and Rosedale, Kern County. (Cal. Coop. Rpt.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - CALIFORNIA - Medium on cotton in Rosedale area, Kern County. (Cal. Coop. Rpt.). ALABAMA - A moderate infestation observed on cotton in Geneva County. (Grimes).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - CALIFORNIA - Light on cotton in Pond and Rosedale, Kern County. (Cal. Coop. Rpt.).

FLEA BEETLES - TENNESSEE - Light and causing very little damage to cotton in western area. (Locke). GEORGIA - Moderate to heavy infestation of Systema blanda on seedling cotton in Spalding County on May 25; caused severe damage on 10 acres of cotton in same county on June 1. (Beckham).

APHIDS - NORTH CAROLINA - About 50 percent of cotton damaged in field in Hoke County; species probably Aphis gossypii. (Chadwick). SOUTH CAROLINA - Pea aphid infestation past in Florence area; predators effective in untreated fields. (Taft, Hopkins, Jernigan). TENNESSEE - Aphids very light in most cotton fields in western area. (Locke). ALABAMA - Heavy infestations of A. gossypii on seedling cotton in northern area; becoming severe in Madison County. (Eden).

LYGUS BUGS (Lygus spp.) - ARIZONA - Few adults caught in net in Pima and Pinal Counties; counts averaged 2 per 100 sweeps in cotton. (Ariz. Coop. Sur.).

MISSISSIPPI - Movement of L. lineolaris to cotton still very slow in delta counties; but, large population buildups occurred on alternate host plants. (Merkl et al.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

JACK-PINE BUDWORM (Choristoneura pinus) - MINNESOTA - Third-instar larvae continue feeding in staminate flowers at Brainerd and Pequot Lakes. Second instar moving into staminate flowers at Laporte. No activity noted in other areas of Hubbard County. (Minn. Ins. Rpt.). WISCONSIN - Early larval stages present in Washburn County May 23-28 and light in Marinette County May 15-21. Early larval stages feeding in staminate flower clusters May 15-21 in west central area. (Wis. Coop. Sur.).

WHITE-PINE WEEVIL (Pissodes strobi) - WISCONSIN - Adults active and numerous in Oconto, Langlade and Lincoln Counties, May 15-21. During same period, oviposition observed on white and jack pines in Jackson County and eggs and early instar larvae also noted on white pine in Sauk County. Mating noted in Langlade County May 25, as was adult feeding in Oconto County. (Wis. Coop. Sur.).

BARK BEETLES - WISCONSIN - Ips spp. and other species active in Waupaca, Waushara and Oconto Counties on white, red and jack pines. (Wis. Coop. Sur.).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - MINNESOTA - Appearing on spruce as new buds enlarge. (Minn. Ins. Rpt.).

PINE SAWFLIES (Neodiprion spp.) - IOWA - N. sertifer larvae, half to full grown, on Scotch and red pines in Monroe and Lucas Counties. Permanent damage not expected. (Iowa Ins. Inf., May 31). MINNESOTA - First and second-instar larvae, probably N. pratti banksianae, feeding on jack pine near Lake George, Hubbard County. (Minn. Ins. Rpt.). WISCONSIN - N. nanulus feeding on red and jack pine May 23-28 in Burnett County. Hatched in La Crosse County and feeding on red pine in Columbia County week of May 15-21. (Wis. Coop. Sur.).

LARCH SAWFLY (Pristiphora erichsonii) - WISCONSIN - Eggs and newly hatched larvae observed on European larch in Columbia and Grant Counties, week of May 22-28. (Wis. Coop. Sur.).

BALSAM TWIG APHID (Mindarus abietinus) - MINNESOTA - Found to be rather extensive on balsam in Itasca State Park. (Minn. Ins. Rpt.).

PINE SPITTLEBUG (Aphrophora parallela) - DELAWARE - Nymphs very common on loblolly pine in Dover area, Kent County. (Burbutis, Mason).

BLACK PINE LEAF SCALE (Aspidiotus californicus) - WISCONSIN - Approximately 2,000 acres of jack pine in Polk County heavily infested. Natural and plantation trees affected. (Wis. Coop. Sur.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MINNESOTA - Occasional heavy infestation noted on white pine of sapling and saw-timber size in Dakota and Washington Counties. A pale green, dried-out appearance of needles associated with heavier infestations. (Minn. Ins. Rpt.). NORTH DAKOTA - Eggs hatching and crawlers present on infested pine and spruce in Fargo area, Cass County. (N. D. Ins. Sur.). IOWA - Eggs hatched. (Iowa Ins. Inf., May 31).

PINE TORTOISE SCALE (Toumeyella numismaticum) - OHIO - Crawlers active on Scotch pine in Hocking County, week of May 23. (Walker). WISCONSIN - Immature females light to medium on 20 acres of plantation jack pine in Marinette County. (Wis. Coop. Sur.).

JUNIPER SCALE (Diaspis carueli) - OHIO - First crawlers were appearing at Marietta, Washington County, May 25. (Walker).

BAGWORM (Thyridopteryx ephemeraeformis) - IOWA - Eggs hatching in southern area. (Iowa Ins. Inf., May 31). LOUISIANA - Heavy on arborvitae in Jefferson Parish. (Spink). TEXAS - Light to heavy infestations attacking arborvitae in Brazoria County. (Ellard). DELAWARE - First-instar larvae very abundant on cedars and arborvitae in Kent County, with a high count of 8 per leaflet. Also present on sycamore in northern part of county. (Burbutis, Mason).

PINE COLASPIS (Colaspis pini) - LOUISIANA - Causing heavy damage to ornamental pines in Jefferson Davis and Acadia Parishes and cypress in East Baton Rouge Parish. No infestations have been reported on commercial pine stands. (Spink)

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - OKLAHOMA - Heavy on a wide variety of evergreens checked at Lawton, Comanche County. (Hatfield).

ELM CASEBEARER (Coleophora limosipennella) - NEW YORK - Has been locally abundant. (N. Y. Wkly. Rpt., May 31).

LARGE ASPEN TORTRIX (Archips conflictana) - WISCONSIN - Moderate to heavy infestations present on about 500 acres of aspen in Rusk County. Larvae reached middle instars May 23-28. (Wis. Coop. Sur.).

FALL WEBWORM (Hyphantria cunea) - OREGON - Adult emergence reached peak in Salem area. Blacklight trap collections averaged 59 specimens each night. (Capizzi).
ARKANSAS - Appearing in the southwest area; infestations observed in Hempstead County. First infestations are about 2 weeks later than in 1959. (Warren).

CANKERWORMS - NEW YORK - Unspecified species very numerous on a variety of trees on Long Island. (N. Y. Wkly. Rpt.).
RHODE ISLAND - Nearly mature Alsophila pometaria larvae feeding heavily on deciduous trees on several adjacent properties in the Cranston area. (Mathewson, Hansen).
IOWA - Paleacrita vernata larvae pupating; defoliation of elms ending. (Iowa Ins. Inf., May 31).
NORTH DAKOTA - Light to moderate larval infestations of P. vernata causing leaf-feeding injury to scattered trees at Fargo, Cass County. (N. D. Ins. Sur.).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - COLORADO - Unidentified species, reported in CEIR 10(23):470 as damaging trees in Denver, identified as this species. (Colo. Ins. Sur.).

OAK LEAF MINERS (Cameraria spp.) - NEW JERSEY - Moths of C. cincinnatiella and C. hamadryadella are active. Activity low in Essex Fells area, Essex County, where attack was severe in 1959. (Ins.-Dis. News1., May 31).

BRONZE BIRCH BORER (Agrilus anxius) - NEW YORK - Infesting large birch trees in many parts of State. (N. Y. Wkly. Rpt., May 31).

ELM BARK BEETLES - WISCONSIN - Hylurgopinus rufipes has been attacking trap logs in southeastern area of State, with 20-25 brood galleries per square foot recorded. Only 1-2 adults of Scolytus multistriatus per square foot reported in southeast. Dutch elm disease cases diagnosed in 1960 totaled 14 on June 1, compared with 5 on May 25. Positive cases thus far are undoubtedly the result of 1959 infection. (Wis. Coop. Sur.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - ILLINOIS - Elm leaves being skeletonized in some areas, being especially severe on Chinese elms. (Ill. Ins. Rpt.).
OKLAHOMA - Activity increased in Perry area, Noble County (Hesser); continues to cause concern to homeowners in Stillwater area, Payne County (Howell); and is beginning to be troublesome in Sallisaw area, Sequoyah County (Nowlen).
MASSACHUSETTS - Eggs and larvae present on elms. (Crop Pest Cont. Mess.).
RHODE ISLAND - Adult activity observed in Providence County. (Mathewson).

IMPORTED WILLOW LEAF BEETLE (Plagioderia versicolora) - DELAWARE - Adults causing light feeding injury to weeping willow in Kent County. (Burbutis, Mason).

LOCUST BORER (Megacyllene robiniae) - MINNESOTA - Commonly reported from the Twin Cities area. (Minn. Ins. Rpt.).

LOCUST LEAF MINER (Chalepus dorsalis) - NEW YORK - Adults very numerous in Yates County; caused considerable damage to locust foliage. (N. Y. Wkly. Rpt., May 31).

MAY BEETLES (Phyllophaga spp.) - MINNESOTA - Adults flying, with some defoliation on individual trees reported. (Minn. Ins. Rpt.). OKLAHOMA - Heavy on a variety of trees in Pushmataha County. (Goin).

A MAPLE APHID (Periphyllus testudinacea) - CALIFORNIA - Medium infestation of adults on Acer sp. in Martinez, Contra Costa County. (Cal. Coop. Rpt.).

SCALE INSECTS - CALIFORNIA - Heavy infestations of Mycetococcus ehrhorni and Aspidiotus osborni on oak trees in a city park in Martinez, Contra Costa County. This is a first record for this county. These scales also heavy on California live oak in Hopland, Mendocino County. A heavy infestation of Aspidiotus densiflorae on native oak in Fair Play, El Dorado County, is a first report for that county. (Cal. Coop. Rpt.). NEW JERSEY - Crawlers of several species are active on ornamentals. (Ins.-Dis. Newsl., May 31). OKLAHOMA - Kermes sp. beginning to damage tender growth on oaks in Ada area of Pontotoc County, with large numbers of crawlers active in the area. (Hailey). Killing terminal growth on oaks in Cherokee and Delaware Counties. (Flora).

ELM LEAF MINER (Fenusa ulmi) - NEW YORK - Locally abundant. (N. Y. Wkly. Rpt., May 31).

SAWFLIES - MISSOURI - Larvae of Tethida cordigera present on small ash seedlings; none found on larger trees. (Stone). COLORADO - An unidentified species defoliating ash trees in Pueblo County. (Colo. Ins. Sur.).

A GALL WASP (Disholcaspis eldoradensis) - OREGON - Dieback of oaks in residential areas of Multnomah County is possibly being caused by this species. Most adults emerged from galls by June 2. (Every).

AZALEA LEAF MINER (Gracilaria azaleella) - DELAWARE - Larvae active in azalea in northern New Castle County. (Burbutis, Mason).

CORN EARWORM (Heliothis zea) - CALIFORNIA - Medium on geraniums in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - NEW JERSEY - A problem in Millstone township, Monmouth County, where large numbers are on the move. (Ins.-Dis. Newsl., May 31). CALIFORNIA - Light infestation on Prunus virginiana demissa in the Martins Ferry area, Humboldt County. (Cal. Coop. Rpt.).

AN ETHMIID (Pyramidobela angelarum) - CALIFORNIA - Heavy infestations on Buddleia curviflora in a plant garden in Arcadia, Los Angeles County, and in San Pablo, Contra Costa County. (Cal. Coop. Rpt.).

MIMOSA WEBWORM (Homadaula albizziae) - INDIANA - Adults emerging on honeylocust in the Lafayette area. (Schuder).

JAPANESE BEETLE (Popillia japonica) - GEORGIA - Feeding on rose in Fulton County, June 1. This is the first report of the species this season. (Scott). RHODE ISLAND - Mature larvae forming pupal cells in soil in Narragansett area. (Hansen)

A CURCULIONID (Prionomerus calceatus) - LOUISIANA - Damaging Magnolia grandiflora in St. Tammany Parish. (Spink).

ROSE APHID (Macrosiphum rosae) - MARYLAND - Heavy on roses in Harford and Prince Georges Counties. (U. Md., Ent. Dept.).

SNOWBALL APHID (Anuraphis viburnicola) - IDAHO - Infesting snowball bushes in Bingham County; causing curling and deformed leaves. (Bishop, May 27). RHODE ISLAND - Infesting Viburnum sp. in East Greenwich. (Hansen).

LACE BUGS - MARYLAND - Unspecified species injuring rhododendron at La Plata, Charles County, and azaleas and sycamore at College Park, Prince Georges County. (U. Md., Ent. Dept.). MINNESOTA - Adults of Corythucha sp. active on elm in Hubbard County. (Minn. Ins. Rpt.).

BOXWOOD PSYLLID (Psylla buxi) - OHIO - Adult activity noted in Washington County at Marietta on May 23. (Walker).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Heavy populations damaging acacia trees in Richmond, Contra Costa County. (Cal. Coop. Rpt.).

A THrips (Frankliniella occidentalis) - CALIFORNIA - Heavy infestation on roses in San Andreas area of Calaveras County. (Cal. Coop. Rpt.).

BOXWOOD LEAF MINER (Monarthopalpus buxi) - OHIO - Adults were active at Marietta, Washington County, on May 23. (Walker).

AN ERIOPHYID MITE (Aceria magnoliae) - CALIFORNIA - Heavy on Magnolia selangiana in Bel Air, Los Angeles County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

HORN FLY (Siphona irritans) - INDIANA - Average per animal was 25-35 on beef cattle in pasture in Putnam and Montgomery Counties and 10-15 in Dubois County. (Dobson). LOUISIANA - Medium to heavy infestations on cattle in St. John the Baptist and West Carroll Parishes. (Spink). KANSAS - Counts on yearling steers and heifers ranged from 200-300 per head in Riley County. (Knapp). OKLAHOMA - Counts per animal averaged 750-1,000 on cows and 2,500-3,000 on bulls in herds of range cattle in Woodward and Harper Counties. (Howell). Light to medium on cattle in 3 herds of range animals in Johnston County. Counts per animal averaged 50 on calves, 75-200 on cows and 600 on bulls. (Vinson). Heavy on 30 head of range cows checked in Tillman County. (Hatfield).

FACE FLY (Musca autumnalis) - INDIANA - Five to 7 per animal on beef cattle in pastures in Montgomery and Putnam Counties. None seen in Dubois County. (Dobson). Four of 9 animals averaged 2 flies per animal in Wayne County. (Matthew). OHIO - Prevalent on dairy cattle in Perry County, June 2. (Holdsworth).

MOSQUITOES - CALIFORNIA - Slight overall increase in mosquito populations. Considerable increase in Red Bluff area of Tehama County. (Vect. Cont.). TEXAS - Undetermined species of mosquitoes heavy and widespread. Attacking livestock and field personnel in Parmer, Castro, Swisher and Deaf Smith Counties. (Russell). WISCONSIN - Presence of considerable numbers of mosquitoes felt on some days in many areas, with greater numbers threatening. The principal biting mosquito, Aedes vexans, recently emerged and migration of this species as well as A. dorsalis (in Madison area) from breeding areas has started. (Wis. Coop. Sur.). MAINE - Aedes sp. very numerous. (Boulanger, May 27).

HORSE FLIES (Tabanus spp.) - LOUISIANA - Heavy infestations on livestock in St. John the Baptist Parish. (Spink). OKLAHOMA - Counts averaged 0.5 per animal on range cattle in Woodward and Harper Counties. (Howell).

CATTLE GRUBS (Hypoderma spp.) - SOUTH DAKOTA - Adults active in several areas of State. (Hantsbarger).

A CERATOPOGONID (Leptoconops kerteszi) - CALIFORNIA - Adults biting people in Placentia, Orange County. (Cal. Coop. Rpt.).

HOUSE FLY (Musca domestica) - GEORGIA - Heavy populations in Jefferson County. (Johnson).

STABLE FLY (*Stomoxys calcitrans*) - IOWA - Appeared at Ames, May 23. If warm weather continues, large numbers may be expected by June 20. (Iowa Ins. Inf.).

BLACK FLIES (*Simulium* spp.) - IDAHO - Adults taken in low numbers around water courses in Owyhee County. (Gittins, May 27). MAINE - Very heavy in most of State. (Boulanger, May 27).

CATTLE LICE - OKLAHOMA - *Bovicola bovis* and *Haematopinus eurysternus* populations decreasing rapidly on range cattle in Woodward and Harper Counties. (Howell).

TICKS - INDIANA - More than usual number of inquiries concerning ticks on man and animals, in Orleans area. (Marshall). GEORGIA - Heavy infestations on beef cattle in Hancock County. (Knox).

AMERICAN DOG TICK (*Dermacentor variabilis*) - IOWA - Abundant in State. (Iowa Ins. Inf.).

GULF COAST TICK (*Amblyomma maculatum*) - OKLAHOMA - Medium to heavy on range cattle in 2 herds in Johnston County. Counts per animal ranged 0-40 in one herd and averaged 20 per animal on 75 heifers and 80 per animal on 10 bulls in the other herd. (Vinson).

LONE STAR TICK (*Amblyomma americanum*) - OKLAHOMA - Heavy in a turkey pasture formerly used for cattle in Le Flore County. (Goin). Heavy in wooded areas around Grand Lake. (Price). Medium to heavy (10-30 per animal) in 3 herds of range cattle in Johnston County. (Vinson).

MITES (*Ornithonyssus* spp.) - MISSOURI - Heavy infestations of *O. sylviarum* in birds' nests in a barn near Jefferson City. Det. by Camin. (Wingo, Enns). IOWA - *O. sylviarum* locally in Mahaska County. (Iowa Ins. Inf.). OKLAHOMA - Heavy number of *Ornithonyssus* sp. in a church in Pushmataha County. Mites brought in by English sparrows. (Goin).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (*Trogoderma granarium*) - MINNESOTA - Intercepted from a ship at port of Duluth, May 29, by State and Federal plant quarantine inspectors. The ship was immediately quarantined and held at anchor in the bay until it could be fumigated. (Minn. Ins. Rpt.).

LESSER GRAIN BORER (*Rhyzopertha dominica*) - NORTH CAROLINA - Infestation in bird seed in seed store on February 28. (Wray, Moore).

BENEFICIAL INSECTS

LADY BEETLES - NEW YORK - Large numbers of larvae of an unspecified species found in an orchard in Clinton County, in presence of increasing numbers of apple aphid. (N. Y. Wkly. Rpt., May 31). ILLINOIS - Adults of unspecified species ranged 20-160 per 100 sweeps and larvae 0-5 per 100 sweeps in clover and alfalfa. (Ill. Ins. Rpt.). ARKANSAS - Several species, primarily *Hippodamia convergens*, more numerous in oats and wheat than in alfalfa, due to more prey being available in oats. Prey consisted mainly of *Macrosiphum granarium*. (Ark. Ins. Sur.). OKLAHOMA - *H. convergens* was light in corn fields and light to medium (0.5-1.5 per sweep) in alfalfa fields in east central area (VanCleave, Robinson); light to heavy (1-5 per sweep) in alfalfa and clover in Choctaw County (Goin); medium to heavy (1.5-3 per sweep) in alfalfa in Johnston and Carter Counties (Vinson); light to heavy (1-6 per square foot of crown area) in alfalfa in southwest area (Hatfield); light to medium populations (compared to aphid populations) were common in alfalfa in Garfield and Major Counties, with counts averaging 3-5 per sweep (Goin). NEVADA - Unspecified species averaged one adult per 3 sweeps in Kings River Valley alfalfa, Humboldt County. (Lauderdale, May 27).

A KLAMATHWEED BEETLE (Chrysolina gemellata) - IDAHO - Becoming abundant on klamathweed infestations in Kamiyah area, Lewis County, with considerable feeding damage to plants observed. (Dailey, May 27).

NABIDS (Nabids spp.) - ILLINOIS - Counts ranged 0-20 per 100 sweeps in clover and alfalfa. (Ill. Ins. Rpt.). OKLAHOMA - Occasional to 1 per sweep common in alfalfa surveyed in east central area. (VanCleave, Robinson). Very light (0.1 per sweep) in a small percentage of fields checked in Choctaw County (Goin) and light (0.3 per sweep) in a field surveyed in Johnston County (Vinson). Averaged 6 per square foot of crown area in an alfalfafield in Greer County and none reported in other fields surveyed in southwest area. (Hatfield).

LACEWINGS (Chrysopa spp.) - ILLINOIS - C. oculata adults range 0-10 per 100 sweeps in clover and alfalfa in central and northern sections; larvae averaged 5 per 100 sweeps in same crops in central area. (Ill. Ins. Rpt.). OKLAHOMA - Very light populations noted in alfalfa fields surveyed in east central area. (VanCleave, Robinson). Heavy (3 per sweep) in one alfalfafield checked in Choctaw County and none in remaining fields checked in southeast area. (Goin). Light populations (0.5-1 per sweep) common in alfalfa surveyed in Johnston and Carter Counties. (Vinson). Averaged 2 per square foot of crown area in an alfalfafield in Greer County; none reported in other fields surveyed in southwest area. (Hatfield).

ALKALI BEE (Nomia melanderi) - OREGON - Began emerging May 23 in the Milton-Freewater area of Umatilla County. (Stephen).

MISCELLANEOUS INSECTS

A CUTWORM (Chorizagrotis sp.) - TEXAS - Remains abundant in many places in Lubbock County and has been a general pest around residences throughout the western part of the State. (Texas Coop. Rpt.).

CURCULIONIDS - CALIFORNIA - Heavy migrations of Sitona hispidula and Hypera brunneipennis into a house occurred in Vista, San Diego County. (Cal. Coop. Rpt.).

SEED-CORN MAGGOT (Hylemya cilicrura) - MISSOURI - Dead adults common on dock and alfalfa; death caused by the fungus, Entomophthora muscae. (Munson, Thomas, Kyd).

RED HARVESTER ANT (Pogonomyrmex barbatus) - OKLAHOMA - Mound activity continues to increase in Payne County. (Howell).

SILVERFISH (Lepisma saccharina) - NEW JERSEY - A problem in many areas of the State. (Ins.-Dis. Newsl., May '31).

CORRECTIONS

CEIR 10(21):407 - OBLIQUE-BANDED LEAF ROLLER (Archips rosaceana) - OREGON - Larvae reported infesting evergreen blackberries reported as this species have now emerged as adults and are identified as a leaf roller, Archips rosana. (Larson).

CEIR 10(20):387 - LOCUST LEAF MINER (Cahlepis dorsalis) should read (Chalepus dorsalis).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Prod. ornith.	Perid. saucia	Protoparce sexta quinq.		Heliothis zea vires.	
ALABAMA								
Auburn 6/3	4	2	2			1		
ARKANSAS								
Morrilton 5/26-6/1	6	36						1
Kelso 5/26-6/1	10	19						31
Fayetteville 5/26-6/1	5	33		10				7
DELAWARE								
Bridgeville 5/28-6/3	15	6	1		1			3
ILLINOIS								
Urbana 5/27-31	106	7		5				
INDIANA (Counties)								
Lawrence 5/25-28,30,31	54	9		2				1
Tippecanoe 5/27-6/1	32	4						
KANSAS								
Garden City 5/21-26,28-30	188	40		80		32		
Hays 5/24,26,28-30	29	10		1				
Manhattan 5/27-6/1	44	26	17	32				1
Wathena 5/21-23,25	42	4						
LOUISIANA								
Franklin 5/30,6/1		9	5	4	6			2
Baton Rouge 5/27-6/2	2	5	69	11				45
Tallulah 5/27-6/3	2							3
								2
MAINE								
Monmouth 6/1	1							
MARYLAND								
Fairland 5/27-6/1	22	18		3		2		4
MISSISSIPPI								
*Stoneville 5/27-6/2	37	37	23	16	26			33
								2
MISSOURI								
Sikeston 5/21-6/3	14	12		5				4
Columbia 5/28-6/3	107	138	12	12				2
NEBRASKA								
Lincoln 5/31-6/3	65	1		14				4
North Platte 5/25-6/1	231	134		243		3		1
Kearney 5/25-27	22	20		11				
Sidney 5/22-26	1	1		4				
Scotts Bluff 5/12-25	1	5		69				
NORTH CAROLINA								
Faison 6/2					26			5
SOUTH CAROLINA								
Clemson 5/28-6/3	89	26	223	2	29	14		31
								2
SOUTH DAKOTA								
Brookings 6/2	39							
TENNESSEE (Counties)								
Maury 5/24-30	8	4	12	4	24	12		12
Robertson 5/24-30	12	3			6	2		8
Cumberland 5/24-30	4	8		2	1			
Greene 5/24-30	4	3		2	1			4
Blount 5/24-30	30	18	15	3	3	3		6
Johnson 5/24-30	10	160	1	2				12

* Two traps - Stoneville.

LIGHT TRAP COLLECTIONS - Continued

	Pseud. unip.	Agrot. ips.	Prod. ornith.	Perid. saucia	Protoparce sexta	quinq.	Heliothis zea	vires.
TEXAS								
Waco 5/28-6/3	31	6	19	58				58
Brownsville 5/21-27	5	449	8		3	4		141

ADDITIONAL NOTES

MAINE - Infestation and damage of SEED-CORN MAGGOT (*Hylemya cilicrura*) moderate on beans in Orono area. Moderate TARNISHED PLANT BUG (*Lygus lineolaris*) numbers present in most apple orchards, with light injury. Infestations appear heavier than usual. EASTERN TENT CATERPILLAR (*Malacosoma americanum*) light in Washington County, with light damage to cherry and apple foliage. STRAWBERRY WEEVIL (*Anthonomus signatus*) generally light in most areas; occasionally moderate. Damage negligible where controls applied, but light to moderate where poorly timed or not made. Light infestations and injury of a BLUEBERRY THRIPS (*Frankliniella vaccinii*) appearing in new growth of low-bush blueberry in Washington and Hancock Counties. Moderate numbers of a BLUEBERRY FLEA BEETLE (*Altica sylvia*) present in several Hancock County townships; damage moderate; larvae about half grown on June 3. EUROPEAN ELM SCALE (*Gossyparia spuria*) infestations moderate to heavy in Orono area; damage undetermined. Moderate BIRCH LEAF MINER (*Fenusa pusilla*) infestations causing light damage to white birch in Washington County. BLACK FLIES (*Simulium* spp.) lessening in some areas; no abatement in others. MOSQUITOES (principally *Aedes* spp.) continue abnormally heavy in most locations; probably due to high water in rivers and streams which caused extensive wood-pools formation. Slow draining off allowed populations to complete development. (Boulanger).

PENNSYLVANIA - BRONZED CUTWORM (*Nephelodes emmedonia*) severe in spotted areas of Fayette County on bluegrass pasture on May 25; grass completely sheared. Mature larvae heavily parasitized by dipterous parasite. A TACHINID very numerous in homes or near homes in Greene County. Reported depositing fecal material on white clothes on May 25. The tachinids believed to be prevalent as a result of the heavy eastern tent caterpillar infestation and the fair and spotty bronzed cutworm infestation. CABBAGE MAGGOT (*Hylemya brassicae*) injury evident in many home gardens and some commercial plantings in southeastern area. AMERICAN DOG TICK (*Dermacentor variabilis*) has caused an unusual number of complaints this year in Bucks County. (Udine, Menusan, Sivel).

ALABAMA - TOBACCO THRIPS (*Frankliniella fusca*) causing considerable damage to peanuts in southeastern area. In some areas, infestations stunted growth of plants. Reported as worst infestation ever observed by several county agents. EUROPEAN CORN BORER (*Pyrausta nubilalis*) moths active in northern area; egg laying underway. CORN EARWORM (*Heliothis zea*) heavy in whorls of corn in Tennessee Valley and damage reported in Lee County. Moderate damage by BEAN LEAF BEETLE (*Cerotoma trifurcata*) and light damage by MEXICAN BEAN BEETLE (*Epilachna varivestis*) to beans in Chilton and Cullman Counties and THRIPS heavy on field peas in the same counties. Heavy infestations of CROSS-STRIPED CABBAGEWORM (*Evergestis rimosalis*) on cabbage in Lee County. Heavy infestation of RED-HEADED PINE SAWFLY (*Neodiprion lecontei*) larvae reported in Mobile County and WOOLLY ALDER APHID (*Prociphilus tessellatus*) activity reported on maple in Talladega County and in Lee County. FALL WEBWORMS appearing in several areas of State; increasing in Mobile County on persimmons and damaging pecans in Geneva and Houston Counties. (Grimes et al.).

WYOMING - ALFALFA WEEVIL (*Hypera postica*) adults averaged 4 per 25 sweeps and larvae 1 per sweep in 12 alfalfa fields in Platte and Goshen Counties. LYGUS BUG (*Lygus* sp.) adults averaged 2 and nymphs 1 per sweep in 12 alfalfa fields in Platte and Goshen Counties and PEA APHID (*Macrosiphum pisi*) averaged 5 per sweep in same area. Numerous ALFALFA CATERPILLAR (*Collias philodice eurytheme*) adults flying in alfalfa fields in same 2 counties. Adults of BEET WEBWORM (*Loxostege sticticalis*) becoming numerous in Platte and Goshen County alfalfa, sugar beets and along roadsides. An unspecified MIRID averaged 20 per 100 plants in 400-plant samples in each of 10 sugar beet fields in Platte and Goshen Counties. HONEY BEE (*Apis mellifera*) becoming numerous in alfalfa

showing bloom in same counties. In Platte and Goshen County alfalfa fields, adults of several beneficial species per 25 sweeps were as follows: Hippodamia sp. - 4; Nabis spp. - 3; Orius sp. - 2. Collops sp. adults averaged 3 per 25 sweeps in 8 alfalfa fields near Torrington and Chrysopa sp. 1 in alfalfa and along roadsides in Goshen County. Range GRASSHOPPERS continue to hatch on Glendo Study Area, but population is low, as expected. On June 1, the following species, with numbers per 100 square feet estimated, were: Aulocara ellioti (first and second instars) - 3; Cordillacris occipitalis (first to third instars) - 15; Ageneotettix deorum (first and second instars) - 3; Amphitornus coloradus (first to third instars) - 5; other species (first to third instars) - 3; Psoloessa delicatula (adult) - 1. (Fullerton, Pfadt).

IDAHO - ARMY CUTWORM (Chorizagrotis auxiliaris) attacking approximately 40 acres of spring barley near Cottonwood, but degree of damage not known. BROWN WHEAT MITE (Petrobia latens) heavily infesting approximately 400 acres of wheat in Downey area and cereals generally infested throughout Caribou and Franklin Counties. Chrysolina gemellata generally abundant in Orofino area, with migrations reported. WESTERN BLACK FLEA BEETLE (Phyllotreta pusilla) adults numerous and damaging horticulture plantings at Lewiston Branch Experiment Station. WHEAT CURL MITE (Aceria tulipae) heavily infested 8 acres of garlic in Twin Falls area. WIREWORMS and FALSE WIREWORMS abundant on 60 acres of wheat near American Falls, with damage estimated at 50 percent. (Gittins et al.).

NEW MEXICO - SPOTTED ALFALFA APHID (Therioaphis maculata) infestations spotty; moderate to heavy in alfalfa in Luna County. GRASSHOPPERS moderate to heavy and damaging crops in Villanueva Valley, San Miguel County. Heavy hatch of grasshoppers in area. Control work in progress. Medium to heavy infestations on irrigated land in Rio Grande River Valley in Taos, Rio Arriba, Sandoval, Bernalillo and Valencia Counties. Medium infestations on rangelands in Curry, Roosevelt and Quay Counties. Heavy in soil bank lands in Curry, Quay and Union Counties. Prevalent species on rangeland are Cordillacris sp., Aulocara ellioti, Melanoplus occidentalis, Drepanoptera femoratum, Ageneotettix sp., Metator pardalinus, Aeoloplides turnbulli and Phlibostroma quadrimaculatum. BLACK PECAN APHID (Melanocallis caryaefoliae) a problem on pecan trees in Dona Ana County; most large growers treating. Unspecified THRIPS very abundant on apple foliage in Sandoval County. BROWN DOG TICK (Rhipicephalus sanguineus) a problem in homes at Las Cruces, Dona Ana County, and HARVESTER ANTS (Pogonomyrmex barbatus fuscatus) have bitten two persons who sought medical treatment in Eddy County (a nuisance in yards and homes in southern counties). GREATER WAX MOTH (Galleria mellonella) has been a serious problem in hives throughout State where colonies were weakened this past winter. (N. M. Coop. Rpt.).

UTAH - GRASSHOPPERS - Nymphs 3-40 per square yard in Blue Creek, 0-10 in Snowville, 1-7 in Hansel Valley areas of Box Elder County. Hatching still spotty. Aulocara ellioti dominant on margins of some wheat fields. In Davis County at Centerville, Melanoplus sp. nymphs numerous in cheatgrass areas and roadsides. BROWN WHEAT MITE (Petrobia latens) causing moderate to severe injury to barley and wheat in areas of Cache County. MOSQUITOES troublesome in the Wellsville, Mendon, Logan, Amalgam and Lewiston areas, Cache County; and at Grantsville and Lakepoint, in Tooele County. WESTERN HARVESTER ANT (Pogonomyrmex occidentalis) keeping crop and range forage areas bare in the Garland, Snowville and Kelton areas of Box Elder County. ALFALFA WEEVIL (Hypera postica) injury increasing generally in north central area and serious at Milford, Millard County, with the larval parasite, Bathyplectes curculionis, common. ONION THRIPS (Thrips tabaci) causing some damage to onions in Ogden area of Weber County. ONION MAGGOT (Hylemya antiqua) infesting 2-15 percent of onions examined in Cache and Weber Counties. STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) damaging some strawberry and raspberry patches at Pleasant Grove and Orem, Utah County. BEET LEAFHOPPER (Circulifer tenellus) averages 3.4 per foot of beet row in Sevier and Sanpete Counties. Curly top showing in 4-20 percent of the tomato plants at Santa Clara, Washington County. About 0.1 per linear foot of row is in line with early forecasts in northern area. FLEA BEETLES less severe on sugar beets in the Sevier-Sanpete County fields than in Weber-Box Elder County fields. Unusually severe to radishes, turnips and beets in Cache and Box Elder County home gardens. PEA APHID (Macrosiphum pisi) damaging alfalfa in the Fillmore-Kanosh area of Millard County and at Clarkston in Cache County. A BUD MITE (Aceria parapopuli), det. H. H. Keifer, severely damaged cottonwoods at Manila, Daggett County. Similar damage is even more extensive to cottonwoods at Woodruff in Rich County. HORN FLIES troubling cattle in Green River area of Emery County. (Knowlton, Thornley, Davis, Dorst).

NEVADA - PEA APHID (Macrosiphum pisi) averaged 2-3 per sweep in the most lightly infested alfalfa fields and 15-20 per sweep in the most heavily infested fields in Douglas County. ALFALFA WEEVIL (Hypera postica) averaged 2-3 larvae per sweep in approximately half of the fields in Douglas and 20-30 per sweep in the remainder. Damage severe in many fields. LYGUS BUGS (Lygus spp.) averaged 2-3 per sweep in alfalfa fields in Douglas County. IMPORTED CABBAGEWORM (Pieris rapae) heavy and severely damaging cabbage plants in a nursery in Minden, Douglas County. ONION THRIPS (Thrips tabaci) moderate on garlic in Lovelock, Pershing County. CABBAGE LOOPER (Trichoplusia ni) larvae damaged about 50 percent of a 40-acre cottonfield and 10 percent of a 100-acre cottonfield in Pahrump Valley, Nye County. A SPIDER MITE (Tetranychus sp.) treated on over 250 acres of cotton in Pahrump Valley, Nye County. ELM LEAF BEETLE (Galerucella xanthomelaena) larvae present in the Reno-Sparks area, Washoe County. A BARK BEETLE (Ips oregoni) heavily infesting freshly cut ponderosa pine in the Lake Tahoe area. MOUNTAIN PINE BEETLE (Dendroctonus monticolae) and WESTERN PINE BEETLE (D. brevicomis) infestation of ponderosa pine continues at a high level in the Incline Beach area of Lake Tahoe, Washoe County. Many small trees, 3-6 inches in diameter, have been attacked. (Bechtel et al.).

VERMONT - FACE FLY (Musca autumnalis) reported annoying to cattle in Chittenden, Franklin and Addison Counties. CODLING MOTH (Carpocapsa pomonella) egg laying begun and crawlers of OYSTERSHELL SCALE (Lepidosaphes ulmi) emerging. FLEA BEETLES continue heavy on tomatoes and potatoes and COLORADO POTATO BEETLE (Leptinotarsa decemlineata) heavy in home gardens. (MacCollom).

STATUS OF SOME IMPORTANT INSECTS IN THE UNITED STATES

ORIENTAL BEETLE (Anomala orientalis Waterh.)

Economic Importance: This beetle, which is indigenous to Japan, was first recorded in the United States in a nursery in New Haven, Connecticut, in 1920; and was also reported at Jericho, Long Island, New York, in 1926. It is primarily a grassland pest, spending about 10 months of the year in the soil as larvae, mainly lawns. Larval counts have ranged as high as 550 per square foot. Sugarcane on the island of Oahu, Hawaii, was threatened with destruction by this pest until it was controlled by a parasitic wasp, Scolia manilae, introduced from the Philippine Islands.

Distribution: Japan and the United States (including Hawaii).

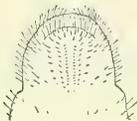
Hosts: Grasses are the preferred host. Also recorded on cyclamen, iris, Pawonia sp., phlox, rose, hollyhock, bean, beet, onion, strawberry, rhubarb, dandelion and Ageratum houstonianum.

Life History and Habits: This species generally completes its cycle in one year, but it may pass two winters as a larva. In Connecticut, adults emerge from the soil throughout July and August. They usually remain in the soil one or more days before coming to the surface, however. Adults may be active at all periods of day or night, but feed very little. Mating takes place soon after emergence. Females deposit eggs singly from one to nine inches beneath the soil surface. Eggs hatch in 17-27 days. Young larvae feed on grass roots and decaying organic matter, existing on the latter alone if necessary. Feeding continues until about mid-October when larvae migrate down to a depth of 8 to 17 inches to pass the winter. A few larvae hibernate as first instar. About late April, larvae return to the soil surface and feed on grass roots until early June. Pupation takes place in an earthen cell about 5 inches below the surface and lasts 10 to 15 days.

DISTRIBUTION OF ORIENTAL BEETLE (Anomala orientalis)



Description: ADULT - Color variable, ranging from straw-colored to black, but typically straw-colored with dark markings (see illustration below). Length 6-8 mm.; width 4-6 mm.; elongate, oval in shape and typically scarabaeid. Elytra striate and punctate. Pygidium fully exposed. Female abdomen larger in proportion to rest of body than in male; the latter tending to be slightly concave on the ventral side, while abdomen convex in female. Females somewhat larger than males. Horizontal row of setae on 8th abdominal sternite follows a sinuate carina in male and in female follows posterior margin of sternite. EGG - White, ovoid, smooth and measures about 1.2 mm. by 1.5 mm. LARVA - Newly hatched larva about 4 mm. long and about 8 mm. at end of first instar. Second instar attains length of about 15 mm. and third instar about 20-25 mm. On underside of last abdominal segment, 2 rows of longitudinal, pointed spines present; anal opening transverse (see illustration). PUPA - Length about 10 mm., width 5 mm. at greatest diameter. Light-brown, entire body covered with very fine pubescence. On ventral side, all mouth parts and thoracic appendages distinct. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U. S. National Museum). CEIR 10(24): 6-10-60.



Raster



Larva and Adults of Anomala orientalis
(Showing variations)

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Official Business

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE



VOL. 10 NO. 25

JUNE 17, 1960

SB
823
C77
E.nt.

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 of Insect Conditions

CUTWORMS damaging to crops in areas of Montana, South Dakota, Nebraska, Kansas, Missouri, Iowa and Maryland. (pp. 510, 536). CORN EARWORM larvae present in Delaware and Kansas; damaging peanuts in North Carolina. WIREWORM damage reported in Montana, North Dakota, Missouri and Illinois. (p. 511). ARMYWORM abundant enough to warrant treatment in Clinton County, Illinois; causing some damage to barley and grasses in Missouri; and defoliating corn in areas of Iowa. (pp. 512, 536). THRIPS damaging cereal and forage crops in several states. (p. 513). ALFALFA WEEVIL larval counts as high as 2,000 per 100 sweeps in Colorado and 30-45 per sweep in Nevada; damage becoming noticeable in Utah and Rhode Island; and causing heavy injury to second-growth alfalfa in Maryland. (pp. 515, 536). MEXICAN BEAN BEETLE heavy on soybeans in southwestern Alabama and moderate in soybean field in Maryland. (pp. 517, 536). BEAN LEAF BEETLE damaging soybeans in Delaware, Maryland, Illinois and Iowa. (p. 517).

CODLING MOTH emergence past peak in several states; eggs present in Massachusetts and Oregon and larval entries noted in Ohio and Missouri. (p. 517). PEAR PSYLLA severe on pears along Snake River, Whitman County, Washington. (p. 518). PECAN NUT CASEBEARER damaging pecans in several states and PECAN PHYLLOXERA of concern in Oklahoma. (p. 519).

Second statement of BEET LEAFHOPPER conditions in southern Idaho. (p. 520). COLORADO POTATO BEETLE very active in New Jersey and larvae abundant in Rhode Island. Adults present in Idaho. (pp. 5213, 536).

HORNWORM eggs and larvae noted on tobacco in Maryland; first of season. SEED-CORN MAGGOT caused severe damage to newly set tobacco in Massachusetts. (p. 524).

BOLLWORMS - Eggs averaged 25 and larvae 5 per 100 terminals in cotton in southern Georgia. Infestations moderate in Henry and Coffee Counties and severe in Autauga County, Alabama. (p. 525).

Aerial surveys show visible defoliation by LARCH CASEBEARER to cover more than 500 square miles in Idaho. (p. 528). Severe injury by an AGROMYZID (Agromyza aristata) to American elm noted in Fargo area of North Dakota; heaviest ever recorded. (p. 530).

Two introduced beneficial moths reported on in California: Tyria jacobaeae, released in 1959, has apparently become established; and Leucoptera spartifoliella was released June 7 near Georgetown, El Dorado County. (p. 534).

JAPANESE BEETLES noted in Delaware and North Carolina. (p. 534).

INSECT DETECTION: New state records reported were vetch bruchid in Nebraska (p. 516); pale-sided cutworm in California (p. 526); a scale insect (Matsucoccus gallicolus) in Delaware (p. 530); and a scarabaeid (Plectris aliena) in Florida (p. 535). New county records reported were alfalfa weevil in Dawson County, Nebraska (p. 515); Tychius stephensi in Bureau County and clover seed weevil in Henry County, Illinois (p. 516); European pine sawfly in Jefferson and Van Buren Counties, Iowa (p. 527); face fly in Montgomery, Prince Georges, Carroll and Harford Counties, Maryland (p. 531).

CORRECTIONS (p. 535).

ADDITIONAL NOTES (pp. 536, 537).

Status of some IMPORTANT INSECTS in the United States. (p. 539).

INSECTS not known to occur in the United States. (p. 541).

Reports in this issue are for week ending June 10 unless otherwise indicated

WEATHER OF THE WEEK ENDING JUNE 13

Temperatures averaged a few degrees above normal this week over much of the Pacific coast-Great Basin-northern Rocky Mountain-northwestern Great Plains area, and slightly above normal from southwestern Texas into western Tennessee and Kentucky. Below-average readings prevailed much of the week in coastal areas of the Pacific Northwest, from the southern Rocky Mountains across the central Great Plains to the Great Lakes, and from the Southeastern States to New England and the Great Lakes. Cool, dry polar air left temperatures more than 6° below the weekly average in much of Wisconsin, northern Ohio, and western sections of Pennsylvania and New York. Precipitation along the west coast was confined to a very few light and widely scattered showers. Exceptionally sunny weather prevailed, with 100 percent of possible sunshine at several stations in the Pacific Northwest.

Scattered showers and thunderstorms in the Plateau States early in the week left local precipitation totals of 1/2 to over 1 inch in some areas. More vigorous thunderstorms dotted the Great Plains and Rocky Mountain States. The most severe of these extended from the South Plains and Panhandle of Texas into Kansas. Almost daily rainfall left weekly totals of over 2 inches in this region, with several stations recording 5 to 6 inches in a single day. Widespread showers and thunderstorms left beneficial rain in much of the northern Great Plains, with scattered areas receiving more than 2 inches during the week. Fieldwork was held up by wet fields in several areas. Moderate to heavy showers and thunderstorms extended eastward through the central Mississippi Valley, the Ohio Valley, and the West Virginia-Maryland-Pennsylvania-southern New York area over the weekend. Totals ranged from 1/2 to 1 inch in many places with locally heavier amounts. Rapid planting progress was reported from the Middle West before these rains. Showers in Florida left 1 to 3 inches of precipitation locally in the central and southern portions, with lighter amounts in the northern sections.

Generally dry, sunny weather extended from south Texas eastward through the Southern and Middle Atlantic States, and also prevailed in New England and the upper Great Lakes area. While isolated thunderstorms occurred in the Southern States, many areas have had no rain in the past 3 to 4 weeks and crops in these sections, particularly in south Texas, Louisiana, Mississippi, Tennessee, Alabama, now show a critical need for moisture. Moisture conditions from Georgia to Virginia are mostly adequate, although some areas are dry. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - CALIFORNIA - Populations lighter than in past years. Rather extensive treatment at ranch level in southern San Diego County; some spray and bait being used in Santa Barbara County; in Shandon area, several hundred acres will require control in San Joaquin Valley, and in the Sacramento Valley a few local areas will require control in near future. Populations 25-30 per square yard on rangeland, with some bait used, in Pentz, Bangor, Honcut areas of Butte County. Some spot treatment in English Hill, Solano County; in almond area of Yolo-Colusa Counties, some bait applied and insecticide barrier strips will be applied as populations threaten to move into cultivated orchards. Some local baiting in Glenn and Tehama Counties. Hot weather may result in early mass movement as range grass dries. (Cal. Coop. Rpt.). TEXAS - Inspections made in Moore, Potter, Dallam, Sherman, Hartley, Oldham and Hansford Counties during period May 19 through 27. Dominant species were Aeoloplides turnbulli bruneri, Aulocara elliotti, Melanoplus bivittatus, Cordillacris crenulata and Hesperotettix speciosus. One check of soil bank land in Moore County showed A. turnbulli bruneri as 18 per square yard in the field and 60 on the margin. All other species relatively light. (Russell, Tapscott). Checks made in Lynn and Terry Counties revealed M. packardii, Amphitornus coloradus and M. occidentalis as dominant species. All counts both in field and margin less than 15 per square yard. (Whitaker). Undetermined species found heavy in Lamar County. Most in second instar and still around hatching beds. (Turney). OKLAHOMA - Counts averaged 2 nymphs per square yard in rangeland in Stephens County (Hatfield) and second and third-instar nymphs averaged 3 per square yard in alfalfa margins in McIntosh County; dominant species in McIntosh County were M. bivittatus and M. differentialis. (Goin). COLORADO - Melanoplus spp. predominant species present. Rangeland counts were: 0-30 per square yard (first to third instars), concentrated in small areas, on 2,500 acres southwest of Walsenburg, Huerfano County; 10-20 per square yard (first and second instars) south of Cherry Hills, Arapahoe County; 5-10 per square yard (second to fourth instars) west of Sedalia, Douglas County; 0-2 per square yard in Teller County. (Colo. Ins. Sur.). UTAH - A. elliotti and M. bilituratus average 50 per square yard at some Snowville-Blue Creek areas and 10 per square yard in Rozel flats area, Box Elder County. (Thornley, Knowlton). Grasshopper hatch general in Davis County, with some nymphs one-half grown. Camula pellucida infesting a 3-4 square-mile meadow area near Richfield, Sevier County, 10-50 per square yard. Other outbreaks reported from Kane County, 6 miles north of Glendale, and from Beaver County on pasture lands. Grasshoppers, recently hatched to winged forms, in areas of Washington, Kane, Sanpete and Iron Counties, with populations rarely high. (Knowlton). KANSAS - Counts of M. bilituratus and M. bivittatus in field margins in south central and southeastern areas less than 1 per sweep. Infestations spotty and not general. Stage of growth ranged from second-instar nymphs to adults for M. bivittatus and second to fourth instar for M. bilituratus. (Peters). SOUTH DAKOTA - Nymphal surveys through central area indicated only light hatching occurring. Highest counts 50 per square yard on field margins in Hughes County. Very light elsewhere in area. (Burge). MINNESOTA - Development of eggs as follows: Central and west central districts - M. femur-rubrum coagulated to eye-spot; M. bivittatus and M. bilituratus segmentation complete; M. differentialis segmentation complete. Light hatch observed in west central, central and northwest districts. Hatch of M. bivittatus and M. bilituratus expected in Benson area during week ending June 17; eggs plentiful in soil bank land in area. (Minn. Ins. Rpt.).

NORTH DAKOTA - Nymphal survey conducted in southeast and south central sections showed generally noneconomic populations in fields, field margins and roadsides. However, survey stops in weedy soil bank fields near Brampton, Sargent County, and Oakes, Dickey County, showed threatening to severe infestations. M. bilituratus, first to fourth-instar nymphs, averaged 100 per square yard at Brampton stop. The Oakes infestation consisted of 50 percent M. bilituratus and 50 percent M. bivittatus and counts averaged 100 nymphs per square yard. Elsewhere, M. bivittatus appeared to be dominant species with development ranging from first to third instar. Cool temperatures and heavy plant growth appear to have slowed hatch in heavy soil areas. Survey in southwest shows mostly noneconomic infestation in crop and rangeland. Range stops in 2-section area of McKenzie County

showed an average of 36 Ageneotettix deorum first-instar nymphs per square yard. (N. D. Ins. Sur.). WISCONSIN - Eggs of M. femur-rubrum ranged from coagulated to eye-spot in Marinette, Green Lake and Waushara Counties; and M. bilituratus nymphs (first to third instar) common but not numerous in Sauk, Green Lake and Waushara County alfalfa. (Wis. Coop. Sur.). ILLINOIS - Nymphs varied 0-30 per 100 sweeps in clover and alfalfa. (Ill. Ins. Rpt.). MARYLAND - Moderate numbers of small nymphs noted in soybean fields on lower Eastern Shore. (U. Md., Ent. Dept.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW YORK - Moth emergence in screen-house at Poughkeepsie reached 25 percent by June 3; egg masses began hatching May 30. (N. Y. Wkly. Rpt.). MASSACHUSETTS - Eggs found in Hampshire, Plymouth and Middlesex Counties. (Crop Pest Cont. Mess.). DELAWARE - Fresh egg masses present in corn in Kent County. Larvae, mostly first with some second instars, abundant in cornfield in southeastern Sussex County. Larvae present in other fields of corn in same county. First, second and third-instar larvae present in wheat in northwestern Sussex County. (Burbutis, Mason). MARYLAND - First and second-instar larval infestations ranged 10-60 percent on early planted field corn in Dorchester County. Light in field and sweet corn in Talbot County. (U. Md., Ent. Dept.). OHIO - First oviposition noted June 2 at Columbus. Adult emergence 10 percent at Columbus on June 7, with some adults flying; an average of 4 egg masses per 100 plants examined, all freshly laid. (Triplehorn). ILLINOIS - Pupation complete, with over 80 percent emergence in southern area. Egg masses in one extremely early patch of sweet corn 60 per 100 plants, with over 60 percent hatch. Emergence ranged 25-80 percent in central area and 0-25 percent in northern area. (Ill. Ins. Rpt.). IOWA - Moths began flying at Ames on May 31; pupae 8 percent emerged at Ankeny on June 3. (Iowa Ins. Inf.). MINNESOTA - Pupation in south central and southwest districts nearly complete; in western edge of southwest, pupation 50 percent, much lower than rest of district. (Minn. Ins. Rpt.).

CUTWORMS - IDAHO - Adults of various species emerging in large numbers throughout State from Moscow south and east to Bingham County and are being attracted to lights in extremely large numbers. In southern area, Chorizagrotis auxiliaris appears to be predominant. This is same general area where the extremely heavy outbreak of this species occurred during early spring in rangeland areas. In Moscow area, some C. auxiliaris evident, but dominant species are Platyperigea extima and Spaelotis haviata. (Bishop, Portman, Manis). MONTANA - Most counties in northeastern area have varying infestations of Agrotis orthogonia. Infestation extremely spotted, with the general area being about 100 miles long by 50 miles wide. (Roemhild, May 15-June 1). SOUTH DAKOTA - C. auxiliaris causing much damage to corn in north central area. Also found in other small grain fields but damage noted only in corn at present time. Counts in corn fields averaged 3 per linear foot of row. Some hills of corn had populations as high as 6 per hill. A. orthogonia found in north central area in corn fields along with C. auxiliaris. Populations varied 1-3 per linear foot of corn row. (Mast). NEBRASKA - Area infested by cutworms, probably A. epsilon, continues to expand. Surveys show that practically all corn fields in eastern third of State contain varying degrees of damage, ranging from less than 1 to 40 percent. Most larvae about one-half grown. Damage primarily to plants less than 5 inches tall. (Simpson). KANSAS - Unidentified species cutting off corn, 4-6 inches high, at or just below ground level, in field in Republic County; field had been band treated at planting time. Peridroma saucia larval populations high enough to treat regrowth alfalfa in field in Chase County. (Gates). MISSOURI - Stalks of corn throughout northern half of State continue to be damaged by Feltia subgothica, with most damage confined to north central and northeast areas. P. saucia causing damage to new growth of alfalfa in northwest; counts in field in St. Joseph area ranged 2-5 per square foot. (Munson, Thomas, Kyd). MARYLAND - An unspecified species has been very destructive to young corn at several locations in Allegany County. (U. Md., Ent. Dept.).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - ARKANSAS - Eggs being laid in northern area, while in southern area second and third-instar larvae present in some corn. (Whitcomb).

STALK BORER (Papaipema nebris) - KANSAS - Attacking corn about 4 inches tall; moving from field margins in Pottawatomie County. (Burkhardt). Also collected from rye in Sedgwick County. (Peters).

CORN EARWORM (Heliothis zea) - DELAWARE - First larvae of season noted in alfalfa in northwestern Sussex County. (Burbutis, Mason). NORTH CAROLINA - Injuring peanuts in Columbus County. (Raper, Farrier). OKLAHOMA - Light in 4 alfalfa fields in east central area and 6-13 per 100 stalks in corn and grain sorghum in east central area (Robinson); 1-2 per sweep in alfalfa and 20 per 100 stalks in corn in Choctaw County (Goin). KANSAS - Observed in alfalfa in south central and southeastern areas; counts averaged less than 1 per sweep. (Peters).

CORN BLOTCH LEAF MINER (Agromyza parvicornis) - DELAWARE - Larvae fairly common and active in corn in Kent County. (Burbutis, Mason).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Counts ranged from occasional to medium in 6 fields of corn checked in east central area (Robinson) and medium to heavy (30 per stalk) in some corn and grain sorghum fields in Choctaw County (Goin). NEBRASKA - Very low populations of winged forms found in 50 percent of corn fields checked in east and northeast counties. (Simpson). IOWA - Present in oats at Ames. (Iowa Ins. Inf., June 6). WISCONSIN - First specimen recorded May 25 in trap at Arlington. Present in very low numbers in oat fields and increasing in barley fields. (Wis. Coop. Sur.). LOUISIANA - Heavy infestations on barnyardgrass near Laplace. (Spink).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Light in 6 fields of corn checked in Hughes, Okfuskee and Okmulgee Counties; counts averaged up to 0.5 per stalk. Counts averaged 2 per linear foot in field of grain sorghum in Hughes County. (Robinson). KANSAS - Damaging field of sorghum in Montgomery County. (Peters).

CORN FLEA BEETLE (Chaetocnema pulicaria) - NEW YORK - Populations extremely varied at Poughkeepsie; counts in field of corn planted in mid-April on June 2 showed 53 beetles per 100 plants, and on June 3 in field near Kerhonkson showed 49 per 100 plants. Lesions of Stewart's disease found on at least 3 percent of plants in Poughkeepsie field; and at the Kerhonkson field, 1 percent of plants showed infection. (N. Y. Wkly. Rpt.). DELAWARE - Adults present in most corn fields in State; causing very light feeding injury. (Burbutis, Mason). OKLAHOMA - Light, 2 per stalk, in cornfield in Choctaw County. (Goin). Occasional to light in 6 fields of corn checked in east central area. (Robinson).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - Counts 4-5 per cornstalk in 3-acre field in Cumberland County, with some stalks badly injured. (Chadwick).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - DELAWARE - Adults present in alfalfa throughout State. (Burbutis, Mason). IOWA - Adults feeding on corn leaves. (Iowa Ins. Inf., June 6). NEBRASKA - Adults slowly increasing, but less than 1 per 10 sweeps. (Simpson).

WIREWORMS - MONTANA - Unspecified species caused some damage to small grains; several fields in Meagher County reseeded. (Roemhild, May 15-June 1). NORTH DAKOTA - A severe infestation of Hypolithus nocturnus attacking corn near Wimbleton, Barnes County; nearly 60 percent of plants in 60-acre field destroyed. Adjacent fields of barley and oats showed slight damage from wireworm feeding. Reports of wireworm injury to small grains received from northeast. (N. D. Ins. Sur.). MISSOURI - Damage to corn by Melanotus spp. evident in small areas throughout State. Damage to individual fields usually confined to small spots. In some cases, whole fields had to be replanted. (Munson, Thomas, Kyd). ILLINOIS - Wireworms reported from scattered locations; one cornfield had approximately 25 percent loss of stand. Of many fields examined, this would average about 2 percent loss. (Ill. Ins. Rpt.).

SPIDER MITES - ARIZONA - Tetranychus cinnabarinus very heavy on some corn in Yuma area. (Ariz. Coop. Sur.) NEW MEXICO - Oligonychus stickneyi building up on sweet corn and light to spotty in early field corn in Dona Ana County. (N. M. Coop. Rpt.).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - LOUISIANA - Adults averaged 32 per 100 sweeps in rice in St. James Parish. A severe larval infestation found in Lake Charles area. More than 20 per rice stool collected in some fields. (Spink).

WHEAT STEM MAGGOT (Meromyza americana) - KANSAS - Several wheat fields infested in south central, southeast and east central areas; less than 1 percent of plants infested. (Peters).

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Found in several wheat and barley fields in south central and southeastern areas. Counts less than 1 per 1,000 heads. Reports of damaged grain expected over entire area at harvest, although large amount of damage not predicted. (Peters).

ARMYWORM (Pseudaletia unipuncta) - DELAWARE - Larvae fairly common in cornfield in New Castle County; causing feeding injury. (Burbutis, Mason). ILLINOIS - Abundant enough in Clinton County to warrant treatment in several small grain fields; however, populations light in eastern and western areas. (Ill. Ins. Rpt.). MISSOURI - Some damage to barley and grasses in pastures, with damage confined to heavy growth that had gone down. Counts in barley and grass ranged 0-6 larvae per square foot. (Munson, Thomas, Kyd).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Common, sometimes damaging wheat in Tooele-Erda area of Tooele County; light on barley in Delta-Oasis area of Millard County; and very light in Beaver-Minersville area of Beaver County. (Knowlton). COLORADO - Counts in wheat 300 per 100 sweeps in Montrose County. (Colo. Ins. Sur.).

WHEAT CURL MITE (Aceria tulipae) - WASHINGTON - Early seeded winter wheat occasionally infested in eastern area. (Bruehl).

GREENBUG (Toxoptera graminum) - IOWA - Present in oats at Ames (averaged 1 adult female per linear foot). Yellow dwarf virus present in variety plots at Ames. (Iowa Ins. Inf., June 6). NEBRASKA - T. graminum, Rhopalosiphum fitchii and Macrosiphum granarium very low in small grains; T. graminum counts highest, with 8 per 10 sweeps in 2 fields. (Simpson). MINNESOTA - Present in Watonwan County. (Minn. Ins. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - DELAWARE - Present on young corn in Kent County. (Burbutis, Mason). NORTH DAKOTA - Counts average 0-2 per 50 sweeps in small grain in southeast area. (N. D. Ins. Sur.). WISCONSIN - Fair numbers present in oats in several scattered areas. (Wis. Coop. Sur.).

A BUG (Sehirus cinctus) - NORTH CAROLINA - Heavy infestation in oats in Cleveland County; injury not noticeable at this time. (Jones).

A CHINCH BUG (Blissus leucopterus insularis) - LOUISIANA - St. Augustine grass lawns being severely damaged throughout most of State. (Spink).

THRIPS (Chirothrips falsus and C. mexicanus) - ARIZONA - Ranged 2-4 per boot in some Bermuda grass seed fields in Yuma. (Ariz. Coop. Sur.).

AN ERIOPHYID MITE (Aceria n. sp.) - CALIFORNIA - First occurrence of this mite in field of commercial Bermuda grass in Westmorland area, Imperial County. Less than 5 percent of stand stunted. (V. Roth). ARIZONA - Found in Yuma on borders and edges of Bermuda grass seed fields; not developing into fields. Infesting many lawns in Maricopa, Yuma, Pinal and Pima Counties. (Ariz. Coop. Sur.).

MEADOW PLANT BUG (Leptopterna dolabratus) - MISSOURI - Heavy infestations observed in bluegrass throughout northern half of State; counts ranged 4-20 large nymphs and adults per sweep. (Munson, Thomas, Kyd).

KATYDIDS (Stieroxys spp.) - WASHINGTON - Infesting about 1,200 acres of range grassland in Benton County. (Chinn, Stewart).

A MIRID (Irbisia sp.) - MONTANA - Caused heavy damage to intermediate wheatgrass and less damage to crested and bluestem wheatgrass in Choteau County. (Roemhild, May 15-June 1).

WHITE-LINED SPHINX (Celerio lineata) - NEVADA - Infestation covering 15-20 square miles of rangeland present north of Nixon, Washoe County. Larvae of all instars averaged 15 per square yard in area of heaviest concentration and 2-5 in lighter areas. Some larvae migrated to croplands. At present not feeding on alfalfa or other crops, but consuming weeds such as dock, bassia and Russianthistle. (Bechtel, Martinelli, Parker).

THRIPS (undetermined) - DELAWARE - Very common to numerous in whorls of corn throughout State and in wheat in northern Sussex County. Another thrips present in soybeans in Kent County. (Burbutis, Mason). MARYLAND - Heavy numbers swept from alfalfa in Talbot and Dorchester Counties; light injury noted. Common on sweet corn and soybeans on Eastern Shore; moderate to heavy leaf streaking apparent. (U. Md., Ent. Dept.). GEORGIA - Some peanut fields in southern area with moderate infestations; most fields free of infestations. (Johnson). OKLAHOMA - Medium, 100 plus per square foot of crown area, in field of alfalfa in Tillman County. (Hatfield). UTAH - Moderate to numerous in some Beaver and Millard County alfalfa fields. (Knowlton).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - MASSACHUSETTS - Counts as high as 49 per 25 stems on alfalfa; rosetting of plants common throughout Berkshire County. (Tunis). DELAWARE - Adults abundant in field of clover in New Castle County; 20 per sweep. Adults present on alfalfa in New Castle and Kent Counties; nymphs present in Sussex County. (Burbutis, Mason). MARYLAND - Adults common in alfalfa and red clover in most sections. (U. Md., Ent. Dept.). INDIANA - Very heavy infestations on alfalfa and red clover in eastern counties. Counts in Randolph, Wayne, Fayette, Union, Franklin, Dearborn and Ripley Counties average 300 nymphs per 100 stems. Counts in northeastern counties of Adams, Wells, Allen, Whitley, De Kalb and Noble average 520 nymphs per 100 stems. Westward, infestations decline rapidly, infestations being unusually low in western counties. (Wilson). ILLINOIS - Adults ranged 0-1,600 per 100 sweeps in clover and alfalfa and nymphs ranged 0-40 per 100 stems in western area. (Ill. Ins. Rpt.). WISCONSIN - Averaged less than or about 2 nymphs per 10 alfalfa stems in Calumet, Brown, Manitowoc, Oconto, Washington, Waukesha, Winnebago, Waushara, Jefferson, Sheboygan and Kewaunee Counties; but 5 and 7 nymphs per 10 stems were respective averages for Outagamie and Marinette Counties. (Wis. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - GEORGIA - Infesting alfalfa in Morgan County, 20 per 100 sweeps. (Johnson). OKLAHOMA - Light, 0.1 per sweep, in field of alfalfa checked in Choctaw County. (Goins).

LYGUS BUGS (Lygus spp.) - NEVADA - Averaged 5-10 per sweep in alfalfa in Mason and Smith Valleys, Lyon and Churchill Counties (Parker), 15-25 per sweep in alfalfa in Panaca, Lincoln County (Lauderdale). ARIZONA - Counts 2-5 adults per sweep in alfalfa seed fields in Yuma County; many nymphs present. (Ariz. Coop. Sur.). NEW MEXICO - Averaged 40 adults and nymphs per 100 sweeps in alfalfa near Malaga, Eddy County. (N. M. Coop. Rpt.). UTAH - Numerous to very numerous in alfalfa in areas of Box Elder and Millard Counties, causing some white-bud injury to alfalfa in Delta-Sutherland area. (Knowlton, Thornley). WYOMING - Adults averaged 4 per 25 sweeps and nymphs 2 per sweep in alfalfa in Sheridan and Johnson Counties. Nymphs averaged less than 1 per sweep in each alfalfa field in Campbell County. (Fullerton). COLORADO - Counts 80-100 per 100 sweeps in Montrose County. (Colo. Ins. Sur.). OKLAHOMA - Counts averaged 0.5 per sweep in alfalfa checked in east

central area (Robinson); 5-15 per sweep in 2 fields of alfalfa and vetch in Choctaw County (Goin); and 5 per square foot of crown area in field of alfalfa in Tillman County (Hatfield).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Adults averaged 1 per sweep or slightly less in most alfalfa in State. (Burbutis, Mason). ILLINOIS - Adults ranged 0-60 per 100 sweeps and nymphs 40-200 per 100 sweeps in clover and alfalfa. (Ill. Ins. Rpt.). WISCONSIN - Adults averaged about 1 per 10 sweeps in alfalfa. (Wis. Coop. Sur.). NORTH DAKOTA - In southeast, counts average 1 adult per 20 sweeps and 1-15 nymphs per 10 sweeps. Nymphal populations appear higher than usual in area. (N. D. Ins. Sur.). NEBRASKA - Gradually building up in eastern counties in alfalfa; highest counts 2 per sweep. (Simpson).

RAPID PLANT BUG (Adelphocoris rapidus) - DELAWARE - Adults and nymphs remain present on alfalfa in most areas; numbers generally reduced. (Burbutis, Mason). ILLINOIS - Ranged 0-40 per 100 sweeps in clover and alfalfa. (Ill. Ins. Rpt.). NEBRASKA - Occasional specimen collected in alfalfa in east and northeast counties. (Simpson). WISCONSIN - Nymphs averaged about 1 per 10 sweeps in alfalfa. (Wis. Coop. Sur.).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - ILLINOIS - Ranged 0-160 adults per 100 sweeps in clover and alfalfa. (Ill. Ins. Rpt.). NORTH DAKOTA - Nymphal counts range 1-4 per 10 sweeps in southeast. (N. D. Ins. Rpt.).

GARDEN FLEAHOPPER (Halticus bracteatus) - DELAWARE - Adults present in alfalfa in Kent County. (Burbutis, Mason). ILLINOIS - Adults ranged 0-40 per 100 sweeps in clover and alfalfa in western area. (Ill. Ins. Rpt.).

SAY STINK BUG (Chlorochroa sayi) - UTAH - Present, but light, in Millard and Beaver County fields; more numerous in field at Kanosh. More found about State than at same time in 1959. (Knowlton).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - NEBRASKA - Very low populations in small grains and grasses in northeastern counties. (Simpson). NORTH DAKOTA - Adults continue light in southeast and south central areas. Counts in small grains and legumes average 1 per 10 sweeps. (N. D. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - DELAWARE - Adults present to fairly common on soybeans in Kent County and present in alfalfa in Sussex County, with average of 2 per 10 sweeps. (Burbutis, Mason). MARYLAND - On Eastern Shore, adults increased slightly on alfalfa; averaging about 1 per sweep. (U. Md., Ent. Dept.). NORTH CAROLINA - Leafhoppers, believed to be this species, numerous on Bermuda grass lawns and biting man in Scotland County. (Alford). WISCONSIN - Averaged about 3 per 100 sweeps in some southern area alfalfa. (Wis. Coop. Sur.). NORTH DAKOTA - First adult of season collected June 7 at Oakes. (N. D. Ins. Sur.).

PEA APHID (Macrosiphum pisi) - OREGON - Populations in alfalfa in Klamath County less than 1 per sweep. During spring of 1959, this species was so abundant in this area that some plants were killed and growth of first cutting was retarded. Almost no predators observed. (Dickason). NEVADA - Averaged 15-20 per sweep in most alfalfa in Mason and Smith Valleys, Lyon County, and 10-30 per sweep in most fields in Churchill County. Few fields in Churchill County averaged 60-150 per sweep. (Parker). Averaged 10-20 per sweep in Panaca, Lincoln County, (first general increase this year); and 1-2 per sweep in Pahrump Valley, Nye County. (Lauderdale). UTAH - Generally light to moderate in west Millard County alfalfa and moderately numerous to numerous in alfalfa at Beaver and Minersville in Beaver County. (Knowlton). COLORADO - Counts in alfalfa 500-6,000 per 100 sweeps in Weld and Larimer Counties; 3,000 per 100 sweeps in Mesa County; and 200 per 100 sweeps in Delta County. (Colo. Ins. Sur.). WYOMING - Averaged 1 per sweep in 18 alfalfa fields checked in Campbell, Sheridan and Johnson Counties. (Fullerton). OKLAHOMA - Light, 20 per square foot, in field of sweetclover in Lincoln County (Stiles); counts ranged 10-75 per sweep in alfalfa checked in

Hughes, Okfuskee, Okmulgee and McIntosh Counties (Robinson); ranged 15-60 per sweep in 3 fields of vetch and alfalfa in Choctaw County (Goin); and 5 per sweep in field of alfalfa in Jefferson County (Vinson). NEBRASKA - First cutting alfalfa almost complete. Counts in uncut fields ranged 75-300 per 10 sweeps. Parasites very numerous in some fields in northeast. (Simpson). Counts in sweetclover remain at moderate levels, averaging 1,010 per 100 sweeps in Cass and Lancaster Counties. (Manglitz). NORTH DAKOTA - Populations in legumes increasing in southeast; counts ranged 1-10 per 10 sweeps. (N. D. Ins. Sur.). MINNESOTA - Generally low; counts ranged 0-25 per 10 sweeps in central, west central, southwest and northwest districts. (Minn. Ins. Rpt.). WISCONSIN - Counts as high as 28 per sweep in alfalfa in Calumet County and about 10 per sweep in Columbia, Outagamie, Kewaunee and Sheboygan Counties. Low counts were in Manitowoc and Brown Counties; 3-5 per sweep. In clover, counts of 2.5 and 4 per sweep recorded in Sheboygan and Outagamie Counties, respectively. (Wis. Coop. Sur.). ILLINOIS - Populations varied 200-8,000 per 100 sweeps in clover and alfalfa. (Ill. Ins. Rpt.). MARYLAND - Not a problem on second-growth alfalfa in central and southern sections. (U. Md., Ent. Dept.). DELAWARE - Present in alfalfa, clover and peas throughout State; not heavy enough to cause serious injury. (Burbutis, Mason).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - None found in Panaca, Lincoln County (Lauderdale) or Lyon County (Parker). UTAH - Rare in west Millard County alfalfa. (Knowlton) OKLAHOMA - Light, 2-10 per sweep, in 2 fields of alfalfa in Choctaw County (Goin); medium, 250 per sweep, in alfalfafield in Jefferson County (Vinson). Light, 40 per square foot, in field of alfalfa in Tillman County. (Hatfield).

YELLOW CLOVER APHID (Therioaphis trifolii) - ILLINOIS - Ranged 0-40 per 100 sweeps. (Ill. Ins. Rpt.).

SWEETCLOVER APHID (Therioaphis richmi) - NEBRASKA - Counts average 10 per 100 sweeps in Lancaster and Cass Counties in sweetclover. (Manglitz).

COWPEA APHID (Aphis medicaginis) - NEW MEXICO - Moderate to heavy on alfalfa in Malaga area of Eddy County. (N. M. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - NEVADA - Averaged 30-35 per sweep in Panaca, Lincoln County (Lauderdale); 4-6 per sweep in some fields in Smith Valley, Lyon County, and 15-20 per sweep in several fields in Mason Valley, Lyon County; 5-10 per sweep in some fields in Fallon, Churchill County; and 40-60 per sweep in field in Stillwater, Churchill County (Parker). UTAH - Damage becoming noticeable in some Box Elder, Weber, Davis and Salt Lake County untreated fields in northern area; and in Delta and Leamington in Millard County. Damaging in many Beaver, Millard and Iron County fields. Several thousand acres treated during past week in Milford, Beryl and Minersville areas. (Knowlton). WYOMING - Adults averaged 5 per 25 sweeps and larvae averaged 1 per sweep in 18 alfalfa fields checked in Campbell, Sheridan and Johnson Counties. (Fullerton). COLORADO - Larval counts 100-800 per 100 sweeps in alfalfa in Larimer and Weld Counties; 2,000 per 100 sweeps (20 percent parasitized) in untreated fields in Mesa County, with counts 10-50 per 100 sweep (75 percent parasitized) in fields where early controls applied; 2,000 per 100 sweeps in Delta County; and 200 per 100 sweeps in Montrose County. (Colo. Ins. Sur.). NEBRASKA - Pupating larvae collected 5 miles southwest of Lexington in Dawson County; a new county record. (Stevens). NEW YORK - Larvae averaged 200 per sweep in field of alfalfa at Brewster. Whitening of foliage taking place. (N. Y. Wkly. Rpt.). MASSACHUSETTS - Larval counts in southern Berkshire County as high as 38 per 100 sweeps. (Tunis). MARYLAND - Heavy injury to second-growth alfalfa in Kent County. Light to moderate on second-growth alfalfa on lower Eastern Shore. (U. Md., Ent. Dept.). DELAWARE - Larvae averaged 1-4 per sweep in second-growth alfalfa; one field in New Castle and one in Kent County averaged 8-10 larvae per sweep. Adults remain present most areas. (Burbutis, Mason).

CLOVER LEAF WEEVIL (Hypera punctata) - KANSAS - Few adults collected in Sedgwick and Elk Counties; counts less than 1 per sweep. (Peters).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - DELAWARE - New adults very common; 2 per sweep in field of clover in New Castle County. (Burbutis, Mason). OHIO - First emergence of new adults observed on June 2 in insectary in Wayne County. (Sechriest). ILLINOIS - Larvae in western area infested 50-60 percent of red clover stems. (Ill. Ins. Rpt.).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - ILLINOIS - Collected in Henry County for first time. (Ill. Ins. Rpt.). WISCONSIN - Averaged 1 per 10 sweeps in Sheboygan County clover. (Wis. Coop. Sur.) IDAHO - Adult migration into alsike and white clover has commenced. Populations in clover fields average up to 2 per 10 sweeps. (Futter, Portman).

A CLOVER WEEVIL (Tychius stephensi) - ILLINOIS - Collected in Bureau County for first time. (Ill. Ins. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - KANSAS - Larvae causing damage to regrowth after first cutting of alfalfa in Leavenworth County. (Gates). Few adults collected in Sumner and Sedgwick Counties; damage not apparent. (Peters).

CURCULIOS (Sitona spp.) - OHIO - Found damaging new seeding of clover and alfalfa in Auglaize County on June 1. Some leaf feeding observed on established alfalfa nearby. (Blair).

VETCH BRUCHID (Bruchus brachialis) - NEBRASKA - Infestations found in vetch in Antelope County. Det. by P. J. Spangler. A new record for the State. (Roselle).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - DELAWARE - Larvae present in alfalfa in Sussex County; averaging 1 per 10 sweeps. (Burbutis, Mason). ILLINOIS - Larvae averaged 1-5 per 100 sweeps in clover and alfalfa in western area. (Ill. Ins. Rpt.). OKLAHOMA - Occasional to light in alfalfa in east central and south central areas. (Robinson, Vinson). KANSAS - Larvae collected in several fields of alfalfa in south central and southeastern areas; counts less than 1 per sweep. (Peters). WYOMING - Numerous adults flying in alfalfa fields in Campbell, Sheridan and Johnson Counties. No larvae found. (Fullerton).

FORAGE LOOPER (Caenurgina erechtea) - KANSAS - Collected in several fields of alfalfa in southeast; counts averaged less than 1 per sweep. (Peters).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Light in alfalfa checked in east central and southeastern areas. (Robinson, Goin). KANSAS - Observed in few alfalfa fields in south central and southeastern areas; counts less than 1 per sweep. (Peters). ILLINOIS - Varied 0-40 per 100 sweeps in clover and alfalfa. (Ill. Ins. Rpt.). MARYLAND - Light numbers of small larvae taken by sweeping second-growth alfalfa in Dorchester County. (U. Md., Ent. Dept.).

WEBWORMS (Loxostege spp.) - KANSAS - Collected in field of alfalfa in Elk County; less than 1 per sweep. (Peters). COLORADO - Larvae of L. commixtalis feeding on seedling alfalfa in Crowley County. (Colo. Ins. Sur.). NEBRASKA - L. sticticalis increasing in western portion of State; some control underway. (Simpson).

PALE-STRIPED FLEA BEETLE (Systema blanda) - DELAWARE - Adults present in soybeans and alfalfa in Kent County. (Burbutis, Mason). MARYLAND - Adults averaged 2 per sweep on second-growth red clover at Bushwood, St. Marys County. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - SOUTH CAROLINA - Adults numerous but doing little damage to soybeans in Lee County. (Nettles et al.). MARYLAND - Moderate foliage injury from adult feeding noted in large soybean field in Dorchester County. (U. Md., Ent. Dept.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - DELAWARE - Adults gradually becoming more numerous on soybeans in most areas, with heaviest infestation in Kent County. (Burbutis, Mason). MARYLAND - Light to moderate foliage injury noticeable on young soybeans on Eastern Shore. (U. Md., Ent. Dept.). ILLINOIS - Adults varied 0.5-3 per linear foot of row in soybeans in east-southeast section, with 100 percent of plants showing feeding in some fields. Two fields, with 25 percent loss of foliage, treated. (Ill. Ins. Rpt.). IOWA - Damage to soybeans reported in Woodbury County. (Iowa Ins. Inf., June 6).

A SPRINGTAIL (Entomobrya nivalis) - CALIFORNIA - Heavy infestation on flax in Brawley, Imperial County. (Cal. Coop. Rpt.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - INDIANA - Packing house emergence from apples at Orleans totaled 366 for the period June 1-7, indicating peak emergence is at hand or past. Heavy hatch also indicated for June 12-17. New larval entries easily found in the orchard. (Marshall, June 7). Fruit entries present but generally very scarce in sprayed orchards at Vincennes. (Cleveland, June 6). NEW YORK - One adult was collected in bait traps June 1, the day traps were put out in Niagara County; 14 more were taken in 4 traps on nights of June 2 and 3. None have appeared in traps located in the lake zone. Began emerging in Monroe County June 1 at Spencerport. (N. Y. Wkly. Rpt.). MISSOURI - Light infestations of very small larvae appearing in all sections on apples. Most larvae half-grown or more in southeast section. (Wkly. Rpt. Fr. Gr.). OHIO - First larva noted entering apple in Marietta area, Washington County, on June 4. (Stacy). MASSACHUSETTS - This is the next pest of major concern to apple growers. Egg laying has already begun and warm evenings will bring about an increase in egg laying and hatching during next 3-4 weeks. (Crop Pest Cont. Mess.). OREGON - Eggs observed on untreated pear trees in Medford May 25; egg hatching common on June 7; one larva noted entering fruit June 2. (Berry, Gentner).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - NEW YORK - On June 3, eggs were 100 percent hatched in all but lakeside orchards in western part of State. Marked egg masses were 97 percent hatched in an orchard about one-quarter mile from Lake Ontario. Moth emergence in 5 cages at Geneva has been as follows: May 23 - 3; May 25 - 2; May 27 - 5; May 30 - 28; June 1 - 6; June 6 - 18. Indications are that a few eggs will be hatching June 10-15, particularly in problem orchards. Larvae are difficult to control in 4 orchards in Newburgh area, Orange County. (N. Y. Wkly. Rpt., June 6). MISSOURI - Remains plentiful, especially in northwest, although most are pupating. In central area, pupae taken into laboratory June 2 yielded adults June 8. Therefore, next brood will be present in about 7-10 days. (Wkly. Rpt. Fr. Gr.).

PLUM CURCULIO (Conotrachelus nenuphar) - NEW YORK - Fresh egg laying has been noted in Orange County. Some injury appearing in Orleans County, where timing of controls was poor. Cutting heavy in some sweet cherry and prune orchards in Monroe County. (N. Y. Wkly. Rpt., June 6). GEORGIA - Emergence of new adults from soil expected to start during week June 12-18 at Ft. Valley. Though these new beetles will not deposit second-generation eggs in peaches until latter part of June or early July, they will feed freely on peaches and resulting feeding punctures will facilitate entrance and growth of brown rot. (Snapp). SOUTH CAROLINA - Untreated plum trees in Kershaw County almost 100 percent infested on June 1; apparently none of larvae had left fruit to enter soil. (Nettles et al.).

ROSY APPLE APHID (Anuraphis roseus) - INDIANA - Has subsided for the season in the Orleans area, after having caused considerable damage. (Marshall, June 7). Some infestations still present at Vincennes but appear to be declining rapidly. (Cleveland, June 6). NEW JERSEY - More numerous on apples than for several years. (Ins.-Dis. Newsl., June 7). NEW YORK - Quite evident on untreated trees in Niagara County, with considerable rolling of leaves on terminal growth. (N. Y. Wkly. Rpt., June 6). OHIO - Common and damaging apple foliage in southern section of State as of June 6. (Holdsworth).

APPLE APHID (Aphis pomi) - NEW JERSEY - Migration on apples is increasing. (Ins.-Dis. Newsl., June 7).

FORBES SCALE (Aspidiotus forbesi) - MISSOURI - Few crawlers present June 8 in southeast area, indicating appearance to be a little later than usual. (Wkly. Rpt. Fr. Gr.).

BUFFALO TREEHOPPER (Stictocephala bupalus) - NEW YORK - Severe damage and infestation on young apple and peach trees in Monroe County. (N. Y. Wkly. Rpt., June 6).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Excellent control being maintained in most treated orchards at Vincennes. Counts per 100 leaves in an untreated orchard were 1,520 adults, 1,100 nymphs and 15,780 eggs. (Cleveland, June 6). MISSOURI - Reports from northwest indicate presence in most orchards, although most infestations are light; average about 1 per leaf. (Wkly. Rpt. Fr. Gr.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - INDIANA - Appearing to a very limited degree in some blocks in Vincennes area. Counts per 100 leaves in an untreated orchard were 0 adults, 40 nymphs and 140 eggs. (Cleveland, June 6). NEW MEXICO - Light and spotty in one orchard in Dona Ana County. (N. M. Coop. Rpt.).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Severely damaging pears along Snake River, Whitman County. (Telford).

GREEN PEACH APHID (Myzus persicae) - IDAHO - Developing rapidly on peach trees in Power, Bingham and Bonneville Counties. Light infestations, mostly stem mothers, observed on apricot trees in Butte and Custer Counties. (Bishop).

MEALY PLUM APHID (Hyalopterus arundinis) - NEW MEXICO - Heavy on new growth of apricot trees in Las Cruces, Dona Ana County. (N. M. Coop. Rpt.).

BLACK CHERRY APHID (Myzus cerasi) - OHIO - Curled leaves appearing on sweet cherries at Wooster, Wayne County, on June 1. (Rings). UTAH - Infestations spotty, causing only local injury at Brigham and Kaysville in northern part of State. (Knowlton).

CATFACING INSECTS - INDIANA - Stink bugs have caused considerable damage to peaches in the Orleans area; there is reason to believe that where they have been severe they will continue. (Marshall, June 7).

A PLANT BUG (Neolygus omnivagus) - OHIO - Exceedingly abundant in Wooster area, Wayne County, and causing much damage to treated and untreated peaches June 3. (Rings).

WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - OREGON - First adults of season emerged in Jackson County on May 24 and in Hood River County on June 2. (Berry, Ellertson).

CHERRY MAGGOT (Rhagoletis cingulata) - NEW YORK - Adults emerged in Spencerport area of Monroe County June 1 in seeded cages; also began emerging on same date in Wayne County. (N. Y. Wkly. Rpt., June 6).

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) - NEW YORK - First emergence occurred at Geneva on June 1 and has been steady and heavy since that date. (N. Y. Wkly. Rpt., June 6).

PECAN NUT CASEBEARER (Acrobasis caryae) - LOUISIANA - Heavy infestations noted on pecans in Lake Charles area, Calcasieu Parish. (Spink). NEW MEXICO - Damaging new nut clusters in Carlsbad, Eddy County. (N. M. Coop. Rpt.). TEXAS - In Sterling County, first eggs found May 23 and first larva May 29. Insecticide applications have been completed in the major commercial areas. (Texas Coop. Rpt.). GEORGIA - Light to moderate infestations on pecans in Bibb, Houston, Colquitt and Mitchell Counties. (Johnson). OKLAHOMA - Counts averaged 12 percent larval infestation and 20 percent egg infestation in nut clusters checked on native pecan trees in Jefferson County. (Vinson).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Isolated infestations of small larvae observed on pecans in Sterling County. Very small to half-grown larvae reported on pecan trees in home lawns in Gonzales County, with none observed in commercial orchards. (Texas Coop. Rpt.).

CANKERWORMS - NEW YORK - Paleacrita vernata and Alsophila pometaria are abundant in some untreated trees in Niagara County, with walnut trees showing complete defoliation in one instance. Young nonbearing blocks of sour cherries in Orleans County show severe injury from cankerworms. (N. Y. Wkly. Rpt., June 6).

A WEBWORM - TEXAS - Heavy infestations of an unspecified species on pecans, walnuts and other trees in Walker, San Jacinto and Polk Counties. (Henderson).

PECAN PHYLLOXERA (Phylloxera devastatrix) - OKLAHOMA - Continues to cause concern throughout the east central area of the State. (Howell).

EUROPEAN FRUIT LECANIUM (Lecanium corni complex) - OKLAHOMA - Heavy on some pecan trees checked in the Stillwater area of Payne County. (Walton).

WALNUT BLISTER MITE (Aceria erinea) - WASHINGTON - Damaging walnuts at Clarkston, Asotin County. (Telford).

Citrus Insect Situation in Florida - End of May - PURPLE SCALE (Lepidosaphes beckii) activity and populations will remain low during the summer in all districts. A few groves will have moderate to heavy infestations and will most likely be in the Ridge and Indian River districts. FLORIDA RED SCALE (Chrysomphalus aonidum) activity will continue high through June. Populations are currently below average in most districts but generally will increase during next 6 weeks. Although many groves will develop moderate to heavy infestations by the end of June, summer peak in July is expected to be below average of previous years. Highest activity is in the Bartow, upper east coast, Indian River and Ridge districts. Activity of CITRUS RED MITE (Panonychus citri) is below normal for this time of year; however, increases are expected in most districts during June. Summer peak will occur in late June, and be slightly below average of previous years. Highest activity is in the Gainesville, Orlando,

Bartow and Indian River districts. CITRUS RUST MITE (Phyllocoptura oleivora) activity is low at present, but will trend upward during June. Populations will increase markedly on June, much more on fruit than on leaves. Infestations are spotty, with highest activity in the Bartow and west coast districts. TEXAS CITRUS MITE (Eotetranychus banksi) will become increasing abundant during June. Moderate to heavy infestations are present in 9 percent of the groves. CHAFF SCALE (Parlatoria pergandii) is present in 60 percent of the groves and is more abundant than usual. (Simanton, Thompson, Johnson, (Citrus Exp. Sta., Lake Alfred)).

ROSE CHAFER (Macroductylus subspinosus) - MASSACHUSETTS - Attacking grapes. (Crop Pest Cont. Mess.).

GRAPE FLEA BEETLE (Altica chalybea) - NEW YORK - Larvae feeding in some vineyards in Chautauqua County. (N. Y. Wkly. Rpt., June 6).

A CURCULIONID - INDIANA - An undertermined species has been attacking grapes in increasing numbers in the Orleans area during the past 10 days. Inquiries have been received from several scattered southern sections. (Marshall, June 7).

A GALL MIDGE (Itonida viticola) - NORTH CAROLINA - Local infestation on a few grape leaves in Montgomery County. (Wesson, Farrier).

CURRANT STEM GIRDLER (Janus integer) - NEW YORK - Damage apparent in 4 currant plantings examined June 3 and 6 in Chautauqua County. (N. Y. Wkly. Rpt., June 6).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - NEW JERSEY - A leaf roller, tentatively identified as this species, has caused minor foliage injury to apples over much of the central and northern sections of the State. (Ins.-Dis. Newsl., June 7). MISSOURI - Heavy flights of adults taken in light traps in Columbia, Boone County. (Wingo).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Emergence from apples in packing houses at Orleans is practically over and totaled 19 for period June 1-7. The attack on peaches was light during the first generation. (Marshall, June 7). Adults again appearing in bait traps at Vincennes. (Cleveland, June 6). NEW YORK - Adults appeared in bait traps the night of June 3 in Niagara County. (N.Y. Wkly. Rpt., June 6). OHIO - First-generation damage to peach terminals easily found in southern area by June 6. (Holdsworth).

TRUCK CROP INSECTS

Second Statement of Beet Leafhopper Conditions for Southern Idaho - 1960

Because of variable weather conditions, development of spring generation was retarded. Although very few adults found, all stages of development present during week ending May 14. Nymphal populations on that date averaged 2.8 per square foot. Host plants in sagebrush areas still in good condition for maturing nymphs. Saylor Creek area contains highest population of nymphs, although surveys indicate that cold, wet weather has reduced potential from this area. Due to unfavorable weather conditions, movement into cultivated crops expected to start about one week later than in 1959 or about June 1. Movement into Gooding, Jerome, Lincoln, Minidoka and Cassia Counties should be slightly less than in 1959. Movement into cultivated crops expected to be heavier in western Twin Falls County as a result of populations found in southern Saylor Creek area. With normal weather conditions, peak of movement should occur last week in June. The spring nymphal survey indicates that chemical control would not be practical. Host numbers and nymphal populations are below normal in area where chemical control is usually done. Tests completed this spring indicate that an average of 15.5 percent of overwintering beet leafhoppers in southern Idaho and eastern Oregon were carrying the curly top virus.

This is higher than usual. Infective leafhoppers from the Minidoka area were lowest with 7.4 percent and were highest from the Twin Falls East section with 21.4 percent, while 18 percent from western Idaho-eastern Oregon were carrying the virus. (Portman).

BEEF LEAFHOPPER (Circulifer tenellus) - UTAH - Three to 7 per 20 sweeps on Atriplex rosea and 2-4 on halogeton in Delta area. (Knowlton).

BEEF WEBWORM (Loxostege sticticalis) - COLORADO - Second and third-instar larvae, 3-5 per 10 sugar beet plants, and eggs 0-5 in Larimer, Weld and Adams Counties. (Colo. Coop. Sur.). MONTANA - Adults very abundant in northeastern part of State May 15 - June 1. This is about 2-3 weeks earlier than usual. (Roemhild). WYOMING - Small numbers of adults present in alfalfa fields in Sheridan and Johnson Counties. (Fullerton). NEBRASKA - Populations in western portion of the State increasing; some control underway. (Simpson). NORTH DAKOTA - Moth flights observed in most areas of State. (N. D. Ins. Rpt.).

SUGAR-BEEF ROOT APHID (Pemphigus betae) - WASHINGTON - Spring alates in flight in Walla Walla area. (Woodworth).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW YORK - Damage to tomato plants noted on June 3 in Chautauqua County; egg clusters also present. First larvae hatching on potato plants on North Fork of Long Island June 1-2. Egg masses numerous. (N. Y. Wkly. Rpt.). NEW JERSEY - Very active at present. Apparently worse in 1960 than in 1958 or 1959. (Ins.-Dis. Newsl., June 7). DELAWARE - Adults present and larvae very common in field of potatoes in Kent County, causing moderately heavy injury. Adults present and larvae very common in field of tomatoes in Sussex County, causing noticeable feeding injury. (Burbutis, Mason). MARYLAND - Heavy injury to 3-acre field of potatoes locally in Dorchester County. (U. Md., Ent. Dept.). NORTH CAROLINA - Very light infestation in gardens in Wayne County this spring; little if any losses noted. Many on potatoes in Henderson County. (Chalfant). IDAHO - Adults present. (Bishop).

CUTWORMS - NEW JERSEY - Have caused local damage to peppers. (Ins.-Dis. Newsl., June 7). NEW YORK - Caused some damage to tomatoes in Chautauqua County. (N. Y. Wkly. Rpt., June 6). NEVADA - Light to medium on onions in some fields in Lyon and Washoe Counties. (Batchelder, Gardella).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW JERSEY - Activity in potatoes increased. (Ins.-Dis., Newsl., June 7).

HORNWORMS (Protoparce spp.) - DELAWARE - Eggs found on peppers and potatoes in Sussex County. (Burbutis, Mason).

TOMATO FRUITWORM (Heliothis zea) - GEORGIA - Light to moderate infestations on tomatoes in Tift, Colquitt and Mitchell Counties. (Johnson). SOUTH CAROLINA - Doing limited damage. (Nettles et al.).

TOMATO PINWORM (Keiferia lycopersicella) - CALIFORNIA - Light in tomato fruit in Brawley, Imperial County. (Cal. Coop. Rpt.).

POTATO STALK BORER (Trichobaris trinotata) - MARYLAND - Adults common on jimsonweed at several localities in Dorchester County. (U. Md., Ent. Dept.).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Adults fairly common, with light feeding injury on lima beans in southern New Castle County, and continue present on potatoes in most areas of the State. Also present on peppers, tomatoes and cucumbers in Sussex County. (Burbutis, Mason). WISCONSIN - Fair numbers on potatoes in a few counties. (Wis. Coop. Sur.). NORTH DAKOTA - Moderate to severe feeding injury in home gardens in southeast section. (N. D. Ins. Sur.). INDIANA - Abundant on potatoes and peppers in Knox County. (Gould).

WESTERN POTATO FLEA BEETLE (*Epitrix subcrinita*) - IDAHO - Adults appearing on early planted potatoes in Bingham and Bonneville Counties. Numbers appear to be higher than during the past three years. (Bishop).

FLEA BEETLES - NEW YORK - Very plentiful on tomatoes and eggplant in Nassau County; numerous on transplanted vegetables in Onondaga County; damaged tomato plantings in Chautauqua County; and present in some potato fields in Suffolk County. (N. Y. Wkly. Rpt., June 6). MARYLAND - *Epitrix* sp. less abundant on potatoes and tomatoes than in previous weeks. Eggplant in Montgomery and Kent Counties has been injured severely. (U. Md., Ent. Dept.). WYOMING - Adults averaged 10 per 100 plants in 6 sugar beet fields checked in Sheridan County. (Fullerton).

WIREWORMS - MONTANA - Damaging potatoes in Pondera County. (Roemhild, May 15-June 1).

LEAF MINERS - SOUTH CAROLINA - Abundant and difficult to control in some tomato plantings in Charleston area. (Reid, June 2).

GARDEN FLEAHOPPER (*Halticus bracteatus*) - DELAWARE - Adults present in potatoes and beans in New Castle and Kent Counties, causing very light feeding injury. (Burbutis, Mason).

WHITEFLIES - DELAWARE - An undetermined species present on tomatoes in New Castle County and on potatoes in New Castle and Kent Counties. (Burbutis, Mason).

POTATO LEAFHOPPER (*Empoasca fabae*) - DELAWARE - Adults present on young lima beans in New Castle County, snap beans in Sussex County and potatoes in Kent County. (Burbutis, Mason). INDIANA - Populations light in Knox County. (Gould). NORTH DAKOTA - First adult collected June 7. (N. D. Ins. Sur.).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Adult counts 1-2 per 100 sweeps on early potatoes (some in bloom stage) in Milliken, Platteville area, Weld County. On matrimonyvine, adults 10-30 per 100 sweeps; eggs present but no nymphs observed in Weld County. (Colo. Ins. Sur.).

GREEN PEACH APHID (*Myzus persicae*) - DELAWARE - Fairly common in one field of horseradish in central Kent County. (Burbutis, Mason). NEW JERSEY - Generally present in small numbers on potato plantings throughout State. (Ins.-Dis. Newsl., June 7).

POTATO APHID (*Macrosiphum solanifolii*) - SOUTH CAROLINA - Light on potato and tomato throughout May in Charleston area, but of little economic importance. (Reid, June 2). MARYLAND - Generally light to moderate on commercial and home tomato plantings on Eastern Shore. (U. Md., Ent. Dept.).

PEA APHID (*Macrosiphum pisi*) - WISCONSIN - About a tenfold increase over last week in Columbia County, averaging 14 per sweep in 10-inch peas. While increase was noted in southern area, the situation was different in northern areas. June 3 - 1 per 100 6-inch plants in Outagamie County; 4 per 100 1-inch plants in Calumet County; 1 per 150 4-inch plants in Kewaunee County. In Sheboygan County, counts were as follows: 2-inch peas, 1 per 50 plants; 6-inch peas, 2 per 10 plants; and 8-10-inch peas, 11 per 10 sweeps. (Wis. Coop. Sur.). UTAH - Common in northern area peas; population threatening. (Knowlton).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - GEORGIA - Heavy infestations on beans in Colquitt and Mitchell Counties. (Johnson). SOUTH CAROLINA - Light to moderate in some plantings of snap beans in Charleston area. (Reid, June 2). NORTH CAROLINA - Extremely light in Wayne County this season; 6 to 8 found in some fields in Pender and Duplin Counties. (Farrier, Fedoronko). MARYLAND - Heavy on snap beans in home gardens locally in St. Marys County. (U. Md., Ent. Dept.). DELAWARE - Adults present on beans throughout State. (Burbutis, Mason).

BEAN LEAF BEETLE (Cerotoma trifurcata) - NORTH CAROLINA - Causing minor injury; 5-10 per 20 feet of row on snap beans in Henderson County on May 20. (Chalfant). MARYLAND - Adults continue to injure snap bean foliage in all sections. (U. Md., Ent. Dept.). DELAWARE - Adults present on snap beans in Sussex County; causing light feeding injury. (Burbutis, Mason).

SEED-CORN MAGGOT (Hylemya cilicrura) - OREGON - Causing damage to bean plantings in Willamette Valley during late spring. Prolonged cool, damp weather has favored maggot injury. (Capizzi).

SPIDER MITES - ARIZONA - Tetranychus sp. infesting a few melons in Yuma County. (Ariz. Coop. Sur.). MARYLAND - Infesting snap beans locally in St. Marys County. (U. Md., Ent. Dept.).

IMPORTED CABBAGEWORM (Pieris rapae) - SOUTH CAROLINA - Populations on late spring cabbage lower than usual in Charleston area, averaged about 1 larva per plant on untreated plots by end of commercial harvest in late May. (Reid, June 2). DELAWARE - Eggs numerous on leaves of horseradish in Kent County. (Burbutis, Mason). NEW YORK - Eggs present in most fields of cabbage in Onondaga County. (N. Y. Wkly. Rpt., June 6).

DIAMONDBACK MOTH (Plutella maculipennis) - SOUTH CAROLINA - Populations lower than usual on late spring cabbage in Charleston area; averaged less than one larva per plant in untreated plots by the end of harvest in late May. (Reid, June 2). DELAWARE - Larvae present in one field of horseradish in Kent County, causing light feeding injury. (Burbutis, Mason). MISSOURI - Quite troublesome on cole crops, especially cabbage in southeastern area; most in pupal stage at present. (Wkly. Rpt. Fr. Gr.) COLORADO - Larval damage noted on 2-3 plants per 10 cabbage plants. (Colo. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - SOUTH CAROLINA - Populations on late spring cabbage developed slower than usual in Charleston area; averaged 4 larvae per plant in untreated plots by end of May when harvest was nearly complete. Feeding on tomato foliage the last week of May. (Reid, June 2).

LEAFHOPPERS - NEW YORK - Common in Nassau County and a few on lettuce in Orange and Steuben Counties. (N. Y. Wkly. Rpt., June 6). LOUISIANA - Empoasca sp. averaged 71 per 100 sweeps on sweetpotatovines in St. Landry Parish. (Spink).

SQUASH BEETLE (Epilachna borealis) - LOUISIANA - Infestations general in Catahoula and West Carroll Parishes on beans, squash and cucumbers in gardens. (Spink). NORTH CAROLINA - Has destroyed up to 5 percent of the foliage of cucumbers in one garden in Wayne County. (Farrier).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - NEW YORK - Numerous in transplanted vegetables in Onondaga County. (N. Y. Wkly. Rpt., June 6). DELAWARE - Adults fairly common in New Castle County and numerous in Sussex County cucumber fields. (Burbutis, Mason). LOUISIANA - Infestation general in Catahoula and West Carroll Parishes on beans, squash and cucumbers in gardens. (Spink). MISSOURI - Have been very troublesome on cucurbits just sprouting in southeast area. (Wkly. Rpt. Fr. Gr.). SOUTH DAKOTA - On cucurbits in Brookings, Brookings County. (Mast).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - DELAWARE - Adults present on tomatoes in New Castle and Kent Counties, and on watermelons in Sussex County. (Burbutis, Mason).

MELON APHID (Aphis gossypii) - OKLAHOMA - Light, 50 per 100 leaves, on watermelons in Jefferson County. (Vinson).

SQUASH BUGS (Anasa spp.) - OKLAHOMA - A. tristis light, 2 per 100 leaves, on watermelons in Jefferson County. (Vinson). DELAWARE - A. armigera adults fairly common in field of cucumbers and field of watermelons in Sussex County. (Burbutis, Mason).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - OKLAHOMA - Light to medium on melon and sweetpotatovines at Perkins. (Morrison).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - LOUISIANA - Averaged 135 per 100 sweeps on sweetpotatovines in St. Landry Parish. (Spink).

ONION MAGGOT (Hylemya antiqua) - NEW YORK - Continues to infest onions in Orange County. (N. Y. Wkly. Rpt., June 6).

ONION THRIPS (Thrips tabaci) - COLORADO - Ten-50 per onion plant, 4-6 leaves per plant, in Weld and Adams Counties. (Colo. Coop. Sur.).

ASPARAGUS BEETLES (Crioceris spp.) - MARYLAND - Crioceris asparagi and C. duodecimpunctata abundant and laying eggs on asparagus ferns at several localities in St. Marys and Prince Georges Counties. (U. Md., Ent. Dept.).

WESTERN BLACK FLEA BEETLE (Phyllotreta pusilla) - UTAH - Still numerous on vegetable crops in Box Elder and Cache Counties. Damaging radishes and beets and extremely numerous on some tansymustards in Delta-Sutherland area of Millard County. (Knowlton, Thornley).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - NEW JERSEY - Very numerous on young plantings of strawberries in Cumberland County. (Ins.-Dis. Newsl., June 7).

STRAWBERRY SAWFLY (Empria ignota) - MINNESOTA - Reported in the Twin City area on strawberry foliage. (Minn. Ins. Rpt.).

TOBACCO INSECTS

HORNWORMS (Protoparce spp.) - MARYLAND - Eggs and small larvae light on early planted tobacco in St. Marys and Calvert Counties. First of season. (U. Md., Ent. Dept.). GEORGIA - Light on tobacco in Colquitt and Mitchell Counties. (Johnson).

TOBACCO BUDWORM (Heliothis virescens) - GEORGIA - Light to moderate on tobacco in Colquitt, Thomas and Mitchell Counties. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Populations of overwintering brood have dropped off slightly on tobacco in St. Marys, Calvert and Charles Counties. Expect new brood about July 1. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Light on tobacco in some fields observed in Calvert and St. Marys Counties. (U. Md., Ent. Dept.).

SOUTHERN GREEN STINK BUG (Nezara viridula) - GEORGIA - Light on tobacco in Colquitt and Mitchell Counties. (Johnson).

SEED-CORN MAGGOT (Hylemya cilicrura) - MASSACHUSETTS - Caused severe damage to newly set shade tobacco in Hampshire County in late May. Approximately 100 acres harrowed in and reset. Most shade fields had to be restocked 3 or 4 times. (Tunis).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Active in older fields in Coastal Plains. Counts 2 per 100 plants in some Scotland County fields. Populations in older cotton about 1 per 100 plants in Wilson and Northampton Counties. None found in 6 Montgomery County fields and very few to date in Hoke County. (Cott. News Lett.). SOUTH CAROLINA - Appearing in Coastal Plain fields where activity is increasing. Puncturing squares where present. (Cott. Lett.) After heavy rains, emergence and movement increased materially in the Florence area. Infestations in fields examined ranged light to heavy. Conditions remain favorable for maximum populations. Some damage noted in older cotton. (Taft, Hopkins, Jernigan). GEORGIA - Square counts in 11 southern fields ranged 0-60 percent punctured squares and averaged 7 percent. (Johnson). ALABAMA - Infestations 0-20 percent in 10 fields checked, with average about 10 percent. (Grimes). TENNESSEE - Only 3 live weevils found, all found in western Hardin County. (Locke). MISSISSIPPI - Six of 20 fields examined in delta counties infested. Weevil counts ranged 50-250 per acre, averaged 75. First squares large enough to puncture were observed. Hot, dry weather appears to be slowing down weevil movement. (Merkl et al.). LOUISIANA - Light infestation in St. Landry and West Carroll Parishes. (Spink). Found in 27 of 46 fields examined in the Tallulah area. An average of 54 per acre found, ranging 0-375 per acre. Percentage of survival in hibernation cages to June 10 was 1.08, compared with 2.66 at the same time in 1959. (Smith et al.). TEXAS - Found at average rate of 150 per acre in 11 untreated fields and 69 per acre in 37 treated fields, with an overall average of 100 in McLennan and Falls Counties. Egg deposition occurred in some early planted fields. Counts at same time in 1959 averaged 76 per acre. (Parencia et al.) OKLAHOMA - Beginning to feed on small squares as they develop on early cotton in Jefferson County. Counts averaged 0-10 per 250 feet of row in a Choctaw County field, one in a Coal County field and 4 in a field checked in Wagoner County. Averaged 0-2 per 250 feet of row in fields checked in Okfuskee, Okmulgee, Hughes and Muskogee Counties. (Vinson, Flora, Robinson).

BOLLWORMS (Heliothis spp., et al.) - SOUTH CAROLINA - Appearing in Coastal Plain fields, with increase in feeding on terminals and small squares. (Cott. Lett.). Light to moderate in Florence area. (Taft, Hopkins, Jernigan). GEORGIA - Egg counts in 11 southern cotton fields ranged 4-48 per 100 terminal buds and averaged 24. Larval counts ranged 1-20 per 100 terminals and averaged 5. (Johnson). ALABAMA - Moderate infestations in fields in Henry and Coffee Counties. Small larvae found in most fields and egg counts ranged 10-150 per 100 terminals. Many eggs very close to hatch. (Grimes). Severe infestation in Autauga County. Up to 49 larvae and 290 eggs per 100 terminals. (Rawson). MISSISSIPPI - Very light moth catches in light traps in delta counties. Activity still mostly restricted to corn. (Merkl et al.). TEXAS - Light egg deposition observed in a few McLennan and Falls County fields. (Parencia et al.). OKLAHOMA - Averaged 10 eggs and 4 larvae per 250 feet of row in a field in Choctaw County. (Flora). ARIZONA - Found in Yuma and Maricopa Counties. (Ariz. Coop. Sur.)

CABBAGE LOOPER (Trichoplusia ni) - LOUISIANA - Light infestations on cotton in Caddo Parish. (Spink). ARKANSAS - Small numbers observed in cotton in Desha County. (Black). OKLAHOMA - Found in most fields checked in southeast and east central areas. Counts averaged 0-6 per 250 feet of row in 3 fields checked in Choctaw County, 1-1.5 in a field in Coal County and 4 in a field in Wagoner County. Averaged 3 and 6 per 250 feet of row in 2 fields in Okmulgee and Muskogee Counties. (Flora, Robinson). TEXAS - Occasionally noted in a few fields in McLennan and Falls Counties. (Parencia et al.).

COTTON SQUARE BORER (Strymon melinus) - TEXAS - Occasionally noted in a few fields in McLennan and Falls Counties. (Parencia et al.).

STALK BORER (Papaipema nebris) - TENNESSE - Damaging cotton around edges of fields in western area. An unusually early date. (Locke). MISSISSIPPI - Very light damage noted in field in delta area. (Merkl et al.).

PALE-SIDED CUTWORM (Agrotis malefida) - CALIFORNIA - A single adult taken in a light trap in Bard, Imperial County. This is the first California record. (Cal. Coop. Rpt.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - TENNESSEE - Causing some damage around the edges of some cotton fields in western area. (Locke). OKLAHOMA - Appearing in some fields in western Muskogee and Okmulgee Counties. (Robinson).

BEEF ARMYWORM (Spodoptera exigua) - ARIZONA - Injurious numbers in a few cotton fields in Yuma County. (Ariz. Coop. Sur.).

A LEAF ROLLER (Platynota sp., prob. rostrana) - LOUISIANA - Larvae heavily infesting cotton in some areas of Acadia and St. Tammany Parishes. Damage to terminals ran as high as 75 percent. (Spink).

FLEAHOPPERS - ALABAMA - Caused considerable damage to cotton in southeast area. (Grimes). MISSISSIPPI - Light on cotton in delta counties. (Merkl et al.). TEXAS - Psallus seriatus migration to cotton was considerably less than previous week in McLennan and Falls Counties. Infestation averaged 8.9 per 100 terminals in 46 fields, with infestations exceeding 25 per 100 terminal level in 1 treated and in 2 untreated fields. This compares with 10.7 per 100 terminals in 36 fields during corresponding week of 1959. (Parenchia et al.). OKLAHOMA - P. seriatus counts ranged 15-100 per 100 plants in 5 cotton fields checked in the south central area. Ranged 3-9 per 250 feet of row in 3 fields checked in Choctaw County and averaged 3 per 250 feet of row in a field checked in Wagoner County. Averaged 0-2 per 250 feet of row in fields checked in Okfuskee, Okmulgee, Hughes and Muskogee Counties. (Vinson, Flora, Robinson). ARIZONA - Spanogonicus albofasciatus populations 2-50 per 100 sweeps, with damage very serious in some fields in Maricopa, Pinal and parts of Pima Counties. Controls very slow. (Ariz. Coop. Sur.).

APHIDS - NORTH CAROLINA - Reported in many fields; apparently not Aphis gossypii. Beneficial insects abundant in some fields but not reducing populations as in former years. (Cott. News Lett.). SOUTH CAROLINA - Occasionally seen; one field in Florence area very severely damaged. (Taft, Hopkins, Jernigan). TENNESSEE - Building up slightly in western area but doing very little damage at present. Predatory insects keeping populations down. (Locke). MISSISSIPPI - General light infestations with little damage in delta counties. (Merkl et al.). TEXAS - No infestations observed in McLennan and Falls Counties. (Parenchia et al.). OKLAHOMA - A. gossypii light, 35 per linear foot, in a field in Tillman County; light in 2 of 5 fields checked in south central area; occasional to light in fields checked in Hughes, Okfuskee, Okmulgee and Muskogee Counties. (Hatfield, Vinson, Robinson).

THRIPS - SOUTH CAROLINA - Few remain in fields in Florence area. (Taft, Hopkins, Jernigan). TENNESSEE - Causing some damage in western area. Populations generally low. (Locke). MISSISSIPPI - Populations very high in some young cotton which has not been treated. Range 0.1-20.6 in experimental plots in the delta counties. (Merkl et al.). LOUISIANA - Counts made in 43 cotton fields in Tallulah area; all infested. Averages were 6.12 per plant in untreated fields and 3.57 per plant in treated fields, with average of 3.81 for all fields checked. (Smith et al.). TEXAS - Injurious infestations continue in McLennan and Falls Counties in late-planted, untreated cotton fields. (Parenchia et al.). OKLAHOMA - Frankliniella sp. light, 40 per linear foot, in a cotton field in Tillman County; light to moderate, 3-80 per 100 plants, in 5 fields in south central area; heavy to severe damage to 2 fields in Choctaw County; occasional to light in fields checked in Hughes, Okfuskee, Okmulgee and Muskogee Counties. (Hatfield, Vinson, Flora, Robinson).

SPIDER MITES - ALABAMA - Moderate on cotton in Henry County. (Grimes).
MISSISSIPPI - Generally light infestations, with little damage in delta counties.
(Merkl et al.). TENNESSEE - Present in most fields that supported heavy infestations in 1959 in western area. Some leaves already showing discoloration and populations will probably increase. (Locke).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Few adults appearing in cotton fields in Yuma, Maricopa and Pinal Counties. (Ariz. Coop. Sur.) LOUISIANA - L. lineolaris averaged 18 per 100 sweeps in 6 fields in Tallulah area. (Smith et al.).
MISSISSIPPI - L. lineolaris general over delta counties. Movement to cotton increased markedly. Some squares damaged and feeding in plant terminals common. (Merkl et al.).

WIREWORMS - SOUTH CAROLINA - Attacked seedling cotton in several Pee Dee area fields for first time in many years. Stands that survived this damage now seem to have outgrown it. (Cott. Lett.).

FLEA BEETLES - TENNESSEE - Present in most fields but causing little damage. (Locke). MISSISSIPPI - Localized light damage from Washington, Sunflower and Humphries Counties. (Merkl et al.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SPRUCE BUDWORM (Choristoneura fumiferana) - MINNESOTA - Approximately half of a 20,000-acre control project in the Superior National Forest is now completed. Larvae now in fourth and fifth instars around Ely and Isabella; mostly fourth instar at Tofte. (Minn. Ins. Rpt.). MONTANA - Infestation on ornamental spruce in Bozeman is quite high. (Roemhild, May 15-June 1).

JACK-PINE BUDWORM (Choristoneura pinus) - MINNESOTA - In third instar at Ely and still in staminate flowers. (Minn. Ins. Rpt.).

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - COLORADO - Defoliating new growth of spruce in Denver. (Colo. Ins. Sur.).

A PHYCITID (Dioryctria sp.) - IDAHO - Pitch nodules at tips of lateral twigs, caused by larvae (probably a species of this genus) feeding in the cambium, are becoming very noticeable on old growth ponderosa pine throughout the Slate Creek drainage in Nezperce National Forest. Damage reported occurred during 1959. (Tunnock).

SPRUCE NEEDLE MINER (Taniva albolineana) - MONTANA - Damaged ornamental spruce in Billings, Yellowstone County. (Roemhild, May 15-June 1).

LARCH CASEBEARER (Coleophora laricella) - IDAHO - Considerable increase in severity of infestation over that of 1959. Complete defoliation of western larch in heavy centers totaling thousands of acres; gross area of defoliation visible during aerial surveys covers more than 500 square miles. (Tunnock).

BAGWORM (Thyridopteryx ephemeraeformis) - MARYLAND - First larvae of season noted on evergreens at several localities in Talbot County on June 6. (U. Md., Ent. Dept.). INDIANA - Hatching at Lafayette, Tippecanoe County, June 6. (Schuder).

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) - CALIFORNIA - Severly damaging groups of old growth Douglas-fir on east fork of Willow Creek in the Six Rivers National Forest. (D. Leisz).

PINE ROOT COLLAR WEEVIL (Hylobius radicis) - MINNESOTA - Adults active on ponderosa, red, jack and Scotch pine at Taylor's Falls, Chisago County. (Minn. Ins. Rpt.). WISCONSIN - Few larvae collected from red pine in Oconto and Waushara Counties, May 23-28. (Wis. Coop. Sur.).

WHITE-PINE WEEVIL (Pissodes strobi) - WISCONSIN - Ovipositing on white pine and Norway spruce in Marquette, Waushara and Waupaca Counties week of May 22-28. (Wis. Coop. Sur.).

A WEEVIL (Scythropus sp.) - IDAHO - Adults common, feeding on needles of pines and larch; damage is negligible. (Tunnock).

PINE SAWFLIES (Neodiprion spp.) - IOWA - Larvae of N. sertifer present in Jefferson and Van Buren Counties. (Iowa Ins. Inf., June 6). According to ARS records, this is a first report of this species in each of these counties. (PPC). WISCONSIN - N. swainei ovipositing on new needles of jack pine in Columbia County on June 7. Larvae of N. nanulus, about three-quarters of an inch long, present in central and west central counties; light defoliation reported. (Wis. Coop. Sur.).

LARCH SAWFLY (Pristiphora erichsonii) - WISCONSIN - Oviposition observed in Langlade County on June 1. (Wis. Coop. Sur.).

SAWFLIES - KANSAS - Monoctenus melliceps infesting junipers in Franklin County. (Calkins). CALIFORNIA - Susana cupressi occurring as a heavy infestation on

Cupressus forbesi in Town and Country area of Sacramento County. (Cal. Coop. Rpt.).

EASTERN SPRUCE GALL APHID (Chermes abietis) - MARYLAND - Galls abundant on Norway spruce in a nursery planting at Flintstone, Allegany County. (U. Md., Ent. Dept.).

SPITTLEBUGS (Aphrophora spp.) - DELAWARE - A. parallela nymphs very abundant on loblolly and Virginia pines in southeastern Sussex County. (Burbutis, Mason). MINNESOTA - A. parallela appearing on jack pine around Ely, St. Louis County. (Minn. Ins. Rpt.). WISCONSIN - Moderate to heavy populations of A. saratogensis in many plantations in Vilas, Marinette and Oconto Counties. Many second-stage nymphs present. (Wis. Coop. Sur.).

A STINK BUG (Chlorochroa uhleri) - WISCONSIN - Numbers found feeding on main stems and larger branches of 3-4-foot tall plantation red pine in the Arena School Forest, Iowa County, on May 13. (Wis. Coop. Sur.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - WYOMING - Immature forms emerging on pines in Laramie, Albany County. (Fullerton). CALIFORNIA - Heavy on mugho pine in Tululake, Siskiyou County. (Cal. Coop. Rpt.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - WISCONSIN - Light to moderate infestations in some young plantations in Florence and Marinette Counties; overwintering females rapidly reaching maturity. (Wis. Coop. Sur.).

SPIDER MITES - NEVADA - Moderate to heavy populations of unspecified species present on evergreen shrubs in Reno-Sparks area, Washoe County. (Bechtel). MINNESOTA - Building up in some evergreen plantations. (Minn. Ins. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OHIO - Most larvae completed development and were pupating June 7. (Rings). ILLINOIS - Have matured in southern area and are rapidly maturing in northern area. The species has been abundant in the southern and northern thirds of the State this season but has been scarce or absent in central third of the State. (Ill. Ins. Rpt.). WISCONSIN - Late-instar larvae leaving nests. Localized heavy infestations, complete defoliation of 20-foot pin cherry and apple trees common in Rock County; infestations are heaviest in over a decade in southern part of county. (Wis. Coop. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - WISCONSIN - Late-instar larvae relatively light in numbers in Langlade County. (Wis. Coop. Sur.).

TENT CATERPILLARS (Malacosoma spp.) - NEW YORK - Moving and feeding on pin oak, willow, honeylocust and Norway maple in Suffolk County. (N. Y. Wkly. Rpt., June 6). WYOMING - Small infestations found in Medicine Bow Forest in Albany County. (Fullerton). CALIFORNIA - M. constrictum heavy on live oak and shrubs in a 25,000-acre area in Cleveland National Forest, causing considerable defoliation. (J. Pierce).

A SYCAMORE BORER (Ramosia resplendens) - CALIFORNIA - Heavy infestation in live oak in Woodside, San Mateo County. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - ILLINOIS - Continues to feed on elms in western section of State. (Ill. Ins. Rpt.).

CANKERWORMS - IOWA - Unspecified species have damaged a variety of shade trees. (Iowa Ins. Inf., June 6). NEW YORK - Unspecified species completely defoliated trees in Fort Salonga, Suffolk County. (N. Y. Wkly. Rpt., June 6).

ELM LEAF BEETLE (Galerucella xanthomelaena) - MASSACHUSETTS - Eggs and larvae now present. (Wheeler, June 7). NEW YORK - Large numbers of eggs being laid. (N. Y. Wkly. Rpt., June 6). DELAWARE - Eggs fairly abundant on elms in Newark area, New Castle County. (Burbutis, Mason). ARKANSAS - Controls for this pest are being

applied in Booneville, Logan County. (Ark. Ins. Sur.). KANSAS - Hatching; larvae skeletonizing leaves of elms in Dodge City, Ford County. (Peters). COLORADO - Adults defoliating elms in Olatha, Montrose County. (Colo. Ins. Sur.). NEVADA - First-instar larvae present in Fallon, Churchill County. (Parker).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - WISCONSIN - During the past week the first case of Dutch elm disease for Stoughton, Dane County, was diagnosed. As of June 8, the 35 cases diagnosed in 1960 have come from 12 municipalities in 6 southeastern counties, all of which (except for Stoughton) have had cases in previous years. After the major emergence of S. multistriatus is completed, a sharp rise is expected in the number of positive cases. (Wis. Coop. Sur.).

BRONZE BIRCH BORER (Agrilus anxius) - WISCONSIN - Pre-emergence stages found on ornamental birch in Jackson County June 3. (Wis. Coop. Sur.).

POPLAR AND WILLOW BORER (Sternochetus lapathi) - IDAHO - Adults have emerged from winter hibernation and are flying in the Clarkia area, Shoshone County. (Portman).

A BUPRESTID (Dicerca sp.) - MONTANA - Adults very abundant on elms and willows near Forsyth, Rosebud County. (Roemhild, May 15-June 1).

A CURCULIONID (Myrmex myremex) - KANSAS - Larvae killed twigs of sycamore infected with anthracnose in Shawnee County. (Thompson).

ELM LEAF APHID (Myzocallis ulmifolii) - KANSAS - Counts on American elm ranged 50-100 per leaf in Johnson County. Dripping honeydew spotting cars in Johnson and Wyandotte Counties. (Thompson).

JUNE BEETLES - IOWA - Adults of unspecified species have damaged leaves of a variety of shade trees. (Iowa Ins. Inf., June 6). WISCONSIN - Larvae plentiful in a 70-acre sod field in Langlade County on May 25; adults also numerous. Adults of Phyllophaga drakii observed at city limits of Spooner, Washburn County, May 18-19. (Wis. Coop. Sur.).

LEAF BEETLES - KANSAS - Counts of unspecified species on willows and poplars were 3-4 per leaf in Franklin County on June 2-3. (Thompson).

PAINTED MAPLE APHID (Drepanaphis acerifoliae) - DELAWARE - Very abundant on maples in the Wilmington area; causing some leaf drop. (Burbutis, Mason).

APHIDS - MINNESOTA - Infestations of unspecified species on terminal growth of flowering crabapple, spirea, dogwood and other deciduous stock appear to be much lighter than in past several years. A few heavy infestations on roses have been reported, but the general level is also lower than usual. (Minn. Ins. Rpt.). KANSAS - Counts of an unspecified species were over 100 per leaf on ash in Johnson County; many leaves curling. (Thompson). UTAH - Unspecified species spottedly numerous on roses at several northern localities; infestation heavy and damaging columbine at Delta; severely curled snowball bush foliage at Fillmore; and are extremely numerous on roses and curling elm leaves in same area. Severely infesting streamside willows and some weeping willows at Minersville, Beaver County. (Knowlton).

EUROPFAN ELM SCALE (Gossyparia spuria) - UTAH - Damaging elms at Fillmore and Southerland in Millard County. (Knowlton).

GLOOMY SCALE (Chrysomphalus tenebricosus) - DELAWARE - Heavy infestations severely injured red maples at Seaford, Sussex County. Females have just begun to give birth to living young. (Bray).

AN AGROMYZID (Agromyza aristata) - NORTH DAKOTA - Severe leaf injury to American elm occurring in the Fargo area, Cass County. Infestation is the heaviest record-

ed. Trees exhibit brown, scorched appearance when heavily mined leaves dry. (N. D. Ins. Sur.).

BIRCH LEAF MINER (Fenusa pusilla) - MINNESOTA - Active in the Minneapolis-St. Paul area and farther north. (Minn. Ins. Rpt.).

OBLIQUE-BANDED LEAF ROLLER (Archips rosaceana) - OREGON - Infesting approximately 10 percent of growing tips of one Portland area holly planting. Larvae were reaching maturity June 10. (Capizzi).

ARMYWORMS - CALIFORNIA - Prodenia praefica heavy on Erodium sp. in Amador County; and Spodoptera exigua heavy on knapweed in Corona, Riverside County. (Cal. Coop. Rpt.).

ROSE CHAFER (Macrodactylus subspinosus) - MASSACHUSETTS - Now attacking roses, peonies and many other plants. (Crop pest Cont. Mess.). CONNECTICUT - Defoliating paper birch and mountain ash trees, as well as geraniums, and many other flowering annuals in a cemetery at Shelton, Fairfield County. (Johnson).

ROSE CURCULIO (Rhynchites bicolor) - CALIFORNIA - Generally heavy infestations on wild rose in the Hamilton City area, Glenn County. (Cal. Coop. Rpt.).

ROSE LEAF BEETLE (Nodonota puncticollis) - MARYLAND - Injuring rose foliage in the Baltimore area. (U. Md., Ent. Dept.).

BOXELDER APHID (Periphyllus negundinis) - MONTANA - Very abundant in the eastern portion of State; just starting to build up in mountain area. (Roemhild, May 15-June 1).

BLACK SCALE (Saissetia oleae) - MARYLAND - Infesting azaleas at Silver Spring, Montgomery County. (U. Md., Ent. Dept.).

CITRICOLA SCALE (Coccus pseudomagnoliarum) - CALIFORNIA - Heavy populations occurred on Celtis sp. in Fresno, Fresno County. Host verified by H. Dunnegan. (Cal. Coop. Rpt., May 13).

COCONUT SCALE (Aspidiotus destructor) - CALIFORNIA - Medium on Aglaonema sp. in a nursery in San Francisco, San Francisco County. (Cal. Coop. Rpt.).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Crawlers active on euonymus at Cumberland, Allegany County. (U. Md., Ent. Dept.). OKLAHOMA - Killing 2 Japanese euonymus plants in Hugo, Choctaw County. (Flora).

SCALE INSECTS - DELAWARE - Young crawlers of Matsucoccus gallicolus fairly abundant on pitch pine at Rehoboth, Sussex County, and collected May 21, constitute a new State record for this species. Collected and determined by D. F. Bray. (Bray). MARYLAND - Leucaspis japonica active on privet at Hyattsville, Prince Georges County. (U. Md., Ent. Dept.). KANSAS - A severe infestation of an unspecified brown species observed in Franklin County. Some canned nursery plants being killed. (Calkins, Thompson). OKLAHOMA - Lecanium corni complex heavy on some elm trees checked in the Stillwater area, Payne County. (Walton). Kermes sp. moderate on oaks in southeastern third of the State. (Flora). OREGON - Infestations of Pulvinaria floccifera on ornamentals have been common this spring in the Willamette Valley. (Nicolaison).

ROSE LEAFHOPPER (Edwardsiana rosae) - UTAH - Discoloring rose foliage at Ogden, Willard, Centerville, Salt Lake City and Farmington in the northern portion of the State and at Delta and Fillmore in the central area. (Knowlton).

A MEALYBUG (Pseudantonina arundinariae) - CALIFORNIA - This species, and a scale insect (Aclerda sp.), occurred as a heavy infestation on bamboo; collected by D. Bingham and R. Garvey, May 25, in a nursery property in San Rafael, Marin County. Determined by R. F. Wilkey. (Cal. Coop. Rpt.).

HACKBERRY NIPPLE GALL (Pachyphylla celtidis-mamma) - IOWA - Very abundant on hackberry leaves. (Iowa Ins. Inf., June 6).

GALL INSECTS - NEW JERSEY - Galls of unspecified species are numerous on honey-locusts and ornamental locusts. (Ins.-Dis. Newsl., June 6). MONTANA - Many inquiries received from over the State concerning mite and aphid galls on cottonwood. (Roemhild, May 15-June 1). WYOMING - Numerous species infesting ornamentals and trees throughout the State. (Fullerton).

A LOCUST MIDGE (Dasyneura pseudacaciae) - DELAWARE - Many leaves of black and honey-cust trees in Newark area of New Castle County with midribs rolled together. (Burbutis, Mason).

INSECTS AFFECTING MAN AND ANIMALS

HORN FLY (Siphona irritans) - ILLINOIS - Ranges 0-200 per animal with an average of 58.7 in central area. (Ill. Ins. Rpt.). SOUTH DAKOTA - Reported numerous in Cottonwood area, Jackson and Haakon Counties. (Rogoff). KANSAS - Counts on a herd of cows in Elk County ranged 50-120 per head with an average of 80 per head. Counts on bulls in same area averaged 200 per head. (Peters). OKLAHOMA - Counts continued high on range cattle in Woodward and Harper Counties. (Howell). Counts averaged 400-500 per animal on beef cattle in Hughes County. (Robinson). Counts averaged 500 per animal on 20 cows in McCurtain County and 600 on 60 cows in Pushmataha County. (Goin).

FACE FLY (Musca autumnalis) - MARYLAND - Moderate numbers on beef and dairy cattle in Montgomery, Prince Georges, Carroll and Harford Counties. (U. Md., Ent. Dept.). These are new county records. (PPC). ILLINOIS - Ranged 0-8 per animal, averaged 2.5. Heaviest populations on east side of State. (Ill. Ins. Rpt.).

HOUSE FLY (Musca domestica) - ILLINOIS - Averaged 2 per animal in central area. (Ill. Ins. Rpt.). OKLAHOMA - Counts averaged 100 per scudder grid in Stillwater area. (Howell).

TABANIDS - LOUISIANA - Heavy infestations of Tabanus sp. annoying livestock over most of State. (Spink). OKLAHOMA - Unidentified species light on cows checked in Pushmataha and McCurtain Counties. (Goin). MARYLAND - Chrysops sp. annoying farmers at several localities in St. Marys and Calvert Counties. (U. Md., Ent. Dept.). WISCONSIN - First adult tabanids observed in Jackson County on June 2. Few adults in Oconto County last week in May. (Wis. Coop. Sur.).

CATTLE GRUBS (Hypoderma spp.) - OHIO - Heel flies annoying cattle in central area June 2 and 10. Also several reports from farmers. (Holdsworth).

STABLE FLY (Stomoxys calcitrans) - ILLINOIS - Ranged 0-200 per animal, with an average of 0.4, in central area. (Ill. Ins. Rpt.). OKLAHOMA - Averaged 2-3 per animal on cattle checked in Stillwater area. (Howell).

BLACK FLIES - MINNESOTA - Simuliids reported from suburbs north of St. Paul. (Minn. Ins. Rpt.).

MOSQUITOES - MARYLAND - Aedes sollicitans annoying at several localities in Dorchester County. (U. Md., Ent. Dept.). TEXAS - In Jefferson County during the month of May Mansonia perturbans occurred quite regularly in the Port Arthur trap; Aedes sollicitans was found in same trap in small numbers, but no breeding was found in the county. Psorophora confinnis occurred in large numbers in Beaumont; and Aedes vexans occurred in North Beaumont only. (Thompson, Jefferson Co. Mosq. Cont. Comm.). WISCONSIN - Abundant in many sections. Populations expected to be heavier. Several reports of mosquitoes keeping herds from grazing on some nights. (Wis. Coop. Sur.). MINNESOTA - Of 1,697 larval collections during May 22-28, 1,418 were Aedes vexans and 157 were Culiseta inornata. Of 1,002 larval collections made May 29-June 4, 819 were A. vexans and 110 were C. inornata. Adult mosquito counts

in light trap catches in Minneapolis and St. Paul have remained moderate to light. Catches in outlying areas have been considerably heavier, but far less than a year ago. (Minn. Ins. Rpt.). IDAHO - Aedes canadensis adults abundant and biting viciously in woodland areas on northeastern Latah County. (Gittins). UTAH - Extremely annoying, well above normal in population in Delta, Hinckley, Sutherland, Oasis area, and troublesome at Leamington and Lynndyl in Millard County. Annoying and numerous in Trenton and Benson area of Cache County. Aedes dorsalis dominant. (Knowlton).

SHEEP KED (Melophagus ovinus) - UTAH - Unusually heavy at shearing time in some herds sheared in western Millard County. Some herds sprayed following shearing. (Knowlton).

MIDGES - WISCONSIN - Very numerous at times around Lake Winnebago area. (Wis. Coop. Sur.). UTAH - Annoying people in the Delta-Desert area of Millard County. (Knowlton).

A SAND FLY (Culicoides sp.) - DELAWARE - Rather abundant and annoying in southern Sussex County. (Burbutis, Mason).

HUMAN FLEA (Pulex irritans) - DELAWARE - Adults biting people indoors in Kent County, June 1. (Burbutis, Mason).

A BROWN SPIDER (Loxosceles reclusa) - OKLAHOMA - Several people in central area of State reported bitten. (Shoemaker).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - ARKANSAS - Found in Washington County. First record for State. (Lancaster).

GRAIN MITE (Acarus siro) - OREGON - A heavy infestation on sacked feed in a Lincoln County mill, June 4. (Krantz).

TICKS - OHIO - Much more numerous than usual in southeastern area this season. (Stacy). OKLAHOMA - Amblyomma americanum heavy (averaged 20-30 per animal) on 80 head of cows checked in Pushmataha and McCurtain Counties. (Goin). Dermacentor variabilis populations have decreased materially in Payne County area. (Howell).

BENEFICIAL INSECTS

LADY BEETLES - ILLINOIS - Adult counts of unspecified species ranged 0-70 per 100 sweeps, with larval counts ranging 10-40 per 100 sweeps. (Ill. Ins. Rpt.). MASSACHUSETTS - Larvae of unspecified species are very abundant and feeding on aphids. (Wheeler, June 7). OKLAHOMA - Hippodamia convergens counts averaged 3 per square foot of crown area in an alfalfafield in Tillman County (Hatfield); 4 per sweep in an alfalfafield, 2 per 100 leaves in a field of watermelon and were light to medium in cotton fields checked in south central area (Vinson); 3-30 per sweep in alfalfa and vetch and 1-2 per stalk in grain sorghum and corn in Choctaw County (Goin); 0.5-1 per sweep in alfalfa checked in east central area (Robinson). NEBRASKA - Hippodamia convergens, H. tredecimpunctata and Coleomegilla maculata lengi gradually building up in all crops, especially alfalfa. (Simpson). Counts in Lancaster and Cass Counties averaged 23 per 100 sweeps. (Manglitz). WYOMING - Hippodamia sp. adults averaged 3 per 25 sweeps in each of 18 alfalfa fields in Campbell, Sheridan and Johnson Counties. (Fullerton).

MELYRIDS (Collops spp.) - NEBRASKA - Present in low numbers in most alfalfa fields. (Simpson). WYOMING - Adults averaged 2 per 25 sweeps in each of 12 fields of alfalfa in Sheridan and Johnson Counties. (Fullerton).

A SCARABAEID (Hoplia oregona) - CALIFORNIA - Heavy populations feeding on klamathweed in the La Grange area of Stanislaus County. This is an unusual situation, especially in large numbers. (Cal. Coop. Rpt.).

NABIDS (Nabis spp.) - NEVADA - Almost entirely absent in fields of alfalfa in Panaca, Lincoln County. (Lauderdale). ILLINOIS - Populations vary 5-80 per 100 sweeps. (Ill. Ins. Rpt.). OKLAHOMA - Counts in alfalfa averaged 6 per square foot of crown area in a field in Tillman County (Hatfield), 1.5 per sweep in a Jefferson County field (Vinson), and 0.1 per sweep in a field checked in Choctaw County (Goin); and were occasional in alfalfa in the east central area (Robinson). WYOMING - Adults averaged 3 per 25 sweeps in each of 18 alfalfa fields in Campbell, Sheridan and Johnson Counties. (Fullerton).

LACEWINGS (Chrysopa spp.) - ILLINOIS - Adult and larval counts of C. oculata each vary 0-20 per 100 sweeps. (Ill. Ins. Rpt.). OKLAHOMA - Light (1 per sweep) in a field of alfalfa checked in Jefferson County (Vinson) and in a field of alfalfa and field of vetch in Choctaw County (Goin). NEBRASKA - Most alfalfa fields contain low numbers. (Simpson).

A BIG-EYED BUG (Geocoris sp.) - NEBRASKA - Low numbers present in most alfalfa fields. (Simpson).

FLOWER BUGS (Orius spp.) - OKLAHOMA - O. insidiosus counts ranged 1-2 per sweep in alfalfa and vetch fields checked in Choctaw County. (Goin). WYOMING - Adults of Orius sp. averaged 3 per 25 sweeps in each of 8 alfalfa fields in Sheridan County. (Fullerton).

SYRPHIDS - ILLINOIS - Larvae of unspecified species ranged 0-80 per 100 sweeps. (Ill. Ins. Rpt.).

AN EULOPHID PARASITE - NEBRASKA - Some alfalfa fields heavily populated with an undetermined species of pea aphid parasite. Many fields in eastern and northeastern areas contain low to moderate populations. (Simpson).

HONEY BEE (Apis mellifera) - OKLAHOMA - Honey flow continues very good in Stillwater area, Payne County. Yellow sweetclover has just passed peak, while white sweetclover is just beginning. Plants are in better condition and more numerous than usual in the area. Weather has been ideal. (Bieberdorf).

A CINNABAR MOTH (Tyria jacobaeae) - CALIFORNIA - This introduced moth for the biological control of tansy ragwort has become established in stands of this weed in Mendocino County. Moths released in 1959, mated and produced larvae which successfully went through the winter with moth emergence this spring. These moths are reproducing. (J. K. Holloway).

A LYONETIID (Leucoptera spartifoliella) - CALIFORNIA - The first attempt at biological control of Scotch broom (Cytisus scoparius) in the United States was initiated with the release of 1,000 moths June 7 by James K. Holloway, Frank Skinner and Lowell Mobley, in a select location near Georgetown, El Dorado County. Release of the moth brings to fruition a program which was first recommended in 1921 by Prof. Harry Smith. It is now a matter of time to see how successful the moth will be in controlling the estimated 100,000 acres of Scotch broom in the State. In the meantime, research will continue seeking another species of insect that can be used in case this species is not entirely successful. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - DELAWARE - First adult of season noted on a hickory tree in Newark area, New Castle County. (Linehan). NORTH CAROLINA - First adult of season in Wayne County emerged June 7. (Brown). General emergence in Pender, Duplin and New Hanover Counties. (Fedoronko). Adults emerging in Tyrrell County. (Lancaster). OKLAHOMA - Bait traps checked in Tulsa area continue to give negative results. (Robinson).

A SCARABAEID (Plectris aliena) - FLORIDA - Collected in Pensacola, Escambia County, on May 17 by T. W. Boyd. This is the first report for the State. The species was previously known from Charleston, South Carolina, damaging turf. (Fla. Coop. Sur.).

SOUTHERN PINE SAWYER (Monochamus titillator) - NORTH CAROLINA - Cutting through sheetrock and celotex in new houses in several areas of the State. (Jones, Speers, Farrier).

WHARF BORER (Nacerdes melanura) - MARYLAND - Adults taken from a boat at Annapolis, Anne Arundel County. (U. Md., Ent. Dept.).

CARPET BEETLE (Anthrenus scrophulariae) - NORTH CAROLINA - Causing itching of operators in a telephone exchange in Wake County. (Jones, Farrier).

FOUR-LINED PLANT BUG (Poecilocapsis lineatus) - MASSACHUSETTS - Nymphs are active on many plants. (Wheeler, June 7).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - NORTH CAROLINA - Probably this species, swarming in some houses in Columbus County. (Read). MARYLAND - Winged forms noted at several localities over the State. (U. Md., Ent. Dept.).

CARPENTER ANTS (Camponotus spp.) - IOWA - Unspecified species swarming at Ames. (Iowa Ins. Inf., June 6). NEW JERSEY - Winged forms of C. pennsylvanicus are rather numerous. (Ins.-Dis. Newsl., June 7).

HARVESTER ANTS (Pogonomyrmex spp.) - NEW MEXICO - Swarms of winged forms causing a nuisance at missile tracking stations at White Sands Missile Range in Dona Ana, Otero and Lincoln Counties. (N. M. Coop. Rpt.). UTAH - Nests of P. occidentalis numerous on range and some farms in the Flowell-Pahvant area of Millard County. (Knowlton).

PAVEMENT ANT (Tetramorium caespitum) - MARYLAND - Annoying homeowners at several localities in Montgomery and Baltimore Counties. (U. Md., Ent. Dept.).

CARPENTER BEE (Xylocopa virginica) - MARYLAND - Boring into wood of homes in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

CORRECTIONS

CEIR 9 (Index) : 4 - Chaff scale (Paralatoria pergandii) should read Chaff scale (Parlatoria pergandii).

CEIR 10 (21) : 409 - PINE NEEDLE MINER (Exotelia pinifoliella) should read (Exoteleia pinifoliella).

CEIR 10 (22) : 445 - A HONEYLOCUST POD GALL (Dasyneura sp.) should read (Dasyneura sp.).

CEIR 10 (23) : 471 - A LEAF BEETLE (Calligrapha sigmoides) should read (Calligrapha sigmoidea).

ADDITIONAL NOTES

ALABAMA - TOBACCO THRIPS (Frankliniella fusca) damage to peanuts still evident throughout peanut belt. SOUTHERN GREEN STINK BUG (Nezara viridula) heavy in corn, and MEXICAN BEAN BEETLE (Epilachna varivestis) heavy on soybeans in southwest area. FALL WEBWORM (Hyphantria cunea) prevalent on pecan and persimmon throughout southern area. CONVERGENT LADY BEETLE (Hippodamia convergens) plentiful in most fields surveyed. (Grimes, Eden).

IOWA - BLACK CUTWORM (Agrotis ipsilon) reported from Shelby, Polk, Clarke, Union, Adams, Crawford and Story Counties. Beginning to work in low spots in Clay, O'Brien and Sioux Counties. A moderately infested field in Harrison County showed 6-8 percent of plants wilted and a stand reduction from 16,000 to 8,800 plants per acre. In this field, 25 percent of larvae had pupated and the rest were full-grown. In other fields in same area, larvae smaller but also working underground. In central area, larvae one-half to three-fourths-inch long and feeding on surface. EUROPEAN CORN BORER (Pyrausta nubilalis) 84 percent emerged at Ankeny. First egg mass found June 6 and on June 8 an average of 2 egg masses per 100 plants found on 20-inch corn. First egg masses found on sweet corn at Muscatine June 9. ARMYWORM (Pseudaletia unipuncta) defoliated corn in Clarke, Union, Ringgold and Story Counties. Now moving from rank grasses and winter grains into corn. Average 0.25-1 per square foot. WIREWORMS - Present in low spots in many corn fields in Clay and Dickinson Counties. Averaged 2 per hill in damaged areas and destroyed some corn in spite of treatments. STALK BORER (Papaipema nebris), first and second instars, boring into small corn in Mills County. BILLBUGS damaged 94 percent of corn plants in Crawford County area, with a 20-25 percent reduction in stand. LEAF BEETLES defoliated willow trees in Keokuk County. RHUBARB CURCULIO (Lixus concavus) damaged rhubarb at Clutier, Tama County. EASTERN TENT CATERPILLAR (Malacosoma americanum) defoliating wild cherry and wild plum in Poweshiek County. The major MOSQUITO pest for the State, Aedes vexans, became extremely abundant this week. In wooded areas, bite counts of 5-10 per minute were not uncommon. Aedes trivittatus, third or fourth in abundance in the State, appeared at Ames on June 7. (Iowa Ins. Inf.).

RHODE ISLAND - Local buildup of ALFALFA WEEVIL (Hypera postica) sufficient to cause spotty, heavy damage in Washington County. Generally light on first crop of alfalfa. CLOVER ROOT CURCULIO (Sitona hispidula) larval damage evident on nearly every root examined in a Washington County alfalfafield. MEADOW SPITTLEBUG (Philaenus leucophthalmus) unusually heavy in Providence County on grasses, legumes and other plants. POTATO APHID (Macrosiphum solanifolii) appeared in commercial potato plantings in South Kingstown. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) second-instar larvae abundant. THREE-LINED POTATO BEETLE (Lema trilineata) adults unusually heavy in local areas in Washington County, with second-instar larvae also present. ASPARAGUS BEETLE (Crioceris asparagi) adults active on asparagus plantings. ROSE CHAFER (Macrodactylus subspinosus) adult infestations locally heavy in Washington County and BIRCH LEAF MINER (Fenusa pusilla) causing many complaints from all parts of State on gray and white birch. MAPLE BLADDER-GALL MITE (Vasates quadripedes) locally heavy in all areas of State. AMERICAN DOG TICK (Dermacentor variabilis) continues unusually heavy in Washington County and building up in importance in Providence County. (Kerr, Hansen, Mathewson).

VERMONT - CODLING MOTH (Carpocapsa pomonella) emergence slow due to cool nights; only 30 percent emergence has occurred. Egg laying doubtful. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) populations low. EUROPEAN RED MITE (Panonychus ulmi) still prevalent in some orchards and TWO-SPOTTED SPIDER MITE (Tetranychus telarius) found in Chittenden County, with some oviposition underway. ROSE CHAFER (Macrodactylus subspinosus) emerging in Chittenden County since June 7. JAPANESE BEETLE (Popillia japonica) larvae active in turf in Windsor area, up to 30 grubs per square foot. IMPORTED CABBAGEWORM (Pieris rapae) heavily laying eggs on cole crops. MOSQUITOES and BLACK FLIES heavy over most of State and FACE FLY (Musca autumnalis) found on cattle in Addison County, averaging 75 per animal. (MacCollum).

MAINE - A FLEA BEETLE, probably Epitrix cucumeris, light, with light damage to tomatoes in Orono area. SPINACH LEAF MINER (Pegomya hyoscyami) infestation and damage light in Orono area; moderate in Gray area. Hatch of EUROPEAN RED MITE summer-generation eggs has not occurred as of June 8. First generation almost all adults. OYSTERSHELL SCALE (Lepidosaphes ulmi) infestations spotty statewide, with heavy emergence of crawlers. APPLE APHID (Aphis pomi) stem mothers not too numerous; some evidence of leaf curling in Wilton area. Colonies scarce to date. EYE-SPOTTED BUD MOTH (Spilonota ocellana) larvae generally fully developed and in cocoons; about 20 percent pupated. RED-BANDED LEAF ROLLER first brood hatched and feeding; infestations generally light. APPLE MEALYBUG (Phenacoccus aceris) eggs found in the Wilton area; infestations in unsprayed checks much below 1959. A MIDGE (Dasyneura mali) first-stage maggots found curling leaves in New Gloucester area; eggs near hatch in Wilton area. CYCLAMEN MITE (Steneotarsonemus pallidus) moderate in Green area; damage moderate. A GALL (Callirhytis seminator) found on white oak in Orono week of June 6. Infestation and damage unknown. Not very common in State. (Boullanger).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Prod. ornith.	Perid. saucia	Protoparce sexta	quinq.	Heliothis zea	vires.
ARKANSAS								
Morrilton 6/2-8	42	13						
Kelso 6/2-8	2	2		1			6	
Fayetteville 6/2-8	6	3		1			5	
DELAWARE								
Bridgeville 6/2-6					10	2		
FLORIDA								
Quincy 5/23					8		12	
Sanford 5/27			7					
INDIANA (Counties)								
Lawrence 6/1-3,6	99	14		9	1		2	
Tippecanoe 6/2-9	8				1	1		
IOWA								
Ames 5/29-6/3	35	1		3				
Ankeny 5/30-6/3	2	1		4				
Soldier 5/29-6/2	58	31		5				
Columbus Junction 5/31-6/3	31	5		2				
KANSAS								
Garden City 5/31-6/2		22	6			13		
Hays 6/2, 4-5,7-8	30	42	4	12		2	18	
Manhattan 6/3-9	21	21	11	9			1	
Wathena 5/25-31,6/2-5	20		4			2		
LOUISIANA								
Franklin 6/6,8			11		1		15	
Baton Rouge 6/3-9			78	4			21	
Tallulah 6/4-10							3	1
MARYLAND								
Fairland 6/6-10		4		3				1
MISSISSIPPI								
*Stoneville 6/3-9	42	6	17	20	2		11	1
MISSOURI								
Columbia 6/5-10	69	86		1				
NEBRASKA								
Scotts Bluff 5/26-6/1	20	24		77				
Lincoln 6/4-9	28	5		6				
NORTH CAROLINA								
Faison 6/4-10		2	1		2	3		
SOUTH CAROLINA								
Charleston 5/31-6/12		7	29	15	7	1	8	1
Clemson 6/4-10	39	13	140	1	8	13	5	
TENNESSEE (Counties)								
Monroe 5/31-6/6	14	14	8	10	18	2	11	
Maury 5/31-6/6	21	65	41	5	34	10	10	
Robertson 5/31-6/6	8	13	3	3	13	3	1	
Cumberland 5/31-6/6	8	21	15	4			1	
Greene 5/31-6/6	30	1	2	1	2			
Blount 5/31-6/6	8	34	45	2	3	6	2	
Johnson 5/31-6/6	8	48	13	2	1		1	
TEXAS								
Brownsville 5/28-6/4	5	162	3			4	70	

* Two traps - Stoneville

STATUS OF SOME MORE IMPORTANT INSECTS IN THE UNITED STATES

PURPLE-BACKED CABBAGEWORM (Evergestis pallidata (Hufn.))

Economic Importance: The species was described from Europe in 1792 and was recorded in the United States as early as 1841 on horseradish leaves. Larvae feed on the lower leaf surfaces of host plants, often webbing them together near the ground. They sometimes attack the crown and bore into the stems and roots. Although the pest rarely attains sufficient numbers to be of much consequence, it occasionally becomes very abundant in localized areas and does a great amount of damage.

Distribution: Canada, Central Europe, Great Britain, Ireland and the United States (see map).

Hosts: Turnip, cabbage, horseradish. In Europe, the pest has also been recorded as feeding in confinement on certain wild plants: Barbarea vulgaris, Sinapis arvensis and Cardamine amara.

Life History and Habits: Overwintering occurs as a mature larva in an earth-covered pupal case near the surface of the soil. In Virginia adults appear in May and mate. The female deposits eggs in small flat masses of three to over a dozen in clusters. Hatching takes place in 7-8 days. Young larvae feed on the leaves of host plants, but when abundant, attack the stalks. They mature in about 3 weeks and pupate in approximately the same time. The life cycle lasts about 7-8 weeks, depending on the temperature. At least two generations a year occur in Virginia. The fall brood, which overwinters, is more injurious to the host plants.

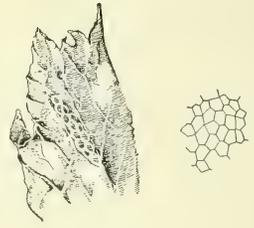
DISTRIBUTION OF PURPLE-BACKED CABBAGEWORM (Evergestis pallidata)



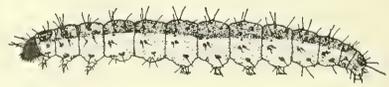
Description: EGG - Individual egg irregular oval, about 0.8 mm. in diameter. Surface finely reticulate and divided into shining, minute, irregular areas much like the surface of leather. Egg mass arranged more or less irregularly, as in the case of a honeycomb, bright-green in color. Each egg surrounded by irregular ring of yellow spots arranged in chains numbering about 12-18 per egg. Strong overlapping, so that egg mass somewhat resembles the pattern of fish scales. LARVA - Next to last larval stage is somewhat similar to mature larva, regarding the arrangement of the piliferous tubercles, but the form is more slender and the body tapers more at each end; general color dorsally, purplish with wide pinkish longitudinal band separating the two parts between the rows of piliferous tubercles. Mature larva about 18 mm. long and 3 mm. wide. Body tapers at both ends. Color purplish-brown to dark greenish-black dorsally, with a yellow stripe running through the spiracles. Underside of the body is dull greenish. Head black, cervical shield black on the sides and body is marked with numerous black tubercles. PUPA - Robust, about 8 mm. long and 3 mm. wide. General color brownish-yellow, but wing cases have distinct greenish tinge. Eyes large and black. ADULT - Body length about 10 mm., wing expanse about 25 mm. Forewings pale ochereous-yellow, sprinkled with dark brown, veins posteriorly dark brown; lines dark fuscous; an angularly 8-shaped discal spot, outlined with dark fuscous, touching angle of first line; a cloudy dark fuscous subterminal line, forming above middle of strong dark suffusion enclosing a pale terminal spot. Hindwings prismatic, yellow-whitish; traces of dark posterior line; termen narrowly dark fuscous. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 10(25):6-17-60.



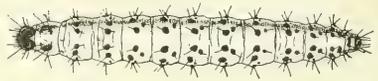
A



C



B



Figures of *Evergestis pallidata*: A - Adult; B - Larvae (dorsal and lateral views); C - Egg mass on leaf (section of egg surface showing sculpturing).

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

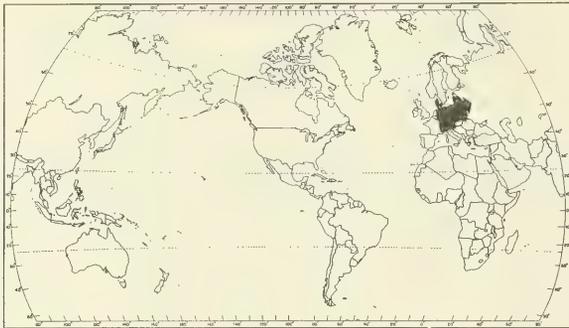
LARCH THRIPS (Taeniothrips laricivorus Kratochvil and Farsky)

Economic Importance: This thrips was first recorded as the causal agent of die-back disease of larch in 1941 in Czechoslovakia. A toxin is injected in the process of feeding by the thrips. Extensive areas in central Europe are now affected by this pest. Ten to twenty-year-old stands of European larch grown beyond its natural range have been especially damaged by attacks of this species in large masses, particularly in areas under the influence of oceanic climate. Infestations appear in the spring as new shoots sprout. Adults prefer to live on new top shoots and the degree of damage caused depends much on climatic conditions. Especially when the second generation of the insect coincides with a long dry season, as frequently happens in July, the infested top shoots often die. The loss of height increment renders the young larch trees unable to compete with other tree species and tree tops usually become deformed through the growth of secondary shoots.

The spread of T. laricivorus from its native habitat in the larch stands of south central Europe to its present range of distribution appears to have been a combination of factors; first, of course, was the increased cultivation of larches and the second was the supporting climatic factors.

Hosts: European larch (Larix decidua) and Japanese larch (Larix leptolepis) are recorded hosts, with the latter species being more resistant.

Distribution: The range of this species extends from Denmark to northern Yugoslavia and north Italy, from Czechoslovakia across Austria to Switzerland, and from southeastern France (Saar region) across Germany and Poland into the USSR. Its actual range into the USSR is not known.

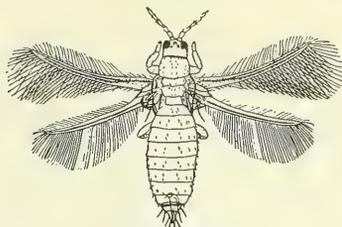


General Distribution of Taeniothrips laricivorus

Life History and Habits: The biology as studied in Germany is as follows: Overwintered females appear on larch about the last of April or first of May and gather on new shoots. Eggs are laid during the following days and weeks in young, tender needles of the terminal shoot. Each female will lay about 42 eggs. Development from egg to adult consists of 6 stages; egg, larva I, larva II, prepupa, pupa, and adult. The development of the separate stages is dependent on various factors, such as temperature, moisture, wind and

quality of food. The larvae of stages I and II and the adults of the first generation feed on the young shoot tips, with adults of this generation usually appearing about the last part of June. A second generation will often follow the first; but the development of this generation is considerably shorter, with adults emerging about the first of August. In elevations over 1,500 feet, however, only one generation a year is supposed to occur.

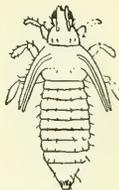
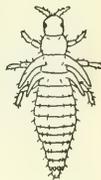
Description: ADULTS - Female averages 1.18 mm. in length, dark brown except for yellow (or light yellowish-brown) tip of second and entire third antennal segments, bases and apices of femora and tibiae, and entire tarsi. In gravid females, abdominal intersegmental membranes (or of the abdomen) appear as yellowish-brown transverse lines (stripes, bars, etc.). Male smaller, averages 0.85 in length; and lighter in color, orange-yellow except for dark apex of head and antennal segments beyond middle of third. EGG - Kidney-shaped and white, 0.330-0.350 mm. long and 0.155 mm. wide. LARVAE - Stage I has large head in relation to body and abdomen is sharply conical; color white. Stage II is yellowish, larger body than stage I and a sharper delimitation of antennal segments than in stage I. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 10(25):6-17-60.



Adult Female



Adult Male



Larva I

Larva II

Prepupa

Pupa

Figures of Taeniothrips laricivorus

Major references: Nageli, W., 1944. Schweiz. Ztschr. f. Forstwesen 95(5/6):175-180. Schimitschek, E., 1955. FAO Plant Protect. Bul. 3(10):152-153. Vité, J. P., 1954. Anz. f. Schädlingkunde 27(11): 161-166. (Figures, except map, from Vité).

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business



VOL. 10 NO. 26

JUNE 24, 1960

SB
823
C77
Ent.

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 of Insect Conditions

GRASSHOPPER counts relatively high in areas of Wyoming, Colorado and Texas, with some damage occurring. (p. 545). CORN EARWORM adults trapped in New Jersey on June 6 and larval infestations moderate to heavy in sweet corn in several Georgia counties. ARMYWORM causing damage to wheat in Kansas, Missouri, Iowa and Illinois. (pp. 547, 573). ALFALFA WEEVIL reduced tonnage yield of alfalfa 50 percent in Jefferson and Berkeley Counties, West Virginia. (p. 549). MEADOW SPITTLEBUG has been exceptionally heavy in some areas of Vermont and is quite heavy in southeastern Pennsylvania. (pp. 551, 573).

EUROPEAN RED MITE and TWO-SPOTTED SPIDER MITE building up on apples. (pp. 554, 573).

FLEA BEETLES damaging truck crops in several states and HORNWORM eggs present in tomatoes in Delaware. (p. 557). BEET LEAFHOPPER populations about as forecast in Utah, with curly top 15-25 percent in Washington County tomatoes. (p. 559).

THRIPS damage to cotton continues in several states. BOLLWORMS becoming a problem in Coastal Plains of South Carolina and economic populations present in Georgia. (p. 562).

Spray project covering some 20,000 acres for SPRUCE BUDWORM control completed in Minnesota. (p. 564). SOUTHERN PINE BEETLE controls increased in epidemic area in Liberty and Hardin Counties, Texas. (p. 565). FOREST TENT CATERPILLAR defoliated several hundred acres of hardwoods in northern Wayne County, Pennsylvania, and is abundant in Greene and Washington Counties. SPRING CANKERWORM severe in areas of North Dakota and ELM SPANWORM defoliating hardwoods in southwestern North Carolina. (p. 566).

FACE FLY building up and becoming annoying in Maryland and Ohio. Also present in Vermont, West Virginia, Indiana and Illinois. (pp. 568, 573). MOSQUITOES building up in Westchester area of New York and are numerous and annoying in areas of Utah, Idaho and North Carolina. (p. 568).

EUROPEAN CHAFER flight noted in New York. (p. 570).

INSECT DETECTION: New State records are a braconid (Agathis pumila) in Pennsylvania (p. 570) and northern fowl mite in Arkansas (CEIR 10(25):533). New County records are elm leaf beetle in Jackson County, Oklahoma (p. 566); Apterona crenulella in Butte and Nevada Counties, California (p. 560); brown wheat mite in Elko and Pershing Counties, Nevada (p. 573). Citrus bud mite collected in St. Lucie County, Florida. (p. 556).

CORRECTIONS (pp. 571, 572).

ADDITIONAL NOTES (p. 573).

Status of JAPANESE BEETLE populations as of June 17, 1960. (p. 572).

Status of some IMPORTANT INSECTS in the United States. (p. 575).

Reports in this issue are for week ending June 17, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-JUNE TO MID-JULY 1960

The Weather Bureau's 30-day outlook for the period mid-June to mid-July calls for temperatures to average above seasonal normals over the Northeast and Southwest. Below-normal temperatures are anticipated over the remainder of the Nation except for near normal in the Gulf and South Atlantic States. Precipitation is expected to exceed normal over most of the area lying between the Appalachians and the Continental Divide, as well as over the Pacific Northwest. Subnormal rainfall is indicated for the Far Southwest and along the Gulf Coast. In unspecified areas, 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 JUNE 20

Above-normal temperatures were general in most of the western half of the Nation and along the Atlantic coast from the Carolinas to New England this week, while below-normal averages predominated from the eastern Great Plains to Florida, in the Great Lakes and western New England, the Pacific Northwest, and along the California coast.

Precipitation in the southwestern quarter of the Nation from California to southern Texas, over the Plateau States and northern Rocky Mountains was very light or absent, and temperatures averaged much above normal, with over 100° afternoon readings common from Texas to the central valleys of California. El Paso, Texas, recorded 108° on Saturday afternoon, the highest reading of record there. Unusually cool weather for so late in the year produced negative temperature departures of more than 6° over a large area of the Midwest. Minimum temperatures in the 30's and 40's were widespread on Thursday and Friday in the northern Great Plains, the Great Lakes, and the upper Mississippi Valley. Frost was reported in all Wisconsin cranberry bogs.

Crop development and fieldwork were curtailed by these low temperatures and by the widespread soaking rains and showers which covered much of the northern Great Plains and upper Mississippi Valley. Scattered showers dotted sections of the Ohio Valley, the Great Lakes, Tennessee, portions of the Southern States from eastern Oklahoma and Texas to Florida and Georgia, and the Northeastern States.

Precipitation totals varied widely, with locally excessive amounts in short time periods in the northern Great Plains, the Great Lakes, and the Northeast. Moisture conditions range from good to excellent in most northern sections east of the Rocky Mountains, but soils are dry to very dry over much of the large region from the Carolinas westward to Texas, throughout the Rocky Mountain States, the Great Basin, and California. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - CALIFORNIA - Mel ioplus devastator and other species causing considerable damage to barley plantings, requiring control in Tule Lake Game Refuge in Siskiyou County and severe on border rows of test plants from Africa in U. S. Department of Agriculture Plant Introduction Gardens in Chico, Butte County. (R. M. Thompson). IDAHO - First and second-instar M. bilituratus averaged 6 per square yard at Clearwater. (Cook, Portman). Butte County populations averaged less than 1 per square yard in Eight Mile Canyon. Oedaleonotus enigma in first to third instar. M. bilituratus in first to third and Psoloessa delicatula in third to fourth instar. (Evans). Hatching in waste areas of Canyon County. (Weight). WYOMING - Grasshopper counts on rangeland were 10-35 (average 20) per square yard on 2,000 acres at Rock Eagle (15 miles southwest of Torrington) and 1-4 per square yard on remaining acreage in area; 3-12 per square yard, with some counts up to 18, on 2,000 acres in Bonen area (11 miles southwest of Wheatland); and 10-35 per square yard on 1,200 acres in Bibby area (8 miles north of Wheatland). (Fullerton). UTAH - Grasshopper outbreaks most conspicuous over 10,000 acres in Blue Creek area and 11,000 acres in Snowville area of Box Elder County. Infestations range from 10 to more than 300 per square yard, averaging about 25. Another 50,000 acres infested with an average of 10 hoppers per square yard in Rozell area, southwest from Promontory Monument, also in Box Elder County. (Thornley, Knowlton). Infestations serious in southeast Richfield meadows and pasture areas in Beaver and Kane Counties. Camnula pellucida dominant in south central and meadowland outbreaks. Local areas threatened in Levan Ridge area of Juab County. (Knowlton). COLORADO - Grasshoppers appearing on conservation reserve lands; 3,000 acres in Mosca-Hooper area of Alamosa County. Counts 40-50 per square yard; 20-30 in adjacent croplands. Bait program under consideration. (Colo. Ins. Sur.). KANSAS - Populations in cropland as follows: Light to moderate in spots in Sherman and Wallace Counties; dominant species M. differentialis, M. bivittatus, M. bilituratus and few Aeoloplides turnbulli. M. bivittatus and M. bilituratus in fifth instar, M. differentialis up to fourth instar and still hatching. Adults of M. bilituratus and M. occidentalis observed. Populations noneconomic to light in Comanche and Barber Counties; dominant species M. bivittatus. M. bivittatus, M. bilituratus and A. turnbulli developed to adults. (Peters). Populations in rangeland as follows: Noneconomic in Morton County; dominant species Aulocara elliotti and Ageneotettix deorum which ranged from third instar to adult. (Bell). Counts in south central and southwestern area cropland averaged less than 1 per square yard, except for few localized areas, where counts as high as 5 per square yard were recorded; dominant species M. bivittatus, M. bilituratus, Hesperotettix viridis and A. turnbulli. (Peters).

TEXAS - Grasshopper infestations on range, crop and soil bank land in Ochiltree, Hemphill, Lipscomb and Wheeler Counties. Hatch still underway, with large numbers of first-instar nymphs present. All instars and adults present at many locations. (Preston, Russell; June 9). In 3 fields checked in Swisher County, infestation averaged 40-60 in fields and 175-300 along margins. Species present were A. turnbulli bruneri, M. packardii, M. bivittatus and M. differentialis. Fourth and fifth-instar nymphs and adults dominant. Four fields checked in Cottle and Motley Counties revealed infestations averaging 1-3 in fields and 9-12 in margins. Predominant species were A. turnbulli bruneri, M. bivittatus and M. packardii. (Russell). Damaging infestations observed on forage crops, cotton, gardens and roadsides in many sections of State. (Texas Coop. Rpt.). NEBRASKA - Counts in small localized area in Buffalo County averaged 40 per square yard of first and second-instar nymphs of M. differentialis with some M. bivittatus mixed in. M. confusus found along fence rows and averaged 6 per square yard in same county. (Simpson). SOUTH DAKOTA - Heavy rain and cloudy, cool weather accompanied with very good growth of vegetation, has held hatching of grasshopper eggs back. First cutting of alfalfa well underway; hatching in these areas may speed up. A few nymphs beginning to appear in marginal areas and soil bank land as well as other legume fields. (Mast). MINNESOTA - Grasshopper egg hatch found directly related to soil type. In heavy, wet soils in northwest, M. bivittatus hatch just beginning; in light, sandy soils nearly complete, with some second to fourth-instar

nymphs present but most in third instar. In northwest, populations generally noneconomic. A soil bank field in Norman County had 35 per square yard and another in Kittson County had 60 per square yard. M. femur-rubrum eggs in southeast and west central districts showing first signs of segmentation. First and second-instar nymphs of M. bivittatus found in southeast and south central districts; populations very low. (Minn. Ins. Rpt.). WISCONSIN - Nymphs of M. femur-rubrum appearing on light soil throughout the State. (Wis. Coop. Sur.). NORTH DAKOTA - Rangeland survey in southwest shows scattered grasshopper infestations ranging from light to threatening. Nymphal counts in several sections in southern Golden Valley County ranged 15-30, first to fourth instars, per square yard. Dominant species A. deorum in all areas except one, where A. elliotti was predominant. In McKenzie County, an area north of Charlson had about 20 nymphs per square yard and development largely first instar. (Olson). Cropland survey through southwest counties showed noneconomic infestations at most stops. A roadside stop near Beach and another near Sentinal Butte in Golden Valley County had infestations ranging 40-50 first to third instars per square yard. M. bivittatus and M. bilituratus predominant species. In northwestern areas, grasshopper infestations ranged threatening to severe near Crosby and Wildrose, Divide County, and in scattered areas in Burke County. Populations consist generally of first and second-instar M. bivittatus and M. bilituratus nymphs. Some feeding injury in margins of small grain fields evident at some stops. (N. D. Ins. Sur.). ILLINOIS - First and second-instar grasshopper nymphs averaged 33 per 100 sweeps in roadside grass in west-southwest section. (Ill. Ins. Rpt.). MISSOURI - Large numbers of Melanoplus small nymphs observed in fence rows and field margins; counts ranged 4-15 per square yard. (Munson, Thomas, Wood). Reports from 10 collecting areas in Boone County indicated that 63 percent of all grasshoppers collected were Melanoplus spp. Counts along field margins ranged 0.05-10 per square yard and averaged 2.6. Counts in fields ranged 0.005-15 per square yard and averaged 2. One area in a pasture averaged 40 M. confusus and M. bilituratus per square yard. (Munson, Thomas, Wood). GEORGIA - Melanoplus sp. defoliated 25-acre field of coastal Bermuda grass in Coffee County. (Davenport). DELAWARE - Nymphs of Conocephalus spp. generally abundant (2-3 per sweep) on alfalfa throughout most of State. (Burbutis).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW YORK - Egg laying occurred in Hudson Valley. Populations decidedly more abundant than usual in that area and stalk infestation will almost certainly approach 100 percent in sweet corn. Ears are threatened unless controlled. Egg masses averaged 28 per 100 plants at Poughkeepsie on June 6 in one field and 22 in another. By June 10, small larvae present in emerged tassels. (N. Y. Wkly. Rpt., June 13). MASSACHUSETTS - Egg laying and hatching resumed. (Crop Pest Cont. Mess.). NEW JERSEY - Hatch of larvae at peak on sweet corn in Burlington Central Jersey area. (Ins.-Dis. Newsl., June 14). DELAWARE - Infestations generally heaviest in sweet corn and older field corn with larvae ranging first to fourth instars. Older larvae found feeding rather commonly on enclosed corn tassels in several fields in Sussex County. (Burbutis). MARYLAND - Infestations in field corn on lower Eastern Shore generally range light to moderate. Heavy in garden sweet corn in Dorchester County. (U. Md., Ent. Dept.). INDIANA - Egg masses and newly hatched larvae observed in fields in Vigo County, west central area. Infestations averaged about 10 percent in fields of early planted corn. (Matthew). ILLINOIS - Emergence complete in southern area, 40-100 percent in central area and 10-52 percent in northern area. Egg mass counts in west-southwest section on corn 21-33 inches high varied from 4-210 masses per 100 plants (average 71), with 0-33 percent (average 8.5) of masses hatched. In central and western sections on corn 21-34 inches high, egg masses varied 0-120 (average 26) per 100 plants with no hatch. In northeast and northwest sections on corn 12-24 inches high, masses varied 0-10 (average 3) per 100 plants with no hatch. (Ill. Ins. Rpt.). WISCONSIN - First egg masses of season observed in Crawford County cornfield, averaged 2 per 100 plants. Egg laying should be occurring in other areas since adults have been appearing in blacklight traps. Survival of newly hatched larvae expected to be lowest for many years. (Wis. Coop. Sur.). MINNESOTA - Moth emergence observed in southern half of State. Highest emergence found in southwest district. Some light egg laying has occurred. (Minn. Ins. Rpt.). MISSOURI - Egg deposition and some hatching

observed in central and west central areas. Up to 20 percent of plants in early corn show feeding scars. (Munson, Thomas, Wood). NEBRASKA - Egg masses in several fields in Buffalo and Hall Counties, central area; counts average 2 per 50 plants. Adults common in fields. Very early planted corn in Lancaster County averaged one egg mass per plant on 75 percent of test plots. (Simpson).

CORN EARWORM (*Heliothis zea*) - NEW JERSEY - First moths trapped in Burlington County on June 6. Very few present. (Ins.-Dis. News.). NORTH CAROLINA - Up to 50-60 percent of plants infested in Scotland County (Alford) and 8 out of 10 stalks damaged in field in Hoke County (Chadwick). GEORGIA - Moderate to heavy infestations on sweet corn in Tattall, Bacon, Coffee, Irwin, Colquitt, Thomas and Mitchell Counties. (Johnson). TEXAS - Larvae in all stages attacking corn in early tassel stage in Washington County. (McClung). MISSOURI - Feeding as budworms in whorls of corn in southwest. Counts in one field in Jasper County ranged 6-15 percent of plants infested. (Munson, Thomas, Wood).

SOUTHWESTERN CORN BORER (*Zeadiatraea grandiosella*) - ARKANSAS - Feeding signs observed on 70 percent of plants in field of corn in Phillips County. (Ark. Ins. Sur.).

STALK BORER (*Papaipema nebris*) - KANSAS - One to 5 percent of wheat stems infested in weedy area measuring 50 by 100 feet in field in Miami County (Somsen) and working edges of many corn fields in Marion and Geary Counties (Burkhardt). NEBRASKA - Some very light infestations observed along fence rows in central counties. (Simpson). MISSOURI - Infestations noted in margins of wheat field in Jasper County. Marginal rows of corn taken out in southwest and west central areas. Stalks in first to fourth marginal rows infested with 1-5 larvae. (Munson, Thomas, Wood). INDIANA - Small larvae common in some corn fields in Clinton County. (Gould). Observed in wheat stems in few localized areas in Franklin, Adams and Vigo Counties. (Matthew).

BLACK CUTWORM (*Agrotis ipsilon*) - MARYLAND - Infestation caused replanting of corn in Cumberland area. An unspecified cutworm reported injuring young corn on lower Eastern Shore. (U. Md., Ent. Dept.). INDIANA - Small larvae common but not serious in many corn fields in central area. (Gould). ILLINOIS - Many reports of this species and another species, probably *Feltia subguthica*, damaging corn received from several areas of State. Some treatments and replanting necessary. (Ill. Ins. Rpt.). WISCONSIN - Heavy infestation of early to late instars on June 10 in Mazomanie area. Other cutworms also present. Treatments applied: (Wis. Coop. Sur.). NEBRASKA - Damage by this species and an undetermined cutworm which predominates continues in eastern portion of State. Treatments underway in northeast along Missouri River and in Seward and York Counties. Very light damage noted in Grand Island and Kearney areas. (Simpson).

ARMYWORM (*Pseudaletia unipuncta*) - KANSAS - Found in many wheat fields in central, south central and southwestern areas; counts less than 1 larva per foot of row, except for localized areas in central and south central areas. Few fields in Barton and Rice Counties, central area, and Pawnee, Stafford and Reno Counties, south central areas, severely damaged. Up to 25 percent of heads clipped off and remaining 75 percent show severe kernel damage. Larval counts in these fields ranged 2-12 per foot of row; averaged about 8. Several fields treated in these counties. (Peters). MISSOURI - Light in wheat and barley with growth in southwest area; no damage evident. Heavy in central area; counts in wheat and barley with heavy growth ranged 4-12 per square foot. Severe head clipping observed in some fields of barley in central area. (Munson, Thomas, Wood). ILLINOIS - Causing some damage to marginal rows of corn where adjacent grass has been cut. As many as 4 per linear foot of row in wheat. Some treatments applied in central area where larvae are cutting off heads of wheat. Few pastures show damage in eastern area. (Ill. Ins. Rpt.). DELAWARE - Present in field corn in western Kent County. (Burbutis). NEW YORK - Nearly full-grown larva found in corn in Hudson Valley. (N. Y. Wkly. Rpt., June 13).

CORN ROOT WEBWORM (Crambus caliginosellus) - MARYLAND - Injuring corn locally in Queen Annes County. (U. Md., Ent. Dept.).

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Found in almost all wheat fields examined in central, south central and southwestern areas. Counts less than 1 per sweep. (Peters). NEBRASKA - Counts averaged 3 per 10 sweep in pasture in Buffalo County. (Simpson).

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Adults present in most sweepings of wheat in Cassopolis; counts range 1-5 per 10 sweeps near Beach, Golden Valley County. (N. D. Ins. Sur.).

HESSIAN FLY (Phytophaga destructor) - MICHIGAN - Few scattered flax-seed stages appearing across southern end of State. Infestation varies from light at Monroe to fairly heavy at Cassopolis, with a few fields heavily infested. Susceptible varieties more heavily infested. (Hutson, June 13).

CORN FLEA BEETLE (Chaetocnema pulicaria) - NEW YORK - Continues abundant in some fields of sweet corn in Hudson Valley. On June 6, inspection of 100 plants at Poughkeepsie yielded 22 and on June 9 in one planting, on sod, west of Kerhonkson, 15 taken from 10 plants. Lesions of Stewart's disease clearly evident on 10 plants, of 1,000 checked. (N. Y. Wkly. Rpt., June 13). MARYLAND - Generally abundant on sweet corn in most sections. (U. Md., Ent. Dept.). ILLINOIS - Populations vary 10-200, average 42, per 100 plants in field corn in west-southwest section. (Ill. Ins. Rpt.).

DESERT CORN FLEA BEETLE (Chaetocnema ectypa) - UTAH - Common to damaging in corn and related forage crops in Santa Clara-Hurricane area, Washington County. Lighter at Kanab in Kane County. (Knowlton).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - ARKANSAS - Adult feeding signs numerous on rice in northeast and southeastern areas. Adults appear more numerous than during past 2 years. (Ark. Ins. Sur.). LOUISIANA - Heavy damage noted in field of rice in St. Tammany Parish. (Spink).

WIREWORMS - PENNSYLVANIA - Agriotes mancus destroyed 85-90 percent of oats in 3-acre field in Wayne County. (Gesell, June 11). MISSOURI - Damage to corn by Melanotus spp. in southwest continues. Corn with 5-30 percent of plants killed by wireworms common in Barton and Jasper Counties. (Munson, Thomas, Wood). WISCONSIN - Incidence of unspecified wireworms high in soil insect survey of corn fields in Dane, Rock, Green, Lafayette, Columbia, Jefferson and Walworth Counties. Averaged 5.8 per 100 plants compared with 2.9 per 100 plants for the past 4 years. (Wis. Coop. Sur.). SOUTH DAKOTA - Melanotus spp. damaging corn in Codington County. (Hantsbarger). IDAHO - One 17-acre field of corn south of Twin Falls replanted because of larval activity. Species probably Limonius canus. (Evans).

CORN ROOTWORMS - ILLINOIS - Adults feeding on 22 percent of corn plants, with 10 beetles per 100 plants in west-southwest section. (Ill. Ins. Rpt.). NEBRASKA - Diabrotica undecimpunctata howardi adults feeding on corn leaves in all counties surveyed; several fields averaged 1 adult per 4 plants. (Simpson).

BILLBUGS - MICHIGAN - Easy to find in wheat fields east of line from Coldwater to Mt. Pleasant. (Hudson, June 10). ILLINOIS - From 0-10 percent of corn plants, average 3, show signs of feeding in west-southwest section. (Ill. Ins. Rpt.).

A BEETLE (Colaspis sp.) - ILLINOIS - From 0-8 percent of corn plants damaged in west-southwest with from 0-3 larvae and pupae per damaged plant. (Ill. Ins. Sur.).

WHITE GRUBS - SOUTH DAKOTA - Active in east central areas on corn and small grain. (Hantsbarger).

STINK BUGS - TEXAS - An undetermined species causing light damage to grain sorghum in Bee and Live Oak Counties. (Edgar). UTAH - Chlorochroa sayi more common in grain in Washington, Iron, Beaver, Millard, Tooele, Box Elder, Juab and Sevier Counties than at same time in 1959. However, only at Kanosh, Millard County, are damaging populations present. (Knowlton). LOUISIANA - Oebalus pugnax averaged 7 per 100 sweeps in rice in St. Tammany and St. James Parishes. (Spink).

CHINCH BUG (Blissus leucopterus) - KANSAS - Generally light in small grains and some present in corn and sorghum in Marion and Geary Counties. Few infestations of 150 per linear foot noted in barley. (Burkhardt).

BUFFALO TREEHOPPER (Stictocephala bupalus) - SOUTH DAKOTA - Found occasionally in small grain and flax fields in east central area. (Mast).

ENGLISH GRAIN APHID (Macrosiphum granarium) - WISCONSIN - Heaviest counts in oats showed 76 percent of plants infested with average of 4 per plant. However, 4 percent or less of infested plants had high counts, up to 29 per plant. (Wis. Coop. Sur.). NORTH DAKOTA - Populations low or absent in southwest small grain fields. A field of oats near Beulah, Mercer County, averaged 1 per 10 sweeps with scattered colonies present in field. (N. D. Ins. Sur.). NEBRASKA - Few very light infestations remain present in small grains; highest counts averaged 1 per sweep. (Simpson).

GREENBUG (Toxoptera graminum) - MINNESOTA - General light infestation reported north to Stearns County, west to Cottonwood and east to Mississippi River. Infestations light in all areas, with an occasional field showing moderate populations and some apparent damage. Situation not alarming and the pest does not seem likely to develop to extent experienced in 1959. (Minn. Ins. Rpt.)

A RICE DELPHACID (Sogata orizicola) - LOUISIANA - Approximately 20,000 sweeps made in 1,200 acres of rice and 150 acres of volunteer rice in St. John the Baptist, St. Tammany, St. Landry and St. James Parishes for this vector of hoja blanca disease, with negative results. (Spink).

A MIRID - IDAHO - Adults of undetermined species removing chlorophyll from an intermediate wheatgrass planting near Peck. (Kambitsch).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Common, but generally light in Millard, Beaver, Washington, Kane, Juab and Sevier County grain fields. Much more of a problem in northern area counties recently. Populations very high on dryland grains east of Monticello, San Juan County. (Knowlton).

SOD WEBWORMS - NEW JERSEY - Starting to work in lawns. (Ins.-Dis. Newsl., June 14).

ALFALFA WEEVIL (Hypera postica) - NEW YORK - Some fields of alfalfa in Dutchess and Putnam Counties still turning up counts of 100 larvae per sweep. Most larvae cocooned, however, and new adults beginning to emerge. Populations continue to build up in alfalfa at an even more intensive rate in Ulster County, with a large proportion of first-brood larvae pupating. Emergence of second-brood adults expected to take place during week ending June 17 in Ulster County. (N. Y. Wkly. Rpt., June 13). PENNSYLVANIA - Pupating in alfalfa in southwest. Also small larvae present. Indiana County with scattered infestations. (Udine, June 11). DELAWARE - Much of second-growth alfalfa now mature, with only light injury. Larval counts higher in Sussex and western Kent County than elsewhere (2 per sweep). Adults average 2-3 per 10 sweeps in most fields throughout State. (Burbutis). MARYLAND - Larval populations at low level on second-growth alfalfa in Frederick County. Damage to second growth has been moderate to heavy. (U. Md., Ent. Dept.). WEST VIRGINIA - Tonnage yield of alfalfa reduced at least 50 percent in Jefferson and Berkeley Counties. Food value of harvested 50 percent. Further reduced by this species and Macrosiphum pisi damage by 25 percent. Total loss of first cutting 75 percent. (W. Va. Ins. Sur.). UTAH - Common in alfalfa throughout most of State; some growers cutting for control. Several thousand acres treated recently for larval control in Iron, Beaver and other counties.

Condition worsening in general. Damage moderate in Morgan County; control of larvae largely by early cutting. Adults still numerous in some fields at Beaver, Minersville and Delta in south central area; at Nephi-Levan in Juab County; and in Salt Lake and Utah Counties. (Knowlton). IDAHO - Blooming of alfalfa restricted in untreated Grangeville fields because of larval feeding. (Cook, Portman). Larval populations in untreated Jefferson County alfalfa requiring controls to prevent extensive damage. (Gooch). WYOMING - Adults averaged 5 per 25 sweeps and larvae 1 per sweep in 15 alfalfa fields checked in Weston, Niobrara, Goshen and Laramie Counties. (Fullerton). COLORADO - Larvae maturing and new adults emerging in Pueblo, Larimer and Weld County alfalfa. Larval populations dropping; counts in Garfield County and Delta County still high, with 2,000-3,000 per 100 sweeps. First cutting being made to reduce numbers. (Colo. Ins. Sur.). SOUTH DAKOTA - Damaging alfalfa in areas around the Black Hills and Pine Ridge, western section of State. (Hantsbarger).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - IDAHO - Light adult populations indicated by leaf damage in Grangeville red, alsike and white clover. Larval damage minor. (Cook, Portman). Leaf damage greater to Cavendish and Frazier white clover than to alsike clover. Larval populations attacking up to 60 percent of blossoms. Many buds completely destroyed. (Johansen, Fitzsimmons, Portman). ILLINOIS - Adults varied 40-80 per 100 sweeps in clover in west and west-southwest sections. (Ill. Ins. Rpt.).

CLOVER LEAF WEEVIL (Hypera punctata) - IDAHO - Larvae present in all Grangeville, Cavendish and Frazier alsike, red and white clover fields; populations averaged up to 3 per sweep. In Cavendish area, 70-80 percent of populations exhibiting disease symptoms. (Cook, Johansen, Fitzsimmons, Portman).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NORTH DAKOTA - Injury severe to seedling fields in eastern section. (N. D. Ins. Sur.). SOUTH DAKOTA - Averaged 9 per 10 sweeps in Minnehaha County. (Mast).

CLOVER SEED WEEVIL (Miccotrogus picirostris) - IDAHO - Adults averaged 5-7 per sweep in Grangeville alsike and white clover. Most fields in full bloom. (Cook, Portman). Adult populations in Cavendish and Frazier white clover averaged up to 7 per sweep while in adjacent alsike fields populations 2-3 per sweep. (Johansen, Fitzsimmons, Portman).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Found on alfalfa and clover in most areas in eastern section of State; 1-16 per 10 sweeps. (Mast).

PEA WEEVIL (Bruchus pisorum) - IDAHO - Adult populations in Grangeville, Cavendish and Frazier Austrian winter pea fields averaged up to 4 per sweep. Peas in bloom but no pods present. (Cook, Johansen, Fitzsimmons, Portman).

VETCH BRUCHID (Bruchus brachialis) - MICHIGAN - Adults scattered in all fields checked. (Hutson, June 13). OKLAHOMA - Few adults collected in vetch near Stillwater; eggs, 1-12 per pod, mostly unhatched, with a few larvae noted inside pods. (Walton).

PALE-STRIPED FLEA BEETLE (Systema blanda) - DELAWARE - Adults present on alfalfa statewide, with 2-4 per 10 sweeps in New Castle and Kent Counties and slightly higher in Sussex County. (Burbutis). MARYLAND - Common on second-growth alfalfa in Frederick County; adults averaged 15 per sweep in one large field. (U. Md., Ent. Dept.).

GARDEN FLEAHOPPER (Halticus bracteatus) - ILLINOIS - Adults varied 120-1,760 per 100 sweeps in clover in west and west-southwest sections. (Ill. Ins. Rpt.).

CLOVER SEED CHALCID (Bruchophagus gibbus) - IDAHO - Few adults beginning to appear now that red clover is beginning to bloom in Canyon County. (Waters).

MEADOW SPITTLEBUG (*Philaenus leucophthalmus*) - PENNSYLVANIA - Quite heavy on legume hay in southwestern area; much less spraying done than in past, probably due to cost. (Udine, June 11). MARYLAND - Adults common in many alfalfa and red clover fields in Frederick County. (U. Md., Ent. Dept.). ILLINOIS - Adults varied 5-1,000 per 100 sweeps in clover in west and west-southwest sections. (Ill. Ins. Rpt.). WISCONSIN - Averaged 2 nymphs per 10 alfalfa stems in Grant County, but less than 1 in Trempealeau, Adams, Dunn, Pepin, Marathon, Taylor, Barron and Polk Counties. In all counties, numbers appear lower than in 1959. First adults of season found in Richland County field. (Wis. Coop. Sur.). MINNESOTA - Averaged 1 per plant in Fillmore, Houston and south Winona Counties. Populations high enough to warrant control. (Minn. Ins. Rpt.).

TARNISHED PLANT BUG (*Lygus lineolaris*) - DELAWARE - Slight increase over previous week, averaging 1-2 adults per sweep. (Burbutis). ILLINOIS - Adults varied 60-180 and nymphs 40-360 per 100 sweeps in clover in west and west-southwest sections. (Ill. Ins. Rpt.). WISCONSIN - Adults and nymphs averaged 3-5 per sweep in alfalfa in Lafayette, Iowa, Grant, Sauk and Richland Counties. (Wis. Coop. Sur.). MINNESOTA - Counts per 10 sweeps as follows: Southeast 4-25; south central 15-20; central 4-10; west central 2-7; northwest 2-10. (Minn. Ins. Rpt.). NORTH DAKOTA - Counts average 1-2 nymphs per sweep in many southwest alfalfa; nymphal populations higher than usual. (N. D. Ins. Sur.).

LYGUS BUGS (*Lygus* spp.) - NEVADA - Nymphs and adults averaged 5-10 per sweep in Lovelock, Pershing County, and 7-10 per sweep in Winnemucca, Humboldt County. (Parker). NEW MEXICO - Nymphs and adults abundant in seed alfalfa in Eddy County; averaged about 20 per 50 sweeps. (N. M. Coop. Rpt.). UTAH - Very abundant in many Sevier, Kane and Washington County alfalfa fields; *L. elisus* usually dominant. (Knowlton). WYOMING - Adults averaged 1 per sweep and nymphs 2 per sweep in 10 alfalfa fields checked in Goshen and Laramie Counties. (Fullerton). OKLAHOMA - Light to medium in alfalfa checked in Choctaw, Bryan and Love Counties (Goin, Vinson) and light in alfalfa checked in southwest and north central areas (Hatfield, Robinson).

RAPID PLANT BUG (*Adelphocoris rapidus*) - DELAWARE - Present in alfalfa statewide, with counts ranging 1-4 adults per 10 sweeps. (Burbutis). ILLINOIS - Adults varied 20-280 and nymphs 0-100 per 100 sweeps in clover in west and west-southwest sections. (Ill. Ins. Rpt.). WISCONSIN - Adults and nymphs averaged slightly less than 3-5 per sweep in Sauk, Richland, Lafayette and Grant Counties. (Wis. Coop. Sur.). SOUTH DAKOTA - Averaged 8 per 10 sweeps in alfalfa in east central area. (Mast).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - WISCONSIN - Nymphs and adults averaged 3-5 per sweep in Sauk, Richland, Lafayette and Grant Counties. (Wis. Coop. Sur.). NORTH DAKOTA - Averaged 1 per sweep in some southwest legumes. (N. D. Ins. Sur.). SOUTH DAKOTA - Averaged only 2 per 10 sweeps in alfalfa in eastern counties checked. (Mast).

SUPERB PLANT BUG (*Adelphocoris superbus*) - UTAH - Light in Tooele, Millard and Washington County alfalfa. (Knowlton).

FALSE CHINCH BUG (*Nysius ericae*) - UTAH - Extremely numerous in and on margins of some alfalfa fields at Beaver and Minersville in Beaver County; Delta and Fillmore in Millard County; Pinto, Santa Clara and Washington in Washington County. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (*Spissistilus festinus*) - ARIZONA - Infestations 7-15 per 25 sweeps in alfalfa statewide. (Ariz. Coop. Sur.).

POTATO LEAFHOPPER (*Empoasca fabae*) - NEW YORK - First specimens of season collected in alfalfa June 6 in Cayuga County and on June 9 in Oswego County. (N. Y. Wkly. Rpt.). DELAWARE - No noticeable buildup on alfalfa, but slightly more abundant in New Castle County than elsewhere, with counts 4-5 per 10 sweeps. (Burbutis). MARYLAND - Adults averaged considerably less than one per sweep on

second-growth alfalfa checked in Frederick County. (U. Md., Ent. Dept.). OHIO - No buildup noted in central area; 2 adults per 10 sweeps and no nymphs. (Blair). ILLINOIS - Adults varied 20-80 and nymphs 20-700 per 100 sweeps in clover in west and west-southwest sections. (Ill. Ins. Rpt.). WISCONSIN - Numbers low in alfalfa but increasing some. (Wis. Coop. Sur.). NORTH DAKOTA - An adult collected in wheat near Mott, Hettinger County. (N. D. Ins. Sur.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - Adult counts in southwest averaged near 1 per 10 sweeps in small grains and legumes. (N. D. Ins. Sur.). NEBRASKA - Averaged 2 per 10 sweeps in small grain fields in Buffalo and Hall Counties. (Simpson).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - SOUTH DAKOTA - Few found in east central area; highest populations only 3 per 10 sweeps in alfalfa. (Mast).

PEA APHID (Macrosiphum pisi) - DELAWARE - Populations low in alfalfa, averaging less than 5 per sweep over most of State. (Burbutis). MICHIGAN - Noticeable on alfalfa at Lansing. (Hutson, June 13). OHIO - Absent from fields of second-growth alfalfa in northern area. (James, Thoburn). ILLINOIS - Varied 40-4,000 per 100 sweeps in clover in west and west-southwest sections. (Ill. Ins. Rpt.). MISSOURI - Counts in alfalfa in extreme southwest area ranged 5-45 per sweep; about 60 percent observed appeared to be diseased. (Munson, Thomas, Wood). WISCONSIN - Counts in alfalfa ranged from 9 to over 100 per sweep in Iowa, Lafayette, Grant, Richland and Sauk Counties. (Wis. Coop. Sur.). MINNESOTA - Generally increased; counts per 10 sweeps range as follows: Southeast 5-60; south central 15-80; central 10-45; southwest 7-45; west central 3-75; northwest 2-75. (Minn. Ins. Rpt.). NORTH DAKOTA - Counts low in southwest. (N. D. Ins. Rpt.). SOUTH DAKOTA - Populations high; averaging 130 per 10 sweeps in east central area, with some counts as high as 80 per sweep. (Mast). NEBRASKA - Counts range 750-2,000 per 100 sweeps in counties checked in central area. (Simpson). OKLAHOMA - Light in alfalfa checked in Choctaw, Bryan, Love, Garfield, Grant, Kay, Osage and Pawnee Counties. (Goin, Vinson, Robinson). COLORADO - Counts continue high in alfalfa in Weld County. (Colo. Ins. Sur.). WYOMING - Averaged 1 per sweep in 15 alfalfa fields checked in Weston, Niobrara, Goshen and Laramie Counties. (Fullerton). UTAH - Seldom numerous in San Juan County alfalfa. (Knowlton). IDAHO - Beginning to appear in red clover near Parma, with numbers ranging 2-5 per sweep. (Waters). NEVADA - Averaged 200-250 per sweep in several fields in Fernley, Lyon County; 30-60 per sweep in Lovelock, Pershing County; 10-15 per sweep in Winnemucca and 5-10 per sweep in Paradise Valley, Humboldt County; and 5-10 per sweep in Elko and Lamoille, Elko County. (Parker).

SWEETCLOVER APHID (Therioaphis riehmii) - UTAH - Present, but light, on yellow sweetclover in Tooele and Salt Lake Counties. (Knowlton). ILLINOIS - Varied 0-60 per 100 sweeps in west and west-southwest sections. (Ill. Ins. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - MISSOURI - First of season observed in southwest area. (Munson, Thomas, Wood). OKLAHOMA - Generally light in alfalfa checked in southeast, south central, southwest and north central areas. (Goin, Vinson, Hatfield, Robinson). NEW MEXICO - Moderately heavy infestations damaging alfalfa in Eddy and Chaves Counties; many growers treating. (N. M. Coop. Rpt.). NEVADA - None found in fields in Elko, Humboldt or Pershing Counties. (Parker).

CLOVER APHID (Anuraphis bakeri) - IDAHO - Exceedingly scarce in southwestern area red clover; less than 0.1 percent of all plants examined had very small colonies. (Waters).

LEAF MINERS - UTAH - Infesting 2-4 percent of alfalfa leaves in some Millard, Beaver and Washington County alfalfa. (Knowlton).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Larvae present on alfalfa most areas but generally less than 1 per sweep. (Burbutis). ILLINOIS - Counts ranged 0-10 per 100 sweeps in clover in west and west-southwest sections. (Ill. Ins. Rpt.).

OKLAHOMA - Light in alfalfa checked in Choctaw County (Goin), averaged 2.5-3.0 per sweep in alfalfa in Bryan County (Vinson) and averaged 2-3 per sweep in Stillwater area (Bieberdorf).

ALFALFA LOOPER (Autographa californica) - UTAH - More common in Millard, Tooele, Davis, Iron, Washington, Kane, Juab and Sevier Counties than for a few years. (Knowlton).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - UTAH - Numerous in occasional alfalfa fields in east Millard County, Washington County and commonly present in Sevier and Juab Counties. (Knowlton). WYOMING - Numerous adults flying in alfalfa, larvae averaged 2 per 25 sweeps in 10 alfalfa fields checked in Goshen and Laramie Counties. (Fullerton). COLORADO - Larvae appearing 10-30 per 100 sweeps in alfalfa in Weld County. (Colo. Ins. Sur.). OKLAHOMA - Counts 0.5 per sweep in alfalfa checked in Choctaw County (Goin), 1.5 per sweep in Bryan and Love Counties (Vinson) and 2-3 per sweep in alfalfa in Stillwater area (Bieberdorf). DELAWARE - Larvae now present on alfalfa in New Castle County. (Burbutis).

ARMY CUTWORM (Chorizagrotis auxiliaris) - IDAHO - Numerous adult activity from southwest to northeast along Snake River Plains. In many instances, becoming nuisance to homes. Adults apparently commencing summer migration for aestivation. (Ent. Staff). COLORADO - Light trap collections at Rocky Ford were 150 on May 27 and 112 on June 11. (Colo. Ins. Sur.). NEBRASKA - Light trap collections at North Platte were 1,742 for period June 1-8 and 343 for period June 9-15. (Pruess).

BLISTER BEETLES - ARKANSAS - Present on soybeans in some southeastern areas. (Ark. Ins. Rpt.).

WEBWORMS - SOUTH DAKOTA - Moths numerous in alfalfa fields in Lawrence County, west central area. (Hantsbarger). OKLAHOMA - Medium infestation, 1 per square foot, in alfalfa checked in Choctaw County (Goin); 2 per sweep in Love County (Vinson); infesting approximately 10 percent of white sweetclover in Stillwater area (Bieberdorf); and very light in limited alfalfa surveyed in north central area (Robinson). NORTH DAKOTA - Moths of Loxostege sticticalis noted at all stops in southwest. Heaviest concentrations in Bowman, Golden Valley and Dunn Counties where counts averaged 4-10 moths per square yard. No eggs or larvae observed. Heavy moth flights also reported in Williston area, northwest section. (N. D. Ins. Sur.).

A SOD WEBWORM (Crambus sp.) - OHIO - Damaging field corn in Putnam County to extent that treatment was attempted. (Blair).

THRIPS - UTAH - Extremely numerous in alfalfa in Sevier, Washington and Kane Counties; causing some foliage discoloration. (Knowlton). OKLAHOMA - Counts ranged 8-100 per square foot of crown in 3 alfalfa fields checked in Comanche, Jackson and Greer Counties (Hatfield) and heavy on small peanut plants (10 per plant) in field checked in Pushmataha County (Goin). MISSOURI - Silvering evident on much of small corn in southwest. Populations no longer damaging. (Munson, Thomas, Wood). GEORGIA - Moderate to heavy on peanuts in some fields in southern area. (Johnson). DELAWARE - Sericothrips variabilis common on most soybeans throughout the State. (Burbutis).

RED-NECKED PEANUTWORM (Stegasta basqueella) - OKLAHOMA - Light infestation in field of peanuts in Pushmataha County. (Goin).

MEXICAN BEAN BEETLE (Epilachna varivestis) - NORTH CAROLINA - Approximately 75 percent of soybean leaves injured in Scotland County. (Alford). DELAWARE - Adults fairly common on soybeans in Sussex County, causing only moderate feeding injury. (Burbutis).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ILLINOIS - Populations vary 0-4 per linear foot of row in soybeans in southern half of State. Several fields have 20-30 percent of leaf surface removed. (Ill. Ins. Rpt.).

FRUIT INSECTS

CODLING MOTH (*Carpocapsa pomonella*) - NEW YORK - Entries found in apples June 6 in Ulster County. (N. Y. Wkly. Rpt., June 13). MASSACHUSETTS - Egg laying and hatching continuing with return of warm weather. (Crop Pest Cont. Mess.). NEW JERSEY - Entries easily found in many apple orchards. (Ins.-Dis. Newsl., June 14). PENNSYLVANIA - Emergence 60-70 percent complete in Adams County by June 11. (Asquith). OHIO - Penetration of apples light to date. (Parks). INDIANA - Egg hatch believed to be occurring in Vincennes area. (Cleveland, June 13). Few entries noted in Orleans area. (Marshall, June 14). ILLINOIS - Hatch nearly stopped at Carbondale; no new entries being found. Early larvae about full grown. (Meyer). MISSOURI - Few new entries noted but found on apples in all parts of State. (Wkly. Rpt. Fr. Gr.). WISCONSIN - Fresh larval entries observed on June 13 at Gays Mills. Forty-five caught on nights of June 10-11 after traps had been moved from a treated to an untreated orchard area. Emerged between June 10-12 in Door County. (Wis. Coop. Sur.). KANSAS - Left apples and should emerge by June 15 in Wichita area. First larval entries noted June 4 in northeastern area. (Eshbaugh).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - PENNSYLVANIA - Few first-generation larvae still feeding on apple in south central area. (Pepper, June 11). ILLINOIS - Hatching will begin by June 11 in Carbondale area. Moth emergence first noted June 7 and eggs found June 9. (Meyer). MISSOURI - Recent activity in west central area and tapering off in northwest area. (Wkly. Rpt. Fr. Gr.). WISCONSIN - Moderate larval populations reached second instar in Door County. (Wis. Coop. Sur.).

FRUIT TREE LEAF ROLLER (*Archips argyrospila*) - NEW YORK - Fruit injury more noticeable in Ulster County where controls not applied or where not applied when recommended. (N. Y. Wkly. Rpt., June 13). MISSOURI - Heavy flight June 9; has not appeared in outbreak numbers in State since about 1941. (Wkly. Rpt. Fr. Gr.).

EYE-SPOTTED BUD MOTH (*Spilonota ocellana*) - WISCONSIN - Larvae pupating and population on apple is heavy in Door County. (Wis. Coop. Sur.).

LESSER PEACH TREE BORER (*Synanthedon pictipes*) - PENNSYLVANIA - Moderate infestation of peach in Erie County. Some adults emerged with few larvae present. (Adams, June 7). NEW YORK - Pupal cases easily found June 9 in Niagara County. (N. Y. Wkly. Rpt.). INDIANA - Many reports of damage received in Vincennes area. Controls recommended. (Cleveland, June 13).

PEACH TREE BORER (*Sanninoidea exitiosa*) - KANSAS - Started emerging first week of June in Sedgwick County. (Eshbaugh).

ORIENTAL FRUIT MOTH (*Grapholitha molesta*) - MISSOURI - Beginning to build up in peach terminals, larvae one-fourth grown. (Wkly. Rpt. Fr. Gr.). ILLINOIS - Larvae hatching in Carbondale area. (Meyer).

EUROPEAN RED MITE (*Panonychus ulmi*) - NEW JERSEY - Populations low on apples. (Ins.-Dis. Newsl., June 14). OHIO - No serious infestations reported; a marked contrast to this time in 1959. (Holdsworth). ILLINOIS - Building up in some blocks in Carbondale area. Most are immature and difficult to see. (Meyer). MISSOURI - Vary 1-5 or more per leaf in northwest area and few present in southeast area. (Wkly. Rpt. Fr. Gr.).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - MISSOURI - Beginning to appear in the Kansas City and central area. (Wkly. Rpt. Fr. Gr.). NEW JERSEY - Populations low on apples. (Ins.-Dis. Newsl., June 14). MASSACHUSETTS - Beginning to move into apple and peach trees. (Crop Pest Cont. Mess.).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - UTAH - Severe on some apple orchards in Juab County and causing limited damage to pear and apple in some north Ogden and Orem orchards. (Knowlton).

ORCHARD MITES - INDIANA - First signs of real difficulty appearing in Vincennes area; nothing serious as yet. (Cleveland, June 13). Eggs especially numerous and large buildup is at hand in Orleans area. (Marshall, June 14).

APPLE APHID (Aphis pomi) - MASSACHUSETTS - Increasing on watersprouts and terminals. (Crop Pest Cont. Mess.). NEW JERSEY - Populations fairly high in many apple orchards. (Ins.-Dis. Newsl., June 14). DELAWARE - Very heavy on many young apple trees in Kent County. (Burbutis). WEST VIRGINIA - Numerous on apple in eastern panhandle. (W. Va. Ins. Sur.). MICHIGAN - Building up at Allegan and Pontiac. (Hutson, June 13).

ROSY APPLE APHID (Anuraphis roseus) - UTAH - Spotty, less damaging generally than during 1959. (Knowlton). WEST VIRGINIA - Present on apple in eastern panhandle. (W. Va. Ins. Sur.).

BLACK CHERRY APHID (Myzus cerasi) - WYOMING - Infesting some cherry trees in Torrington area. (Fullerton). UTAH - Severely curling foliage of sweet cherry in some orchards at Brigham City, Box Elder County. (Knowlton).

GREEN PEACH APHID (Myzus persicae) - WYOMING - Heavy on some plum trees in Newcastle area. (Fullerton).

BLACK PEACH APHID (Anuraphis persicae-niger) - CALIFORNIA - Nymphs heavy on peach tree roots in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

SAN JOSE SCALE (Aspidiotus perniciosus) - MARYLAND - Crawlers active on apple at Cambridge and purple plum at Wheaton. (U. Md., Ent. Dept.).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - NEW YORK - Injuries to fruit more common than usual in Ulster County, but extent of damage does not appear to be commercial. (N. Y. Wkly. Rpt., June 13).

PLUM CURCULIO (Conotrachelus nenuphar) - NEW YORK - Occasional egg-laying scars noted on apples in Clinton County on June 6 and larval injury seen on apples June 8 in Niagara County. (N. Y. Wkly. Rpt.). ILLINOIS - Between broods at Carbondale. (Meyer). MISSOURI - Adults still being jarred from trees in south-east area June 12. (Wkly. Rpt. Fr. Grs.). WISCONSIN - Both adults and eggs present in Door County. (Wis. Coop. Sur.). GEORGIA - No complaints of damage in peaches harvested to date from orchards in Ft. Valley area. (Snapp).

JAPANESE BEETLE (Popillia japonica) - DELAWARE - A few adults present on several peach trees in New Castle County. (Burbutis).

FLATHEADED APPLE TREE BORER (Chrysobothris femorata) - NORTH DAKOTA - Infesting apple trees at Hillsboro, Traill County. (N. D. Ins. Sur.).

SHOT-HOLE BORER (Scolytus rugulosus) - IDAHO - Adult activity in Canyon County in cherry trees which were injured by severe winter of 1957. (Bechtolt).

A BLACK FRUIT TREE WEEVIL (Magdalis gracilis) - CALIFORNIA - Moderate in old apple orchards in Crescent Mills, Plumas County. (Cal. Coop. Rpt.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - TEXAS - Heavy on ripening peaches in Panola County. (Tex. Coop. Rpt.).

CATFACING INSECTS - UTAH - Lygus bugs numerous with small numbers of stink bugs on cover plants in Washington County Orchards. (Knowlton). NEW YORK - Lygus lineolaris causing some feeding injury on apples June 6 in Clinton County. (N. Y. Wkly Rpt.).

CHERRY FRUIT FLY (Rhagoletis cingulata) - IDAHO - Adults collected from sticky board June 9, from Twin Falls. Also reported from Emmett. (Carpenter, Gibson). OHIO - Started appearing in traps June 2, in Lorain and Lake Counties. (Still).

BLACK CHERRY FRUIT FLY (Rhagoletis fausta) - OHIO - Started appearing in traps June 1 in Lake County. (Still).

A MITE (Tuckerella ornata) - FLORIDA - Collected on mango at Indrio, St. Lucie County. (Denmark, Campbell).

TENT CATERPILLARS - TEXAS - Malacosoma sp. light widespread infestations on pecans in Washington County. (McClung). Medium to heavy on pecan in Madison County. (Garrett).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Medium to heavy in Medina County; mostly in pupal stage. (Garner). Heavy in Taylor County with larvae in advanced stages. (Hawkins). OKLAHOMA - Medium, 8 percent of nut clusters infested, in native pecan grove in Bryan County. Heavy on a few pecan trees checked in Stephens County. (Vinson, Hatfield).

PECAN LEAFROLL MITE (Aceria caryae) - NORTH CAROLINA - Rolling leaves severely locally in Edgecombe County. (Pl. Dis. Clin., Farrier).

A LEAF ROLLER (Archips rosana) - OREGON - Large numbers of adults emerging in Willamette Valley filbert orchards. (Jones, Capizzi).

FALL WEBWORM (Hyphantria cunea) - LOUISIANA - Heavy on pecans in East Baton Rouge, Ascension and St. James Parishes, with nests ranging as high as 8 per tree. (Spink).

A CERAMBYCID (Leptidella brevipennis) - CALIFORNIA - Light on English walnut trees in Tustin, Orange County. (Cal. Coop Rpt.).

BLACK PECAN APHID (Melanocallis caryaefoliae) - UTAH - Less numerous than two weeks ago in Washington County. (Knowlton).

CITRUS BUD MITE (Aceria sheldoni) - FLORIDA - Found on lemon, averaging 2 per vegetative bud, at Indrio, St. Lucie County. Infestation in old, somewhat neglected, nursery. South Miami, Dade County, and Indrio only 2 known infested locations. (Denmark, Campbell).

Citrus Insect Situation in Florida - Mid-June - PURPLE SCALE (Lepidosaphes beckii) activity increased during past two weeks, but is generally low throughout State. Except in very few groves, summer populations will hold near the low levels recorded in 1959. FLORIDA RED SCALE (Chrysomphalus aonidum) activity increased and will continue upward during the next month. Still low in most areas for this time of year but will build up steadily through July. Where abundant, now in young stages. Highest activity in Bartow, upper east coast and Ridge districts. CITRUS RED MITE (Panonychus citri) experienced a sharp rise in activity throughout State and further increase expected during next two weeks. Summer peak of infestation will be reached about the end of June, with a gradual decrease in July. Present high activity in the Gainesville, Orlando, Brooksville, upper east coast, Indian River and Ridge districts. CITRUS RUST MITE (Phyllocoptruta oleivora) activity increased and will move into the high range within the next two weeks. Population will build up strongly in July and become much more general as high summer peak develops. Highest activity in the west coast, Bartow and Ridge districts. TEXAS CITRUS MITE (Eutetranychus banksi) present in more groves than in previous years. (Simanton, Thompson, Johnson, (Citrus Exp. Sta., Lake Alfred)).

VIRGINIA-CREEPER LEAFHOPPER (Erythroneura ziczac) - UTAH - Causing some discoloration to grape foliage in the St. George-Hurricane area. (Knowlton).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Heavy and damaging grape foliage in home yard plantings in central and southeast areas. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MAINE - One adult noted in Presque Isle area. This pest has been rare in State since 1946. (Shands). MASSACHUSETTS - Adults and eggs being found on potatoes. Some eggs have started to hatch. (Crop Pest Cont. Mess.). NEW YORK - Larvae plentiful in Suffolk County; controls effective. (N. Y. Wkly. Rpt., June 13). PENNSYLVANIA - Laying eggs in commercial tomato plantings in Erie County on June 7. (Adams). MARYLAND - Larvae destructive to potatoes at several localities in Frederick County. (U. Md., Ent. Dept.). IOWA - Abundant on potatoes in central area. (Iowa Ins. Inf.). WISCONSIN - Small numbers of adults on potatoes in Walworth County June 10. (Wis. Coop. Sur.).

A DARKLING BEETLE (Metoponium abnorme) - CALIFORNIA - Severely damaged an 80-acre tomato planting in Yolo County; required replanting. (Cal. Coop. Rpt.).

POTATO FLEA BEETLE (Epitrix cucumeris) - MICHIGAN - Numerous on tomatoes at Allegan and Monroe on June 5 and light to heavy in Montcalm County. (Hutson, June 13). DELAWARE - Adults abundant in small field of eggplant; causing very heavy feeding injury in western Kent County. Generally under good control in most potato and tomato fields. (Burbutis). MAINE - Damage to potatoes varies light to moderate in Presque Isle area. Moderate to large populations and damage to some potato fields elsewhere in central Arrostook County. Populations larger on early planted potatoes than for several years. (Shands).

FLEA BEETLES - UTAH - Phyllotreta striolata and others infesting potatoes at St. George. (Knowlton). COLORADO - P. striolata causing damage in Garfield and Arapahoe Counties. (Colo. Ins. Sur.). WYOMING - Phyllotreta sp. adults damaging sugar beet fields in Goshen County; counts averaged 3 per 100 plants. (Fullerton). NORTH DAKOTA - Unspecified species light to severe in potato plantings of Red River Valley; none found at Beach in southwest section. (N. D. Ins. Sur.). NEW YORK - Unspecified species numerous in some cabbage seedbeds in Orleans County. (N. Y. Wkly. Rpt., June 13). MARYLAND - Epitrix spp. heavy on potatoes and Phyllotreta spp. heavy on crucifers at several localities in Frederick County. (U. Md., Ent. Dept.).

A TORTOISE BEETLE (Plagiometriona clavata) - PENNSYLVANIA - Causing considerable injury to tomatoes in gardens in Delaware County. (Menusan, June 11).

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - Heavy in potatoes in western Kent County, causing much yellowing and necrosis of smaller stems. (Burbutis).

TOMATO FRUITWORM (Heliothis zea) - GEORGIA - Light to moderate on tomatoes in Tattnall, Coffee, Irwin, Colquitt, Thomas and Mitchell Counties. (Johnson).

HORNWORMS (Protoperce spp.) - DELAWARE - Eggs present on tomatoes in Sussex County. Adults of P. sexta and P. quinque maculata still fairly common in blacklight trap in Sussex County. (Burbutis, MacCreary). GEORGIA - Light to heavy on tomatoes in Tattnall, Coffee, Irwin, Colquitt, Thomas and Mitchell Counties. (Johnson).

TARNISHED PLANT BUG (Lygus lineolaris) - MARYLAND - Adults common on potatoes at several localities in Frederick County. (U. Md., Ent. Dept.).

POTATO PSYLLID (Paratrioza cockerelli) - UTAH - Caused some psyllid yellows injury to potatoes in Santa Clara-Washington area of Washington County. (Knowlton). COLORADO - Adults on Lycium averaged 30 per 100 sweeps in Costilla and Conejos Counties; none on potatoes. Continues to increase on potatoes in early producing areas of Weld County. (Colo. Ins. Sur.).

Potato Aphids in Maine - In the Presque Isle area, spring conditions favored development on, and migration from, the primary hosts. Maturation of stem mothers of POTATO APHID (Macrosiphum solanifolii) and FOXGLOVE APHID (Myzus solani) on swamp rose and hawkweed respectively, began by or before May 18. Indications are that maturation of BUCKTHORN APHID (Aphis nasturtii Kalt.)* and GREEN PEACH APHID (Myzus persicae) on alder-leaved buckthorn and Canada plum respectively, began about May 19. This is about usual time or a little ahead of normal. Maturation of spring migrants of potato aphid and green peach aphid began about June 2, while that of buckthorn aphid and foxglove aphid began soon afterward, a little ahead of the usual time. Present overall infestation on untreated potatoes very light; from 0-23 percent of potato plants now infested, depending upon length of time plants have been up and capable of being infested by incoming spring migrants. An average of 6.1 percent of plants found infested June 14-17. This is a little above normal for this date on the early plantings, but the season is slightly ahead of normal. Potato aphid predominates, followed fairly closely by buckthorn aphid. Foxglove aphid rather scarce to date and no infestations of green peach aphid to date. (Shands).

POTATO APHID (Macrosiphum solanifolii) - PENNSYLVANIA - Appearing in fair numbers in tomatoes in southeast. (Menusan, June 11). WISCONSIN - Moderate on tomato plants in Dane County. (Wis. Coop. Sur.). UTAH - Populations low on potatoes in the Santa Clara-Hurricane area of Washington County. (Knowlton).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Generally very light on peppers and no noticeable buildup on tomatoes or potatoes throughout State. (Burbutis). UTAH - Low on potatoes in Santa Clara-Hurricane area of Washington County. (Knowlton). CALIFORNIA - Medium on lettuce and weed hosts at Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

BROWN STINK BUG (Euschistus servus) - GEORGIA - Light on tomatoes in Tattnall and Mitchell Counties. (Johnson).

IMPORTED CABBAGEWORM (Pieris rapae) - NORTH CAROLINA - A major pest of cabbage in home gardens in Wayne County. (Farrier). DELAWARE - Newly hatched larvae numerous, 7-8 per plant, on cabbage in one 5-acre field in western Kent County. (Burbutis). OHIO - Damaging commercial plantings of cabbage in Sandusky County. (Blair).

CABBAGE LOOPER (Trichoplusia ni) - NORTH CAROLINA - A major pest of cabbage in home gardens in Wayne County. (Farrier). COLORADO - Larvae 8-20 per 100 plants in Alamosa County. (Colo. Ins. Sur.).

STALK BORER (Papaipema nebris) - OKLAHOMA - Causing extensive damage to broccoli in Yale area. (Howell).

CABBAGE MAGGOT (Hylemya brassicae) - OHIO - Injuring both commercial and home garden plantings, Sandusky County. (Blair).

CABBAGE APHID (Brevicoryne brassicae) - PENNSYLVANIA - Very heavy infestation of cabbage in Erie County, with 10 percent loss of 3 acres. (Adams, June 7).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MASSACHUSETTS - Damaging beans in eastern area of State. (Crop Pest Cont. Mess.). NEW YORK - Continues to build up on beans in Ulster County. (N. Y. Wkly. Rpt., June 13). DELAWARE - Adults fairly

* Hille Ris Lambers, D. and MacGillivray, M. E., 1959. Canad. Ent. 91(6):321-322.

common on beans, causing moderate feeding injury in most areas of Sussex County. (Burbutis). GEORGIA - Light to heavy on beans throughout southern area. (Johnson). COLORADO - Adults appearing from hibernation; 1-5 per 10 plants, with a few egg masses recorded in Weld and Larimer Counties. (Colo. Ins. Sur.). WYOMING - Adults found on some early growing beans in Torrington area. (Fullerton).

BEAN LEAF BEETLE (Cerotoma trifurcata) - DELAWARE - Adults remain fairly common on snap beans most areas; injury not serious. (Burbutis). MARYLAND - Adults continue destructive to beans. (U. Md., Ent. Dept.).

PEA APHID (Macrosiphum pisi) - WISCONSIN - Migration, apparently from alfalfa but possibly to a lesser extent from early peas, was heavy. Up to 60 per sweep in southern section. Increased north and eastward of lower two tiers of counties. Treating in Sheboygan, Fond du Lac, Dodge and Green Lake Counties. Built up to some extent northward of these counties. (Wis. Coop. Sur.). CALIFORNIA - Medium on lettuce and weed hosts at Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

COWPEA APHID (Aphis medicaginis) - NORTH CAROLINA - Moderate to heavy infestations on field peas in home gardens may cause severe losses. Losses more severe than same time in 1959. (Farrier).

A ROOT APHID (Trifidaphis radicola) - WEST VIRGINIA - Causing some damage to beans in Jackson County. (W. Va. Ins. Sur.).

SEED-CORN MAGGOT (Hylemya cilicrura) - MICHIGAN - Destroyed field of beans at Reese and field of corn at Lansing. (Hutson, June 13). COLORADO - Numerous in bait traps in Montrose and Delta Counties. (Colo. Ins. Sur.).

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - DELAWARE - Fairly abundant on beans in one area of Sussex County; injury light. (Burbutis).

A NOCTUID (Heliothis sp.) - NORTH CAROLINA - Causing truckloads of wax beans to be turned away at markets because of infestation in Chowan County. (Overman, Farrier).

BEEF LEAFHOPPER (Circulifer tenellus) - UTAH - Population about as forecast. Curly top in tomatoes, 15-25 percent in Washington and one percent in tomatoes in northern area, Utah through Box Elder County. (Dorst). Counts 2-5 per 10 sweeps on Russianthistle, pigweed and Atriplex rosea in Kanab and St. George areas and 1-3 per 10 sweeps on potatoes in the Washington County area. (Knowlton). IDAHO - Host plants rapidly drying in Saylor Creek and Mountain Home areas. Up to 40 per square foot, with new adult populations up to 2 per square foot. (Evans). COLORADO - Averaged 2-3 per 100 sweeps in Montrose, Delta and Garfield Counties. Curly top incidence 2-3 percent in Mesa County. (Colo. Ins. Sur.).

BEEF WEBWORM (Loxostege sticticalis) - UTAH - Numerous in northern Cache County and generally present throughout western and southern counties. (Knowlton, Dorst). WYOMING - Larvae averaged 3 per 100 plants in 12 sugar beet fields checked in Goshen and Laramie Counties. (Fullerton). COLORADO - Larvae 3-5 per 10 plants in Larimer County. (Colo. Ins. Sur.).

SUGAR-BEEF ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - A few adults being taken in Wild County. (Colo. Ins. Sur.).

SPINACH LEAF MINER (Pegomya hyoscyami) - COLORADO - Infesting sugar and garden beets in Larimer County. Adults average 3 per bait trap in Montrose and Delta Counties. (Colo. Ins. Sur.).

LYGUS BUGS (Lygus spp.) - UTAH - Two per sweep on seed sugar beets in bud stage in Cache County. (Dorst). All seed sugar beets treated in Washington County. (Knowlton). NEW MEXICO - Abundant on seed onions in Dona Ana County. (N. M. Coop. Rpt.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - OKLAHOMA - Damaging sweet-potatoes, tomatoes and other truck crops in the eastern half of Payne County. All larval instars present. (Howell).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - DELAWARE - Adults abundant on cantaloup in one area of Sussex County and fairly common on squash in Kent and New Castle Counties. (Burbutis). INDIANA - Still absent in experimental plots of cucumbers and squash in Tippecanoe County. (Gould).

THRIPS - DELAWARE - Frankliniella fusca and Thrips tabaci abundant on asparagus; latter species most prevalent in New Castle County. (Burbutis). UTAH - T. tabaci damage common and moderately severe throughout Washington County. (Knowlton). NEW MEXICO - Abundant on seed onions in Dona Ana County. (N. M. Coop. Rpt.).

RHUBARB CURCULIO (Lixus concavus) - PENNSYLVANIA - Present and working in rhubarb in Erie County. (Adams, June 7).

A PSYCHID (Apterona crenulella) - CALIFORNIA - Heavy on rhubarb and cucurbits in Adin, Lassen County. This is the first record north of Butte and Nevada Counties. (Cal. Coop. Rpt.).

ONION MAGGOT (Hylemya antiqua) - NEW YORK - Appearing on few onion farms in Oswego County, with more damage expected. Damage hardly noticeable in Orange County, but severe injury noted on a Wayne County farm. (N. Y. Wkly. Rpt., June 13). MICHIGAN - Damage light in all treated areas. Few untreated fields showing considerable damage. Spring brood at an end. (Hutson, June 13). IDAHO - Damage widely scattered in untreated onion fields in southwestern area. Virtually complete control with chemical furrow treatments. (Scott).

FLEAHOPPERS - NEW MEXICO - Abundant on seed onions in Dona Ana County. (N. M. Coop. Rpt.).

LEAFHOPPERS - NEW YORK - Increasing on lettuce and carrots in Orange County. (N. Y. Wkly. Rpt., June 13). UTAH - Empoasca filamenta very numerous on potatoes and cantaloups in some Washington County fields. (Knowlton). DELAWARE - Empoasca fabae adults present on potatoes in New Castle County. (Burbutis).

CELERYWORM (Papilio polyxenes asterius) - DELAWARE - First larvae of season found present on carrots in New Castle County. (Burbutis).

CARROT BEETLE (Ligyris gibbosus) - IDAHO - Light trap catch near Parma exceeding 200 per night during past week. (Scott, Waters).

CUTWORMS - MICHIGAN - Various species causing some trouble on various transplanted crops at Sodus, Allegan and Monroe. Some difficulty on asparagus and onions at Allegan. (Hutson, June 13). WISCONSIN - Peridroma saucia heavy in strawberries in Door County. (Wis. Coop. Sur.). NEVADA - Chorizagrotis auxiliaris damaged carrots and onions in April. Det. by H. W. Capps. (Bechtel).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - IDAHO - Badly injuring a small planting of strawberries near Parma. Ranged 10-20 per plant with about 75 percent of leaves rolled. (Scott).

CASEBEARERS - IDAHO - Larvae abundant on strawberries north of Shoshone. (Manning, Gittins).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - PENNSYLVANIA - Counts 8-10 per plant on strawberries on one-half-acre plot in Erie County. (Adams, June 11). WISCONSIN - Heavy on strawberry plants in Kewaunee and Door Counties. (Wis. Coop. Sur.).

CYCLAMEN MITE (Steneotarsonemus pallidus) - NEW YORK - Evidence of activity noted on strawberries May 27 in Oswego County. (N. Y. Wkly. Rpt., June 13).

A STRAWBERRY SAWFLY (Empria ignota) - MINNESOTA - Present on strawberries. (Minn. Ins. Rpt.).

OMNIVOROUS LEAF TIER (Cnephasia longana) - OREGON - Feeding in new growth of raspberries in Multnomah and Marion Counties. (Rosenstiel).

TOBACCO INSECTS

TOBACCO BUDWORMS (Heliothis spp.) - GEORGIA - Moderate to heavy infestations of H. virescens on tobacco in Jenkins, Bulloch, Candler, Evans, Tattnall, Appling, Bacon, Coffee, Irwin, Berrien, Colquitt, Thomas and Mitchell Counties. (Johnson). MARYLAND - First infestation of H. virescens of season on tobacco at Aquasco, Prince Georges County. (U. Md., Ent. Dept.). NORTH CAROLINA - Mostly immature larvae of Heliothis sp. in all areas. A few in untreated fields in the border and new belts. Very few in the old belt and moderate number in the eastern belt. Only few fields warrant treatment. (Guthrie).

HORNWORMS (Protoparce spp.) - NORTH CAROLINA - Very few in border belt. Mostly small instars in eastern and old belts, with only 2 of 25 untreated fields with sufficient infestation to warrant control. (Guthrie). MARYLAND - Eggs and small larvae generally increasing on tobacco. (U. Md., Ent. Dept.).

CUTWORMS - Maryland - Unspecified species injuring tobacco in Charles and Prince Georges County. (U. Md., Ent. Dept.).

THRIPS - MARYLAND - Moderate numbers on newly set plants in Prince Georges County. (U. Md., Ent. Dept.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light infestations on tobacco in Jenkins, Bulloch, Candler, Evans, Tattnall, Appling, Bacon, Coffee, Irwin, Berrien, Colquitt, Thomas and Mitchell Counties. (Johnson).

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light to moderate infestations on tobacco in Jenkins, Bulloch, Tattnall, Appling, Bacon and Coffee Counties. (Johnson).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - SOUTH CAROLINA - Overwintered adult population about normal for time of year at Florence. Most growers have begun cotton treatments. Populations heavy in fields not treated. (Taft, Hopkins, Jernigan). Becoming a major problem in many Coastal Plains counties. Orangeburg County reports some fields with as many as 30 percent of squares punctured. Also present in some Piedmont fields. (Cott. Lett.). **GEORGIA** - Square counts made in 28 southern area cotton fields with range of 0.50 percent punctured squares, averaging 11 percent. (Johnson). **TENNESSEE** - Very few weevils found so far this season in western area, mostly in the southern tier of counties. Some early season controls being applied. (Locke). **MISSISSIPPI** - Adult counts down in most fields in delta counties due partly to larger, squaring plants being more difficult to inspect. Larger acreages also attractive to weevils thus spreading population over wider area. Square counts range 0.17 percent punctures in fields examined, with an average of 2.3 percent for all fields. (Merkl et al.). **ARKANSAS** - Activity light in northeast and southeast areas. On squaring cotton in southwest, percent square infestation ranged 8-38, with all fields except one below 15 percent. In presquare cotton, counts ranged 0-175 per acre in southwest. (Ark. Ins. Sur.). **LOUISIANA** - Weevils found in 31 of 61 fields examined in Tallulah area. Average per acre was 45, ranging 0-400. Nearly all fields inspected had received 2 or 3 treatments for thrips control. Percentage of boll weevil survival in hibernation cages to June 17 was 1.52 compared to 2.88 at same time in 1959. (Smith et al.). **TEXAS** - Activity increasing across State. (Gaines). Weevils found at average rate of 101 per acre in 10 untreated fields in McLennan and Falls Counties and 25 per acre in 13 treated fields, with overall average 62. Infestation averaged 34.1 percent punctured squares in 14 untreated fields and 4.5 percent in 37 treated fields with overall average 11. First generation weevils appearing in some earliest planted fields. (Parencia, Cowan, Davis). **OKLAHOMA** - Counts averaged 7 per 100 plants in Love County. (Vinson). **NORTH CAROLINA** - Populations increasing in Edgecombe, Northampton, Wake and Wilson Counties. In Northampton County, counts 25 per 75 plants in one field. (Cott. News Lett.).

THRIPS - SOUTH CAROLINA - Continue to attack leaves of cotton in fields not protected in Piedmont. (Cott. Lett.). **TENNESSEE** - Causing some damage over cotton growing area. (Locke). **MISSISSIPPI** - Populations remain general over delta counties. Most fields of young cotton have light to heavy damage showing up. Counts in experimental plots range 0.3-22.6 per plant. (Merkl et al.). **LOUISIANA** - Counts averaged 2.78 per cotton plant in Tallulah area. Most fields treated, with some late-planted fields still showing severe damage. (Smith et al.). **TEXAS** - Infestations continued of concern in late-planted, untreated cotton in east, central, northeast, north central and west cross timbers areas. Some heavy populations reported in northwest, north plains and south plains areas. (Gaines). Injurious infestations continue to occur in late-planted cotton in McLennan and Falls Counties. (Parencia, Cowan, Davis). **OKLAHOMA** - Light in cotton checked in Jackson, Greer, Tillman, Love and Bryan Counties (Hatfield, Vinson) and light to medium in 2 fields checked in Choctaw and McCurtain Counties (Goin). **NEW MEXICO** - Continue a minor problem in cotton in southern counties. (N. M. Coop. Rpt.).

BOLLWORMS (*Heliothis* spp., et al.) - SOUTH CAROLINA - Becoming a major problem in cotton in many Coastal Plains counties; 4 percent of squares damaged in Orangeburg County. (Cott. Lett.). **GEORGIA** - Egg counts made in 28 southern area cotton fields with range of 0-158 per 100 terminals, averaging 24. Larval counts ranged 0-50 per 100 terminals, averaging 6. (Johnson). **MISSISSIPPI** - Activity increased in delta counties; moth catches in light traps and egg deposition in older cotton increased. Some larval activity on cotton noted about June 17. Terminal damage and feeding on early squares will be evident during week ending June 24. (Merkl et al.). **LOUISIANA** - Eggs averaged 13 and larvae 1 per 100 feet in 3 cotton fields in Tallulah area. Larval counts on June 17 in 2 fields showed a count of 6 or more per 100 terminals. (Smith et al.). **ARKANSAS** - Activity

light in southeast, with beneficials doing an excellent job of control. Eggs and small larvae present in southwest, with highest egg count 20 per 100 terminals. (Ark. Ins. Sur.). TEXAS - Indications of activity consist of scattered eggs and small larvae. (Gaines). Eggs averaged 0.5 and larvae 0.2 per 100 terminals in 73 fields checked in McLennan and Falls Counties. (Parenica, Cowan, Davis). OKLAHOMA - Eggs averaged 10 per 100 stalks in field checked in Bryan County. (Vinson).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Continues to be found in south central area. (Gaines).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - TENNESSEE - Present in large number of cotton fields in western area; damage is light. (Locke). OKLAHOMA - Damaging infestations widespread in cotton in eastern Payne County. (Howell).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praeifica) - CALIFORNIA - Heavy in cotton plantings in Porterville and Woodville areas, Tulare County. (Cal. Coop. Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Light infestations present in some cotton in central and southwest areas. (Ariz. Coop. Sur.). OKLAHOMA - Light in 2 fields checked in Pawnee County. (Robinson).

CUTWORMS - TENNESSEE - Few found in most cotton fields in western area, causing some damage to terminal buds. (Locke).

FLEAHOPPERS - MISSISSIPPI - Light infestations general over delta counties; little economic damage reported. (Merkl et al.). TEXAS - Populations increasing and many sections report medium to heavy infestations. (Gaines). Increase in infestation of Psallus seriatus over previous week in McLennan and Falls Counties. Infestation averaged 18.3 per 100 terminals in 23 untreated fields and 12.9 per 100 terminals in 50 treated fields with overall average 14.4. Nymphal populations increased considerably. (Parenica, Cowan, Davis). OKLAHOMA - P. seriatus light in cotton checked in Love, Bryan and Pawnee Counties. (Vinson, Robinson). ARIZONA - Infestations of Spanogonicus albofasciatus declining in central area cotton, with counts averaging 10-15 per 100 sweeps. In southeast, populations still high, averaging 20 per 100 sweeps, with some fields running as high as 48 per 100 sweeps. (Ariz. Coop. Sur.).

PLANT BUGS - ARKANSAS - Low numbers present in some cotton fields in northeast area. (Ark. Ins. Sur.). MISSISSIPPI - Movement of Lygus lineolaris into cotton observed in delta counties. Squaring cotton in most instances infested. High population counts not reported but squares being destroyed in many fields over area. Sweeping records show range of 0-15 per 100 sweeps. (Merkl et al.).

LOUISIANA - Sweeping records made in 27 fields in Tallulah area, 24 of which infested with L. lineolaris, averaging 9 per 100 sweeps. (Smith et al.). NEW MEXICO - Lygus spp. beginning to build up in cotton in southern counties. (N. M. Coop. Rpt.). ARIZONA - Infestations of Lygus spp. greatly increased in central area, averaging 20-40 per 100 sweeps in cotton. Highest populations seem to be in area northwest of Phoenix in Maricopa County. In southeast, Lygus spp. increase is just beginning, with average counts of 8 per 100 sweeps. Infestations almost entirely adults, indicating migration from alfalfa which is being cut at this time. (Ariz. Coop. Sur.).

COTTON APHID (Aphis gossypii) - GEORGIA - Light infestations on cotton in Jenkins, Bulloch, Candler, Tattnall, Appling, Bacon and Mitchell Counties. Moderate infestations in Coffee County. (Johnson). OKLAHOMA - Generally light in fields checked in southwest, south central, southeast and north central areas. (Hatfield, Vinson, Goin, Robinson). NEW MEXICO - Occasional light to moderately heavy infestations in cotton in Luna and Dona Ana Counties. (N.M. Coop. Rpt.).

COWPEA APHID (*Aphis medicaginis*) - NORTH CAROLINA - Feeding very heavy and general on cotton in central western Sampson County. (Morgan). Injuring cotton in Duplin County (Fedoronko) and in Lincoln County (Jones, Smith). Severe stunting of cotton throughout cotton production area. Worst outbreak seen in many years. (Misticic, Farrier, Smith).

APHIDS (unspecified) - TENNESSEE - Light infestations found in most fields in western area. Conditions ideal for buildup. Beneficials holding infestations in check. (Locke). MISSISSIPPI - Infestations light in delta counties. (Merkl et al.).

WHITE GRUBS - MISSISSIPPI - Young cotton planted on fallow ground of last year being heavily damaged in Issaquena County. (Bennett).

GRASSHOPPERS - TEXAS - Infestations causing concern as infestations moved into turn rows of cotton fields. (Gaines).

SPIDER MITES - SOUTH CAROLINA - Few being reported on cotton in Allendale, Edgefield and Saluda Counties. (Cott. Lett.). GEORGIA - Moderate on cotton in Coffee County. (Johnson). TENNESSEE - Infestations light but general in western area. Weather unfavorable for a buildup. (Locke). MISSISSIPPI - Infestations light in delta counties. (Merkl et al.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SHOOT MOTH (*Rhyacionia buoliana*) - PENNSYLVANIA - Infestation of Scotch pine 2 percent in Crawford County, with about 10 percent parasitism. Larvae and pupae present. (Adams, June 8). Larvae and pupae present in Westmoreland County; population down from first year. (Udine, June 11). Emergence 100 percent in Snyder County. (Gesell, June 11). OHIO - Moth emergence noted in Wayne County, June 16; also emerging in Perry County. (Walker). INDIANA - Pupation almost completed in northern area. First adults found in northern counties, June 14. (Schuder). IOWA - Noted on Scotch pine plantations in Allamakee and Clayton Counties. (Iowa Ins. Inf.).

A PINE MOTH (*Rhyacionia adana*) - MICHIGAN - Damage found in southeastern Charlevoix and Crawford Counties. (Hutson, June 13).

NANTUCKET PINE MOTH (*Rhyacionia frustrana*) - NORTH CAROLINA - Injuring slash pine in few areas of one-year old stand in Brunswick County. (Sheiron, N.C. For. News Lett.).

PINE WEBWORM (*Tetralopha robustella*) - NORTH CAROLINA - Scattered defoliation on 70 acres of two-year old slash pines. (St. John, N.C. For. News Lett.).

SPRUCE BUDWORM (*Choristoneura fumiferana*) - MINNESOTA - In sixth instar and pupating at Ray. A spray project covering some 20,000 acres in Superior National Forest now completed. In area treated at Cascade in 1959, averaged 9-17 per 15-inch twig and were mostly in third instar. (Minn. Ins. Rpt.). COLORADO - Populations causing damage in Rio Grande, San Juan and Pike National Forests. (Colo. Ins. Sur.).

JACK-PINE BUDWORM (*Choristoneura pinus*) - MINNESOTA - In fourth instar in Hubbard County, feeding on new buds. (Minn. Ins. Rpt.). WISCONSIN - Widely distributed through jack pine in Polk, Burnett, Washburn, Douglas and Bayfield Counties. Light to moderate over most of area. Larvae mostly third and fourth instar. Larval parasitism becoming common in most heavily infested part of area. Light to medium in central Juneau and Adams Counties. (Wis. Coop. Sur.).

LARGE ASPEN TORTRIX (Archips conflictana) - MINNESOTA - Light to moderate two miles south of Grand Marais to Hovland and up Gunflint ten miles. Not much feeding, mostly leaves rolled. Most larvae three-fourths grown with some pupation around Cloquet. (Minn. Ins. Rpt.). WISCONSIN - Moderate to heavy defoliation of aspen over widespread area in Rust and Taylor Counties. Larvae in last instars June 6-11. (Wis. Coop. Sur.).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - INDIANA - Entering terminal whorl of Scotch pines in LaPorte County. (Schuder).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - PENNSYLVANIA - Thirty percent of Scotch pine defoliated on 3-acre planting in Crawford County. (Adams, June 11). NEW YORK - Larvae active in pine plantings in northern half of Orleans County. N. Y. Wkly. Rpt., June 13). MICHIGAN - Cocooning at Kellogg, Kalamazoo County. (Hutson, June 13). INDIANA - Feeding completed and pupation almost complete in northern area. (Schuder). IOWA - Mixed in with N. pratti banksiannae in Dubuque County on Scotch pine. (Iowa Ins. Inf.).

SAWFLIES - MINNESOTA - Feeding in scrub oaks at Washburn Lake, Brainerd and points between. (Minn. Ins. Rpt.). ILLINOIS - Larvae causing severe browning of rose leaves in many parts of the State. (Ill. Ins. Rpt.). WISCONSIN - Neodiprion abbotii first generation larvae feeding on red pine and Diprion similis laying eggs in northwest area during week ending June 10. (Wis. Coop. Sur.). IOWA - N. pratti banksiannae occurring on Scotch pine in Dubuque County. (Iowa Ins. Inf.). MICHIGAN - N. lecontei depositing eggs May 30 in Kalkaska County and N. pinetum ovipositing on white pine in Barry County on June 8. (Hutson). NORTH CAROLINA - Sawflies, probably N. pratti pratti, feeding generally in Franklin and Warren Counties. (Oberly, N.C. For. News Lett.).

BALSAM TWIG APHID (Mindarus abietinus) - WISCONSIN - Present on balsam in Dane County June 7 and in northern and northeastern counties; distorted about 5 percent of new shoots in latter areas. Syrphid fly larvae and lady beetles reducing numbers. (Wis. Coop. Sur.).

PINE SPITTLEBUG (Aphrophora parallela) - MICHIGAN - Nymphs in second instar May 24 in Crawford County. (Hutson). MINNESOTA - Nymphs feeding on jack pine in Hubbard County. (Minn. Ins. Rpt.).

PINE TORTOISE SCALE (Toumeyella numismaticum) - WISCONSIN - Females present on about 10 percent of the jack pine on 120 acres in Washburn County on June 11. Trees lightly infested. Also reported from Lincoln County. (Wis. Coop. Sur.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Control efforts continued at increased rate due to dry weather in epidemic area of Hardin and Liberty Counties. Spreading at an accelerated rate. Situation most serious of the past two years, 98 areas lack control. In 2 areas of approximately 200 acres each, brood trees being utilized for sawlogs. At least 12 other areas with 100-1000 brood trees. Forty-one new spots detected from an aerial reconnaissance May 31. (Young).

IPS BEETLES (Ips spp.). - NORTH CAROLINA - Small outbreak in Pender and Onslow Counties. Scattered mortality in Sandhills area. (Kunselman, Crider, Johnson, Moehler, N.C. For. News Lett.). TEXAS - Attacking pines five inches and less in diameter on a burned-over area in eastern Trinity County. (Young).

PINE CHAFER (Anomala oblivia) - NORTH CAROLINA - Adults emerged in late May and now in outbreak numbers on slash and loblolly pine plantations in Columbus County. (Fox, N.C. For. News Lett.).

PINE COLASPIS (Colaspis pini) - LOUISIANA - Ornamental pine and spruce being severely damaged in East Baton Rouge and West Feliciana Parishes. (Spink).

PANDORA MOTH (Coloradia pandora) - COLORADO - Reported in numbers in South Fox Park of Roosevelt National Forest. (Colo. Ins. Sur.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - PENNSYLVANIA - Several hundred acres of oak, maple and other hardwoods nearly defoliated on mountainside in northern Wayne County. Now pupating. (Gesell, June 11). Very abundant in Greene and Washington Counties; heavily parasitized and also diseased. (Udine, June 11). WISCONSIN - Defoliation occurred on about 10 acres of aspen in Price County June 11. Larvae in last stages of development. About 10 percent of trees on several acres in Oneida County lightly defoliated and larvae in last instars. (Wis. Coop. Sur.).

SPRING CANKERWORM (Paleacrita vernata) - NORTH DAKOTA - Severe infestation at Belfield, Stark County. Most American elms along Heart River through the city completely defoliated. Other trees also being attacked. All native elms along river had been defoliated for 10 miles east of city. Other scattered infestations ranging light to severe in many sections of State. (N.D. Ins. Rpt.). MINNESOTA - Mostly this species and others causing light to complete defoliation along Highway 169 from Twin Cities to Mankato. Also at New Ulm and in Nicollet County. (Minn. Ins. Rpt.).

FALL CANKERWORM (Alsophila pometaria) - WEST VIRGINIA - Heavy on elm in Ohio and Brooke Counties. (W. Va. Ins. Sur.).

ELM SPANWORM (Ennomos subsignarius) - NORTH CAROLINA - Causing defoliation of hardwoods in southwestern area. (Green, N.C. For. News Lett.).

MIMOSA WEBWORM (Homadaula albizziae) - NEW JERSEY - Starting to web leaves of honeylocust and ornamental locust trees. (Ins.-Dis. Newsl., June 14). DELAWARE - First adult of season noted in Northern Kent County. (Bray). OHIO - Eggs and larvae found at Marietta. (Barth).

LEAF ROLLERS - UTAH - Damaging birch foliage along Sevier River in southern Sevier County and northern Piute County. (Knowlton). OKLAHOMA - Fascista cercerisella heavy on about half of red bud trees checked in Stillwater area. (Bieberdorf).

FALL WEBWORM (Hyphantria cunea) - DELAWARE - First larvae of season found on planetrees in one area of Sussex County. (Burbutis).

CARPENTERWORM (Prionoxystus robiniae) - SOUTH DAKOTA - Attacking elm trees in Harding County. (Hantsbarger).

POPLAR TENT MAKER (Ichthyura inclusa) - DELAWARE - Heavy on willows in one area of Sussex County. (Burbutis).

A NOTODONTID (Cerura borealis) - NORTH CAROLINA - Defoliating weeping willow in Hoke County. (Williford, Farrier).

LOOPERS - UTAH - Completely defoliating many boxelder trees at Park City in Summit County. (Knowlton).

ELM LEAF BEETLE (Galerucella xanthomelaena) - IDAHO - Larvae appearing in Parma area. (Scott). NEVADA - Damage becoming more severe on untreated elms in Reno, Sparks and Lovelock. (Bechtel, Parker). OKLAHOMA - First generation has begun pupation in Stillwater area. Populations continue lighter than for same time in 1959. Medium on elms at Altus; first report of this species in Jackson County. (Howell, Hatfield).

COTTONWOOD LEAF BEETLE (Chrysomela scripta complex) - NORTH CAROLINA - Defoliating willows and pupating in large numbers in Cumberland County. (Monroe, Farrier). IOWA - Seriously defoliating cottonwood and aspen cuttings in a paper mill nursery in Lee County. (Iowa Ins. Inf.).

LARGER ELM LEAF BEETLE (Monocesta coryli) - NORTH CAROLINA - Moderate leaf feeding in Stanly County. New County Record. (Johnston, Wray).

POPLAR AND WILLOW BORER (Sternochetus lapathi) - MINNESOTA - Adults active in Twin City area. (Minn. Ins. Rpt.).

ERIOPHYID MITES - NEW YORK - Vasates ligustri caused foliage yellowing on privet in Tompkins County. (N. Y. Wkly. Rpt., June 13). NORTH DAKOTA - Infestations numerous on oak and maple this season. (N.D. Ins. Rpt.). INDIANA - V. quadripedes abundant on silver maple throughout northern area. (Schuder).

A LOCUST MIDGE (Dasyneura pseudacaciae) - IOWA - Damaged new leaflets on sunburst locust at Storm Lake and to moraine locust in Plymouth County. (Iowa Ins. Inf.).

A PLANT BUG (Plagiognathus albus) - DELAWARE - Many sycamore trees in New Castle County infested. Most abundant on more succulent terminal leaves. (Burbutis).

APHIDS - UTAH - Thecabius populi-conduplicifolius conspicuously folding and discoloring poplar leaves near Ogden and on some cottonwood trees in Uintah. Drepanaphis spp. moderately numerous on maple in Park City. Pemphigus sp. common in poplar leaf petioles in Rockville-Zion National Park area of Washington County. An undetermined species severely curled snowball bush foliage and numerous on roses in spotty infestations in Nephi-Levan area of Juab County. (Knowlton). NORTH DAKOTA - Eriosoma americanum heavy and curling American elm leaves in many sections of State. (N.D. Ins. Sur.). IOWA - E. americanum present statewide. (Iowa Ins. Inf.). PENNSYLVANIA - Cinara watsonii common on Scotch pine in Crawford and Erie Counties and as high as 20-25 per new terminal in Scotch and red pines in Indiana County. Aphids becoming winged in Indiana County, with predators common. (Adams, Udine; June 11). DELAWARE - Macrosiphum liriodendri abundant on tulip trees in Newark area. (MacCreary). CALIFORNIA - Aphis medicaginis adults heavy on Cytisus sp. in San Jose, Santa Clara County, and Rhopalosiphum berberidis heavily infesting mahonia trees in San Rafael, Marin County. (Cal. Coop. Rpt.).

COCCIDS - CALIFORNIA - Antonina pretiosa heavy on golden bamboo on property in Fairfax, Marin County, and heavy on bamboo in a nursery in San Diego. (Cal. Coop. Rpt.). ARIZONA - Aonidiella aurantii heavy on ornamentals in 3 Phoenix area nurseries. Eradication measures being applied. (Ariz. Coop. Sur.). OKLAHOMA - Kermes sp. medium on oaks in Muskogee County; killing of terminals on oaks continued in Tulsa, Okmulgee, Seminole and Ada. (Washum, Howell). INDIANA - Pulvinaria innumerabilis locally abundant at La Porte. (Schuder). DELAWARE - Unaspis euonymi very heavy on several euonymus in northern Kent County. (Burbutis).

FOUR-LINED PLANT BUG (Poecilocapsus lineatus) - PENNSYLVANIA - Becoming a problem in chrysanthemums in southeast area. (Menusan, June 11). MASSACHUSETTS - Adults on Aralia and honeysuckle. (Gilgut).

CICADAS - IDAHO - Peak of adult emergence of Neoplattypedia constricta occurred June 2, while peak of Okanagana sp. emergence was June 13 in 5-10,000 acres of Saylor Creek sagebrush area. Averaged up to 3 per sagebrush plant. N. constricta more numerous than Okanagana. (Valcarce).

A FLEA BEETLE (Aitica sp.) - CALIFORNIA - Moderate on phlox in Butte County. (Cal. Coop. Rpt.).

ROSE CHAFER (Macroductylus subspinosus) - INDIANA - Abundant in sandy areas of La Porte County. (Schuder).

UGLY-NEST CATERPILLAR (Archips cerasivorana) - PENNSYLVANIA - Very common in northeast on chokecherry. (Gesell, June 11).

LACE BUGS - UTAH - Severe in chokecherries again in Park City area of Summit County. (Knowlton).

BAGWORMS - ILLINOIS - Numerous and causing browning of several evergreens in the west central area. (White). OKLAHOMA - Thyridopteryx ephemeraeformis infestations on arborvitae heavy and causing concern in Stillwater area. (Howell, Watson).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - DELAWARE - Fairly abundant on many different perennials in New Castle County. (Kelsey).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - NEW YORK - Appear to be building up in heavy amounts in lowland areas of Westchester County. (N. Y. Wkly. Rpt., June 13). DELAWARE - Aedes sollicitans very common in many fields in eastern Sussex County. (Burbutis). NORTH CAROLINA - Adults of Anopheles punctipennis biting and A. quadrimaculatus adults active in Vance County. Aedes sollicitans biting at rate of 10-20 per minute in Pamlico County and at 30 per minute in Hyde County. (Ashton). MINNESOTA - Of 438 larval collections of mosquitoes made June 5-11, Aedes vexans was found in 138, Culiseta inornata in 236 and Culex tarsalis in 6. Light trap collections indicated a peak of emergence on June 1 and 2 and a much heavier one on June 11 and 12. About 95 percent of all trap collections were A. vexans. Control applied in many localities. (Minn. Ins. Rpt.). UTAH - Very abundant and annoying to people and livestock in the Randolph, Woodruff Canyon and other Rich County areas. (Knowlton, Maughan). Annoying to fishermen in some areas of Long Valley, in north Kane and Garfield Counties. (Knowlton). IDAHO - Island Park resident report mosquitoes exceptionally numerous. Spring emergence is two weeks later this season. (Evans).

FACE FLY (Musca autumnalis) - MARYLAND - Heavy numbers on dairy cattle at several localities in Howard County. (U. Md., Ent. Dept.). WEST VIRGINIA - Lighter on cattle than previously; 3-5 per animal. Populations general over the State. (W. Va. Ins. Sur.). INDIANA - Averaged 0.5 per beef calf at Upland, Grant County. (Dobson). On cattle in La Porte and Lake Counties June 10, averaged 2 per animal. Additional infestations observed in Shelby and Hancock Counties where counts averaged about 2 flies per animal. (Matthew). ILLINOIS - Counts of less than 1 per animal (livestock) in central, west and west-southwest sections. (Ill. Ins. Rpt.). OHIO - Driving cattle to shade in Perry and Muskingum Counties. Infestation still light in Coshocton County and has not built up in Franklin County or in northern part of State. (Holdsworth).

HORN FLY (Siphona irritans) - WEST VIRGINIA - Light to heavy on cattle generally over State. (W. Va. Ins. Sur.). OHIO - Numerous in Franklin, Muskingum and Coshocton Counties and probably elsewhere in southern and central areas. Total of 100-200 per animal observed. (Holdsworth). INDIANA - Ranged up to an estimated 200 flies per animal in Shelby and Hancock Counties. Collected in La Porte County, June 10. (Matthew). ILLINOIS - Counts averaged 127 per animal (livestock) in central, west and west-southwest sections. (Ill. Ins. Rpt.). OKLAHOMA - Populations were down from last week's counts in Payne County. (Howell). TEXAS - Medium to heavy infestation on cattle and horses in Jackson County. (Wilson).

TABANIDS - UTAH - Tabanus sp. and Chrysops sp. annoying livestock in parts of Tooele, Beaver and Cache Counties. Horse flies annoying to livestock in several areas of Rich County. (Knowlton). TEXAS - Undetermined species of horse fly medium to heavy on cattle and horses in Jackson County. (Wilson). INDIANA - Tabanus sp. annoying cattle, average of 1-5 per head at Upland, Grant County. (Dobson). Deer flies and horse flies observed and collected in La Porte County, June 10. (Matthew). DELAWARE - Hybomitra daeckei rather abundant and annoying in eastern Sussex County. (Burbutis).

HOUSE FLY (Musca domestica)- ILLINOIS - Counts of less than 2 per animal (livestock) in central, west and west-southwest sections. (Ill. Ins. Rpt.). OKLAHOMA - Populations becoming a problem around dairy barns in Payne County. (Howell).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Heel flies annoying cattle in areas north of Manti and Ephraim, Sanpete County. No cattle noted running in Manti area where 4,800 cattle were treated for grub control during October 1959. (Knowlton, Funk).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Populations increased in Payne County area where counts averaged 10-12 per cow in 10 dairy herds checked. (Howell).

CERATOPOGONIDS- UTAH - Annoying in Delta-Oasis area of Millard County, Big Rock Candy Mountain area of Sevier County and south of Nephi in Juab County. (Knowlton).

BLACK FLIES (Simulium spp.) - SOUTH DAKOTA - Very annoying in eastern part of State. (Hantsbarger).

CAT FLEA (Ctenocephalides felis)- CALIFORNIA - Heavy in a few homes and yards in Sacramento, Sacramento County. Flea populations have not increased to the extent they did last year at this time. (Cal. Coop. Rpt.).

AMERICAN DOG TICK (Dermacentor variabilis) - NORTH CAROLINA - Adults taken in Vance County. Four cases of Rocky Mountain spotted fever reported this year in State. (Ashton). OKLAHOMA - Populations decreased considerably in Stillwater area. (Howell).

STORED-PRODUCT INSECTS

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella)- ILLINOIS - Corn stored in the fall of 1959 and held over the winter was examined. Of the 30 counties surveyed in the southern half of the State, 13 were infested. Eleven of the 13 infested counties were south of Route 50. In this southern area, an average of 29.8 percent of the ears were infested and up to 2 percent of kernels damaged. Of the 18 counties north of Route 50 (including those crossed by Route 50) only 2 were infested. This area extended northward to include Vermilion, Piatt, Sangamon and Pike Counties. In this area an average of 0.5 percent of the ears were infested with only a trace of kernel damage. (Moore, Tesmer).

BENEFICIAL INSECTS

LADY BEETLES - UTAH - Extremely numerous in many alfalfa fields of Washington County, at Ogden in Weber County and at Morgan in Morgan County. (Knowlton). NEW MEXICO - Adults and larvae abundant in cotton and alfalfa fields in Dona Ana County. (N. M. Coop. Rpt.). OKLAHOMA - Counts of Hippodamia convergens light to heavy in many areas of State. (Okla. Coop. Rpt.). SOUTH DAKOTA - Small numbers of Hippodamia spp. found in all alfalfa fields checked in eastern part of State. (Mast). NEBRASKA - More numerous, especially Hippodamia convergens, than other predators. Highest counts averaged 4 per 10 sweeps. (Simpson). ARKANSAS - One count of 112 lady beetle adults per 100 cotton plants made at McGehee. (Black).

HONEY BEE (Apis mellifera)- CALIFORNIA - Colonies generally in good condition with plenty of brood and bees. Honey plants in non-irrigated areas suffered from lack of moisture and drying winds. Alfalfa and clover nectarflows are

underway in some areas where early seed is being produced. Many colonies removed to other states. The incidence of American foulbrood being encountered is less than a year ago. Two cases of parafoulbrood diagnosed in Lake County, where European foulbrood has been quite severe this season. (Cal. Coop. Rpt.).

ALKALI BEE (Nomia melanderi) - IDAHO - First adults emerged in Homedale and Marsing areas of Owyhee County about June 10. (Waters).

A BRACONID (Agathis pumila) - PENNSYLVANIA - Collected from Coleophora laricella in Cumberland County on May 19, 1960. Det. C. F. W. Muesebeck. First unqualified record for the State. (Drooz).

A PARASITE (Bathyplectes curculionis) - UTAH - Common to numerous in alfalfa weevil-infested fields over much of State. (Knowlton).

SYRPHIDS - UTAH - Extremely numerous in many Washington County alfalfa fields. (Knowlton).

A FLOWER BUG (Orius insidiosus) - UTAH - Extremely numerous in many Washington County alfalfa fields. (Knowlton). OKLAHOMA - Counts averaged 5 per sweep in an alfalfa field in Bryan County. (Vinson). Heavy (6-7 per sweep) in 2 alfalfa fields in Choctaw County. (Goin).

BIG-EYED BUGS (Geocoris spp.) - UTAH - Extremely numerous in many alfalfa fields in Washington County, at Ogden, Weber County and Morgan, Morgan County. (Knowlton).

NABIDS - OKLAHOMA - Nabis sp. counts averaged 7 per square foot of crown area in an alfalfa field in Jackson County. (Hatfield). Light populations in alfalfa fields in Choctaw County. (Goin). NEBRASKA - Nabids present in low numbers in most fields. (Simpson). SOUTH DAKOTA - Nabis spp. averaged 4 per 10 sweeps in alfalfa in eastern area. (Mast). UTAH - Nabis spp. extremely numerous in many Washington County alfalfa fields. (Knowlton).

LACEWINGS - SOUTH DAKOTA - Both adults and larvae of Chrysopa spp. taken in small numbers while sweeping alfalfa in east central area. (Mast). OKLAHOMA - Chrysopa sp. light to medium in alfalfa fields in Bryan and Love Counties (Vinson) and light in an alfalfa field in Choctaw County (Goin). NEW MEXICO - Adults and larvae of lacewings abundant in cotton and alfalfa fields in Dona Ana County. (N. M. Coop. Rpt.).

MISCELLANEOUS INSECTS

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - First flight observed at Syracuse on evening of June 13. (Simone). Light flight observed on evening of June 16 at observation points in both Newark and Syracuse. (Conrow).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - First adults of season noted at Bozman, Talbot County. (U. Md., Ent. Dept.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - NORTH CAROLINA - First adults of season on June 9 in Pender County. (PPC).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praeifica) - OREGON - First adult of season collected in blacklight trap at Salem, June 16. (Capizzi).

A MAY BEETLE (Phyllophaga elongata) - FLORIDA - Collected at Winter Haven, Polk County, on May 21 by W.P. Henderson. This is a very rare species. (Fla. Coop. Sur.).

A TOAD BUG (Nerthra rugosa) - FLORIDA - Collected in coastal mangrove swamp on

wet ground at Key Largo Key, Monroe County, on June 7 by H. V. Weems, Jr. Det. by Dr. R. F. Hussey. A rarely collected species. (Fla. Coop. Sur.).

HARVESTER ANTS (Pogonomyrmex spp.) - TEXAS - P. barbatus widespread infestations on rangeland in Washington County. (McClung). NEW MEXICO - P. barbatus fuscatus nests very numerous in rangeland areas in Luna and Dona Ana Counties. (N. M. Coop. Rpt.).

PAVEMENT ANT (Tetramorium caespitum) - MARYLAND - Winged forms annoying to homeowners in Anne Arundel and Frederick Counties, also at Baltimore. (U. Md., Ent. Dept.).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - OREGON - Adults entered houses at several locations in the Willamette Valley during June. (Capizzi).

A NAUTICAL BORER (Xylotrechus nauticus) - CALIFORNIA - Adults occurring in heavy population in a house in San Jose, Santa Clara County. (Cal. Coop. Rpt.).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - DELAWARE - Very large swarms in several areas of New Castle County. (Middletown).

A DOCK APHID (Aphis rumicis) - CALIFORNIA - Heavy on wild dock in Hoopa area, Humboldt County. (Cal. Coop. Rpt.).

ALKALI BEE PARASITES - IDAHO - On June 13 first adult of Heterostylum robustum emerged in Homedale area, Owyhee County, and first adult of Zodion obliquefasciatum emerged at Marshing, same county. (Waters).

FLIES - MASSACHUSETTS - Small flies, apparently dead, may be found attached to ornamentals and garden vegetables, many times near the tips of the leaves. Such flies have been killed by a fungus disease which attacks the insects. (Wheeler).

SEED-CORN MAGGOT (Hylemya cilicrura) - NEW JERSEY - Many adults reported dead on shrubs and flowers. (Ins.-Dis. Newsl., June 14). NEW YORK - One specimen found infected with Entomophthora muscae. (N. Y. Wkly. Rpt.).

STALK BORER (Papaipema nebris) - MICHIGAN - Appearing at Sodus, Monroe, Pontiac, Charlotte and Grand Ledge. (Hutson, June 13).

CORRECTIONS

CEIR 10(23): 462 - Delete note on JAPANESE BEETLE from South Carolina. Note is in error; apparently not this species.

CEIR 10(20): 381 and CEIR 10(25): 520 - TEXAS CITRUS MITE (Eotetranychus banksi) should read TEXAS CITRUS MITE (Eutetranychus banksi).

CEIR 10(16): 299 - Map of SPRUCE APHID (Aphis abietina) at bottom of page is in error. Records from Pennsylvania and Wyoming should be deleted. A corrected distribution map of this aphid is illustrated on page 572.

DISTRIBUTION OF SPRUCE APHID (Aphis abietina)
(Corrected Map)



STATUS OF ADULT JAPANESE BEETLE (Popillia japonica)
POPULATIONS AS OF JUNE 17, 1960

GEORGIA - First emergence of Japanese beetle found at Augusta May 24, and at Atlanta airport May 31. Populations in both areas lighter than in 1959. A recent infestation found in Montezuma, Macon County; only one adult found in each of 2 traps on opposite sides of a packing plant. No checks made on populations in Dahlonega area to date this year. SOUTH CAROLINA - No adults reported from State this year. (Report in CEIR 10(23): 462 is in error). NORTH CAROLINA - First emergence in State found at New Hanover County airport May 21. General emergence of adults reported in coastal area; however, no hazardous population has been noted or is expected. Peak populations expected first week of July. Lighter scattered emergence occurred in Piedmont section. No adults trapped in mountain section. VIRGINIA - First pupa found in Warwick County by digging on May 26. First adults observed at Portsmouth, Norfolk County, May 29. First adult reported on June 17 at Glade Spring, Washington County. Also appearing at airports in Norfolk and vicinity on June 17. No reports of activity at Roanoke. WEST VIRGINIA - No pupae or adults found. MARYLAND - First adults collected at Bozman, Talbot County, on June 14. DELAWARE - First adult of season collected in Newark area, New Castle County, during week ending June 10. NEW JERSEY - Emergence noted in Mt. Holly, Bordentown and McGuire Air Force Base. Emergence at McGuire first reported June 9 and has been relatively fast since then. Heaviest populations in area about one-quarter mile from the runway, with many beetles observed in flight around foliage in area. (PPC).

ADDITIONAL NOTES

IOWA - (Pseudaletia unipuncta) damaged at least 1,000 acres of wheat in Harrison County; estimated 50 percent loss and averaged less than 1 per square foot in oats in Hamilton, Webster, Calhoun, Sac, Ida and Woodbury Counties. BLACK CUTWORM (Agrotis ipsilon) continues to work in corn in various parts of State and PEA APHID (Macrosiphum pisi) averaged 30-50 per sweep in alfalfa and red clover. GREENBUG (Toxoptera graminum) averaged 3-5 per sweep in oats in central area, with very light infection of yellow dwarf virus disease in most fields. EUROPEAN CORN BORER (Pyrausta nubilalis) laying eggs heavily. Emergence at Ankeny 96 percent on June 17; 2 egg masses per 100 plants and 5 percent leaf feeding on knee-high corn. In Boone County, averages 3 egg masses per 100 plants on corn ranging 0-30 inches high. (Iowa Ins. Inf.).

VERMONT - CYCLAMEN MITE (Steneotarsonemus pallidus) causing injury to strawberries in Grand Isle. THRIPS also abundant on strawberry fruit in Chittenden and Rutland Counties. ROSE CHAFER (Macroductylus subspinosus) very heavy in Burlington area on lilac, Chinese elm, grapes and beans. EUROPEAN RED MITE (Panonychus ulmi) and TWO-SPOTTED SPIDER MITE (Tetranychus telarius) can be found in Grand Isle, Chittenden and Rutland Counties. ALFALFA PLANT BUG (Adelphocoris lineolatus), TARNISHED PLANT BUG (Lygus lineolaris) and RAPID PLANT BUG (Adelphocoris rapidus) building up in many untreated trefoil seed fields; averaged 1-1.5 per sweep in Addison on June 17. MEADOW SPITTLEBUG (Philaenus leucophthalmus) has been exceptionally heavy in some areas this spring. ELM LEAF BEETLE (Galerucella xanthomelaena) feeding extensive statewide. FACE FLY (Musca autumnalis) populations continue statewide. (MacCollom).

RHODE ISLAND - OYSTERSHELL SCALE (Lepidosaphes ulmi) and JUNIPER SCALE (Diaspis carulei) hatching in Providence County. Adults of a SOD WEBWORM (Crambus sp.) numerous on lawns in Slocum and Kingston and adults of a FLEA (Ctenocephalides sp.) becoming troublesome in homes in Warwick and Woonsocket. EUROPEAN EARWIG (Forficula auricularia) very numerous statewide. A GALL MIDGE (Lasioptera vitis) abundant on grape at Riverside and West Kingston and CHICKEN MITE (Dermanyssus gallinae) abundant on poultry locally in South Kingstown. SHEEP KED (Melophagus ovinus) heavily infesting some sheep in South Kingstown. (Mathewson, Kerr, Hansen).

OHIO - EUROPEAN CORN BORER adults 90 percent emerged June 14 in Franklin County; 4 egg masses per 100 plants. No hatching or injury noted. Ovipositing in Lucas County. (Triplehorn, Brooks).

NEVADA - ALFALFA WEEVIL (Hypera postica) larvae averaged 30-40 per sweep in most fields, with some averaging 150-200 per sweep in Paradise Valley, Humboldt County. Averaged 25-35 per sweep in Elko and 20-50 per sweep in Lamoille, Elko County. BROWN WHEAT MITE (Petrobia latens) heavy on alfalfa in Lovelock, Pershing County; light in Winnemucca, Humboldt County; and Lamoille, Elko County. Elko and Pershing Counties are new records. (Parker, Snyder).

OKLAHOMA - GRASSHOPPERS (several species) medium to heavy, 25-30 per square yard, on two roadside areas checked in Major County. CORN EARWORM (Heliothis zea) common but very light in fields of alfalfa, corn and grain sorghum surveyed throughout north central area. EUROPEAN CORN BORER in fourth and fifth instar in corn in Stillwater area and SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) in second to fourth instars. CORN LEAF APHID (Rhopalosiphum maidis) light to heavy in about half the corn and grain sorghum fields surveyed in north central area. (Okla. Coop. Rpt.)

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. ips.	Prod. ornith.	Perid. saucia	Protoparce sexta quinq.		Heliothis zea vires.	
ARKANSAS								
Hope 6/9-15	5	1		12				33
*Morrilton 6/9-15	62	34						44
Kelso 6/9-15	7	13		6				23
Fayetteville 6/9-15	11	1						10
COLORADO								
Rocky Ford 6/1		15						
FLORIDA								
Quincy 6/6								8
Monticello 6/1								3
KANSAS								
Garden City 6/4-13	111	80				9		10
Hays 6/9-11, 13-14	210	98	6	20		1		7
Manhattan 6/12-15	142	43	15	12	2			26
Mound Valley 6/7,11	42	20			1			4
INDIANA (Counties)								
Lawrence 6/7-13	218	22	7	1	10		9	
Tippicanoe 6/10-16	16	1		2	1		1	
ILLINOIS								
Urbana 6/10-16	37	17		4				
LOUISIANA								
Franklin 6/10-16								3
Baton Rouge 6/10-16		3	103					8
Tallulah 6/11-17	1				16			8
MARYLAND								
Fairland 6/12-16	6	1		1	1		3	
MISSISSIPPI								
*Stoneville 6/10-16	68	27	75	44	24			72 21
MISSOURI								
Columbia 6/6-11	18	19	14				4	3
Sikeston 6/6-10	25	2		6				2
NEBRASKA								
Kearney 6/7-13	65	31		28				15
Lincoln 6/10-17	255	6		15				14
North Platte 6/9-15	181	29		198		1		3 4
Sidney 5/25-6/7	2							
SOUTH CAROLINA								
Charleston 6/13-19		2	21		1			14 3
Clemson 6/11-17	56	22	78	9	3		3	26 12
TENNESSEE (Counties)								
Blount 6/7-13	25	26	43	9			4	5
TEXAS								
Brownsville 6/14-17		458	3		2		3	430
Waco 6/11-17	11	22	76	64				353
WISCONSIN								
Middleton 6/7-13	16			2				
Arlington 6/7-13	27	5		4				
La Crosse 6/7-12	14	3		4				

* Two traps - Morrilton; 2 traps - Stoneville

STATUS OF SOME IMPORTANT INSECTS IN THE UNITED STATES

PINE FALSE WEBWORM (*Acantholyda erythrocephala* (L.))

Economic Importance: This pest is widely distributed in Europe on pine and was first recorded in the United States on May 7, 1925, on mugho pine in a nursery at Chestnut Hill, Pennsylvania. On occasion, it can be a serious defoliator of pine. Around the early 1940's, the insect severely damaged red and white pine plantations in New Jersey.

Distribution: Widely distributed in the Palearctic regions. Recorded in Germany, Japan, Korea, Netherlands, Poland, Switzerland, USSR and the United States (see map).

Hosts: Recorded on a number of species of the genus *Pinus*. The larvae show preference for red pine (*Pinus resinosa*) and white pine (*P. strobus*). Other pines attacked are *P. mugo*, *P. sylvestris*, *P. densiflora* and *P. nigra*.

Life History and Habits: In New Jersey, there is one generation annually, and adults emerge from mid-April to early May from earthen cells. The female usually lays eggs contiguously in rows of 3-10 on the flattened surface of pine needles of the previous year's growth. Small slits are cut in the needles and eggs are laid over them. Only a very small section of the egg is inserted. Hatching occurs during the last 3 weeks in May after about 22 days incubation. Young larvae descend the needles to the stem, spin a loose webbing about themselves and the basal region of the needles. They sever the needles just above the bundle sheaths within this covering and feed gregariously at the bases, pulling the needles into the webbing as feeding progresses until the needles are entirely consumed. Later instars spin individual silken tubes about themselves along the stem. These tubes contain much frass and needle fragments on the outside.

DISTRIBUTION OF PINE FALSE WEBWORM (*Acantholyda erythrocephala* (L.))



Larvae feed for about 18-20 days and may be found from early May until late June. When mature, they drop to the ground, enter 2-3 inches, fashion earthen cells and spend the summer, fall and winter there as prepupae. Pupation occurs in late March and early April of the following spring.

Description: EGG - About 2.75 mm. long, elongate-oval and yellow changing to brown as incubation advances. LARVA - Compared with most other sawflies, A. erythrocephala has unusually long, slender seven-jointed antennae, unusually weak and slender legs, a pair of slender three-jointed appendages on the last abdominal segment, and lacks prolegs, but has a pair of fleshy protuberances resembling larvopods on the venter of the eighth abdominal segment. Mature larva 16-20 mm. long, pale greenish-gray with longitudinal mid-dorsal, lateral and mid-ventral stripes of purplish-red. Head clay-yellow with dense, small spots of dark-brown above and black eyes. The prepupa is apple-green with longitudinal mid-dorsal line of dark-green. PUPA - Green with black eyes. ADULT - Length 9-13 mm. with long thread-like antennae typical of the family Pamphiliidae to which it belongs. Color deep steel-blue except the following: Anterior tibiae and apices of anterior femora ochereous; head of female, except interocellar area orange; lower half of face of male, mandibles and mouthparts ochereous.

A very similar pamphiliid larva, but having a dark brown head with a yellow cross-stripe on the clypeus, is Cephalcia marginata Middlekauff. This has been destructive to pines in the area from Quebec to Virginia during 1957, 1958 and 1959. There are 17 species of pamphiliid sawflies that feed on pine in the United States and Canada; means of identification of all these in the larval stages have not yet been worked out. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 10 (26) 6-24-60



Adults of Acantholyda erythrocephala (L.)

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

Official Business

The background of the document is a light green color with a repeating pattern of various insects. The insects are rendered in a darker green, semi-transparent style. Visible insects include several butterflies of different sizes and patterns, a large beetle with prominent stripes on its back, a fly-like insect with long legs, and several smaller beetles and flies scattered throughout the page.





SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01271 7443