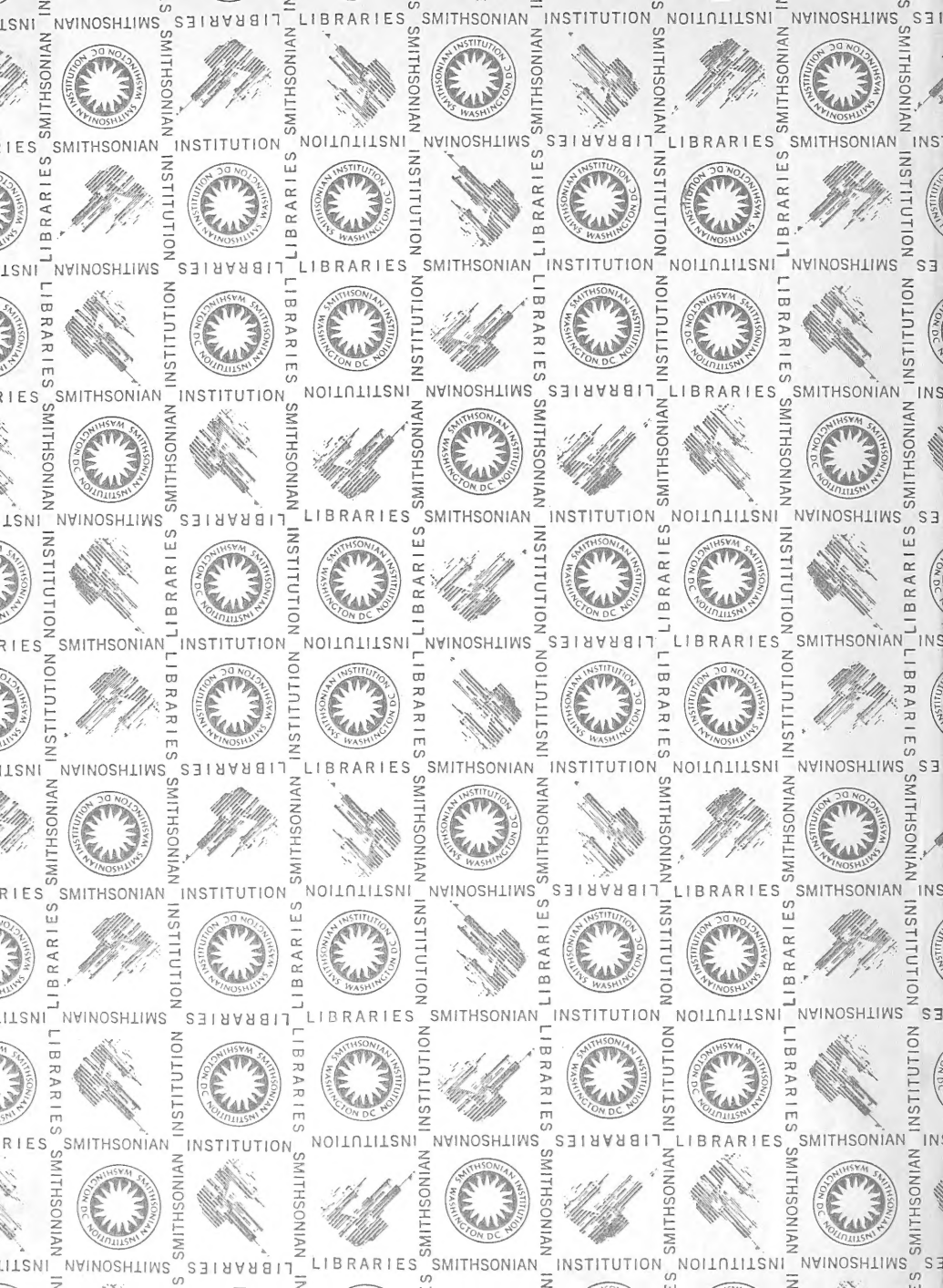
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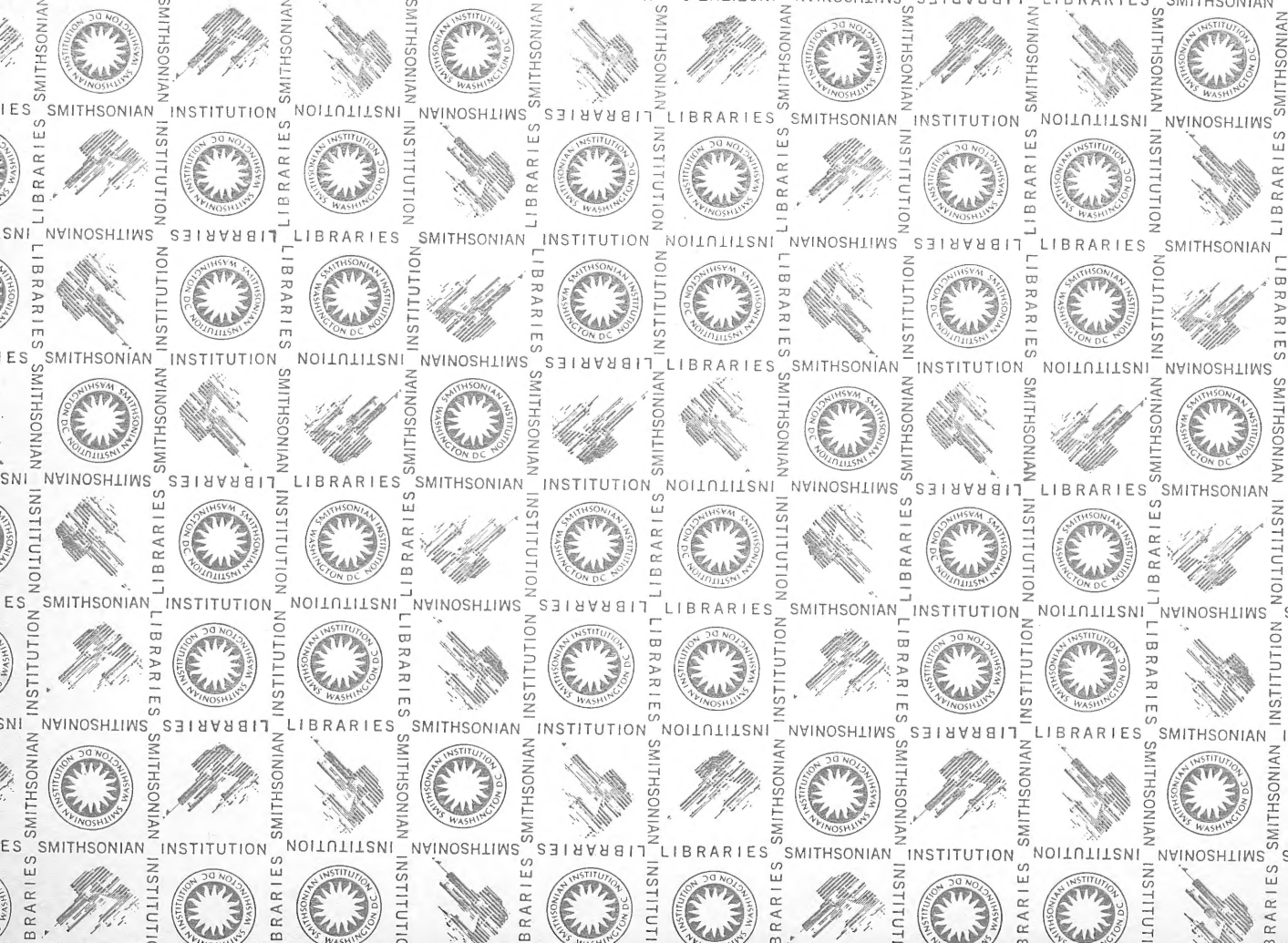
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VOL. 9 NO. 1 JANUARY 2, 1959

Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY

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:

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

Volume 9 January 2, 1959 Number 1

COOPERATIVE ECONOMIC INSECT SURVEY

Highlights of Insect Conditions

CHINCH BUG hibernation survey in Arkansas, fall - 1958. (p. 3).

BOLL WEEVIL hibernation survey, northeast Louisiana, fall - 1958. (p. 4).

INSECT DETECTION: A termite (Reticulitermes hageni) found for first time in New Jersey. (p. 6).

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Reports in this issue are for the week ending December 26, unless otherwise designated.

WEATHER OF THE WEEK ENDING DECEMBER 29

Even though last week's weather was mostly mild and dry and the snow cover at lower elevations retreated to extreme northern areas, stormy weather with intermittent precipitation helped relieve California's drought, temperatures still averaged below normal in the South and East and heavy snow was blanketing the southwestern Great Plains as the period ended. Temperatures for the week averaged above normal west of a line joining Detroit, Michigan, and Laredo, Texas. Relative to normal, the week was warmest in the north central regions where departures ranged from 6° to over 14° with maximum temperatures in the 50's setting new records in Iowa on the 28th. The entire month has been unseasonably mild in the Far West. The Atlantic Coastal States experienced only a brief period of mildness during the week and temperautres averaged 2° to 4° below normal in northern Florida to 7° below at Caribou, Maine. Temperatures fell below zero over much of the Northeast from the 24th to 27th. On the 25th, Pellston, Michigan, had a low of -23°, and New York State reported the coldest Christmas day in 10 years. In New England where this month promises to be one of the coldest Decembers since 1917, the temperature at Caribou, Maine, has remained continuously below freezing since late November.

The week's moderate to heavy precipitation was limited mostly to an area south of a line joining Richmond, Virginia, and Laredo, Texas, and to the Pacific Coast north of San Francisco, California, with totals ranging up to about 3 inches in both areas. The southern rains, mostly from a coastal storm at the end of the week, helped restore soil moisture which had been below satisfactory levels in some sections for an extended period. Rains were frequent in the Pacific Northwest and thunderstorms were reported in northern California on the 28th. Most of the mid-continent area had little or no precipitation at all, and surface soil moisture is needed in many sections. However, snow may furnish beneficial moisture to much of the southern Great Plains. At Albuquerque, New Mexico, 11 inches of snow accumulated during the 12-hour period from 5 p.m. Sunday to 5 a.m. Monday, the heaviest snowfall there on record. Some parts of the city measured up to 14 inches. The previous 24-hour record since 1895 was 6.8 inches in 1942. On the morning of the 30th a depth of 12 inches was reported at Guymon, Oklahoma, and lesser amounts over southeastern Colorado, eastern New Mexico, southern Kansas and northwestern Texas. (Summary supplied by U. S. Weather Bureau.)

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - ARIZONA - Generally cold weather over State on November 17 caused decline in adult populations. Some minor damage to grain crops noted in Tucson area, also hatching of several species probably due to moisture from snow and rain. COLORADO - Egg deposition found quite general in all of several eastern counties sampled. Predators did not exceed 25 percent. NEW MEXICO - Egg survey in vicinity of Porter, Quay County, indicated a threatening to severe infestation and in Curry County a severe to very threatening infestation. Survey in other counties indicated light infestation. A large percentage of egg pods found in eastern counties were Melanoplus bilituratus, which was not one of the three dominant species found in the adult survey, indicating a possible migration from nearby infested areas. UTAH - Egg surveys were completed in 18 counties and ratings compared very closely with the adult survey. (PPC, West. Reg., Nov. Rpt.).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - First and second-instar larvae on alfalfa in Smyth County, week of December 12, and second and third-instar larvae on same crop in Pittsylvania County, week of December 18. (Bishop).

CLOVER LEAF WEEVIL (Hypera punctata) - VIRGINIA - Present on alfalfa in Smyth County, week of December 12, and in Pittsylvania County December 18. (Bishop).

PEA APHID (Macrosiphum pisi) - CALIFORNIA - Heavy on alfalfa in local area of Terra Bella, Tulare County. (Cal. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - VIRGINIA - Present on alfalfa in Smyth and Franklin Counties, December 12, and in Pittsylvania County, December 18. (Bishop). OKLAHOMA - Situation remained unchanged. (Bieberdorf). WASHINGTON - Small numbers on alfalfa at Whitstran, Benton County, due to mild winter temperatures. (Klostermeyer).

LEAFHOPPERS - UTAH - Active in alfalfa fields and raodsides in Cache Valley and at Brigham. (Knowlton).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Averaged 4-6 per linear foot of row in wheat in Jackson County. (Hatfield).

GREENBUG (Toxoptera graminum) - ARKANSAS - None were found on small grain checked in Crawford County, week ending December 13. (Boyer). OKLAHOMA - Averaged less than one per linear foot in Payne County (Stiles) and population is very low in Kiowa County. (Hudson).

CHINCH BUG (Blissus leucopterus) - ARKANSAS - Annual survey counts taken in November 1958 show a larger number of bugs in hibernation in the 17-county area than in 1957. Samples were taken in the same general area and during the third week in November each year. Infestations are severe in 6 counties compared with 3 counties in 1957. Averages per square foot in these 6 counties were 1,971 in Randolph, 1,825 in Poinsett, 1,125 in Jackson, 1,606 in Lawrence, 1,746 in Clay and 1,924 in Cross. The number of bugs in hibernation is larger in the northeast than in other areas of the State. (Ark. Ins. Rpt.).

FRUIT INSECTS

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Population has steadily increased during past 10 years when it was discovered in figs in Fresno district. Now present in considerable numbers in figs left on trees and on the ground. (Cal. Fig Inst.).

DRIED-FRUIT BEETLE (Carpophilus hemipterus) - CALIFORNIA - Adults present in considerable numbers after harvest in figs on trees and on the ground. This pest last harvest season was more serious than in many years. (Cal. Fig Inst.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Inspections of 64,390 trees on 1,645 properties revealed 35 trees infested on 8 properties, all at Allende and Montemorelos, Nuevo Leon. No infestations were found in Sonora and Tamaulipas. (PPC, Mex. Reg., Nov. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - An additional 127 traps on 93 properties were put into operation in Tijuana and Tecate, Baja California, to afford better coverage of the zones. As traps are available, more will be installed. Trapping activities continued at Tijuana, Tecate and Ensenada with 1,235 traps operated on 551 properties. A total of 4,249 trap inspections were made, with negative results. Reports from the Jalapa-Veracruz region show low infestation of oranges, considerably less than 1957. (PPC, Mex. Reg., Nov. Rpt.).

TRUCK CROP INSECTS

POPLAR-PETIOLE GALL APHID (Pemphigus populi-transversus) - ALABAMA - Heavy infestation on roots of turnips in Baldwin County. (Grimes, Bennett, Dec. 19).

TURNIP APHID (Rhopalosiphum pseudobrassicae) - ALABAMA - Moderate on turnips in Baldwin County. (Grimes, Bennett, Dec. 19).

Vegetable Insects, Arkansas - Loxostege similalis and Hylemya cilicrura caused some concern to spinach growers and packers in the Arkansas River Valley. Spinach from one foot of row taken at each of 10 different locations distributed over a field was carefully examined at weekly intervals. Of 7 fields checked, 3 were uninfested. Three fields were infested with both species while one field was infested with H. cilicrura only. L. similalis infestation ran 1-6 and H. cilicrura 1-14 per composite sample. (Kendrick, Dec. 16).

COTTON INSECTS

Boll Weevil Hibernation Survey, Northeast Louisiana, Fall - 1958 - Collections of surface woods trash samples were made from November 24 through December 4 in the northeastern area composed of Madison, East Carroll and Tensas Parishes. The number of weevils per acre found was 5,326 in Madison Parish, 9,845 in East Carroll Parish and 2,098 in Tensas Parish. The average for the area was 5,756. Similar records have been made in Madison Parish for 23 years, beginning in the fall of 1936. In only two years, 1955 and 1957, has a larger number of weevils been found in the fall surface woods trash survey, than the 5,326 per acre found in the fall of 1958. (Smith, Cleveland, Williams).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Field inspections in the vicinity of Solomon, Graham County, revealed larvae in 5 of 7 fields inspected. One larva was found in gin trash at Willcox, Cochise County. Infestations were found on 106 properties comprising 7,321 acres in Maricopa County and 10 properties and 1,800 acres in Pinal County, during November. The freeze on November 17 brought light trap collections to a halt. All trapping activities ceased at the end of the month except for one trap in Yuma County. NEW MEXICO - A survey November 22-24 in the more heavily infested area of

Dona Ana County showed a very high mortality of larvae in bolls on standing stalks. The rather sudden drop in temperature on November 18 and 19 apparently resulted in the destruction of nearly all larvae in green bolls and a heavy mortality in dry bolls on standing stalks. No live larvae were found in green bolls and very few in open bolls. It is estimated that more than 90 percent of larvae in bolls on standing stalks were killed. (PPC, West. Reg., Nov. Rpt.). MEXICO - In the eastern area, lint cleaner inspections were made at 37 locations with a total of 2,263 larvae found. From 1,600 green bolls inspected, 534 larvae were found. Heaviest infestation of green bolls centered around Juarez, Chihuahua. (PPC, Mex. Reg., Nov. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A STEM SAWFLY (Janus bimaculatus) - PENNSYLVANIA - Affected 60 percent of Viburnum prunifolium twig growth for 1958 at Pittsburg, Allegheny County, November 18. Det. B. D. Burks. (Udine).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Heavy population on chrysanthemum plants at Auburn, Placer County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - OKLAHOMA - H. lineatum averaged 12-20 per untreated yearling in Woodward County, 15-20 per yearling steer in Harper County, 8-12 in Canadian County and 3-5 in Kiowa County. (Hudson, Howell). UTAH - Common in warmer parts of Washington and San Juan Counties. (Knowlton). KANSAS - H. lineatum infested 35 of 45 cows examined in Riley County, with a total of 257 grubs found. Counts ranged 0-19 per animal and averaged 5.7 per animal. (Knapp, Dec. 24).

CATTLE LICE - PENNSYLVANIA - Heavy on 50 head of beef cattle at Clearfield, December 18. Control necessary. (Adams). OKLAHOMA - Minor infestations in herds in many parts of State. (Hudson, Howell). UTAH - Several thousand cattle dipped or sprayed for control in Uintah Basin area. (Knowlton, Farnsworth). Caused injury to unsprayed cattle in San Juan, Washington and Kane Counties, with many herds sprayed or dipped. Caused rubbing by beef cattle at Hyde Park and Lewiston. (Knowlton).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - CALIFORNIA - Reported from Madera, Madera County, in stored barley, representing reinfestation of the property. (Cal. Coop. Rpt.). MEXICO - In the states of Baja California and Jalisco 196 inspections were made of which 144 were initial and 52 were repeat inspections. A total of 131 specimens were submitted for identification. The reinspection of a property in Mexicali, Baja California, resulted in finding 6 positive specimens. (PPC, Mex. Reg., Nov. Rpt.).

Stored-grain Situation in Alabama - Heavy infestations of Sitophilus oryza were observed in shelled and unshucked corn in several bins in the southeastern part of the State and also observed in damaging numbers on sacked grain in Mobile County. Tribolium confusum was moderate in shelled corn and grain sorghum in southeastern area and damaging on sacked grain in Mobile County.

A heavy infestation of Plodia interpunctella was found in Mobile County on sacked grain, and damaging numbers of Attagenus piceus were observed on the same product in the same area. A few Sitotroga cerealella were observed in warehouses where grain was stored in Mobile County. Moderate infestation of Lasioderma serricorne was also observed in grain in the same area. (Grimes, Bennett, Lockhart, Seibels, Dec. 19).

MISCELLANEOUS INSECTS

A TERMITE (Reticulitermes hageni) - NEW JERSEY - Found swarming in a building at Trenton, August 26. The most northern previous record was Washington, D. C. Reported from State for first time. Det. T. E. Snyder. (Cooper).

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.
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VOL. 9 NO. 2 JANUARY 9, 1959

Cooperative ECONOMIC INSECT REPORT

Issued by

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AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

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Volume 9 January 9, 1959 Number 2

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

CHINCH BUG survey in Kansas shows some severe and very severe infestations in six counties. Potential in Illinois for 1959 is lower than in 1958. (p. 9).

FLORIDA RED SCALE activity highest on record for December in Florida. (p. 9).

INSECT DETECTION: European corn borer new to two counties in Missouri. (p. 9).

SUMMARY OF INSECT CONDITIONS - 1958 - COLORADO. (p. 11).

List of COOPERATIVE SURVEY ENTOMOLOGISTS. (p. 14).

INSECTS not known to occur in the United States. (p. 15).

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Reports in this issue are for the week ending January 2, unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

JANUARY 1959

The Weather Bureau's 30-day outlook for January calls for temperatures to average below seasonal normals over the eastern third of the Nation and also over the Southern Plains and Gulf Coast States. Above normal is indicated for the Northern Plains and areas west of the Continental Divide. In unspecified areas near normal is in prospect. Precipitation, frequently in the form of snow and sleet, is expected to exceed normal over the southern half of the Nation lying east of the Continental Divide, and in the Middle Atlantic States. Subnormal amounts are in prospect over most of the remainder of the country.

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 5, 1959

A severe cold wave featured the weather of the week. First felt in the Northwest on New Year's Day as cold air over northwestern North America began flowing southeastward behind a deep low pressure area centered near Hudson Bay, the cold air covered virtually the entire Nation by the end of the week. Preceded in large areas by snow, sleet, glaze and gale-force winds, the cold front was followed by temperature drops of 20° to over 50°. On Sunday, subzero cold extended from the Cascades to the upper Mississippi Valley and as far south as the northern portions of Arkansas, Texas, New Mexico and Arizona, and temperatures were above freezing only in an area south of a line joining Norfolk, Virginia, and New Orleans, Louisiana, and a few small areas in the extreme Southwest. Extreme low temperatures ranged from -22° at Dumas, Texas, to -43° at Hibbing, Minnesota. Goodland, Kansas, recorded -26°, the lowest there during a 38-year record, and the lowest in that State since 1950. After 3 days of extreme cold, Wisconsin reported an ice thickness on lakes and small streams ranging from about 11 to 20 inches and frost penetration in the ground in the northern portion of 24 to 36 inches which is considered unusually deep there. Temperatures for the week averaged a few degrees above normal east of a line joining Detroit, Michigan, and Pensacola, Florida, and along the southern California coast, and below elsewhere. Relative to normal, the lower Great Plains was the coldest section. A weekly average at Amarillo, Texas, of 16° was 20° below normal and 26° colder than the previous week.

The week's precipitation exceeded an inch along most of the Atlantic coast and west of the Cascades in Washington and northern Oregon. Over 1/2 inch fell in most other sections east of the Mississippi River and in a band extending from eastern Texas through western Missouri. Elsewhere amounts were very light, with only traces or none at all in portions of the northern Great Plains, most of the Rio Grande Valley and a large area of the Far Southwest. Snowfall spread from the southwestern Great Plains to the Great Lakes region during the first part of the week, leaving a cover ranging up to 6 or 7 inches in northern and western Missouri and eastern Kansas. More snow during the weekend covered much of the Pacific Northwest and most sections north of the Ohio River with a few inches. At lower elevations the snow cover generally is light, except in the upper Great Lakes region where greatest depths range up to 40 inches or more. (Summary supplied by U. S. Weather Bureau.)

CEREAL AND FORAGE INSECTS

CHINCH BUG (Blissus leucopterus) - KANSAS - Annual survey conducted during November and December showed infestations to be severe in Butler County with 1,479 hibernating bugs per square foot of bunch grass; Ellsworth County, with 1,111 per square foot; McPherson County with 1,447; and Harvey County with 1,045. Very severe infestations were found in Lyon County, with 3,194 bugs per square foot and Sedgwick County with 3,250 per square foot of bunch grass. (Gates, Peters). ILLINOIS - Fall survey shows potential for 1959 lower than for 1958 and only Brown County with a severe rating, having 1,338 bugs per square foot. (Ill. Ins. Rpt.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - MISSOURI - Fall abundance survey established two new county records in Ozark and Douglas Counties. All 114 counties of the State are now infested. (Thomas).

PEA APHID (Macrosiphum pisi) - ARKANSAS - Very low on small grain and alfalfa. Up to 4 per linear foot found on red clover. (Ark. Ins. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - Numbers extremely low on alfalfa in northwest part of State. (Ark. Ins. Rpt.). OKLAHOMA - Populations lower in alfalfa fields in Tillman County. (Hatfield).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Small numbers in Caddo County wheat fields. (Hudson).

ENGLISH GRAIN APHID (Macrosiphum granarium) - ARKANSAS - Averaged 5-10 per linear foot on oats in Washington County. (Ark. Ins. Rpt.).

GREENBUG (Toxoptera graminum) - ARKANSAS - Found reproducing on small grain on Experiment Station farm in Washington County. Infestations became very light during cold period in mid-December, then increased as temperatures rose. Ranged 20-32 per linear foot on oats. Much lighter, 6 per linear foot, on wheat. (Ark. Ins. Rpt.). OKLAHOMA - Averaged 4-6 per linear foot in wheat field south of Frederick, Tillman County. (Hatfield).

FRUIT INSECTS

SCALE INSECTS - CALIFORNIA - Aspidiotus hederae heavy on grapes in Watsonville, Santa Cruz County. Aonidiella aurantii heavy on citrus in Willows, Glenn County and medium in Orange Cove, Fresno County. Aonidiella citrina medium on oranges in Orange Cove and heavy on lemons in the Exeter area of Tulare County. (Cal. Coop. Rpt.).

Citrus Insect Situation, Lake Alfred, Florida, Third Week in December, 1958 - PURPLE SCALE activity increased. Slight upward trend expected, but level will remain generally low until mid-January. FLORIDA RED SCALE activity increased. Present level highest on record for December and will continue high during January. Activity of CITRUS RED MITE increased and further increase is expected during next few weeks. There was an increase of CITRUS RUST MITE on leaves and a slight decrease on fruit. Further increase expected during next three weeks. (Fla. Coop. Sur.).

A WALNUT HUSK FLY (Rhagoletis boycei) - ARIZONA - Heavy and riddled husks on one native walnut tree among several on ranch northeast of Payson, Gila County, September 22, 1958. Det. R. H. Foote. (Ash.).

TRUCK CROP INSECTS

LIMA-BEAN POD BORER (Etiella zinckenella) - CALIFORNIA - Heavy and damaged bean plantings in the Patterson area of Stanislaus County. (Cal. Coop. Rpt.).

GOLDEN NEMATODE (Heterodera rostochiensis) - NEW JERSEY - A total of 118 soil samples from 25 properties in Middlesex County were processed with negative results. MAINE - More than 3,000 samples were collected and processed at the temporary laboratory located at the Aroostook Experimental Farm at Presque Isle. All samples processed to date were negative. NEW YORK - All soil samples collected during spring survey in eastern Suffolk County have been processed with negative results. Golden nematode cysts were recovered from one previously uninfested field in western Suffolk County. (PPC, East. Reg., Nov. Rpt.).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Light trapping in cottonseed oil mills discontinued for season, week ending December 30. Eleven traps were in service for a total of 70 trap nights, with negative results. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A PINE ENGRAVER (Ips confusus) - CALIFORNIA - Damaging and killing ponderosa pines in groups of 1-100 in the Santa Rosa and Lake County forest areas. Abundance is probably due to logging activities. (Spharter).

ELM LEAF BEETLE (Galerucella xanthomelaena) - KANSAS - Reported from Ford County in crevices in bark and also in a house. (Thompson).

SCALE INSECTS - CALIFORNIA - Eriococcus araucariae heavy on araucaria pine in Cold Springs, Santa Barbara County. Aspidiotus lataniae and A. hederae medium on Acacia melanoxylon and Icerya purchasi medium on roadside acacia trees, all in Sacramento, Sacramento County. Asterolecanium arabidis heavy on Pittosporum tobira in Woodland and light in Davis, Yolo County. (Cal. Coop. Rpt.).

WHITEFLIES - CALIFORNIA - Trialeurodes vaporariorum medium on lantana in Bakersfield, Kern County. Heavy infestations of Aleyrodes spiraeoides occurred on nandina and rose and Aleuroplatus berbericola on oregongrape in Davis, Yolo County. (Cal. Coop. Rpt.).

CORRECTION

CEIR 9(52):1023 - SHEEP BOT FLY (Oestrus ovis) - KANSAS - Not found in 4 lambs examined from Pottawatomie County. (Knapp, Peters).

LIGHT TRAP COLLECTIONS

	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterranea	Heliothis zea
FLORIDA				
Gainesville 12/23,30	5	2	2	1
Quincy 12/24	1			
SOUTH CAROLINA				
Charleston 12/29-1/4	18	7	13	

SUMMARY OF INSECT CONDITIONS - 1958

COLORADO

Reported by Colo. Ins. Detection Comm.

Rangeland: GRASSHOPPERS were a problem in all of the eastern area and considerable damage to rangeland resulted. The total acreage of rangeland in the State is 27,322,260, total acres infested approximately 5,700,000 and total acres controlled about 2,000,000. The following values were computed from the amount of gain by a livestock unit (one cow and calf) on 10 acres of land. Value of gain based on market value of $33 per hundredweight. Also, the values have been computed on infested land only. Total livestock gain 724,821 cwt.; total value $23,919,167; total loss 152,676 cwt.; loss value $5,038,332; cost of control $935,846; savings $2,701,727.

Wheat Insects: Pests that were present on wheat include: BROWN WHEAT MITE (Petrobia latens), PALE WESTERN CUTWORM (Agrotis orthogonia), ARMY CUTWORM (Chorizagrotis auxiliaris), HESSIAN FLY (Phytophaga destructor), a WHEAT STEM MAGGOT (Hylemya cerealis), GRASSHOPPERS (Melanoplus spp.) and SAY STINK BUG (Chlorochroa sayi). Widespread infestations of grasshoppers were reduced by control measures. Many pests were local and did little damage. Much of major infestation built up after harvest had started. Total acreage 2,356,273; total yield 55,632,688 bu.; unit value $2; total value $111,265,376; total loss 771,613 bu.; loss value $1,423,226; acres infested 1,448,630; acres controlled 583,803; acres grasshopper controlled 527,169; cost of control $1,431,195; savings $4,682,738.

Alfalfa Insects: ALFALFA WEEVIL (Hypera postica) reduced first-cutting alfalfa 25-50 percent in areas where early spraying was not accomplished. Second and third cuttings were protected by controls. Yield was reduced a small percentage by PEA APHID (Macrosiphum pisi), SPOTTED ALFALFA APHID (Therioaphis maculata), VARIEGATED CUTWORM (Peridroma margaritosa), BLISTER BEETLES (Epicauta spp.), ALFALFA CATERPILLAR (Colias philodice eurytheme) and GRASSHOPPERS (Melanoplus spp.). Pests influencing alfalfa seed production were Lygus spp., GRASSHOPPERS, THRIPS and CLOVER SEED CHALCID (Bruchophagus gibbus). Total acreage 656,535; total yield 1,838,841 tons; unit value $25; total value $45,971,025; total loss 84,757 tons; loss value $2,118,925; acres infested 441,755; acres controlled 278,153; acres grasshopper controlled 161,456; cost of control $637,058; savings $7,058,675.

Barley Insects: In some areas GRASSHOPPERS (Melanoplus spp.) caused losses of as much as 35 percent. Other pests damaging the crop were ENGLISH GRAIN APHID (Macrosiphum granarium), ARMY CUTWORM, VARIEGATED CUTWORM and SAY STINK BUG. Total acreage 254,519; total yield 6,468,768 bu.; unit value $1; total value $6,468,768; total loss 612,896 bu.; loss value $612,896; acres infested 165,344; acres controlled 65,710; acres grasshopper controlled 54,910; cost of control $158,875; savings $1,617,192.

Ear Corn Insects: Losses were relatively light this season, with major portion of loss in the southern half of the State. Pests responsible for losses were CORN EARWORM (Heliothis zea), FALL ARMYWORM (Laphygma frugiperda), WESTERN CORN ROOTWORM (Diabrotica virgifera), CORN LEAF APHID (Rhopalosiphum maidis), SEED-CORN MAGGOT (Hylemya cilicrura), GRASSHOPPERS (Melanoplus spp.), TWO-SPOTTED SPIDER MITE (Tetranychus telarius), BLISTER BEETLES (Epicauta spp.) and ARMY CUTWORM. Total acreage 209,957; total yield 14,268,980 bu.; unit value $1.15; total value $16,409,327; total loss 432,392 bu.; loss value $497,250; acres infested 131,263; acres controlled 62,523; acres grasshopper controlled 59,900; cost of control $154,996; savings $688,630.

Silage Corn Insects: The same conditions and pests were prevalent as for ear corn. Total acreage 179,381; total yield 2,009,804 tons; unit value $30; total value $60,294,120; total loss 97,024 tons; loss value $2,910,720; acres infested 107,397; acres controlled 30,397; acres grasshopper controlled 59,900; cost of control $91,418; savings $15,737,630.

Sweet Corn Insects: Losses were caused by CORN EARWORM, FALL ARMYWORM, CORN LEAF APHID, SEED-CORN MAGGOT, TWO-SPOTTED SPIDER MITE and WESTERN CORN ROOTWORM. Total acreage 1,759; total yield 89,810 cwt.; unit value $3; total value $269,430; total loss 5,766 cwt.; loss value $17,298; acres infested 1,759; acres controlled 1,022; acres grasshopper controlled 750; cost of control $2,419; savings $23,385.

Dry Bean Insects: Yield was reduced by BEET LEAFHOPPER (Circulifer tenellus), MEXICAN BEAN BEETLE (Epilachna varivestis), FLEA BEETLES (Systena blanda, Epitrix spp.), TWO-SPOTTED SPIDER MITE (Tetranychus telarius), ONION THRIPS (Thrips tabaci) and WESTERN BEAN CUTWORM (Loxagrotis albicosta). Total acreage 148,120; total yield 1,651,724 cwt.; unit value $5.75; total value $9,497,413; total loss 34,319 cwt.; loss value $197,334; acres infested 84,544; acres controlled 38,037; acres grasshopper controlled 15,585; cost of control $159,940; savings $342,194.

Sugar Beet Insects: BEET LEAFHOPPER caused a 30-40 percent loss largely because of curly top, on the western slope. Loss on the eastern slope was 1-2 percent. Light losses were caused by GRASSHOPPERS (Melanoplus spp.), BEET WEBWORM (Loxostege sticticalis), YELLOW WOOLLYBEAR (Diacrisia virginica) and BLISTER BEETLES (Epicauta spp.). Total acreage 137,321; total yield 2,262,377 tons; unit value $12; total value $27,148,524; total loss 57,349 tons; loss value $688,188; acres infested 56,056; acres controlled 31,689; acres grasshopper controlled 26,208; cost of control $76,482; savings $894,972.

Potato Insects: Pests included POTATO PSYLLID (Paratrioza cockerelli), POTATO APHID (Macrosiphum solanifolii), GREEN PEACH APHID (Myzus persicae), FLEA BEETLES (Systena blanda, Epitrix tuberis), LEAFHOPPERS (Macrosteles fascrifons, Empoasca spp.), FALSE CHINCH BUGS (Nysius spp.) and VARIEGATED CUTWORM (Peridroma margaritosa). Total acreage 59,390; total yield 13,065,800 cwt.; unit value $2.50; total value $32,634,500; total loss 182,921 cwt.; loss value $457,304; acres infested 52,980; acres controlled 43,117; acres grasshopper controlled 4,390; cost of control $260,997; savings $16,332,250.

Lettuce Insects: Light losses were caused by CABBAGE LOOPER (Trichoplusia ni), BEET WEBWORM, SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) and POTATO APHID (Macrosiphum solanifolii). Total acreage 12,250; total yield 3,450,000 cartons; unit value $1; total value $3,450,000; total loss 62,500 cartons; loss value $62,500; acres infested 10,010; acres controlled 9,500; cost of control $19,000; savings $1,150,000.

Onion Insects: Damage was caused by SEED-CORN MAGGOT (Hylemya cilicrura), ONION THRIPS and BEET WEBWORM. Major losses were due to disease rather than insects. Total acreage 10,970; total yield 2,921,000 cwt.; unit value $2; total value $5,842,000; total loss 77,984 cwt.; loss value $155,968; acres infested 9,240; acres controlled 9,240; acres grasshopper controlled 4,270; cost of control $57,575; savings $1,460,500.

Cabbage Insects: Losses were produced by CABBAGE LOOPER, DIAMONDBACK MOTH (Plutella maculipennis), HARLEQUIN BUG (Murgantia histrionica) and LYGUS BUGS (Lygus spp.). The latter were responsible for most of the damage. Total acreage 5,325; total yield 12,162 cwt.; unit value $1.50; total value $18,243; total loss 373 cwt.; loss value $559; acres infested 4,624; acres controlled 3,975; acres grasshopper controlled 1,500; cost of control $16,650; savings $9,121.

Tomato Insects: Losses were caused by TOMATO FRUITWORM (Heliothis zea), TOMATO HORNWORM (Protoparce quinquemaculata), TOMATO PSYLLID (Paratrioza cockerelli) and BEET LEAFHOPPER. Major loss on the western slope was caused by curly top disease transmitted by beet leafhopper. Total acreage 3,449; total yield 44,501 tons; unit value $24; total value $1,068,024; total loss 8,971 tons; loss value $215,304; acres infested 2,106; acres controlled 1,471; acres grasshopper controlled 765; cost of control $6,266; savings $498,744.

Snap Bean Insects: Major pests included BEET LEAFHOPPER, MEXICAN BEAN BEETLE, FLEA BEETLES (Systena blanda, Epitrix spp.), TWO-SPOTTED SPIDER MITE and THRIPS. Total acreage 2,139; total yield 7,914 tons; unit value $100; total value $791,400; total loss 331 tons; loss value $33,100; acres infested 1,963; acres controlled 1,963; acres grasshopper controlled 1,030; cost of control $12,293; savings $395,700.

Apple Insects: Yield was influenced by CODLING MOTH (Carpocapsa pomonella), TWO-SPOTTED SPIDER MITE (Tetranychus telarius), CLOVER MITE (Bryobia praetiosa complex), WOOLLY APPLE APHID (Eriosoma lanigerum) and APPLE APHID (Aphis pomi). Total acreage 16,020; total yield 3,312,500 bu.; unit value $2; total value $6,625,000; total loss 32,616 bu.; loss value $65,332; acres infested 16,020; acres controlled 15,970; cost of control $191,640; savings $1,656,250.

Peach Insects: Major loss was from catfacing by LYGUS BUGS (Lygus elisus, L. hesperus) and light losses were sustained from CLOVER MITE (Bryobia praetiosa complex), PEACH SILVER MITE (Vasates cornutus), PEACH TWIG BORER (Anarsia lineatella) and PEACH TREE BORER (Sanninoidea exitiosa). Total acreage 7,750; total yield 1,433,500 bu.; unit value $2; total value $2,867,000; total loss 310,000 bu.; loss value $620,000; acres infested 7,150; acres controlled 6,140; cost of control $36,840; savings $1,433,500.

Pear Insects: Yield was reduced by CODLING MOTH, TWO-SPOTTED SPIDER MITE, PEAR LEAF BLISTER MITE (Eriophyes pyri) and RED-BANDED LEAF ROLLER (Argyrotaenia velutinana). Total acreage 1,030; total yield 196,500 bu.; unit value $2; total value $393,000; total loss 17,310 bu.; loss value $34,620; acres infested 1,030; acres controlled 1,030; cost of control $10,300; savings $196,500.

Estimated Insect Control, Cost of Control, Loss and Savings - 1958

Total rangeland acres	27,322,260
Total crop acres	3,782,869
Total acres fruit trees	24,500
Total acres controlled	3,972,152
Total crop value	$348,349,549
Total loss value	$ 15,100,160
Total control cost	$ 4,096,355
Total savings	$ 55,205,526

Values given are estimates only for the crops included in the report.

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INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

BRAZILIAN COTTON BORER (Eutinobothrus brasiliensis (Hambleton))

Economic Importance: This weevil has been known as a pest in Brazil since 1905, but in recent years it has become a major pest of cotton in that country. During the 1935-36 crop season in the State of Sao Paulo, it caused an estimated loss of about 30,000 tons. Early planted cotton is attacked first, infestations sometimes reaching 95 percent during the first three months of the season and plant mortality being estimated at 50 percent. A closely related species, Eutinobothrus gossypii (Pierce), occurs in Peru and Ecuador and attacks cotton in much the same manner as E. brasiliensis in Brazil.

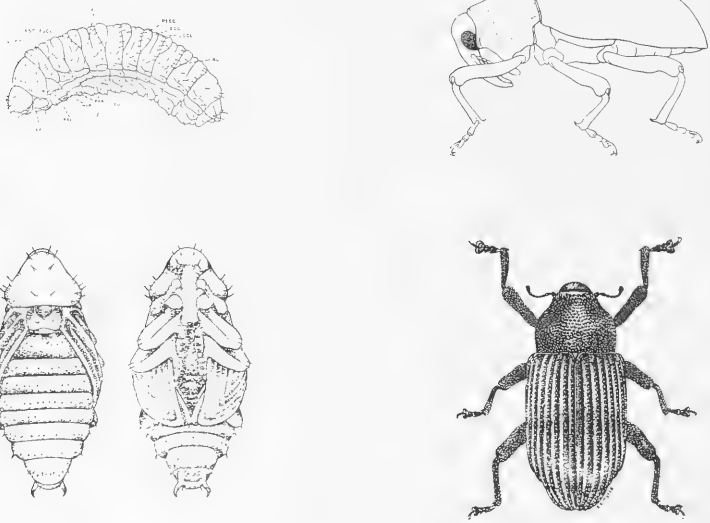
Distribution: Eastern Brazil and the Chaco of Argentina.

Hosts: Occurs on cotton, okra, hibiscus, roselle, floss-silktree and numerous other species of malvaceous plants. Gossypium purpurascens is the species of cotton most severely attacked and G. trilobum the least.

General Distribution of Eutinobothrus brasiliensis

Life History and Habits: Adults overwinter in trash or malvaceous weeds, but true hibernation has not been observed and oviposition may continue throughout the year where conditions permit. Overwintered females appear in September and October in Sao Paulo and oviposit until April, females of subsequent generations lay eggs through the crop season and the winter. Each female will lay about 160 eggs. Eggs are laid singly, in small cavities beneath the surface of the stem or root, and occasionally in the boll. The lower portion of the stem is preferred. Eggs hatch in 5-18 days and larvae bore into the center of the stem or root, often killing the plant. In older plants, larvae are almost entirely confined to the area between the bark and woody tissue. Feeding galleries run in all directions, often encircling the plant and causing death. In heavily infested plants, eggs are laid in aerial parts and larvae feed largely in the pith. Feeding in green bolls is limited to the pericarp. Larvae pass through 5 molts and complete their development in 29 to 88 days, varying with plant and temperature conditions. Infested plants may die rapidly or their foliage may turn reddish-brown in hot weather. Pupation takes from 8 to 31 days. The adult remains in the cell 3 to 26 days before emergence. Average development from egg to adult during the favorable season is 74 days. Adults feed first on stems and tender foliage of growing plants, later on stalks near the soil surface. All stages may be found throughout the year.

Description: Adult head and body dark blackish-brown, slightly brilliant. Antennae yellow-ferrugineous; scape smooth, attenuate in middle, dilated on distal half; funicle with 7 segments, first longest and thickest, second narrower, longer than broad, following progressively smaller. Eyes elliptical, depressed, shiny black, about one-third hidden by postocular lobe of prothorax. Rostrum pubescent, moderately arched, roughly punctate . Prothorax densely punctate , appearing grooved, anterior portion shiny, lateral lobes somewhat prominent, scutellum small, triangular. Elytra at least $2\frac{1}{2}$ times longer than thorax, lateral margins subparallel, each with 6 longitudinal stripes. (Stripes smaller than in E. gossypii.) Entire surface finely reticulate . Legs brownish-yellow; femur roughly grooved and with numerous spines or pale-yellow adjacent scales. All tibia strongly ungulate at extremities. Abdomen finely reticulate ventrally with fine punctures. Fifth abdominal sternite in male with extremity truncate; rounded and somewhat curved below in female. Total length 3.04 to 4.87 mm.; width 1.4 to 2.10 mm. Mature larva typically curculinoid in shape; body color varies from white to cream, sometimes with reddish tinge; head characteristic yellowish-brown with borders slightly darkened. Length 5.83 to 7.04 mm.; width 2.14 to 2.54 mm. Pupa uniformly white at first, later turning cream colored. Length 3.90 to 5.77 mm.; width 1.87 to 2.61 mm. (Prepared in Plant Pest Survey in cooperation with other ARS agencies.) CEIR 9 (2) 1-9-59.



Larva, Pupa and Adult of E. brasiliensis

Figures (except map): Adult from Hambleton, E. J. 1937. Rev. de Entomologia 7(4):345-350. Larva and pupa from Hambleton, E.J. 1937. Inst. Biologico Arch. 8(4):47-106.

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Cooperative ECONOMIC INSECT REPORT

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PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY

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

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Plant Pest Survey
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COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

BEET LEAFHOPPER surveys in California. Populations for 1959 in Utah may be lower than in 1958. (p. 20).

Abundance of GREEN PEACH APHID on potatoes in Dade County, Florida, and on sugar beets in Imperial County, California, indicates that situations may become serious. (p. 20).

Fall BOLL WEEVIL survey State average in Georgia lower than in 1957. (p. 21).

INSECT DETECTION: A weevil (Sitona californicus) reported for first time from Utah. (p. 19). A black fly (Simulium decorum) apparently new to Florida. (p. 22). A zorapteron (Zorotypus hubbardi) reported from Oklahoma for the first time. (p. 22).

SUMMARY OF INSECT CONDITIONS - 1958 - MONTANA. (p. 23).

INSECTS not known to occur in the United States. (p. 27).

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Reports in this issue are for the period ending January 9, unless otherwise indicated.

WEATHER FOR THE WEEK ENDING JANUARY 12, 1959

Last week was one of rising temperatures in the western half of the Nation, but extreme cold continued to grip the East as a new surge of Arctic air late in the week pushed the freeze line deep into the Florida Peninsula. Temperatures for the week averaged above normal in the West and below in the East, with the dividing line joining Duluth, Minnesota, and El Paso, Texas. Average departures from normal ranged from 12° above in the Pacific Northwest to 15° below in the upper Ohio Valley. This week was warmer than the previous week by 8° at Phoenix, Arizona, 16° at Boise, Idaho, and 24° at Amarillo, Texas, and Denver, Colorado, but colder than the previous week by 10° at New Orleans, Louisiana, 12° at Detroit, Michigan, 19° at Pittsburgh, Pennsylvania, and 14° at Jacksonville, Florida. By the end of the week, freezing extended into the Everglades of Florida, with scattered, light frost near Lake Okeechobee and heavy frost away from the lake. At most locations where freezing occurred, however, duration of critical temperatures was short and crop damage was mostly minor.

Strong winds on several days in the Northeast made the cold more disagreeable and increased heating requirements. Ice in the Chesapeake Bay and its inflowing tributaries is now the heaviest in many years this early in the season. In northern areas, where extreme lows ranged from -37° at Winter, Wisconsin, to -17° at Newport, Vermont, ice was 16 inches thick at Greenville, Maine, 21 inches at Minneapolis, Minnesota, and 24 inches at Bismarck, North Dakota. Frost penetration in the ground ranged from 2 to 3 feet in northeastern Connecticut, and was as much as 12 inches in parts of Kansas. Moderate to heavy precipitation was mainly limited to the Pacific States and parts of the South. Totals up to 7.5 inches were reported along the north Pacific coast, with moderate to heavy amounts as far south as Santa Maria, California. Heavy snow fell in the Cascade and Sierra Nevada Mountains, and several inches in the wheat areas of eastern Washington, northeastern Oregon and in the upper Sacramento Valley of California. Most snow which fell at lower elevations in the Far West, however, melted before the end of the week. Winds caused widespread damage in California on the 4th and 5th. The week's precipitation was negligible in most of the midcontinental area, and by the end of the week the snow cover east of the Rockies had retreated mostly to the Canadian Border States. (Summary supplied by U. S. Weather Bureau.)

CEREAL AND FORAGE INSECTS

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Hibernation survey in 6 additional south central counties showed very severe infestations of 3,980 bugs per square foot in Bryan and 2,783 per square foot in Murray Counties. (VanCleave, Vick, Drew).

GREENBUG (Toxoptera graminum) - LOUISIANA - Very low numbers on oats in East Baton Rouge Parish. (Spink). TEXAS - Of 7 panhandle counties surveyed in December, 1958, spotted infestations of 5-20 per foot were found in Deaf Smith, Castro and Parmer Counties. (Daniels). A light infestation was observed on oats in Falls County. (Woods).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Total counts in each of 3 Payne County fields on January 9 were 95, 103 and 16, as compared with 868, 1,136 and 91 on December 6, 1958. (Bieberdorf). Heavy infestation caused serious damage to a field of fall-planted alfalfa in same county. Control measures needed. (Henderson, Drew, VanCleave). KANSAS - Counts per 25 plants were 48 in Pottawatomie and 27 in Riley Counties. (Simpson).

APHIDS - TEXAS - Light, spotted infestations of Rhopalosiphum fitchii, R. subterraneum and R. maidis are present in panhandle area. (Daniels).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - LOUISIANA - Averaged 25 per 100 sweeps on oats in East Baton Rouge Parish. (Spink).

A WEEVIL (Sitona californicus) - UTAH - Specimens collected at La Verkin, Washington County, and Providence, Cache County, may be new state record. Det. V. M. Tanner. (Knowlton).

FRUIT INSECTS

AVOCADO RED MITE (Oligonychus yothersi) - FLORIDA - All stages averaged 0-3 per leaf in avocado groves inspected. Much less abundant than usual and probably less so than over a decade. (Fla. Coop. Sur., Dec. 31, 1958).

HICKORY SHUCKWORM (Laspeyresia caryana) - TEXAS - Caused some damage to pecans in Smith County. (Pryor).

NAVEL ORANGEWORM (Paramyelois transitella) - CALIFORNIA - Heavy in walnuts in Madera, Madera County, and light in walnuts in El Cajon and medium in oranges in Escondido, San Diego County. (Cal. Coop. Rpt.).

SCALE INSECTS - CALIFORNIA - Coccus hesperidum medium on citrus and Lepidosaphes ficus light on fig trees, both in Orland, Glenn County. Aonidiella citrina heavy on an orange tree in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

Citrus Insect and Mite Outlook, Lake Alfred, Florida - Infestations of FLORIDA RED SCALE will be high through January, and decline in February. The level will generally be below average from April to the end of 1959. A below average level of CITRUS RED MITE will occur in January and continue through the quarter. CITRUS RUST MITE infestations, during January, will start to decline from the present level but will remain above the season average through March. TEXAS CITRUS MITE will not exceed normal levels. SIX-SPOTTED MITE will be at a low level throughout 1959. (Simanton, Jan. 6).

TRUCK CROP INSECTS

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Surveys the first part of December, 1958, showed a light population of 1-2 per sweep for a series of 10 sweeps, with some high counts of 5-8, throughout the breeding grounds on brushy perennials. Toward the end of the month, drying conditions caused a movement onto greener perennials in canyons adjacent to Coalinga, with averages of 2-15 per sweep. Drying of hemizonia from Los Banos Creek to Little Panoche Creek caused a concentration on greener plants in the swales. Should the drought continue and heavy concentrations persist, some spraying may be accomplished in these areas. A survey on 1,000 acres of saltbush near Niland, in Imperial Valley, showed the November population of 4 per 10 sweeps had been reduced to one in December. Beet leafhoppers averaged 8 per 100 sweeps in 22 beet fields checked, with the highest population of 2-5 per 10 sweeps in a series of 100 sweeps being in 2 fields east of Calipatria. Some curly-top damage was found in most fields, highest being 12-15 percent. Some plantings may suffer considerable additional damage unless control measures are taken. Survey of breeding grounds in the Otay Mesa area, San Diego County, showed that practically no winter vegetation had germinated and only an occasional beet leafhopper was found on Australian saltbush, mustard and other weed hosts. Approximately 300 acres of California scalybroom checked in Navaho Canyon, San Luis Obispo County, averaged 2.5 beet leafhoppers per sweep for a series of 10 sweeps. (Cal. Beet Leafhopper Prog. Rpt. 58-12). UTAH - Early indications are that the 1959 population will be much lower than that of 1958. (Dorst, Knowlton).

STRAWBERRY LEAF ROLLER (Ancylis comptana frageriae) - CALIFORNIA - Heavy on strawberry plantings in the Watsonville area, Santa Cruz County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - Counts ranged one to hundreds per potato plant in Redlands area, Dade County, 6 weeks or more earlier than usual. Winged forms dispersing widely. Abundance such that species may become serious. (Fla. Coop. Sur., Dec. 31, 1958). CALIFORNIA - Heavy on sugar beets in Brawley-El Centro area of Imperial County. Intensity of infestation indicates it may become severe in February. (Dickson).

POPLAR PETIOLE GALL APHID (Pemphigus populi-transversus) - LOUISIANA - On roots of watercress in New Orleans area. (Spink).

A SERPENTINE LEAF MINER (Liriomyza sp.) - FLORIDA - All stages averaged 2-3 per plant on many inspected on beans, potatoes and tomatoes in Redlands area, Dade County. General abundance indicates it may become serious in the area. (Fla. Coop. Sur., Dec. 31, 1958).

A MAGGOT (Hylemya sp.) - TEXAS - Larvae caused concern and reduced stands of onions on new land in Dimmit County. (Harding).

ONION THRIPS (Thrips tabaci) - TEXAS - Averaged 0-2 per onion plant in Dimmit County. Heavy in poorly treated seed beds. (Harding).

EARWIGS - LOUISIANA - Caused considerable damage to potatoes stacked in field for winter consumption. (Spink).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - GEORGIA - Fall examinations of surface woods trash adjacent to old cotton fields, to determine the number of boll weevils in hibernation, were made in 4 regions November 25 to December 12, 1958. The average for the State was 1,133 live weevils per acre of surface trash. This is lower than the 8-year average of 1,279 and of 1957 when the counts averaged 2,081 weevils. Area averages for 1958 and 1957 were, northwest (Gordon County) 774 and 1,113; north central (Butts, Spalding, Pike, Coweta and Meriwether Counties) 2,178 and 5,034; east central (Burke County) 387 and 1,791; and south (Tift County) 145 and 387. The averages for 1958 are lower than they were for 1957 in each of the 4 areas. A total of 5 samples, or 90 square feet, were taken from each of 50 farms. Live weevils were found on 54 percent of the farms examined. The maximum number of weevils per acre found on a single farm was 9,196 in Coweta County. (Beckham, Morgan).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A LEAF ROLLER (Amorbia essigana) - CALIFORNIA - Heavy on English laurel in Fairfield, Solano County. (Cal. Coop. Rpt.).

A GALL MIDGE (Walshomyia juniperina) - CALIFORNIA - Medium infestations of juniper berries in the Coalinga area of Fresno County. (Cal. Coop. Rpt.).

CURRANT BORER (Ramosia tipuliformis) - CALIFORNIA - Heavy in currants in Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

A MEALYBUG (Pseudococcus aurilanatus) - CALIFORNIA - Heavy on araucaria in San Mateo, San Mateo County. (Cal. Coop. Rpt.).

A BARK BEETLE (Pityophthorus nitidulus) - CALIFORNIA - Heavy on shore pine in the Crescent City area, Del Norte County. (Cal. Coop. Rpt.).

SCALE INSECTS - TEXAS - Fiorinia theae medium on holly leaves in Fort Bend County. (Nowotuy). CALIFORNIA - Aonidiella aurantii heavy on holly in Fresno, Fresno County, and Saissetia oleae medium on California sagebrush in Prunedale, Monterey County. (Cal. Coop. Rpt.).

WHITEFLIES - TEXAS - Caused some damage to gardenia plants in Franklin and Hill Counties. (Johnson, Brown). CALIFORNIA - Aleyrodes spiraeoides heavy on bridal wreath in Willows, Glenn County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - NORTH CAROLINA - None found in 24 cows and 31 calves of State College beef herd. One small grub found in 20 fat calves examined that were brought from Tyrrell County, June 30, 1958. (Jones, Farrier). OKLAHOMA - H. lineatum averaged 12-15 per animal in 80 yearling steers examined in Woodward County. Averaged 15-18 per animal in Harper County. In 100 mature cows, the average was 7 per animal. (Taylor, Zeve, Howell). KANSAS - None found in 11 untreated native yearling heifers. Averaged 0.13 per animal in 58 treated yearling steers brought in from outside the State, with 4 animals infested. Of 61 untreated yearling steers from outside the State, 48 head were infested with an average of 16.8 grubs. Larvae averaged 11.1 per animal (56 head infested) in 87 animals brought into the State. All cattle examined were in Ellis County. (Knapp, Peters).

A BLACK FLY (Simulium decorum) - FLORIDA - Adults reported biting humans at Gretna, Gadsden County, Dec. 10, 1958. Det. A. Stone. This is apparently a first record of this species from the State. (Fla. Coop. Sur.).

CATTLE LICE - KANSAS - Heavy on a herd in Ellis County. (Peters). OKLAHOMA - None found on cattle examined in Woodward and Harper Counties. (Taylor, Zeve, Howell).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - KANSAS - Flock of 600 hens infested in Riley County. (Knapp).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - CALIFORNIA - A light infestation of a feed lot in Thermal, Riverside County, is the fourth active infestation in the State at present. Inspections on 305 properties in 13 counties gave negative results. (Cal. Coop. Rpt.).

FLAT GRAIN BEETLE (Laemophloeus pusillus) - TEXAS - Medium in milo in Hays County. (Watson).

RED-LEGGED HAM BEETLE (Necrobia rufipes) - VIRGINIA - Heavily damaged stored hams at a home in Spotsylvania County. (Morris, Kash, Jan. 3).

INDIAN-MEAL MOTH (Plodia interpunctella) - NORTH CAROLINA - Infestation in corn in a warehouse in Robeson County. (Owens, Rabb).

MISCELLANEOUS INSECTS

A SEED BEETLE (Caryoborus serripes) - FLORIDA - Collected alive Dec. 3, 1958, in the seed of 2 species of palms at Miami, Dade County. Det. P. J. Spangler. The species has been intercepted a number of times but so far as is known has not become established in the United States. The seed had been imported from South America for oil extraction and has been destroyed by burning. (Fla. Coop. Sur.).

DERMESTID BEETLES - VIRGINIA - Larvae present in 2 packages of cayenne pepper when opened, Blacksburg, Montgomery County. (Amos).

A WEEVIL (Gymnaetron tetrum) - CALIFORNIA - Heavy on weed hosts in the Lodi area of San Joaquin County. (Cal. Coop. Rpt.).

EARWIGS - LOUISIANA - Heavy in slab homes in New Orleans area. (Spink).

A ZORAPTERON (Zorotypus hubbardi) - OKLAHOMA - Specimen found in decaying sawdust near Harris, McCurtain County, December 31, 1958, constitutes first record for the State. (VanCleave, Goin, Jan. 3).

LIGHT TRAP COLLECTIONS

	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterranea
FLORIDA			
Quincy 12/30/58			1
LOUISIANA			
Baton Rouge 1/2-8	2	11	4
Franklin 1/7, 8	12	1	2

SUMMARY OF INSECT CONDITIONS - 1958

MONTANA

Reported by George Roemhild

Highlights: Enormous flights of BEET WEBWORM (Loxostege sticticalis) moths were observed in practically all counties of the State from June 10 to 20. Larval damage occurred from July 1 to 30. Sugar beets, alfalfa, mustard, flax, rape, garden plants and ornamentals were injured. In some cases, larvae fed only on weeds. ENGLISH GRAIN APHID (Macrosiphum granarium) was common in wheat over wide areas in northern and western Montana during July, but little damage resulted. GRASSHOPPER infestations subsided substantially from the infested acreage in 1957.

Cereal and Forage Insects: Numerous reports of large GRASSHOPPER hatches were received in the spring. However, in many cases the grasshoppers died, in other cases no hatches occurred in areas heavily infested in 1957. No consistent factor could be found to account for their disappearance. Populations subsided in the northeastern area under extreme drought, in the central area with average moisture and in the southwestern area with abundant moisture. Conversely, populations remained high in the northwestern area under dry conditions and in the south central area after two years of heavy rains. Many range infestations were of mixed species. Infestations in the northwestern area were mostly Melanoplus bilituratus. Only one infestation of MORMON CRICKET (Anabrus simplex) was of consequence in 1958. About 5,000 acres in Powell County was infested up to 300 per square yard. No damage to range grasses occurred when control was instigated. One damaging infestation of ARMY CUTWORM (Chorizagrotis auxiliaris) occurred in Liberty County. BLISTER BEETLES (Lytta cyanipennis and Pyrota mylabrina) attacked alfalfa and ornamentals in scattered spots over State. FLEA BEETLES (Systena blanda and Phyllotreta pusilla) were generally abundant, damaging alfalfa, potatoes and potato tubers. LYGUS BUGS were common and damaging over the State. Pastures in Lake and Fergus Counties, and wheat in Park County, were damaged. ALFALFA WEEVIL (Hypera postica) caused heavy damage in new areas of infestation in Cascade, Teton, Hill and Blaine Counties. ALFALFA LOOPER (Autographa californica) was more abundant than usual statewide, damaging fields in Teton, Stillwater, Judith Basin and Broadwater Counties. PEA APHID (Macrosiphum pisi) damage occurred to some new seeding alfalfa fields. Most populations kept in check by predators. CLOVER ROOT CURCULIO (Sitona hispidula) caused severe damage to alfalfa in a pasture seeding mix in Broadwater County.

Light infestations of PALE WESTERN CUTWORM (Agrotis orthogonia) in small grains were noted in Fallon, Liberty and Teton Counties. WHEAT STEM SAWFLY (Cephus cinctus) remains a problem in small grains in the north central and northeastern areas where Rescue wheat is not grown. Scattered light infestations of WHEAT CURL MITE (Aceria tulipae), resulting in wheat streak mosaic, occurred in north central and eastern areas of State. Scattered light infestations of WHEAT HEAD ARMYWORM (Faronta diffusa) were present in the triangle area bounded by Havre, Shelby and Great Falls. Little damage resulted. A general low-level population of WHITE-LINED SPHINX (Celerio lineata) developed in the northwest and just east of the mountains. Very little damage resulted since feeding was confined mostly to weeds. One field of small grain was reported severely damaged by HESSIAN FLY (Phytophaga destructor) along the Tongue River. An infestation of ARMYWORM (Pseudaletia unipuncta) in wheat in Phillips County resulted in little damage.

Fruit Insects: CODLING MOTH (Carpocapsa pomonella) was abundant in apple growing areas where control measures were not applied. APPLE APHID (Aphis pomi) caused little damage since control measures were generally applied early in 1958. Heavy infestations of PEAR LEAF BLISTER MITE (Eriophyes pyri) occurred where no control was applied. A great increase in numbers was noticed. EYE-SPOTTED BUD MOTH (Spilonota ocellana) populations declined during 1958. Infestations were generally centered in Ravalli County. Control for BLACK CHERRY FRUIT FLY (Rhagoletis fausta) was general in commercial orchards. Damage to unprotected fruit was high. High populations of WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) were found in several orchards near Polson. BLACK CHERRY APHID (Myzus cerasi) was abundant in most cherry growing areas in western part of State. Heavy late infestations of MITES (Vasates fockeui and Diptacus gigantorhynchus) developed in 1958. Apple trees were heavily infested by RED-HUMPED CATERPILLAR (Schizura concinna) in the western part of the State. PEAR-SLUG (Caliroa cerasi) populations were very heavy. Considerable damage occurred where pear-slug was not controlled. OYSTERSHELL SCALE (Lepidosaphes ulmi) caused severe damage to twigs and fruit where not controlled. ERIOPHYID MITES were present in large areas of the State and caused considerable damage to apple, chokecherry, cherry and plum trees. A BORER, closely related to peach tree borer, infested cherry trees in Lake County. PLUM GOUGER (Anthonomus scutellaris) populations were considerably reduced. Scattered infestations of CURRANT FRUIT FLY (Epochra canadensis) were reported from most areas. Heavy populations of CURRANT APHID (Capitophorus ribis) were scattered both east and west of the mountains.

Truck Crop Insects: Extremely heavy populations of ONION MAGGOT (Hylemya antiqua) occurred in the south and west during 1958. Usual seed treatment control measures failed in some cases, with heavy side dressings of insecticide being required. As LEAFHOPPERS were common, virus diseases transmitted by these insects were more prevalent. Aster yellows occurred on ornamentals, lettuce and flax, while curly top was more common on sugar beets. This latter disease infected commercial tomato plantings near Missoula, causing severe damage. EUROPEAN EARWIG (Forficula auricularia) was common in Bozeman, Livingston and surrounding areas, feeding heavily on sweet corn and ornamentals. SPINACH LEAF MINER (Pegomya hyoscyami) damaged spinach and beets in Broadwater County during July. Asparagus spears were severely damaged by ASPARAGUS BEETLE (Crioceris asparagi) west of the divide and in Gallatin County. Large populations of DIAMONDBACK MOTH (Plutella maculipennis) occurred in north central mustard and rape fields during July. Damage was general, but not severe in most cases. A great deal of damage was caused by SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) in localized areas during the past two years, with fields 95 percent destroyed in some cases. Infestation was more widespread in 1958 than 1957, with damage in the Yellowstone and Bitterroot Valleys. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) populations were light to heavy in localized areas west of the mountains. Adult flights of IMPORTED CABBAGEWORM (Pieris rapae) were heavy west of the divide, with control required in many cases.

Forest, Ornamental and Shade Tree Insects: CARPENTERWORM (Prionoxystus robiniae) attacked ash, cottonwood, elm, boxelder and Chinese elm trees in eastern and northeastern parts of the State. A general statewide outbreak of TENT CATERPILLARS (Malacosoma fragilis and M. disstria) occurred on various ornamental, fruit and shade trees. EUROPEAN FRUIT LECANIUM (Lecanium corni complex) has become abundant the past two years on rose and caragana. MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) populations were generally lower in 1958. MITES were extremely abundant on ornamentals during August and September. An ASH GALL MITE was common on mountain ash in south central and western areas and a MAPLE LEAF GALL MITE attacked maple and boxelder in central and western areas. ASH PLANT BUG (Neoborus amoenus) was common statewide. SAN JOSE SCALE (Aspidiotus perniciosus) occurred on ash and mountain ash

in north central and western areas and a BOXELDER TWIG BORER (Proteoterus sp.) damaged maples in Billings. COTTONWOOD LEAF BEETLE (Chrysomela scripta complex) was very abundant in the plains area and a COTTONWOOD LEAF MINER (Proleucoptera albella) was common in the north central part of the State. POPLAR PETIOLE GALL APHID (Pemphigus populi-transversus) was also abundant in the plains area. POPLAR VAGABOND APHID (Mordwilkoja vagabunda) was very common on cottonwoods. A LEAF MINER (Phyllocnistis populiella) was abundant on poplar in the southern mountain area. ELM LEAF APHID (Myzocallis ulmifollii) was common on elms over the State and EUROPEAN ELM SCALE (Gossyparia spuria) was scattered west of the divide. LILAC LEAF MINER (Gracilaria syringella) was very abundant in western half of the State and POPLAR AND WILLOW BORER (Sternochetus lapathi) was found in Hill County for a first record east of the divide. DRIED-FRUIT BEETLE (Carpophilus hemipterus) damaged rose buds in Rosebud County. Forest infestations of SPRUCE BUDWORM (Choristoneura fumiferana) were apparently considerably reduced. About 90 percent of the 825,000 acres in the State treated for control of this insect developed large populations of SPRUCE SPIDER MITE (Oligonychus ununguis). There were scattered, moderate infestations of PINE NEEDLE SCALE (Phenacaspis pinifoliae) statewide. COOLEY SPRUCE GALL APHID (Chermes cooleyi) was abundant in the western half of the State and a PITCH TWIG MOTH (Petrova sp.) damaged growing tips of shelterbelt pines in Hill County in June. Infestation of a CHOKECHERRY MIDGE was general over most of the State.

Stored-grain Insects: In general, more stored-grain insects appeared in the fall of 1958 than during the past few years. Common species were RUSTY GRAIN BEETLE (Laemophloeus ferrugineus), SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), FLOUR BEETLES (Tribolium confusum, T. castaneum, T. madens), GRANARY WEEVIL (Sitophilus granarius), CADELLE (Tenebroides mauritanicus) and PSOCIDS.

Insects Affecting Man and Animals: BLACK WIDOW SPIDER (Latrodectus mactans) became very common, but BED BUG (Cimex lectularius) was generally not very common. Several people in Powder River County were bitten by an ASSASSIN BUG (Fitchia aptera) and several home and hotel infestations of SWALLOW BUG (Oeciacus vicarius) were reported. ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) populations were normal.

Household Insects: TERMITES (Reticulitermes tibialis) cause more and more concern each year. Infestations of a DEATHWATCH BEETLE (Xestobium sp.) occurred in houses in Powder River and Big Horn Counties, while CARPENTER ANTS (Camponotus sp.) were common in older houses and cabins in the southern part of the State. A PINE BORER (Callidium sp.) emerged from lumber in a new house in Scobey. CLUSTER FLY (Pollenia rudis) was abundant and annoying, while in the western half of the State STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) was a common nuisance. Many SUN-SPIDERS (Solpugida) were sent in for identification from most areas east of the divide, and JERUSALEM CRICKET (Stenopelmatus fuscus) was a common curiosity. DERMESTIDS were very widespread and abundant. CLOVER MITE (Bryobia praetiosa complex) became more abundant in 1958.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

A NOXIOUS MUSCID FLY (Musca sorbens Wiedemann)*

Economic Importance: This muscid is of considerable importance to the welfare of man and animals in the Ethiopian and Oriental regions. It is an important vector in the transmission of protozoan and bacterial diseases including dysentery, yaws, tuberculosis, trachoma, conjunctivitis, typhoid fever, etc. Musca sorbens is generally considered to be one of the primary filth flies in Guam and some other islands in the Pacific. It is very persistent in attempts to feed on open sores or wounds and will often fly into the mouth, nostrils, eyes or ears. The healthy flesh around the wounds, in corners of eyes, mouth, and around the vulva of cattle and horses in Australia will sometimes appear eaten away, leaving cavities. Animals may become so badly affected during the fly season that they may have to be destroyed. In Nyasaland it was found that 95 percent of the flies that frequent man were M. sorbens, being especially attracted by the odor of sweat on the unclean natives.

Distribution: Occurs in many areas of Africa, Asia and Oceania. It has been recorded in Egypt, Sudan, S. Rhodesia, Nyasaland, Uganda, Morocco, Tunisia, Libya, Belgian Congo, Sierra Leone, Saudi Arabia, Jordan, Aden, Iraq, India, USSR (Azerbaijan, Tadjikistan, Turkestan), North China, Philippine Islands, Australia, Guam, New Hebrides, Samoa and Italy.

General Distribution of Musca sorbens

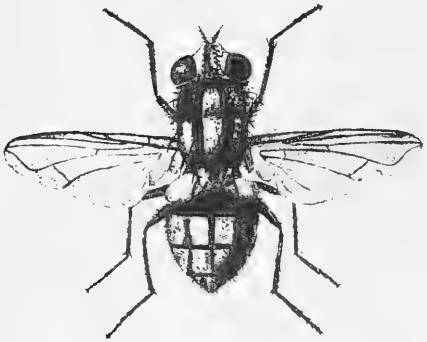
Hosts: Attacks man and animals.

Life History and Habits: Life history and habits in Egypt are as follows: This fly is found more frequently outdoors than indoors, being fairly abundant in the country, in towns and open desert. Adult emergence is greatest between 5 and 8 a.m. during the summer. Emergence continues over period of 3-4 days in summer and 6-8 days in winter. A single female may lay up to 80 eggs, in 4 batches. The chief oviposition and breeding medium is human excrement and to a lesser extent, cow, buffalo and pig dung. (Horse dung also is preferred in Australia.) The species breeds year round with two peaks of season abundance; one in the spring and another late in the summer or in the fall. The fly is more abundant in districts with inadequate drainage system of sewage disposal. The life span at 24-30°C. averages about 21 days for the females and 18 days for the males. The females usually preponderate around breeding and feeding areas though the sex ratio is 1:1. The eggs hatch in about 6 hours

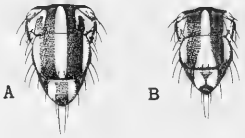
*Also known as the bush fly, Musca vetustissima, in Australia. No. 74 of Series (Muscidae, Diptera)

under room conditions. The larvae pass through 3 instars, their duration being approximately 7, 14 and 40 hours at room conditions. The feeding larvae prefer humidities near saturation, while prepupating larvae prefer humidities with the range of 50-60 percent. Pupation takes place at varying depths in soil beneath the dung and lasts for approximately 6 days at 24°C. Humidity has no apparent effect on the pupa.

Description: Adult - antennae black; lower face and cheeks black with silky-white sheen. Frons deep-black with somewhat yellowish-white silky shining margins at eye cavities. Thorax grayish, almost submetallic shining with three white-shining stripes, the exterior stripes very broad, median stripe somewhat less broad, and in other direction appearing very distinctly gray on somewhat paler ground. Sides of thorax with white sheen, which forms nearly 2 oblique fasciae. Abdomen blackish with large yellowish-silky shining tessellation. Wings colorless, veins yellowish at base, halteres and squamae yellowish-white. Legs black. Length about 5-8 mm. Musca sorbens may be distinguished from M. domestica by the presence of two broad black thoracic stripes compared with four narrow stripes in domestica, the lateral, oblique, abdominal bands which extend from the anterior to posterior margins and the curvature of vein M-1 being greater than in domestica. Egg is pearly white, somewhat cylindrical with tapering anterior end. Length 1.6 mm; width 0.4 mm. Third-instar larva about 11.2 mm. long, posterior spiracles with 3 sinuous slits surrounded by D-shaped peritreme, the latter being much thicker than in M. domestica. Pupa is dark brown or chestnut, about 5.9 mm. in length; width 2.4 mm. (Prepared in Plant Pest Survey in cooperation with other ARS agencies.) CEIR 9(3)1-16-59



Adult of M. sorbens



Dorsal Surface of Thorax of (A) female and (B) male Adults of M. sorbens

Posterior Spiracles of Mature Larva of (A) M. domestica and (B) M. sorbens

Figures (except map): Adult from Iyo Konchu Gaku (Medical Entomology) Vol. 2, pp. 1135-1136, 1943. (In Jap.) Dorsal surface of thorax from Smart, J. 1943. A Handbook for the Identification of Insects of Medical Importance. 269 pp., London. Spiracles of mature larva from James, M. T. 1947. U. S. Dept. Agr. Misc. Pub. 631, 175 pp.

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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY & 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 & Detection Operations

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

Volume 9 January 23, 1959 Number 4

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

The name Plant Pest Survey Section has been changed to Survey and Detection Operations. The address remains the same.

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Reports in this issue are for the period ending January 16, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-JANUARY TO MID-FEBRUARY 1959

The Weather Bureau's 30-day outlook for the period mid-January to mid-February calls for temperatures to average below seasonal normals from the Continental Divide eastward to the Atlantic Seaboard, with greatest departures over the southern half of the country. Above normal temperatures are indicated west of the Divide. Precipitation is expected to exceed normal along the Gulf Coast and the Atlantic Seaboard, with considerable snow from Virginia northward. Subnormal amounts are indicated for the Missouri and upper Mississippi Valley areas and also the western intermountain States. In unspecified areas about normal precipitation 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 JANUARY 19

For the second consecutive week unusually mild temperatures persisted in the Far West, while in the East unseasonably mild temperatures the first half of the period again were followed by subzero minima in north central areas and a weekend cold wave which pushed the freeze line to the Gulf coast and deep into the Florida Peninsula. Average temperatures for the week ranged from 3° to 15° above normal from the western Great Plains to the Pacific coast and 3° to 12° below normal from the Mississippi Valley to the Atlantic coast. With 4 days of subzero minima in north central areas and lows of -30° at International Falls and Bemidji, Minnesota, on the 17th (Saturday), the thickness of ice increased and in Minnesota ranged from 10 inches in the south to 40 inches in the north. An abnormal thickness of ice continued to impede water traffic in the Chesapeake Bay. Freeze or frost occurred in northern and central Florida on about 4 days and in the southern interior of the State on 2 to 3 days, but temperatures remained above the freezing level on the lower east coast.

Moderate to heavy precipitation was mostly limited to areas east of the Ohio and lower Mississippi Valleys, and the Pacific Northwest, and most of it fell during the first half of the week. Rains furnished beneficial moisture to many southeastern sections, but frequent rains in the Pacific Northwest caused heavy runoff and considerable soil erosion. Owing to mild temperatures in the Far West little snow fell in agricultural areas and the ground there is bare. Snowfall in the west central Great Plains early in the period ranged up to 10 inches in southeastern Colorado, but much of this snow melted before the end of the week. Snow fell in the East on the 16th and 17th, with amounts ranging from 2 to 3 inches in eastern Kentucky and Tennessee, the upper Ohio Valley and northeastern Interior. During the weekend, 51 inches of snow was reported to have fallen in 48 hours at Bennetts Bridge, New York, which is located about 10 to 15 miles east of Lake Ontario. On the 16th and 17th near Lake Michigan, 15 to 20 inches of snow fell in southern portions of Berrien and Cass Counties, Michigan, and South Bend, Indiana, measured 16 inches which, drifted by strong winds, virtually paralyzed the city's transportation. In the Mississippi Valley and Great Plains, the ground was mostly bare at the end of the week, except near the Canadian Border where depths ranged up to 41 inches at Houghton, Michigan. (Summary supplied by U. S. Weather Bureau.)

CEREAL AND FORAGE INSECTS

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Hibernation survey in 9 additional counties showed a severe infestation of 1,221 bugs per square foot in Jefferson County. (PPC, State Coop.).

GREENBUG (Toxoptera graminum) - OKLAHOMA - Averaged 0-9 per linear foot in scattered fields of fall-seeded wheat in northwestern and panhandle areas. (VanCleave, Latham). TEXAS - Averaged less than one per linear foot on wheat in Hunt County. (Davis). NEW MEXICO - Infestations remain light on wheat. Present in majority of fields in Quay and Curry Counties. (N. M. Coop. Rpt.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Averaged 25-400 per linear foot in fields of fall-seeded wheat in northwestern and panhandle areas. (VanCleave, Latham).

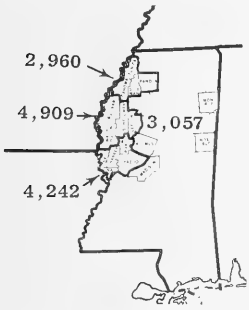
PEA APHID (Macrosiphum pisi) - NEW MEXICO - Populations in alfalfa fields in southern counties reduced by cold weather. (N. M Coop. Rpt.).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light to medium on wheat and oats in Hunt County. (Davis).

A SCALE (Odonaspis ruthae) - ARIZONA - Severe on Bermuda grass lawn in Phoenix, January 12. (Bibby).

COTTON INSECTS

Boll Weevil Hibernation Counts, Mississippi, Fall, 1958 - Collections of woods trash were started November 6 and completed December 9. Two square yards were included in each sample, with three samples being taken from each location. Samples were taken from either seven or eight locations in each area. Wherever possible, the samples were taken from locations that could be sampled again in the spring of 1959. The State was divided into four areas, with four counties per area, as follows: 1 - Lower delta (Sharkey, Issaquena, Yazoo, Humphries Counties); 2 - Central delta (Washington, Bolivar, Sunflower, Leflore Counties); 3 - North delta (Coahoma, Tunica, Quitman, Panola Counties); and 4 - Hill section (Holmes, Madison, Noxubee, Monroe Counties). Ninety samples were taken from 30 locations in each area, totaling 360 samples. The average number of weevils per acre in areas 1, 2, 3 and 4 were 4,242, 4,909, 2,960 and 3,057 respectively, as compared with 5,243, 6,269, 11,264 and 4,087 for the respective areas in the fall of 1957. The average number of weevils per acre for the State was 3,792, as compared with 6,716 for 1957 and 2,091 for 1956. (Ent. Res., PPC, State Coop.).



Averages by Area

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - Inspection of dry cotton bolls collected and examined from the more heavily infested area of Kiowa County, near Snyder, since severe freezes during December, 1958, show a very high larval mortality. Fifty bolls from standing stalks had 29 infested with 70 dead larvae and 50 bolls from on the ground had 16 infested with 16 dead larvae. No larvae found alive in bolls inspected. (Burke).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SEQUOIA PITCH MOTH (Vespamima sequoiae) - CALIFORNIA - Heavy infestation of Monterey pine in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

ORANGE TORTRIX (Argyrotaenia citrana) - CALIFORNIA - This species and Holcocera iceryaella medium on Atlas cedar in Monterey, Monterey County. (Cal. Coop. Rpt.).

FIR ENGRAVER (Scolytus ventralis) - CALIFORNIA - Reported as increasing in grand fir in Humboldt County forest area. (Hofsted).

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Severely damaged ponderosa and Coulter pines in a 600-acre stand with 75-100 trees infested as compared to 7 trees infested in 1958, in the Figuroa Mountain area, San Bernardino County. (Pierce).

MEXICAN MEALYBUG (Phenacoccus gossypii) - CALIFORNIA - Heavy on poinsettias in Manteca, San Joaquin County. (Cal. Coop. Rpt.).

SCALE INSECTS - CALIFORNIA - Chrysomphalus rossi heavy on araucaria in San Mateo, Saissetia hemisphaerica medium on Atlas cedar in Monterey and Aspidiotus perniciosus light on euonymus in Exeter. (Cal. Coop. Rpt.).

SOUTHERN RED MITE (Oligonychus ilicis) - MARYLAND - Eggs abundant on Japanese holly at Frederick, Frederick County. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - VIRGINIA - Appearing in backs of cattle examined in Washington, Albemarle and Sussex Counties. None found in cattle examined in King George and Charlotte Counties. (Turner, Morris). SOUTH CAROLINA - Counts as high as 16 per untreated animal were found in Richland County and as high as 20 in Colleton County. (Nettles, et al.). UTAH - Becoming common in backs of young cattle in some areas of Box Elder, Weber and Utah Counties. (Knowlton). NEW MEXICO - Averaged 20-30 per head in cattle checked in Union County. (N. M. Coop. Rpt.).

CATTLE LICE - VIRGINIA - Solenopotes capillatus light on cattle examined in a herd in King George County and one herd in Charlotte County. (Turner, Morris). UTAH - Common to troublesome in herds in Box Elder County. Some herds treated. (Knowlton).

TROPICAL RAT MITE (Ornithonyssus bacoti) - TEXAS - Annoying residents in Vernon, Wilbarger County. (Riley).

LIGHT TRAP COLLECTIONS

	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterannea
LOUISIANA			
Baton Rouge 1/9-15	4	6	12
Franklin 1/9-13	1	1	
SOUTH CAROLINA			
Charleston 1/5-11	4	1	2

SUMMARY OF INSECT CONDITIONS - 1958

TEXAS

Prepared by J. H. Hawkins

Highlights: SORGHUM WEBWORM populations were extremely heavy on grain sorghum. SOUTHWESTERN CORN BORER was heavy in corn on the high plains. COTTON FLEA-HOPPER continued heavy migrations into cotton fields. A FALSE CHINCH BUG caused extensive damage in grain sorghum fields. Infestations of WALNUT CATERPILLAR were heaviest in 25 years. CABBAGE LOOPER and CORN EARWORM caused heavy damage to vegetables on the high plains.

Cereal and Forage Insects: GREENBUG (Toxoptera graminum) did not develop into economic problems in the panhandle. A light infestation was observed on a clump of volunteer wheat near Amarillo in late August. Some economic damage was reported in the north central area. WINTER GRAIN MITE (Penthaleus major) infestations were light to heavy in the south and north central areas, especially in fields planted to small grains for several years. BROWN WHEAT MITE (Petrobia latens) occurred in isolated areas. CUTWORMS (Agrotis ypsilon, Chorizagrotis auxiliaris and Peridroma margaritosa) and ARMYWORM (Pseudaletia unipuncta) infestations in vetch and small grain were not as high as in 1957, but did cause economic damage. SPOTTED ALFALFA APHID (Therioaphis maculata) was light and spotted. CORN LEAF APHID (Rhopalosiphum maidis) caused considerable damage to small grains and grain sorghum in north and south central and southwest areas. CORN FLEA BEETLE (Chaetocnema pulicaria) caused heavy damage to young corn plants in north central area. SORGHUM WEBWORM (Celama sorghiella) infestations were extremely heavy on grain sorghum statewide. An average of 25 larvae per head was observed in the Brazos River Valley. A heavy infestation of SORGHUM MIDGE (Contarinia sorghicola) occurred on late-planted grain sorghum in south central, upper coastal and eastern areas. CORN EARWORM (Heliothis zea) severely damaged grain sorghum, peanuts and corn in all sections. FALL ARMYWORM (Laphygma frugiperda) caused considerable damage to corn, grain sorghum, pastures and small grains. BEET ARMYWORM (Laphygma exigua) averaged 2 to 5 per sweep on alfalfa in the Brazos River Valley. A WEEVIL (Anacentrinus deplanatus) occurred in damaging numbers on grain sorghum in central Texas. THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) was heavy on alfalfa in the south central area and damaged peanuts in the Winter Garden area. RED-NECKED PEANUTWORM (Stegasta basqueella) was heavy on peanuts in southwest, west cross timbers, west central and central areas. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) was relatively light on peanuts in Winter Garden area, but caused some damage in west cross timbers and west central areas. A THRIPS (Frankliniella sp.) was heavy on spring peanuts in the Winter Garden area. A FALSE CHINCH BUG (Nysius raphanus) was heavy and damaged grain sorghum. SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) infestations ran as high as 100 percent in corn on the north and south plains. SUGARCANE BORER (Diatraea saccharalis) damaged corn and grain sorghum in upper coastal and south central areas with some damage to rice. GRASSHOPPERS (several species) infested over 5 million acres in the panhandle, ranging from light to severe. PEA APHID (Macrosiphum pisi) caused some damage to vetch and alfalfa. VETCH BRUCHID (Bruchus brachialis) caused considerable damage to vetch in north central area and spread to other vetch-growing areas. RICE WATER WEEVIL (Lissorhoptrus oryzophilus) infestations in rice were not as heavy as in 1957. A light infestation of RICE STINK BUG (Oebalus pugnax) appeared in the eastern section of the rice belt.

Fruit Insects: PLUM CURCULIO (Conotrachelus nenuphar) was generally light with CATFACING INSECTS causing medium to heavy damage. PEACH TREE BORER (Sanninoidea exitiosa) and LESSER PEACH TREE BORER (Synanthedon pictipes) were generally light in east Texas. PEACH TWIG BORER (Anarsia lineatella) was not as heavy in central area as in 1957. WALNUT CATERPILLAR (Datana integerrima) was the heaviest in 25 years in 8 south central pecan-growing counties. One generation in early spring caused partial to complete defoliation of large acreages and another in late summer destroyed much of the new and old foliage. PECAN NUT CASEBEARER (Acrobasis caryae) was relatively light statewide. BLACK PECAN APHID (Melanocallis caryaefoliae) caused some defoliation of pecan trees in the south central area and HICKORY SHUCKWORM (Laspeyresia caryana) caused considerable damage.

Truck Crop Insects: BEET LEAFHOPPER (Circulifer tenellus) and incidence of curly top were very light in the Winter Garden area, with some economic damage reported on the high plains. CABBAGE LOOPER (Trichoplusia ni) damaged cabbage and spinach in the Winter Garden area with heavy damage to lettuce on the high plains. Populations in the lower Rio Grande Valley were held in check by a fungus disease and a polyhedral virus. A SERPENTINE LEAFMINER (Liriomyza sp.) was very damaging to melons, tomatoes and peppers in this same area. CORN EARWORM (Heliothis zea) caused economic damage to corn and tomatoes statewide. POTATO PSYLLID (Paratrioza cockerelli) and POTATO APHID (Macrosiphum solanifolii) were very heavy and damaged tomatoes and potatoes in early spring in the Winter Garden area. Spotted local infestations of the following insects occurred in various parts of the State: A FALSE CABBAGE LOOPER, TOMATO PINWORM, CONCHUELA, BEAN LEAF BEETLE, THREE-CORNERED ALFALFA HOPPER, COLORADO POTATO BEETLE, WHITEFLIES, TOMATO HORNWORM, LEAFMINERS, SQUASH BUG, FLEA BEETLES, THRIPS, SWEETPOTATO WEEVIL, BLACK CUTWORM, MELON APHID, CUTWORMS and FALL ARMYWORM.

Cotton Insects: A THRIPS (Frankliniella sp.) varied over the State with rather heavy infestations on the high plains and in the Pecos River areas. COTTON FLEAHOPPER (Psallus seriatus) caused much concern because of heavy migrations. Fleahopper emergence in overwintering tests in central Texas was not as high as 1957. COTTON APHID (Aphis gossypii) was spotted and generally light to medium. BOLL WEEVIL (Anthonomus grandis) hibernation studies indicated that overwintering populations were similar to those of 1957. Infestations built up to damaging numbers in many areas of the State, especially in the lower Rio Grande Valley in mid-July. Control was difficult with chlorinated hydrocarbon insecticides in McLennan, Falls, Robertson, Brazos, Burleson and Grimes Counties in the Brazos River bottom. BOLLWORMS (Heliothis spp.) caused some concern in the lower Rio Grande Valley, south and north central areas. Spotted, heavy infestations developed in the south plains. CABBAGE LOOPER (Trichoplusia ni) was generally light with isolated heavy infestations in some areas. SPIDER MITES were light with only spotted damage occurring. COTTON LEAFWORM (Alabama argillacea) was first reported from Calhoun County on June 10. No general infestation developed. PINK BOLLWORM (Pectinophora gossypiella) began to buildup in May in the lower Rio Grande Valley and caused considerable damage. Populations were heavier in the south central area than in 1957. Unfavorable weather conditions delayed harvest and fall cleanup, which was similar to 1957. GRASSHOPPERS (several species) damaged cotton on field margins in the west cross timbers and northwest areas. Other insects that damaged cotton included STINK BUGS, GARDEN WEBWORM, LYGUS BUGS, FALSE CHINCH BUGS, CUTWORMS and COTTON SQUARE BORER.

Forest, Ornamental and Shade Tree Insects: SOUTHERN PINE BEETLE (Dendroctonus frontalis) appeared in epidemic proportions in Hardin County. NANTUCKET PINE MOTH (Rhyacionia frustrana) infestations developed on shortleaf pines on the western edge of the pine belt. RED-HEADED PINE SAWFLY (Neodiprion lecontei) caused partial defoliation of young pine plantings in east Texas. TEXAS LEAF-

CUTTING ANT (Atta texana) damaged pine seedlings throughout eastern area. BAGWORM (Thyridopteryx ephemeraeformis) damaged ornamental and shade trees throughout central Texas. GALL INSECTS were numerous on oak throughout south central area. Other insects occurring on shade trees and ornamental plants were MEALYBUGS, APHIDS, PSOCIDS, SPIDER MITES, WOOD BORERS, FALL WEBWORM and SCALE INSECTS.

Stored-grain Insects: Grain sorghum is now a major crop in Texas and the stored-grain pest problem has increased. The main insect pests are RICE WEEVIL (Sitophilus oryza), ANGOUMOIS GRAIN MOTH (Sitotroga cerealella), A RICE MOTH, INDIAN-MEAL MOTH (Plodia interpunctella), LESSER GRAIN BORER (Rhyzopertha dominica) and BRAN BEETLES (including FLAT GRAIN BEETLE (Laemophloeus pusillus), CONFUSED FLOUR BEETLE (Tribolium confusum) and SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis)).

Insects Affecting Man and Animals: SCREW-WORM (Callitroga hominivorax) continued heavy throughout the State. CATTLE GRUBS (Hypoderma spp.) caused losses statewide. ASSASSIN BUGS (Triatoma spp.) caused concern in homes in the southern and western areas. BROWN DOG TICK (Rhipicephalus sanguineus) was heavy on dogs in the south central area. HOUSE FLY (Musca domestica) was numerous. MOSQUITOES were extremely numerous over most of the State, due partly to the above-normal rainfall. Other insects such as ROACHES, SILVERFISH, TERMITES, CLOTHES MOTHS and FLEAS continued as pests in and around homes.

Miscellaneous Insects: IMPORTED FIRE ANT (Solenopsis saevissima richteri) situation has changed in the State. A survey in early fall failed to verify its presence in seven counties previously reported and two new counties were added earlier in 1958. Counties now infested are Orange, Jasper, Newton, Hardin, Jefferson, Harris and Bexar. Swarming of TEXAS LEAF-CUTTING ANT (Atta texana) was numerous during 1958. RED HARVESTER ANT (Pogonomyrmex barbatus) continued abundant throughout the State.

SUMMARY OF INSECT CONDITIONS - 1958

LOUISANA

Prepared by Wm. T. Spink

Highlights: Excessive rainfall delayed spring planting until late May, with some cotton fields being planted the first of June. May floods in the Red River and Ouachita River Valleys forced replanting of many fields, with some replanted three times before a stand was obtained. These weather conditions may have been responsible for some of the unusual insect conditions which prevailed in many areas of the State during 1958. HORSE FLIES and MOSQUITOES were unusually abundant statewide. GREENBUG damage to oats in the north necessitated plowing under some fields. GARDEN WEBWORM completely destroyed fields of cotton, corn and soybeans. RICE STINK BUG occurred in greater numbers than ever before. SOUTHWESTERN CORN BORER invaded several new parishes during 1958.

Cereal and Forage Insects: GREENBUG (Toxoptera graminum) occurred on wheat and oats in low numbers in the southwest in March. In northern parishes, heavy infestations completely destroyed some oat fields in April. An increased build-up of predators and parasites was noted, with syrphid larvae averaging 1 per sweep. ARMYWORM (Pseudaletia unipuncta) was not a serious threat to small grains, damaging numbers not appearing until wheat and oats were maturing in late May. RICE STALK BORER (Chilo plejadellus) did some damge to mature

wheat in St. Landry Parish in May. An early spring survey in Vermilion Parish bull grass for overwintering RICE STINK BUG (Oebalus pugnax) showed an average of 1.4 bugs per clump in May. Light infestations appeared by late June in Vermilion, Acadia and Jefferson Davis Parish rice fields with high percentages of wild grass. Their numbers increased in late July and movement began from wild grass to heading rice. By late August infestations in St. Landry Parish averaged 21.5 bugs per 10 sweeps. A statewide fall survey for hoja blanca and its vector (Sogata orizicola) was negative. RICE WATER WEEVIL (Lissorhoptrus oryzophilus), SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) and A STINK BUG (Euschistus ictericus) caused some damage to rice in July. A BLISTER BEETLE (Epicauta sp.) averaged 100 per 100 sweeps in rice in Vermilion Parish and heavily infested alfalfa and soybeans in Tensas Parish in June and July. GRASSHOPPERS (mostly Conocephalus sp. and Orchelimum sp.) heavily infested rice in Vermilion Parish. GRASSHOPPERS were also present in large numbers in clovers, alfalfa and pasture grasses. Large populations of PEA APHID (Macrosiphum pisi) were present in alfalfa and clover. GARDEN WEBWORM (Loxostege similalis) was very troublesome on many crops. Light numbers appeared first on alfalfa in early June in Tensas Parish and heavy in Caddo Parish. At the same time, heavy but localized infestations occurred in corn. They continued as a serious problem on corn and soybeans throughout June but decreased on alfalfa.

Light infestations of THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) appeared in blooming alfalfa about mid-June and increased by mid-July. Heavy infestations were observed by late July, and 892 per 100 sweeps and 858 per 25 sweeps were taken in 2 experimental plots in northern Louisiana. Some damage to soybeans was noted in St. Landry Parish. Heavy infestations of TARNISHED PLANT BUG (Lygus lineolaris) occurred in northern areas on alfalfa in June and July. Clovers were infested in early May with a complex of LEPIDOPTEROUS larvae, mostly Heliothis zea, with VARIEGATED CUTWORM, LOOPERS and GREEN CLOVERWORM also present. Disease and parasitism were observed in all infested areas. Populations were reduced in late May but increased in July with heavy infestations on clover, Bahiagrass and other pasture grasses in St. Tammany Parish. Larvae of a HESPERIID (Atalopedes campestris) heavily infested a Bermuda grass pasture in Lafayette Parish. A WEBWORM (Herculia psammioxantha) heavily infested baled hay in a barn in Lafayette Parish in November. FALL ARMYWORM (Laphygma frugiperda) was first observed on corn at Diamond in mid-May and appeared in East Baton Rouge Parish by the end of the month. In early June, heavy populations were found in northern areas in corn and light infestations were found in grain sorghum. Young corn was 100 percent infested by August in some areas. Populations of CORN EARWORM (Heliothis zea) on corn were general statewide, with some infestations averaging 70 percent. Milo and grain sorghum were also infested. SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) infestations were extremely heavy in the northwest corner of the State but decreased in parishes further removed from this area. It is now present in Bossier, Caddo, Claiborne, De Soto, Lincoln, Morehouse, Natchitoches, Red River, Union and Webster Parishes. EUROPEAN CORN BORER (Pyrausta nubilalis) continued its rapid expansion and is now present in Bossier, Caddo, Concordia, East Carroll, West Carroll, Franklin, Madison, Morehouse, Natchitoches, Ouachita, Red River, Richland and Tensas Parishes. Infestations remain extremely light and of no economic importance on corn. SUGARCANE BORER (Diatraea saccharalis) was very serious on corn grown in conjunction with sugarcane. The borer was found for the first time in Grant Parish on corn. CORN LEAF APHID (Rhopalosiphum maidis) was present in fairly large numbers on corn but did not appear to be damaging. In July, SORGHUM WEBWORM (Celama sorghiella) was moderate on grain sorghum in Tensas and Franklin Parishes. Adults and small larvae of VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) first appeared on soybeans during mid-August in southwest Louisiana. As populations rapidly built up, controls were begun and by early September these pests were brought under control. COWPEA CURCULIO (Chalcodermus aeneus) heavily infested cowpeas in Webster Parish in August.

Sugarcane Insects: SUGARCANE BORER (Diatraea saccharalis) was very severe in untreated sugarcane. Egg masses were first observed in April in St. Charles, West Baton Rouge and Terrebonne Parishes. First to third-instar larvae appeared in early May and pupae by mid-May. Second-generation egg masses appeared by mid-June and second and third generations were overlapping by the third week of July. In untreated fields infestations averaged 66 percent. Infestations of YELLOW SUGARCANE APHID (Sipha flava) ranged 0-15 percent in plants examined during April and May but apparently caused little damage.

Fruit Insects: LESSER PEACH TREE BORER (Synanthedon pictipes) occurred in damaging numbers in several orchards in the Ruston area in March. All immature stages were present, adults emerging by mid-April. SAN JOSE SCALE (Aspidiotus perniciosus) was also damaging in these same orchards. EASTERN TENT CATERPILLAR (Malacosoma americanum) hatched on plum and cherry in Lincoln and Claiborne Parishes the latter part of February. PLUM CURCULIO (Conotrachelus nenuphar) was extremely scarce on wild plum in northern areas of the State in April but by June was heavy in Livingston, East Baton Rouge, St. John and Sabine Parishes. FALL WEBWORM (Hyphantria cunea) was a serious problem on pecans in the State throughout the year. PECAN LEAF CASEBEARER (Acrobasis juglandis) and PECAN NUT CASEBEARER (Acrobasis caryae) heavily infested pecans in the New Orleans area in May and June. UGLY-NEST CATERPILLAR (Archips cerasivorana) webbing completely covered pecan trees, nearby ground and buildings at Melville, where it was localized. Various control measures were taken. Infestations of WALNUT CATERPILLAR (Datana integerrima) on pecans occurred in the greater New Orleans area. Light infestations of BLACK PECAN APHID (Melanocallis caryaefoliae) and a SPIDER MITE (Eotetranychus hicoriae) occurred on the first of August in Caddo and Natchitoches Parishes, respectively, but by the month's end had spread over the State generally and populations had increased tremendously.

Truck Crop Insects: CABBAGE LOOPER (Trichoplusia ni) if uncontrolled, is the most destructive pest of cole crops in State. Untreated experimental plots at Diamond were 100 percent infested. IMPORTED CABBAGEWORM (Pieris rapae), DIAMONDBACK MOTH (Plutella maculipennis) and CROSS-STRIPED CABBAGEWORM (Evergestis rimosalis) where not controlled, were serious on cole crops. TOMATO FRUITWORM (Heliothis zea) caused some damage to tomatoes and severely damaged a five-acre field of eggplant in southern part of the State. TOMATO HORNWORM (Protoparce quinquemaculata) was of no economic importance. Medium to heavy infestations of COLORADO POTATO BEETLE (Leptinotarsa decemlineata) were observed on potatoes and tomatoes in the southeastern area. SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) and STRIPED CUCUMBER BEETLE (Acalymma vittata) heavily infested squash, cucumber and watermelons in West Carroll, Grant and East Baton Rouge Parishes. GARDEN WEBWORM (Loxostege similalis), FALL ARMYWORM (Laphygma frugiperda) and YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) caused considerable damage in early July to sweetpotato foliage in St. Landry Parish. About mid-August SWEETPOTATO LEAF ROLLER (Pilocrocis tripunctata) caused widespread damage to sweetpotato foliage in Lafayette and St. Landry Parishes.

Cotton Insects: BOLL WEEVIL (Anthonomus grandis) was the most important pest of cotton in 1958. Recommended treatments were used and good control was maintained. BOLLWORMS (Heliothis spp. et al.) were normal throughout the State. SPIDER MITES (Tetranychus spp.) appeared to be more abundant than usual, particularly in St. Landry Parish where some defoliation took place in July. THRIPS and APHIDS were generally light in the State. Seedling cotton in some areas, particularly the Ouachita River Valley, was heavily infested with GARDEN WEBWORM (Loxostege similalis).

Forest, Ornamental and Shade Tree Insects: EASTERN TENT CATERPILLAR (Malacosoma americanum) began hatching in February. Nests averaged 6-8 inches in diameter by April and were very abundant over all of the northern area. FOREST TENT CATERPILLAR (Malacosoma disstria) was extremely numerous in East Baton Rouge and Orleans Parishes. Light infestations of ELM LEAF BEETLE (Galerucella xanthomelaena) occurred in Orleans Parish. Pine seedlings and pine trees were infested in scattered and localized areas with NANTUCKET PINE MOTH (Rhyacionia frustrana), a SAWFLY larva (Neodiprion sp.), a PINE COLASPIS (Colaspis pini), RED-HEADED PINE SAWFLY (Neodiprion lecontei) and PINE WEBWORM (Tetralopha robustella). A PHYCITID (Euzophora ostricolorella) seriously damaged some nursery magnolia stock near Covington. MAGNOLIA SCALE (Neolecanium cornuparvum) infested magnolia trees in St. Tammany Parish. SOLITARY OAK LEAF MINER (Cameraria hamadryadella) was serious on white oak in East Baton Rouge, West Baton Rouge and St. Landry Parishes. A CHINCH BUG (Blissus leucopterus insularis) was responsible for widespread damage to St. Augustine grass lawns in southern Louisiana. Some St. Augustine grass lawns in Vermilion Parish were infested with RHODES-GRASS SCALE (Antonina graminis).

Insects Affecting Man and Animals: MOSQUITOES and HORSE FLIES (Tabanus spp.) were unusually serious this year, heavy populations occurring in all areas of the State. HORN FLY (Siphona irritans) was abundant in all cattle-producing areas. HOUSE FLIES were extremely annoying in all areas. DEER FLIES were active in northern areas. Anthrax and anaplasmosis epidemics occurred in the northern parishes. Authenticated SCREW-WORM (Callitroga hominivorax) reports totalled 17 in the State. Three reports were on Texas cattle intercepted at the Slidell Inspection Station. The other 14 reports were infestations of cattle, sheep and a dog which occurred in Tensas, Caddo, Webster, Grant, Claiborne, Concordia, Bossier, Natchitoches and Madison Parishes. PUSS CATERPILLARS (probably Megalopyge opercularis) were very abundant and several reports were received of severe stings to persons. One unconfirmed report claimed hospitalization was necessary. EARWIGS were heavily infesting slab homes in Jefferson and Orleans Parishes.

Stored-grain Insects: RICE WEEVIL (Sitophilus oryza) was the most important insect pest of stored-grain in 1958. A survey during the summer revealed that 78 percent of corn ears examined were infested. A considerable quantity of this corn was infested when harvested. ANGOUMOIS GRAIN MOTH (Sitotroga cerealella), SQUARE-NECKED GRAIN BEETLE (Cathartus quadricollis), RED FLOUR BEETLE (Tribolium castaneum) and SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) followed in importance in that order.

Miscellaneous Insects: MILLIPEDES infested yards, driveways, porches and, in some instances, invaded homes in East Baton Rouge Parish. A LYCTUS BEETLE (Lyctus brunneus) was found at Winnsboro in furniture imported from Japan.

New Introductions: An APHID (Myzus hemerocallis) was taken on daylilies in Baton Rouge and Lafayette, Louisiana. This aphid was previously reported only from Formosa and China. Det. L. M. Russell.

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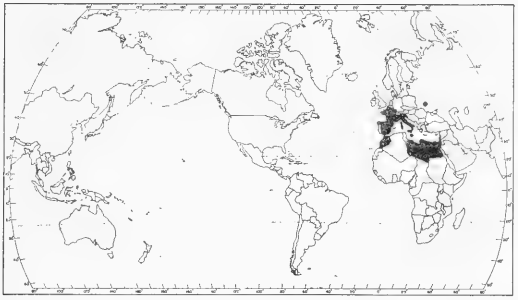
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

A BEET CURCULIONID (Lixus junci Boheman)

Economic Importance: Lixus junci is a curculionid pest of major importance on sugar beets in the Meidterranean Basin. Several other species of Lixus have been recorded as pests of beets, but L. junci appears to be the most important. Damage is caused by both adults and larvae. The adults feed on the leaves and stems, sometimes destroying young plantings, and the larvae make galleries in the roots which cause diminution and decay. Losses to the sugar beet crop have been estimated as high as 40 percent in Morocco and 50 percent in Israel. Unless control measures are applied in Israel, growers in that country can expect a 50-60 percent loss of the crop annually. Severe injury was caused to beets grown for seed in northwestern France in 1946, lambsquarters being the source of infestation.



General Distribution of Lixus junci

Distribution: Generally distributed in the Mediterranean region, being recorded in France, Spain, Italy, Israel, USSR (Kiev), Egypt, Libya, Morocco and the Islands of Sicily, Malta, Sardinia and Corsica.

Hosts: Attacks many plants; beets are the most important cultivated host.

Life History and Habits: Overwintering adults appear in early spring in Italy and feed on garden plants before migrating to roots of beets where they continue to feed before egg laying begins. The female makes a hole in the neck of the plant with her snout, inserts the egg and covers the hole with feeding debris. Very small plants are sometimes nearly cutoff, causing death of the plant. Frequently, however, eggs are laid in the petioles and midribs. Larvae hatch in 4-5 days, begin feeding on the petioles or the leaves and then penetrate the root, making long vertical galleries. Infestations are more severe in hot weather when the leaves remain small and most of the development of the insect takes place in the root. Two or three larvae may cause the whole upper part of a root to rot. After 30-60 days, pupation takes place in the galleries and new-generation adults emerge in 2-3 weeks. There are normally two generations a year, but a partial third generation is reported in Morocco. In Israel, the second generation which is heaviest and most dangerous starts from June to August.

Description: Adults are 8-13 mm. long, narrow and elongate, cylindrical, covered with easily removed, yellowish bloom, with white band on the sides of the thorax and elytra. Head and thorax rugose, snout about as long as thorax; elytra with rounded apex, 8 longitudinal rows of small striations; wings present. Egg is ovoidal, unsculptured, yellowish, and about 1.05 mm. long and 0.72 mm. wide. Mature larva about 10 mm. long and 3 mm. wide. Pupa is about 10 mm. long; tips of wing-pads reach posterior end of fourth abdominal sternite. Front legs extend almost to proximal margin of first tarsal segment of middle pair; middle pair extend to posterior third of fourth abdominal sternite. Head completely hidden from above by pronotum. Rostrum elongated and slender. Abdomen with eight distinct tergites; seventh largest and eighth smallest; total sternites 9. Seventh abdominal sternite with 2 large setae; eighth with 2 fleshy processes, each carrying 2 spines directed upwards. (Prepared in Survey & Detection Operations in cooperation with other ARS agencies.) CEIR 9 (4) 1-23-59.

Adult, Pupa and Larva of Lixus junci

Figures (except map) from Bremond, P. 1938. Rev. de Path. Veget. et d'Entomol. Agr. de France 25(1):59-73.

RY ABUNDANT 28 OR MORE GRASSHOPPERS SQUARE YARD

UNDANT 15 TO 28 GRASSHOPPERS PER ARE YARD

DERATE 8 TO 14 GRASSHOPPERS PER ARE YARD

GHT 3 TO 7 GRASSHOPPERS PER SQUARE YARD

LID COLORS - RANGELAND INFESTATIONS

PPLED COLORS - CROPLAND INFESTATIONS

R CONTROL ON CROP OR RANGELAND WILL DEPEND F HABITAT, SPECIES PRESENT, WEATHER, AND F VEGETATION.

FORMATION CONCERNING THE GRASSHOPPER SPECIFIC AREAS CAN BE OBTAINED FROM CONTROL OFFICIALS, COUNTY AGENTS, AND CONTROL DIVISION PERSONNEL.

EPARED BY PPC-ARS-USDA

(SEE REVERSE SIDE)

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S	Total Acres
	365,000
	570,000
	6,000
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	4,523,300
	5,687,000
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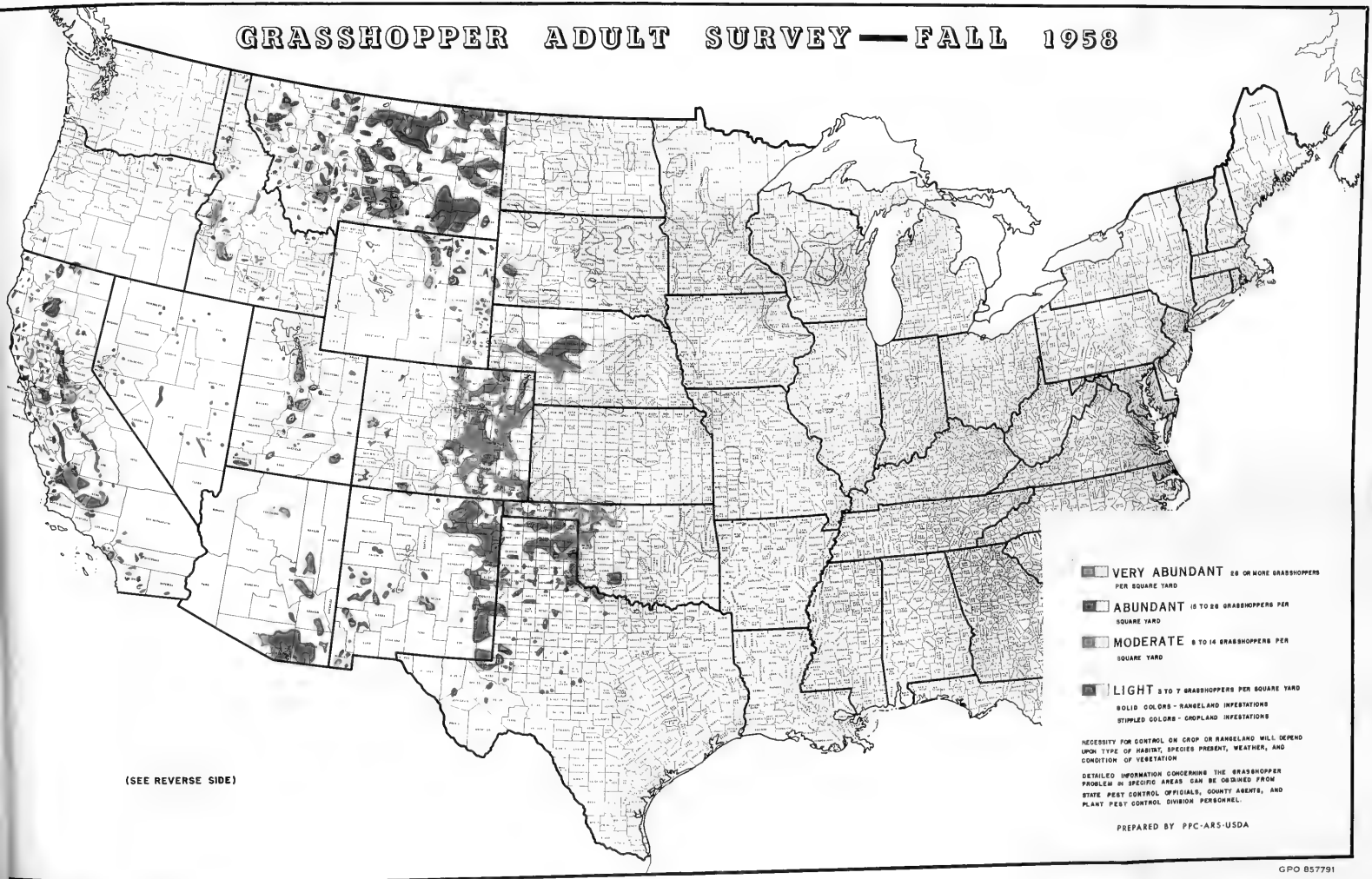
GRASSHOPPER ADULT SURVEY — FALL 1958



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GPO 857791

.RTMENT OF AGRICULTURE
. RESEARCH SERVICE
CONTROL DIVISION

grasshopper adult surveys made during the late summer how many grasshoppers infest an area, and indicate the hal surveys, made each spring, provide the final index ntrol that growing season.

stippling, in general are slightly higher than that which ill be handled by the farmers with technical assistance ' range areas, shown on the map in solid colors, total ites. Shaded areas are diagrammatic. Within these areas

TIONS --- ACREAGE BY REGIONS, FALL 1958

REGION AND STATE	LANDOWNERSHIP - ACRES		Total Acres
	Private & State	Public Domain	
Montana	1,285,000	1,140,000	2,425,000
Nevada	12,700	171,840	184,540
New Mexico	768,820	62,000	830,820
Oregon	10,000	--	10,000
Utah	9,000	61,500	70,500
Wyoming	799,000	156,000	955,000
SOUTHERN:			
Oklahoma	2,693,182	--	2,693,182
Texas	3,460,000	--	3,460,000

ontrol Division, Agricultural Research Service in cooperation with agencies concerned.

ber 20, 1958

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 1958. The survey reveals where and how many grasshoppers infest an area, and indicate the potential severity of infestations for 1959. Nymphal surveys, made each spring, provide the final index of grasshopper populations which will warrant control that growing season.

The infestation on croplands, shown on the map in stippling, in general are slightly higher than that which was indicated for 1958. 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, total 22,666,922 acres in 15 Western and Midwestern States. Shaded areas are diagrammatic. Within these areas infestations may be solid or spotted.

RANGELAND GRASSHOPPER INFESTATIONS --- ACREAGE BY REGIONS, FALL 1958

REGION AND STATE	LANDOWNERSHIP - ACRES		Total Acres	REGION AND STATE	LANDOWNERSHIP - ACRES		Total Acres
	Private & State	Public Domain			Private & State	Public Domain	
CENTRAL:							
Kansas	365,000	--	365,000	Montana	1,285,000	1,140,000	2,425,000
Nebraska	570,000	--	570,000	Nevada	12,700	171,840	184,540
So. Dakota	--	6,000	6,000	New Mexico	768,820	62,000	830,820
				Oregon	10,000	--	10,000
WESTERN:				Utah	9,000	61,500	70,500
Arizona	252,080	70,000	322,080	Wyoming	799,000	156,000	955,000
California	4,523,300	--	4,523,300				
Colorado	5,619,000	68,000	5,687,000	SOUTHERN:			
Idaho	284,740	279,760	564,500	Oklahoma	2,693,182	--	2,693,182
				Texas	3,460,000	--	3,460,000

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

November 20, 1958

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

Penalty for Private Use to Avoid
Payment of Postage, $300

VOL. 9 NO. 5 JANUARY 30, 1959

Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY

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

Volume 9 January 30, 1959 Number 5

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

CHINCH BUG hibernation survey. (p. 47). Survey map. (p. 48).

Status of EUROPEAN CORN BORER in 1958. (p. 53).

INSECT DETECTION: Pink bollworm reported for first time in Ouachita Parish, Louisiana. (p. 50). Imported fire ant found in Early County, Georgia, for first time. (p. 52). Giant hornet collected in Franklin County, Georgia, is first record for State. (p. 52).

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Reports in this issue are for the week ending January 23, unless otherwise designated.

WEATHER OF THE WEEK ENDING JANUARY 26, 1959

For the third consecutive week unseasonably mild temperatures, with weekly averages as much as 10° above normal, persisted in the Far West, as areas east of the Rockies were beset by a great variety of weather conditions including subzero cold, snow, sleet, glaze, flood-producing rains and tornadoes. The worst weather conditions were produced by a low pressure disturbance which moved from the Southwest to the Great Lakes ahead of a southeastward moving cold air mass on the 20th and 21st. Glaze (freezing rain) damage occurred in a belt extending from the lower Great Plains to Michigan, although heaviest damage apparently was in Indiana and Illinois. According to a special report from the latter State, on the 20th and 21st, 3/4 to 1 inch of ice accumulated on exposed surfaces in an east-west belt about 50 miles wide extending from Springfield eastward through Decatur and Champaign-Urbana to Danville and into Indiana. Tree damage was heavy, and power and communication lines were damaged by falling limbs. About 25 percent of the homes in the area were without electricity or normal heat for 12 to 24 hours, and thousands were still without electricity 36 hours after power failures occurred. Air traffic was halted and surface traffic slowed. In Springfield, this was the most severe glaze since December, 1924, and at Champaign the worst in nearly 40 years of record and possibly much longer. Utility damage is expected to exceed $1 million. Tornadoes struck sections of both Tennessee and Kentucky on the 21st. Adamsville, Tennessee, reported 3 injuries and $100 thousand damage, and 5 lives were lost in central Kentucky. High winds caused some damage in Mississippi.

The storm's worst tragedy occurred in the Ohio Valley where 3 to 5 inches of rain, falling on a frozen surface and aided by snowmelt and ice jams, produced severe floods. In Ohio and western Pennsylvania thousands were forced to evacuate their homes and final property losses will total many millions of dollars. Snowfall during the storm was heaviest in a belt extending from the eastern portions of Kansas and Nebraska into the Great Lakes region, with depths generally ranging from 4 to 12 inches, except in western Michigan near the lake where 10 to 20 inches fell on the 22nd. Heavy drifting snow blocked roads in many sections. Following the storm, temperatures dropped to subzero levels as far south as New Mexico and Oklahoma. Hibbing, Minnesota, recorded -33° on the 23rd. Temperatures remained below the zero mark for several days in extreme north central areas and bare ground now is frozen unusually deep, ice thickness in Wisconsin ranges from 15 to 20 inches in the south and 20 to 30 inches in the north, and ice is 30 inches thick in the Missouri River at Bismarck, North Dakota. From the Great Lakes to the Continental Divide temperatures for the week averaged 6° to 15° below normal. The temperature for the week at International Falls, Minnesota, averaged -12°. The week's precipitation, moderate to heavy in nearly all areas east of the Mississippi River, replenished soil moisture which was inadequate in many sections of the South and Southeast. Moderate to heavy amounts also fell in western Montana, northern Idaho, Washington, western Oregon and northern California. (Summary supplied by U. S. Weather Bureau.)

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - NEVADA - Egg survey in 10 counties was completed to determine the status of Trimerotropis spp. during 1959. No changes in the general situation, which was portrayed by the adult survey, were indicated. Overwintering eggs were found to be especially abundant in Smokey Valley, Nye County, where adult survey showed heaviest populations at close of summer. (PPC, West. Reg., Dec. Rpt.).

PEA APHID (Macrosiphum pisi) - OKLAHOMA - Infestations in alfalfa fields in Bixby area appear to have increased slightly in past 30 days. Averaged 25-50 per square foot. (VanCleave, Goin).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Generally light in alfalfa fields in Bixby area, with 20-40 per square foot. (VanCleave, Goin). Populations in alfalfa fields in Payne County, checked regularly, are approximately equal to those found in December, 1958, before excessively cold weather. Winged forms also present. (Bieberdorf).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Common in fields of fall-seeded small grains in Bixby and Warner areas. Populations light, 25-35 per linear foot. (VanCleave, Goin).

GREENBUG (Toxoptera graminum) - OKLAHOMA - Populations appear constant in Bixby and Warner areas despite cold weather and snow. Infestations are in scattered fields and averaged 0-10 per linear foot. (VanCleave, Goin).

APHIDS - FLORIDA - Damaged oats in the Pensacola area in December. (Fla. St. Plt. Brd.).

HESSIAN FLY (Phytophaga destructor) - NORTH CAROLINA - Wheat planted near fly-free date with over 40 percent of plants infested. Flax-seed stage averaged 2-6 per infested plant. (Middleton, Jones).

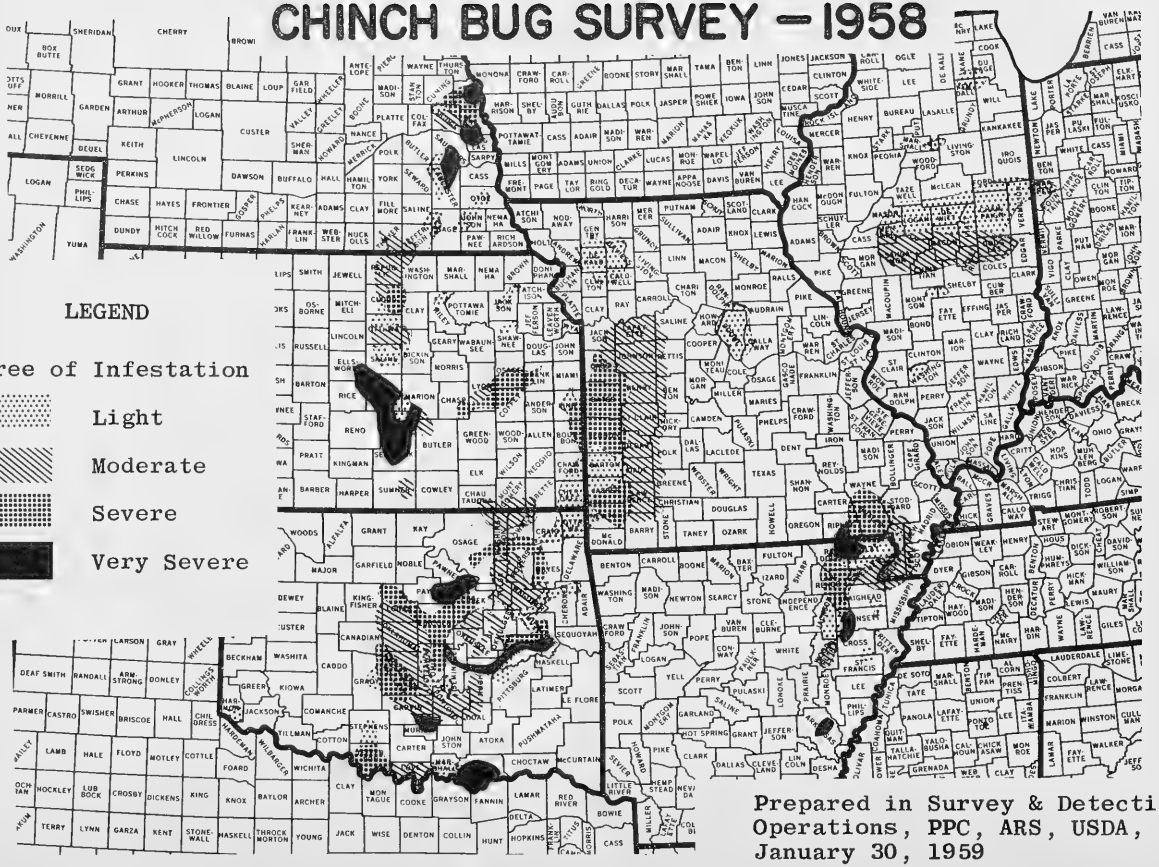
CHINCH BUG (Blissus leucopterus) - Annual hibernation survey completed in OKLAHOMA week ending January 24. Infestations across State generally lower than 1957-58 populations. Thirty counties maintained same average rating as in 1957-58, 39 counties dropped and 8 counties showed increase in rating. Counties in western half, eastern tier and southeastern area showed noneconomic populations. Only 3 isolated counties in State had average county ratings of very severe. Other states with economic populations, but generally lower than 1957, include NEBRASKA, KANSAS, MISSOURI, ILLINOIS, INDIANA and ARKANSAS. No formal survey was reported from IOWA, as populations were of noneconomic importance. Survey of 16 southern counties in WISCONSIN showed populations to be noneconomic. See survey map on page 48. (PPC, States Coop.).

A CHINCH BUG - FLORIDA - Population declined in the Sanford area of Seminole County, as did damage in Brevard County. Damage to St. Augustine grass lawns also declined in Dade County. (Fla. St. Plt. Brd., Dec. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - Surveys in 43 counties of 6 states showed 267 new acres of infestations in NORTH CAROLINA and 45 acres in SOUTH CAROLINA. Treatments were applied to 84 acres of nurseryland in 6 states and to 6,910 acres of farmland and city and industrial lands in 7 states. (PPC, So. Reg., Dec. Rpt.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - Of 1,320 soil samples collected on delimiting surveys in VIRGINIA and WEST VIRGINIA, 338 were processed. Negative results were obtained from 243 samples collected from soybean areas in MARYLAND and DELAWARE. (PPC, East. Reg., Dec. Rpt.). MISSOURI - Two new infestations were found in 2 fields representing 57 acres in Pemiscot County, which is within the regulated area. (PPC, Cent. Reg., Dec. Rpt.).

CHINCH BUG SURVEY — 1958



Prepared in Survey & Detection Operations, PPC, ARS, USDA, January 30, 1959

FRUIT INSECTS

A CHESTNUT APHID (Myzocallis castanicola) - CALIFORNIA - Heavy on chestnut trees in Santa Monica, Los Angeles County. (Cal. Coop. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Total number of traps in operation was reduced from 2,084 to 1,080 after the first week of the month. No Mexican fruit flies were trapped. (PPC, So. Reg., Dec. Rpt.). ARIZONA - Weekly inspections were continued at 21 locations in the Yuma-Mesa and Yuma Valley areas in Yuma County and 12 locations in the Nogales area of Santa Cruz County, with no suspicious specimens being taken. An additional 11 traps were installed on 3 properties in Yuma Valley. CALIFORNIA - Trapping schedules were maintained with negative results. (PPC, West. Reg., Dec. Rpt.). MEXICO - An additional 151 traps were installed on 64 new properties at Ensenada and 403 traps on 201 properties in Tijuana, both in the state of Baja California. In Tijuana, Tecate and Ensenada, 1,789 traps were operated on 816 properties. A total of 5,915 inspections were made with no Mexican fruit flies caught. (PPC, Mex. Reg., Dec. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Of 718 orange trees inspected, 65 were found infested in a grove of 24,500 trees located between Ciudad Victoria and Padilla in the state of Tamaulipas. Inspection of 85,239 citrus trees on 1,089 properties revealed 75 infested on 20 properties located in Municipios Hidalgo and Villagran in the state of Tamaulipas, in the vicinities of Allende and Linares, in Nuevo Leon, and at Hermosillo, in the state of Sonora. (PPC, Mex. Reg. Dec. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - No suspicious specimens were found in traps operated in one county in ALABAMA, 45 counties in FLORIDA, 4 LOUISIANA parishes and one TEXAS county. (PPC, So. Reg., Dec. Rpt.).

SCALE INSECTS - FLORIDA - Lepidosaphes beckii heavily infested citrus nursery stock in the Ocala area. Protopulvinaria pyriformis built up in Dade County on avocado. Chrysomphalus aonidum continued as a problem on citrus in eastern part of Hillsborough County. (Fla. St. Plt. Brd., Dec. Rpt.). CALIFORNIA - Aonidiella aurantii medium on lemon at Atherton, San Mateo County, and light on citrus at Calwa, Fresno County. Parlatoria oleae and Aspidiotus perniciosus heavy on peach tress in Chico, Butte County. (Cal. Coop. Rpt.).

SPIDER MITES - FLORIDA - Numerous in some citrus orchards in the MacClenny area. Heavy on citrus nursery stock, but declined in Seminole County. Appeared to be building up in nurseries and groves in Brevard County. (Fla. St. Plt. Brd., Dec. Rpt.). CALIFORNIA - Panonychus citri medium on lemons in Hillsborough, San Mateo County, and Eotetranychus sexmaculatus heavy on sapote in Long Beach, Los Angeles County. (Cal. Coop. Rpt.).

BURROWING NEMATODE (Radopholus similis) - FLORIDA - Detection surveys were made on 1,239 acres of 44 groves and 38 nurseries located in 10 counties and delimiting surveys on 20 acres of 5 properties in 2 counties. New infestations were found on 13 acres of 8 properties in 4 counties. Treatments were made to 5 nurseries and 2 groves for a total of about 4 acres. (PPC, So. Reg., Dec. Rpt.).

Citrus Insect Situation, Lake Alfred, Florida, Second Week in January - PURPLE SCALE activity declined and is expected to remain at low level through the month. FLORIDA RED SCALE activity also declined, with further decline expected. However, the current high level will remain above normal through this month. Activity of CITRUS RUST MITE decreased slightly, but generally will continue near present level through January. The downward trend of CITRUS RUST MITE activity is expected to continue for the next three weeks. TEXAS CITRUS MITE populations are decreasing. (Fla. Coop. Sur.).

TRUCK CROP INSECTS

BANDED CUCUMBER BEETLE (Diabrotica balteata) - FLORIDA - Large numbers fed on tomatoes in Dade and Monroe Counties. (Fla. St. Plt. Brd., Dec. Rpt.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - Surveys revealed 68 additional infestations in 18 counties in ALABAMA, GEORGIA, LOUISIANA, MISSISSIPPI and SOUTH CAROLINA, all in previously known infested counties. An infestation was found for the first time in wild host plant on Edisto Island in Charleston County, SOUTH CAROLINA. No infestations have been found in sweetpotatoes in the State during the crop year. (PPC, So. Reg., Dec. Rpt.).

ONION MAGGOT (Hylemya antiqua) - TEXAS - Medium infestation caused general concern in Zavala and Dimmit Counties. (Harding).

SEED-CORN MAGGOT (Hylemya cilicrura) - TEXAS - Heavy on spinach in Zavala and Dimmit Counties. Infesting 25 percent of plants where no treatments have been applied. (Harding).

APHIDS - ALABAMA - Pemphigus populi-transversus and Rhopalosiphum pseudo-brassicae continue to infest turnips in Escambia County. Brevicoryne brassicae heavy on collards and cabbage in the same area. (Blake, Jan. 17). CALIFORNIA - B. brassicae heavy on cauliflower in the San Luis Rey area, San Diego County. (Cal. Coop. Rpt.).

THRIPS - TEXAS - Thrips tabaci light on onions in Dimmit and Zavala Counties, with 3 per plant common and up to 5 per plant reported. Frankliniella sp. medium on spinach in Zavala County, with up to 25 per plant. (Harding).

AN EARTHWORM MITE (Fuscuropoda agitans) - CALIFORNIA - Heavy on tomato roots in the Hughson area, Stanislaus County. (Cal. Coop. Rpt.).

GOLDEN NEMATODE (Heterodera rostochiensis) - NEW YORK - Examinations were made of 6,600 samples collected from Long Island potato fields. A new infestation was confirmed on one 48-acre field within the area of general infestation in Suffolk County. NEW JERSEY - A total of 812 samples collected from 99 sites were processed with negative results. (PPC, East. Reg. Dec. Rpt.). NEBRASKA - Some 110 soil samples collected at potato grader stations were processed, with negative results. INDIANA - Fifty-one samples from 10 grader stations, representing 2,505 acres in 7 counties were processed. All reports to date have been negative. (PPC, Cent. Reg., Dec. Rpt.).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - LOUISIANA - Inspections were continued in the State. Ouachita Parish was reported infested for the first time in late November. MISSISSIPPI - Approximately 3,230 bushels of gin trash were inspected, all negative. OKLAHOMA - Inspection of dry bolls from standing stalks and on the ground showed pink bollworm had infested an additional 2,805 acres, making a total of 346,937 infested acres to date. TENNESSEE - Inspection of 49 gins in 7 counties gave negative results. TEXAS - A total of 825 inspections in 52 counties revealed 28,688 specimens for an average of 35.99 per inspection. (PPC, So. Reg., Dec. Rpt.). ARIZONA - During the month, 89 new infestations were found within the regulated area involving 8,827 acres, as the result of 3,971 inspections of gin trash, lint cleaners and bolls. Outside the regulated area 596 inspections gave negative results. Positive specimen from the Avra Valley, Pima County, was first pink bollworm found in the county since 1955. Extensive field inspection near Pichacha, Pinal County, revealed presence of pink bollworm. Inspections established several newly infested farms in the

regulated area. Newly infested locations in Maricopa County are Arlington, Cactus, Chandler Heights, West Chandler and the Harquahala Valley. In Pinal County a new location has been established north of Casa Grande. In the vicinity of Phoenix the infested area has been extended to include more acreage in the vicinity of Luke Air Force Base, the Deer Valley and the Cactus area. (PPC, West. Reg., Dec. Rpt.). MEXICO - In the states of Baja California and Sonora, 3,587 bushels of gin trash were inspected and 139 lint cleaner inspections were made. Results were negative. Light trap collections were discontinued in the Mexicali district. A total of 40 collections of moths were submitted for identification. All were negative. (PPC, Mex. Reg., Dec. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

GYPSY MOTH (Porthetria dispar) - MICHIGAN - Scouting of an 800-acre area in Clinton County resulted in the finding of 12 egg masses on 3 adjacent trees, within 250 yards of a trap that caught 6 male moths during the summer of 1958. This is the first time that egg masses have been found in the history of the program in this State. (PPC, Cent. Reg., Dec. Rpt.).

A ROOT BORER (Euzophera ostricolorella) - LOUISIANA - Larvae reported in CEIR 8(51): 1008 as tunneling in roots of Magnolia grandiflora have been determined as this species. (Spink).

A WHITEFLY (Aleyrodes spiraeoides) - CALIFORNIA - Medium on fuchsia in Woodside, San Mateo County. (Cal. Coop. Rpt.).

SCALE INSECTS - FLORIDA - Phenacaspis pinifoliae infested pines at DeLand in Volusia County. Large numbers of Saissetia hemisphaerica were reported on coontie in Mullis City. (Fla. St. Plt. Brd., Dec. Rpt.). LOUISIANA - Ceroplastes cirripediformis general on ornamentals in New Orleans. (Spink). OKLAHOMA - Saissetia oleae collected from chrysanthemums in greenhouse at Tulsa. (Apt, Stiles). CALIFORNIA - Aspidiotus hederae heavy on chinaberry trees in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

A MEALYBUG (Pseudococcus malacearum) - CALIFORNIA - Heavy on Epithelantha micromeris in University of California Botanical Gardens, Berkeley, Alameda County, and light on Baccharis pilularis in Woodside, San Mateo County. (Cal. Coop. Rpt.).

SPIDER MITES - FLORIDA - Reported on increase from Marianna eastward and attacked a variety of hosts. (Fla. St. Plt. Brd., Dec. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - VIRGINIA - Appearing in backs of cattle in Washington, Montgomery, Albemarle, Sussex and Warren Counties. None were present in cattle examined in King George and Charlotte Counties. (Turner, Morris). NORTH CAROLINA - Dairy and beef cattle examined in first two weeks of January showed no grubs present in 90 head in Lincoln County, 263 head in Pender County (with few seen in 7 years), 75 head in Vance County and 91 head in Wilkes County. Averaged 11.9 in untreated and 0.4 in treated locally grown beef cattle examined in Alleghany County and 7.7 in untreated and 1.9 in treated beef cattle in Rowan County. All examined January 13-14. (Jones, et al.). OKLAHOMA - Counts averaged 4.7 per animal on 180 mature cows and 14.8 per yearling steer on 95 examined in Woodward County. Counts in Harper County averaged 3.8 per animal on 130 mature cows and 12.2 per animal on 160 yearling steers. (Howell). UTAH - Small numbers appearing in backs of cattle in Juab County. (Knowlton).

SHEEP SCAB MITE (Psoroptes equi ovis) - VIRGINIA - Found on 160 of 752 sheep inspected in the State during December, 1958. (Va. Livestock Health Bull.).

MOSQUITOES - FLORIDA - Heavy populations were reported in Hillsborough and Manatee in Sarasota County. (Fla. St. Plt. Brd., Dec. Rpt.).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - CONNECTICUT - Inspection of 2 grain establishments were negative. PENNSYLVANIA - A total of 17 inspections were made in Butler, Chester, Crawford, Erie and Indiana Counties. NEW YORK - Inspections were made in 6 establishments in western part of State and 2 in New York City. (PPC, East. Reg., Dec. Rpt.). A total of 38 inspections were made in ALABAMA, ARKANSAS, FLORIDA, SOUTH CAROLINA and TEXAS. All determinations that have been returned were negative. (PPC, So. Reg., Dec. Rpt.). ARIZONA - One newly infested property found in Mesa, Maricopa County. (PPC, West. Reg., Dec. Rpt.). MEXICO - During the month 220 inspections (130 initial and 90 repeat) were made in the states of Baja California, Sonora, Jalisco and Michoacan. No positive classifications were received for the 195 specimen collections submitted. (PPC, Mex. Reg., Dec. Rpt.).

A SPIDER BEETLE (Ptinus ocellus) - Medium in food stuffs in Santa Cruz, Santa Cruz County. (Cal. Coop. Rpt.).

A CEREAL MITE (Glyciphagus destructor) - CALIFORNIA - Heavy in sacked cottonseed meal in Ceres, Stanislaus County. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - GEORGIA - Early County was found infested for the first time during December. TENNESSEE - Inspection of 42 properties along the Mississippi State line in Shelby County gave negative results. NORTH CAROLINA - An additional 288 infested acres were found and treated. SOUTH CAROLINA - Ninety-seven additional infested acres were found and treated. Treatments were underway in all 10 infested states with a total of over 65,000 acres receiving eradication treatment. (PPC, So. Reg., Dec. Rpt.).

GIANT HORNET (Vespa crabro germana) - GEORGIA - Specimen collected December 9, 1958, at Carnesville, Franklin County, by Don Ashworth, is first record of this species from the State. Det. H. O. Lund. (Johnson).

A TERMITE (Reticulitermes hesperus)- CALIFORNIA - Unusually heavy swarms occurred in Los Angeles County. Recent rains following long dry period apparently brought out sexual forms. (Longfellow).

LIGHT TRAP COLLECTIONS

	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterranea
FLORIDA			
Gainesville 1/15-21	1	2	
LOUISIANA			
Baton Rouge 1/16-22	3	10	16
SOUTH CAROLINA			
Charleston 1/12-18	1	3	1

STATUS OF THE EUROPEAN CORN BORER IN 1958

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

Agricultural agencies in 25 States reported on surveys conducted in their States to determine the abundance and distribution of the European corn borer (Pyrausta nubilalis) in 1958. 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

The greatest degree of spread of the European corn borer in 1958 occurred in the south where 52 new counties and parishes were reported from Alabama, Arkansas, Georgia, Louisiana and North Carolina. In addition, there were two counties from Missouri and four in West Virginia for a total of 58. Twenty-nine new counties and parishes were found in 1957.

Counties and parishes reported as infested for the first time in 1958 are as follows:

Alabama

Autauga
Calhoun
Cleburne
Chilton
Elmore
Greene
Hale
Jefferson
Montgomery
Perry
Pickens
Randolph
Shelby
St. Clair
Tallapoosa

Arkansas

Ashley
Bradley
Calhoun
Chicot
Cleveland
Columbia
Dallas
Drew
Faulkner
Grant

Arkansas (cont'd)

Hempstead
Howard
Johnson
Lafayette
Miller
Montgomery
Nevada
Perry
Polk
Saline
Scott
Sebastian
Sharp
Union

Georgia

Bartow
Forsyth
Fulton
Gordon
Haralson
Meriwether

Louisiana

Bossier
Caddo
Ouachita

Louisiana (cont'd)

Natchitoches
Red River

Missouri

Douglass
Ozark

North Carolina

Johnston
Scott

West Virginia

Boone
Lincoln
Logan
Mingo

Abundance

The 1958 corn borer abundance 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 1958. 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 1957 and 1958 are shown in Table 1.

Population levels of the European corn borer were generally lower in the central States. Decreases that were most notable were in Iowa, Missouri and South Dakota where the number of borers per 100 plants averaged 166, 109 and 83 compared with 419, 399 and 313 in 1957. Populations in North Dakota showed some increase, being 179 borers per 100 plants in 1958 compared with 93 in 1957. Populations in the other central States were approximately the same as they were in 1957.

In the eastern States, populations varied somewhat, a substantial increase being recorded in Delaware, New Jersey and Virginia while a decrease was noted in Rhode Island. The average for this group of States was slightly higher than the counts recorded in 1957.

Population surveys were conducted for the second year in Alabama and Arkansas and reported for the first time in North Carolina. In Alabama, the highest counts were recorded in Marshall County for the second straight year, being 402 borers per 100 plants in 1958 compared with 276 in 1957. In Arkansas, the highest counts were 184 in St. Francis County, while in North Carolina the highest counts were 132 in Surry County. Generally, however, counts were very low in North Carolina and approximately the same as in 1957 in Alabama and Arkansas.

For the States reporting, based on comparable districts surveyed, the average number of borers per 100 plants decreased from 162 in 1957 to 94 in 1958.

A summary of the 1957 and 1958 surveys is shown in Table 1 by States and Districts. State summaries are shown in Table 2. Accompanying maps show districts surveyed, approximate population levels and counties infested for the first time in 1958.

Table 1. Summary by States of European corn borer abundance in corn, fall of 1958, compared with data for 1957.

States	1957			1958			Comparable Districts or Counties Surveyed Both Years		
	Number of Districts Surveyed	Average Number of Borers per 100 Plants	Counties Surveyed	Number of Districts Surveyed	Average Number of Borers per 100 Plants	Counties Surveyed	Number of Districts	Borers per 100 Plants 1957	Borers per 100 Plants 1958
Eastern									
Delaware	1	90	3	1	249	3	1	90	249
Maryland	1	60	23	1	94	23	1	60	94
New Hampshire	1	8	9	1	11	9	1	8	11
New Jersey	1	89	12	1	169	12	1	89	169
New York	2	102	7	1	21	7	1	12	21
Pennsylvania	9	40	34	7	43	26	5	44	50
Rhode Island	1	312	5	1	30	5	1	312	30
Vermont	1	2	14	1	1	6	1	1	1
Virginia	2	116	32	2	252	20	2	117	252
West Virginia	1	40	15	1	25	14	1	37	17
Total	20		154	17		125	15		
Average 1/								78	90
North Central									
Illinois	9	62	43	9	64	43	9	62	64
Indiana	12	32	92	12	44	92	12	32	44
Iowa	12	419	99	12	166	99	12	419	166
Kansas	4	119	29	4	107	34	2	143	151
Michigan	3	9	28	3	7	22	3	9	7
Minnesota	6	83	64	6	16	63	6	83	16
Missouri	7	346	41	8	96	50	5	399	109
Nebraska	8	220	64	8	177	72	8	220	177
North Dakota	3	93	6	3	179	6	3	93	179
Ohio	5	35	30	5	43	30	5	35	43
South Dakota	6	313	47	6	83	42	6	313	83
Wisconsin	7	36	55	9	15	62	1	59	10
Total	82		598	85		615	72		
Average 1/								180	95
Southern									
Alabama	1	141	4	1	75	24	1	141	188
United States									
Total	103		756	103		764	88		
Average 1/								162	94
States Surveyed but not Included in U.S. Average									
Arkansas	1	28	30	1	39	16	-	-	-
North Carolina	-	-	-	-	23	7	-	-	-

1/ Weighted averages based on districts surveyed.

Table 2--European corn borer abundance in corn, fall of 1958 compared with data for 1957

State	Average Number of Borers per 100 Plants 1957	1958
Alabama (Ext. Ser.)		
Blount	-	23
Calhoun	-	5
Cherokee	-	86
Cleburne	-	15
Colbert	122	175
Cullman	-	56
De Kalb	123	153
Etowah	-	102
Fayette	-	6
Franklin	-	24
Jackson	-	39
Jefferson	-	4
Lamar	-	6
Lauderdale	43	21
Lawrence	-	47
Limestone	-	233
Madison	-	187
Marion	-	23
Marshall	276	402
Morgan	-	48
St. Clair	-	29
Tuscaloosa	-	8
Walker	-	3
Winston	-	6
State mean	141	75
State mean comparable counties (4)	141	188
Arkansas (Ext.Sta., Exp.Ser.)		
Clay	-	65
Craighead	-	82
Cross	-	28
Greene	-	52
Hempstead	-	1
Howard	-	2
Lawrence	-	70
Lee	-	38
Miller	-	3
Monroe	-	48
Phillips	-	71
Poinsett	-	88
Randolph	-	110
St. Francis	-	184
Scott	-	1
White	-	63
State mean	28	39
(Survey in 1957 represented 30 counties, ranging 0-149 per 100 stalks).		

State	Average Number of Borers per 100 Plants 1957	1958
Delaware (Agr. Exp. Sta.)		
Kent	39	249
New Castle	44	193
Sussex	186	304
State mean	90	249
Illinois (Natural History Survey,Ext. Ser.)		
Northwest	80	127
Northeast	70	64
West	143	146
Central	66	102
East	36	49
West Southwest	129	47
East Southeast	12	29
Southwest	22	4
Southeast	1	5
State mean	62	64
Indiana (Exp. Sta. Ext. Ser.)		
North Northwest	95	78
North North Central	41	69
North Northeast	41	44
Northwest	8	37
North Central	10	61
Northeast	18	46
Southwest	10	15
South Central	11	32
Southeast	27	87
South Southwest	3	17
South South Central	65	20
South Southeast	62	17
State Mean	32	44
Iowa (State Dept. of Agr., Ext.Ser. Exp. Sta. Ent. Research USDA)		
District I	904	166
District II	306	74
District III	118	23
District IV	944	396
District V	387	93
District VI	81	81
District VII	552	411

Table 2 -- (Cont'd)

State	Average Number of Borers per 100 Plants 1957	1958
Iowa (cont'd)		
District VIII	430	151
District IX	195	171
District X	383	296
District XI	358	146
District XII	367	131
State mean	419	166
Kansas (Ins. Sur.)		
Northeast	267	263
North Central	20	40
Southeast	-	19
East Central	172	105
Central	18	-
State mean	119	107
State mean comparable districts (2)	143	151
Maryland (Agr. Ext. Ser., Ins. Sur.)		
Allegany	31	26
Anne Arundel	32	48
Baltimore	39	45
Calvert	27	24
Caroline	49	371
Carroll	84	85
Cecil	30	67
Charles	10	21
Dorchester	105	222
Frederick	77	16
Garrett	4	7
Harford	45	61
Howard	21	66
Kent	43	74
Montgomery	34	47
Prince Georges	11	23
Queen Annes	20	129
St. Marys	94	75
Somerset	150	89
Talbot	95	113
Washington	43	66
Wicomico	90	312
Worcester	243	175
State mean	60	94
Michigan (Ext. Ser.)		
Southwest	8	9
Northeast	9	4
Southeast	9	7
State mean	9	7
Minnesota (State Dept. of Agr.)		
West Central	69	23
Central	48	10
East Central	19	3
Southwest	208	46
South Central	123	16
Southeast	40	6
State mean	83	16
Missouri* (Ext. Ser. Ins. Sur.)		
District I	685	161
District II	580	89
District III	318	131
District IV	372	137
District V	331	69
District VI	40	22
District VII	-	32
District IX	95	123
State mean	346	96
State mean comparable districts (5)	399	109
Nebraska* (Agr. Exp. Sta., Ext. Ser., Ins. Sur.)		
Northeast	514	330
East	298	299
Southeast	127	276
North	217	88
Central	310	177
South	183	160
Southwest	74	65
Northwest	37	22
State mean	220	177

* Crop Reporting Districts

Table 2 -- (Cont'd)

State	Average Number of Borers per 100 Plants 1957	1958
New Hampshire (State Dept. of Agr.)		
Belknap	4	6
Carroll	8	9
Cheshire	7	14
Grafton	7	4
Hillsboro	9	17
Merrimack	6	10
Rockingham	16	11
Strafford	7	16
Sullivan	6	3
State mean	8	11
New Jersey (Dept. of Agr. and College of Agr.)		
Burlington	81	188
Camden	94	128
Cumberland	36	200
Gloucester	53	168
Hunterdon	10	16
Mercer	117	186
Middlesex	63	299
Monmouth	408	369
Salem	41	163
Somerset	151	293
Sussex	4	11
Warren	8	8
State mean	89	169
New York (Ext.Ser.)		
Dutchess	5	4
Erie	20	11
Monroe	33	-
Nassau	-	54*
Onondaga	3	70
Orleans	2	1
Suffolk	550	133*
Ulster	30	21
State mean	102	21
State mean comparable counties (5)	12	21
North Carolina (Ext. Ser.)		
Brunswick	-	0
Gates	-	0
Hertford	-	0
McDowell	-	7
Scotland	-	0
Surry	-	132
Yadkin	-	20
State mean		23
(Total of 12 fields checked in State; 2 in Brunswick, McDowell, Scotland, Surry and Yadkin Counties, and one field each in Gates and Hertford Counties).		
North Dakota (State Dept. of Agr.)		
District I	117	188
District II	110	219
District III	51	129
State mean	93	179
Ohio (Agr. Exp. Sta., Ext. Ser.)		
Northwest	45	38
West Central	27	23
Central	26	60
Southwest	36	70
Northeast	43	50
State mean	35	43
Pennsylvania (State Dept. of Agr.)		
Northeast	6	-
North	10	-
Northwest	1	10
West	16	17
Southwest	90	13
South	54	31
Central	55	104
Southeast	93	86
East	29	44
State mean	40	43
State mean comparable districts (5)	44	50

* Nassau and Suffolk Counties not averaged in mean total; only 3 samples taken in both counties.

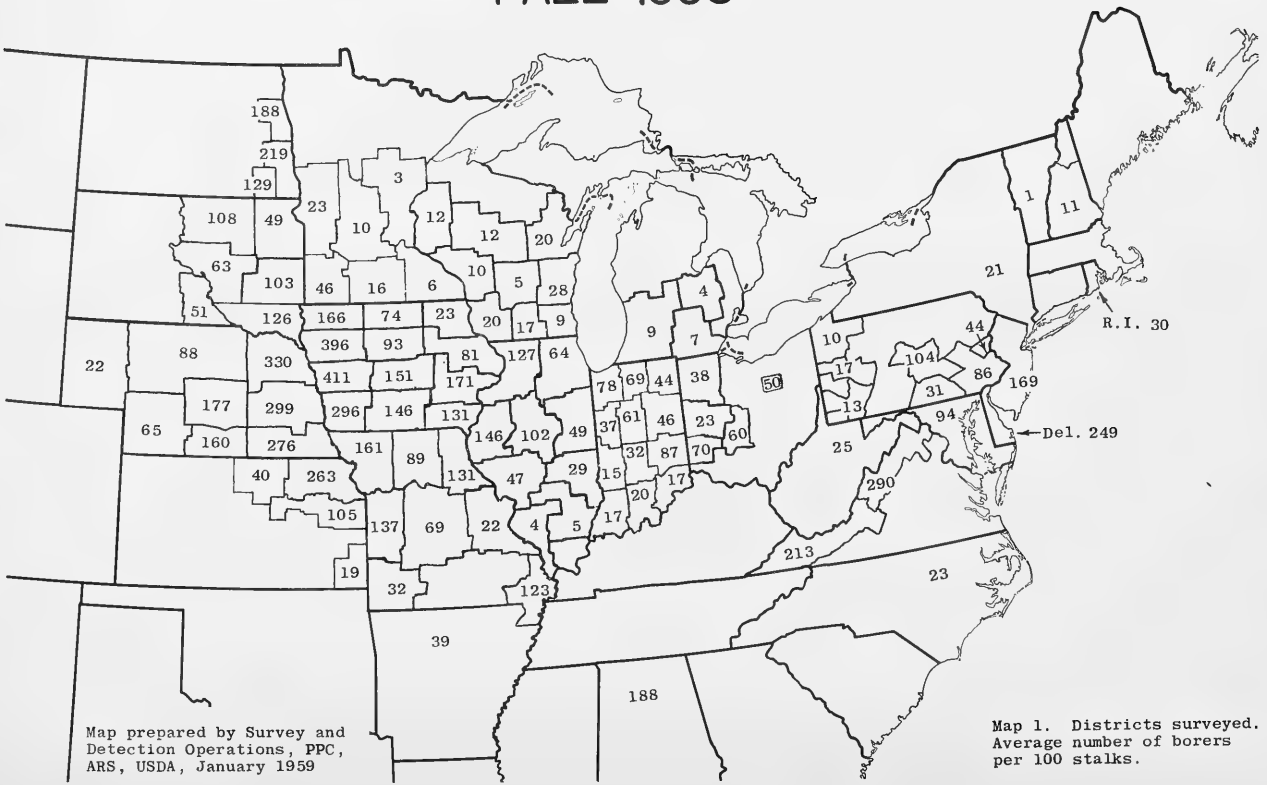
Table 2 -- (Cont'd)

State	Average Number of Borers per 100 Plants 1957	1958
Rhode Island (Agr. Exp. Sta.)		
State mean*	312	30
* Statewide Survey		
South Dakota (Agr. Exp. Sta., Ext. Ser.)		
North Central	172	108
Northeast	121	49
Central	414	63
East Central	415	103
Southeast	571	126
South Central	190	51
State mean	313	83
Vermont (State Dept. of Agr.)		
Addison	2	4
Bennington	5	-
Caledonia	1	0
Chittenden	2	1
Essex	0	-
Franklin	0	-
Grand Isle	4	-
Lamoille	0	0
Orange	2	1
Orleans	0	-
Rutland	4	-
Washington	1	0
Windham	0	-
Windsor	2	-
State mean	2	1
State mean comparable counties (6)	1	1
Virginia (Ins. Sur.)		
Northern District	134	290
Southwestern District	100	213
State mean	117	252

State	Average Number of Borers per 100 Plants 1957	1958
West Virginia (Exp. Sta.)		
Berkeley	15	-
Braxton	27	3
Brooke	70	-
Clay	8	-
Greenbrier	38	8
Hampshire	13	51
Hancock	23	-
Hardy	24	-
Harrison	-	21
Jefferson, Berkeley	-	124
Lewis	39	-
Monongalia	36	27
Monroe	101	8
Nichols	-	1
Ohio, Brooke, Hancock	-	Trace
Ohio	23	-
Pleasants	4	-
Preston	-	22
Wirth	7	-
Wood	8	7
State mean	40	25
State mean comparable counties (6)	37	17
Wisconsin (State Dept. of Agr.)		
Northwest	9	12
North Central	-	12
West Central	59	10
Central	24	5
Southwest	91	20
South Central	29	17
Southeast	19	9
East Central	-	28
Northeast	20	20
State mean	36	15
State mean comparable districts (1)	59	10

EUROPEAN CORN BORER ABUNDANCE

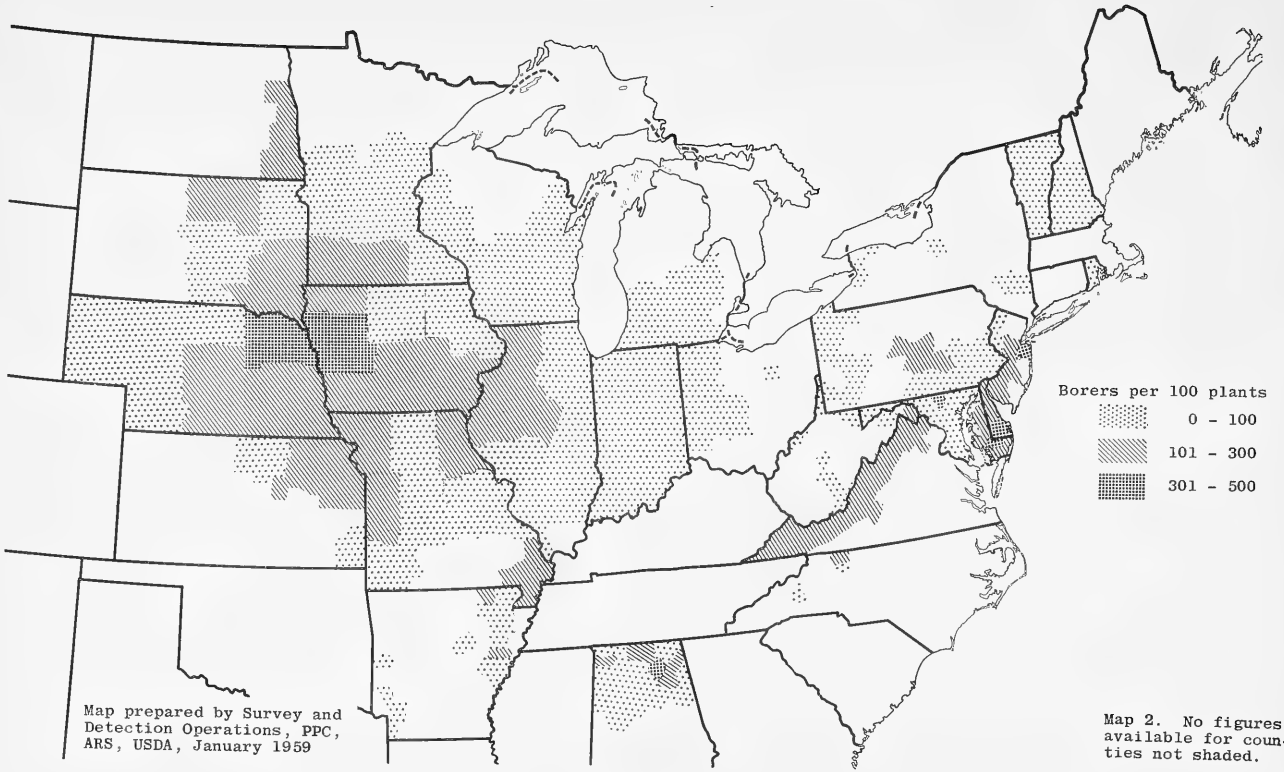
FALL 1958



Map prepared by Survey and Detection Operations, PPC, ARS, USDA, January 1959

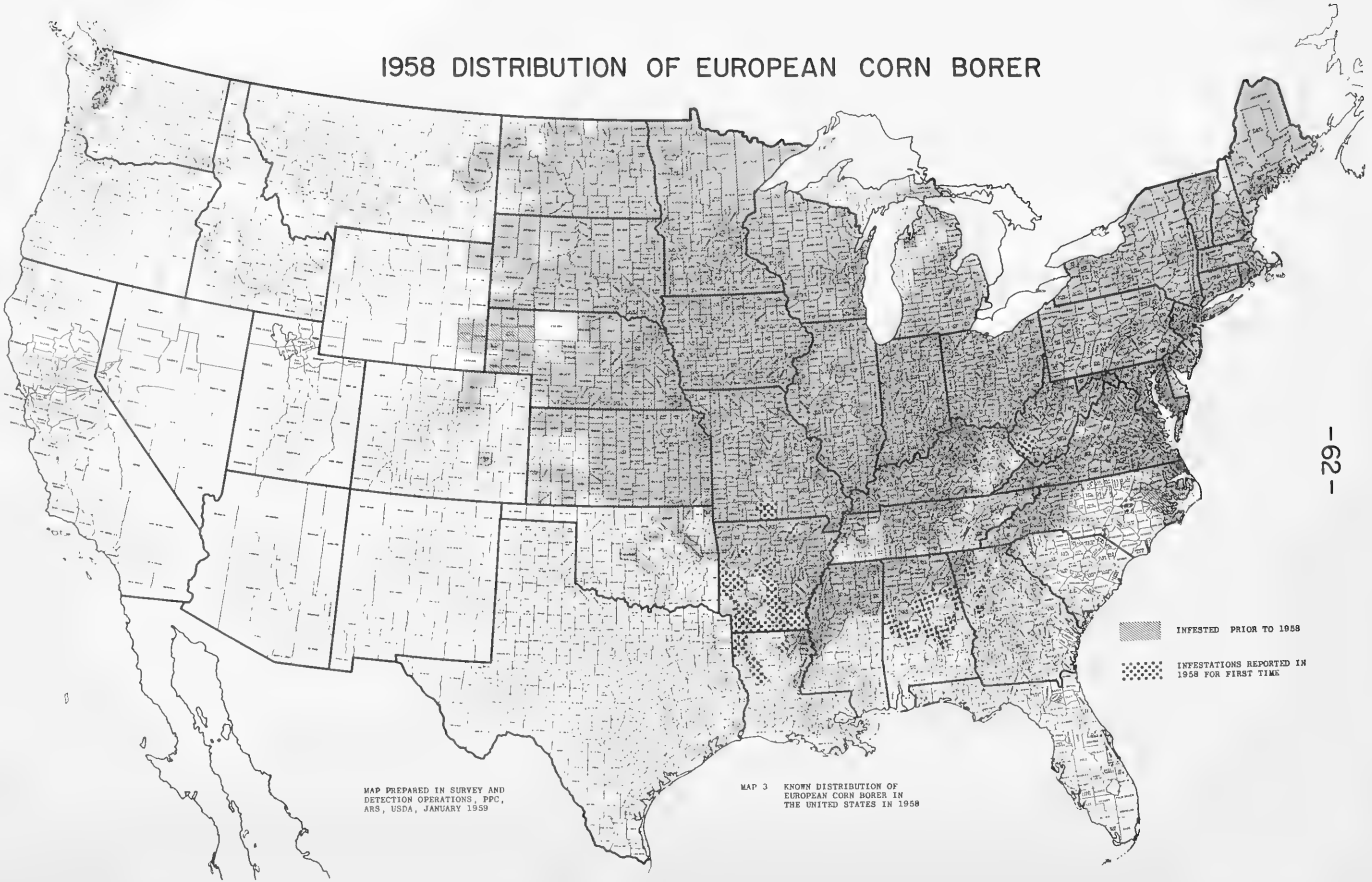
Map 1. Districts surveyed. Average number of borers per 100 stalks.

EUROPEAN CORN BORER ABUNDANCE
FALL 1958



Map prepared by Survey and Detection Operations, PPC, ARS, USDA, January 1959

Map 2. No figures available for counties not shaded.



MAP 3 KNOWN DISTRIBUTION OF EUROPEAN CORN BORER IN THE UNITED STATES IN 1958

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

VOL. 9 NO. 6 FEBRUARY 6, 1959

Cooperative ECONOMIC INSECT REPORT

Issued by

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

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

Volume 9 February 6, 1959 Number 6

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

WINTER GRAIN MITE damaging in areas of Texas. (p. 65).

BOLL WEEVIL hibernation counts in Tennessee, Fall, 1958. (p. 66). Summary of hibernation surveys in seven states. (p. 67).

CATTLE LICE serious in several counties in Utah. (p. 66).

Additional KHAPRA BEETLE infestation reported in California. (p. 68).

SUMMARY OF INSECT CONDITIONS in some countries in the Near East, South Asia and Africa - 1958. (Iraq p. 69, Iran p. 70, Afghanistan p. 74, Pakistan p. 75, Tunisia p. 77, Libya p. 78, Ethiopia p. 79).

INSECTS not known to occur in the United States. (p. 81).

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Reports in this issue are for the week ending January 30, unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

FEBRUARY 1959

The Weather Bureau's 30-day outlook for February calls for temperatures to average below seasonal normals over most of the Nation except for above normal east of the Appalachians and in West Coast states. Coldest weather is predicted for the Northern Plains. Precipitation is expected to exceed normal over the eastern half of the country and also in the western Plateau and Rocky Mountain states. Subnormal amounts are anticipated over the Northern Plains and in west Texas. Near normal precipitation is indicated in unspecified areas.

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

WEATHER OF THE WEEK ENDING FEBRUARY 2

Last week's temperatures, repeating the now familiar pattern of several previous weeks, were persistently mild in the Far West with weekly averages as much as 7° above normal; while east of the Rockies warmer weather the first part of the week was followed by an inflow of cold air which brought subzero cold to northern areas and freezing to northern portions of some of the Southern States. Higher daytime temperatures the first part of the week, ranging in the 40's and 50's from the central Great Plains through the Ohio Valley and Northeast removed most of the snow cover from those areas, except in northern New York and New England, and much of the previous week's glaze in Illinois and Indiana. The weekend cold east of the Rockies dropped temperatures to the lowest levels so far this winter at many northern points. Some of the extreme low temperatures were: Dunn Center, North Dakota, -46° on January 31; Bemidji, Minnesota, -40° on February 1; Lone Rock, Wisconsin, -36° and Newport, Vermont, -25° on February 2.

Light to moderate precipitation was widespread, except in the Far Southwest where little or none occurred, with heavy amounts in the Pacific Northwest and in the Gulf and south Atlantic coastal areas. Much of the week's precipitation fell during the movement of a low pressure disturbance from the Pacific Northwest to the lower Great Plains early in the week and then northeastward over the St. Lawrence Valley on January 30. Heaviest falls, up to 5 inches in the form of rain, occurred in the South, as warm, moist air overran the inflow of cold air from the North during the weekend. In Texas, this weekend, precipitation was a mixture of glaze, snow and rain, while mostly snow in Oklahoma and Kansas, with extreme falls of 8 inches or more in both states and also in northeastern Texas. Soil moisture in the South was improved by the moderate to heavy rains, although the subsoil is still dry in some southeastern areas due to the extended fall and early winter dry spell there. The eastern snow cover now extends from Oklahoma to the Great Lakes, and across northern portions of New York and New England. The cover is unusually deep in the Great Lakes region, ranging up to 50 inches along Lake Superior. The ground is mostly bare at lower elevations in the Far West. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - LOUISIANA - A total 132 collected in 100 sweeps on burclover in Iberville Parish. (Spink).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Mortality counts of overwintering larvae in Payne County showed over 60 percent mortality in a field of late sorghum and only 5 percent mortality in an adjoining corn field. (Arbuthnot).

GREENBUG (Toxoptera graminum) - OKLAHOMA - Light infestations common in small grain fields in Noble and Kay Counties. Averaged 0.8-6 per linear foot. Averaged 16 per linear foot in one Blackwell area wheat field, with one-half of aphids either winged or developing wings. Infestations were scattered and averaged 0-4 per linear foot in Payne, Garfield, Grant, Major and Alfalfa Counties. All populations in north central area lower than during December, 1958. (VanCleave). TEXAS - Very light to no infestation in 12 counties checked on upper south plains and in northwest areas. Averaged 0-3 per linear foot in 8 south central counties checked. (Hawkins).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Counts in north central area small grain fields lower than in December, 1958. Averaged 0-25 per linear foot in most fields, with 200 per linear foot in one field in Fairview area, Major County. (VanCleave).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Populations lower, 0-50 per linear foot, in barley fields in north central area. (VanCleave).

PEA APHID (Macrosiphum pisi) - OKLAHOMA - Common in most north central alfalfa fields with up to 25 per square foot. Although still light, numbers increased during past month. (VanCleave).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Populations down in all north central area alfalfa fields. Present in all fields checked and averaged up to 50 per square foot. (VanCleave). KANSAS - Averaged 15 per 25 plants in Pottawatomie County and 20 per 25 plants in Riley County. Populations in Cloud County were 5 per 25 plants in each of 3 fields, and 2 and 10 per 25 plants in 2 separate fields in Republic County. (Peters).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Infestations more common in small grain fields in north central area. Numbers increased in most fields. Averaged up to 200 per linear foot. (VanCleave).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Caused considerable damage to oats in Hunt County. (Davis). Large acreages damaged in Bell County. (Hawkins).

FRUIT INSECTS

A MEALYBUG (Pseudococcus malacearum) - CALIFORNIA - Medium on Meyer lemon in Redwood City, San Mateo County. (Cal. Coop. Rpt.).

SCALE INSECTS - CALIFORNIA - Lepidosaphes ficus medium on fig trees in Willows, Glenn County. Aspidiotus perniciosus heavy on almond trees in the same area, and heavy on pear trees in Riverside, Riverside County. A. hederae heavy on persimmon trees in Santa Paula, Ventura County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

POPLAR PETIOLE GALL APHID (Pemphigus populi-transversus) - CALIFORNIA - Medium infestation on roots of Brassica kaber in Davis, Yolo County. (Lange).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - LOUISIANA - Heavy on turnips in East Baton Rouge Parish. (Spink).

YELLOW-MARGINED LEAF BEETLE (Microtheca ochroloma) - LOUISIANA - Medium on turnips in East Baton Rouge Parish. (Spink).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TENNESSEE - Survey to determine the population of hibernating weevils in McNairy County was late in 1958 due to unfavorable weather. Trash examinations indicate that there is an average of 1,214 boll weevils per acre in 1958 compared with 2,365 in the fall of 1957. If counts had been made in McNairy County at an earlier time, the counts may have been considerably higher. The counts in this county represent the heaviest infested area in the State. However, counts in other southern counties should be only slightly lower. (Locke).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SCALE INSECTS - MARYLAND - Leucaspis japonica heavy on privet, light on holly at Hyattsville, Prince Georges County. Saissetia hemisphaerica on maidenhair fern at Rockville, Montgomery County. (U. Md., Ent. Dept.). CALIFORNIA - Eriococcus araucariae medium on pine in North Island, San Diego County. Heavy infestation of Aonidiella citrina on euonymus in Exeter, Tulare County. (Cal. Coop. Rpt.).

A MEALYBUG (Spilococcus andersoni) - CALIFORNIA - Heavy on juniper trees in the Wasco area of Kern County. (Cal. Coop. Rpt.).

CYCLAMEN MITE (Steneotarsonemus pallidus) - CALIFORNIA - Damaged cylamen plants in Ventura, Ventura County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - MARYLAND - Averaged 3 per animal in 12 hereford calves examined at Upper Marlboro. (U. Md., Ent. Dept.). UTAH - Numerous in young cattle in Tremonton-Penrose area of Box Elder County. (Knowlton, Finch). General in Weber, Millard, Tooele and Salt Lake Counties. (Knowlton).

CATTLE LICE - VIRGINIA - Heavy on cattle in a dairy herd in Bland County. (Mallory). UTAH - Total of 1,100 cattle treated in Wasatch County. (Knowlton, Daniels). Serious in parts of Cache, Box Elder and Weber Counties. Becoming more conspicuous in Millard, Tooele, Salt Lake, Summit and Juab Counties. (Knowlton).

LIGHT TRAP COLLECTIONS

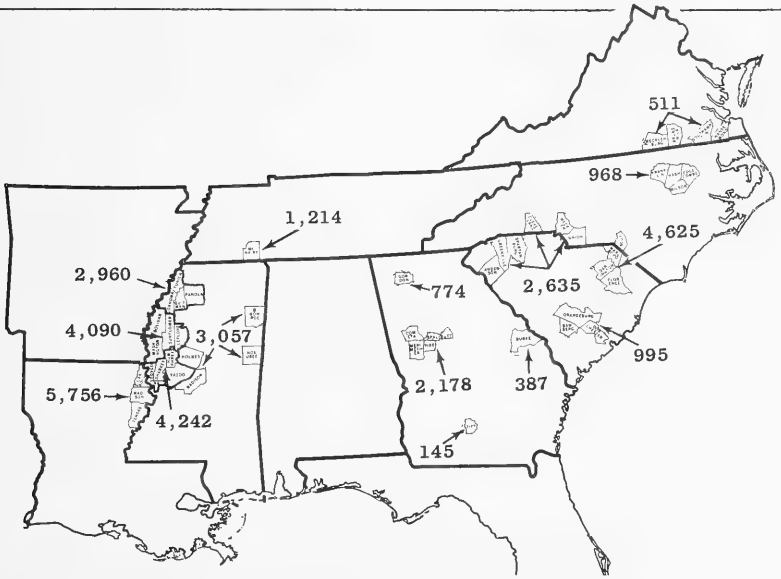
	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterranea
LOUISIANA			
Baton Rouge 1/23-29	24	13	29
SOUTH CAROLINA			
Charleston 1/19-2/1	12	10	10

SUMMARY OF BOLL WEEVIL HIBERNATION SURVEYS - FALL 1958

Collections of surface woods trash samples have been made to date in 7 cotton producing States during the fall of 1958 by cooperating State and Federal agencies. The data from the collections were summarized and reported separately in previous issues of the Cooperative Economic Insect Report as follows: North Carolina, South Carolina and Virginia - Vol. 8, page 1008; Louisiana - Vol. 9, page 4; Georgia - Vol. 9, page 21; Mississippi - Vol. 9, page 31.

Fall Woods Trash Examinations for Hibernating Boll Weevils

State	Area or District	Number of Live Weevils per Acre	
		1957	1958
	Area 1 - South central S. C.	3,978	995
North Carolina	Area 2 - Coastal plains (N.C. & S.C.)	11,374	4,625
South Carolina	Area 3 - Piedmont (N.C. & S.C.)	6,752	2,635
Virginia	Area 4 - North central N. C.	2,205	968
	Area 5 - Southeastern Va.	3,335	511
Georgia	Northwest	1,113	774
	North central	5,034	2,178
	East central	1,791	387
	South	387	145
Mississippi	Lower delta	5,243	4,242
	Central delta	6,269	4,909
	North delta	11,264	2,960
	Hill section	4,087	3,057
Louisiana	Northeast	8,043	5,756
Tennessee	McNairy County	2,365	1,214



STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - CALIFORNIA - Medium infestation on a farm property in Thermal, Riverside County, is fifth active infestation known in the State at present time. (Cal. Coop. Rpt.).

Stored-products Insect Situation in Texas - INDIAN-MEAL MOTH (Plodia interpunctella), CONFUSED FLOUR BEETLE (Tribolium confusum), SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) and RICE WEEVIL (Sitophilus oryza) were found in large numbers on sacks of stored grain in Parmer County. Some dermestids were also found. (Russell, Meekma, Hawkins). A GRAIN BEETLE (Ahasverus advena), SAW-TOOTHED GRAIN BEETLE and CONFUSED FLOUR BEETLE were light to medium in stored grain in Chambers County. (Turney).

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

1958

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The summaries of insect conditions that follow have been submitted in the 1958 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 and South Asia 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 8 entomologists are stationed in 7 countries working with 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).

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Summary of Insect Conditions in Iraq

By W. O. Ridgway

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) moved into the country from the vast Arabian deserts and threatened agriculture in the entire country. An all-out mobilized effort by the Government reduced damage to a minimum and prevented escapes of the new generation to neighboring countries, which developed mainly in cultivated lands. SENN PEST (Eurygaster integriceps), an ever existing threat to small grains from its mountain hibernation areas adjacent to cultivated valleys, appeared in concentrated numbers in isolated areas. Locust control teams were diverted in some areas to this pest. The often mistaken Aelia spp. were not found in noticeable numbers but another PENTATOMID (Dolycoris sp.) was quite numerous in cereals early in the season and caused much concern but very little damage. DURRA STALK BORER (Sesamia cretica) again caused great concern in experimental sorghum plantings and limited broomcorn and field corn acreages. WHEAT LEAF MINER (Syringopais temperatella) caused extreme damage during the winter to wheat and barley in northern drought areas. ALFALFA WEEVIL (Hypera postica) again caused damage to early cuttings of alfalfa. SPOTTED ALFALFA APHID (Therioaphis maculata) and an ALFALFA CATERPILLAR (Colias sp.) reduced quality alfalfa hay and made hand harvesting difficult. Mixed species of native GRASSHOPPERS again caused much concern on summer crops.

Fruit Insects: GREEN PEACH APHID (Myzus persicae) was quite severe on peach, plum, apricot and pomegranate. WOOLLY APPLE APHID (Eriosoma lanigerum) stimulated a government-sponsored control campaign in areas of heaviest infestation. CODLING MOTH (Carpocapsa pomonella) was again common wherever apples were grown. A SPIDER MITE, probably EUROPEAN RED MITE (Panonychus ulmi), was very extensive on apples during late summer. A DATE FULGORID (Ommatissus binotatus) was common during the spring but built up to severe proportions with the second generation during late summer. Spring controls were limited because of the locust emergency. PHYCITID larvae (Ephestia spp.) were common, infesting dry dates and figs. Citrus was again nearly free of any economic pests.

Truck Crop Insects: The common problem of APHIDS on cabbage, melons, lettuce, tomatoes, turnips and sugar beets again prevailed. WHITEFLIES (Bemisia spp.) stimulated needed controls on melons, peas and beans. BALUCHISTAN MELON FLY (Myiopardalis pardalina) was again a major problem on melons and stimulated some experimental controls and studies. RED PUMPKIN BEETLE (Raphidopalpa foveicollis) was quite severe on early-planted cantaloups. A MELON BEETLE (Epilachna chrysomelina) was common on melons and other vegetable crops. ONION THRIPS (Thrips tabaci) and a SEED MAGGOT (Hylemya sp.) were common on onions. MOLE CRICKETS (Gryllotalpa spp.) caused concern in vegetable and ornamental gardens. A CABBAGEWORM (Pieris rapae) was common throughout the season.

Cotton Insects: SPINY BOLLWORM (Earias insulana) and a SPIDER MITE (Tetranychus sp.) teamed up again after early season treatments to become the major problem on cotton. Controls were started again after a month of interruption during the middle of the season.

Miscellaneous: CRAB LOUSE (Phthirus pubis) was taken from the eyelashes of a six-month-old baby along with nits attached to eyelash hairs.

Summary of Insect Conditions in Iran

By R. Q. Gardenhire

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) invaded Iran for the first time since 1954 and was heavy throughout southwestern and southern areas. Lesser invasions extended into eastern, central and extreme northwestern areas. Crop damage was held to a minimum through intensive control efforts. Aggregate acreage reported treated in all areas totaled 2,765,000 acres. MOROCCAN LOCUST (Dociostaurus moroccanus) was the heaviest in several years in Fars Province and heavy damage to rangelands and wheat occurred, despite extensive control. Heavy infestations also occurred in Gorgan, Khorrasan, Khuzistan and Kerman Provinces. Aggregate acreage reported treated in all areas totaled 2,035,000 acres. Native GRASSHOPPERS (Calliptamus sp., Dociostaurus spp. and others) infested most areas. Aggregate acreage reported treated totaled 425,000 acres. SENN PEST (Eurygaster integriceps) continued at low level, with no serious damage to cereals reported. PENTATOMIDS (Aelia furcula and A. virgata) were extremely heavy in several localized areas, causing as much as 50 percent loss of wheat in the Hamedan area. Dolycoris baccarum (Det. P. D. Ashlock) invaded cereal fields near Dezful in Khuzistan, with population densities as high as 70 per square meter reported. No important damage was observed. A SCARAB BEETLE (Anisoplia sp.) was reported very numerous in several western areas and adults damaged maturing wheat heads. A WHITE GRUB (near Haplida sp.)(Det. J. G. Rosen) greatly reduced stands of young cereal plantings in Khuzistan during late winter. EUROPEAN CORN BORER (Pyrausta nubilalis) (Det. H. W. Capps) was moderately heavy in the limited plantings of field corn in the Caspian area. DURRA STALK BORER (Sesamia cretica) was the most important pest of corn and sugarcane throughout Iran, and in conjunction with a CRAMBID STALK BORER (near Chilo sp.) (Det. H. W. Capps) caused severe damage to sorghum in Baluchistan.

CEREAL LEAF MINER (Syringopais temperatella) became increasingly important on wheat and barley in southwestern and southern areas, particularly where cereal and opium crop rotation had been discontinued. Complete destruction of many fields occurred in late winter, with 60-90 larvae per small plant common. LUCERNE-FLEA (Sminthurus viridis) (Det. D. L. Wray) was in great abundance in wheat fields and common on wild alfalfa in Khuzistan Province. ENGLISH GRAIN APHID (Macrosiphum granarium) (Det. L. M. Russell) infestations were heavy on wheat in southern areas. GREENBUG (Toxoptera graminum) (Det. L. M. Russell) was present but not abundant on cereals in the south. CORN LEAF APHID (Rhopalosiphum maidis) (Det. L. M. Russell) infested barley in Khuzistan Province. ARCTIID CATERPILLARS (Arctia sp. and others) (Det. H. W. Capps and W. D. Field) fed extensively on all species of range plants in many areas, frequently invading adjoining cereal fields. ALFALFA WEEVIL (Hypera postica) continued to be the most serious pest of alfalfa in all areas and generally destroyed first cutting and caused heavy damage to second cutting. SPOTTED ALFALFA APHID (Therioaphis maculata) was of occasional economic importance causing honeydew and much difficulty in harvesting. SWEETCLOVER WEEVIL (Sitona cylindricollis) adults were extremely abundant on alfalfa in the Karaj area, defoliating many plants. MIRIDS (Deraeocoris punctulatus (Det. P. D. Ashlock) and Calocoris norvegicus (Det. R. I. Sailer)) were common on alfalfa in the vicinity of Tehran and Karaj.

Truck Crop Insects: SPIDER MITES and APHIDS were probably the most destructive pests to truck crops, with no crop escaping serious damage. BEET ARMYWORM (Laphygma exigua) infestations dropped to a very low level and in most areas no control measures were required on sugar beets. A SUGAR-BEET CROWN BORER (Gnorimoschema ocellatella) was not of economic importance until late summer, then rapidly increased to where 100 percent infestation was common. A SUGAR-BEET STEM BORER (Lixus incanescens) was generally present but of minor importance. SPIDER MITES (Tetranychus spp.) were the only pests observed on eggplant and caused heavy dropping of foliage in many western and northwestern areas. They were the most important pests of sugar beets in some of the more arid regions, whereas BEAN APHID (Aphis fabae) was the major pest of this crop in the cooler, northern Province of Azerbaijan. SPINACH LEAF MINER (Pegomya hyoscyami) (Det. R. H. Foote) infestations on sugar beets were the heaviest in several years, with serious economic damage in many central localities. FLEA BEETLES (Chaetocnema spp.) caused heavy damage to sugar beets in the young seedling stage. BALUCHISTAN MELON FLY (Myiopardalis pardalina) and MELON BEETLE (Epilachna chrysomelina) damaged melons and cucumbers in all areas. RED PUMPKIN BEETLE (Raphidopalpa foveicollis) was of lesser importance on melons and was seen only in the south. CABBAGEWORMS (Pieris rapae, P. brassicae and Plutella maculipennis) were common on cabbage with the most serious damage caused by P. rapae. CABBAGE APHID (Brevicoryne brassicae) was heavy on cabbage and cauliflower generally. A FLEA BEETLE occurred in great abundance on cabbage throughout the season in all areas. Nymphs of a PENTATOMID (Eurydema ventrale) were quite abundant on cabbage during late summer in Azerbaijan Province, with some damage. TURNIP WEBWORM (Hellula undalis) (Det. H. W. Capps) damaged cabbage and sometimes caused serious damage to turnips. TURNIP APHID (Rhopalosiphum pseudobrassicae) (Det. L. M. Russell) was extremely heavy on turnips during late winter in Khuzistan Province, and also infested wild crucifers. A CHRYSOMELID (Colaphellus hoefti) caused extensive damage to turnip foliage in Khuzistan Province. EUROPEAN CORN BORER (Pyrausta nubilalis) (Det. H. W. Capps) infested bell peppers at Shahi on the Caspian Sea. TOMATO RUSSET MITE (Vasates lycopersici) caused severe russetting and dropping of tomato foliage in Khorramabad, resulting in severe sunscalding of tomatoes. A TOMATO FRUITWORM (Heliothis armigera) generally attacked tomatoes, but no infestations exceeding five percent were observed. TOMATO CATERPILLAR (Prodenia litura) was a major pest of all types of vegetable crops in Khuzistan Province.

Deciduous Fruit Insects: CODLING MOTH (Carpocapsa pomonella) severely infested apples countrywide, attacked pears to a lesser extent and caused limited damage to quince. ERMINE MOTHS (Hyponomeuta sp. or spp.) completely defoliated many apple trees in Azerbaijan Province, caused serious leaf damage in most apple-growing areas and infested apricot, plum and quince. PLUM FRUIT MOTH (Laspeyresia funebrana) infested 50-90 percent of the prune crop in many areas. Damage to plums was much less severe. A LACE BUG (Stephanitis pyri) occurred predominately on apples and also on pears in all fruit-growing areas. Damage was light to very severe. SPIDER MITES, particularly a BRYOBIA MITE (Bryobia rubrioculus (Sheuten))* heavily infested deciduous fruit trees. A prune orchard near Amol in the Caspian Sea area was almost completely defoliated by CLOVER MITE. A CERAMBYCID TWIG BORER killed many terminal branches of apricots, cherries and apples over a wide area of central and western Iran. Attacks were not confined to weakened trees. SHOT-HOLE BORERS (Scolytus spp.) killed many previously weakened peach, plum, cherry and apricot trees. Several SCALE INSECTS, Parlatoria oleae, Lepidosaphes ulmi, Nilotaspis halli and Chionaspis asiatica , were important on deciduous fruit trees. Saissetia oleae killed many olive trees in the Rudbar area. Intensive control measures are underway.

Citrus Insects: A complex of SCALE INSECTS and CITRUS RUST MITE represent the most important economic pests of Iranian citrus. These occur primarily in the Caspian Sea area. Frequently, heavy infestations of three or four species of scale insects will be found on a single tree. Extensive efforts are being made to reduce this damage, and, in the Caspian citrus-growing area, more than one and one-half million trees were treated in 1958. CITRUS RUST MITE (Phyllocoptruta oleivora) was probably the most important single citrus pest in 1958. Unusually heavy infestations, extensive spread to additional areas and improper timing of control resulted in severe russetting in many groves. CITRUS RED MITE (Panonychus citri) was common, serious damage was observed on citrus nursery stock. TEXAS CITRUS MITE (Eutetranychus banksi) (Det. E. W. Baker) was the most common spider mite attacking citrus in southern areas, while DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi) was the most widespread scale insect in the Caspian region. CHINESE WAX SCALE (Ceroplastes sinensis) became more widespread and was serious in some areas. PURPLE SCALE (Lepidosaphes beckii), CHAFF SCALE (Parlatoria pergandii) and P. ziziphus were of major importance on citrus along the Caspian Sea. The following SCALE INSECTS, Lepidosaphes gloveri, Pulvinaria floccifera, P. aurantii, Coccus pseudomagnoliarum, C. hesperidum, Aonidiella citrina and A. aurantii, infested citrus in scattered areas of the Caspian region but were generally of limited importance. COTTONY-CUSHION SCALE (Icerya purchasi) was a problem only in those areas where adjoining host plants were heavily infested. ORIENTAL YELLOW SCALE (Aonidiella orientalis) was the only scale of importance on citrus in the hot and arid southern regions. CITRUS LEAF MINER (Phyllocnistis citrella) was important in the limited southeastern areas.

Nut Insects: Loss of pistachios and almonds is extremely heavy each year. Even though almond production is high, it was not uncommon to find orchards where ALMOND NUT BORER (Eurytoma amygdali) caused practically 100 percent loss of nuts. Severe damage by this insect occurred in the large northwest almond-producing region in 1958. The pistachio insect problem is much more complex, with several species causing major damage in 1958. The major species involved are PISTACHIO LEAFHOPPER (Idiocerus stali) (Det. J. P. Kramer), PISTACHIO PSYLLID (Agonoscena targioni), PISTACHIO NUT BORER (Eurytoma plotnikovi) (Det. B. D. Burks), a GELECHIID NUT BORER (Recurvaria pistacicola), a HAIRY CATERPILLAR (Ocneria terebythina), PISTACHIO LEAF MINER (Stigmella promissa), a SCOLYTID (Chaetoptelius vestitus) (Det. W. H. Anderson), a BUPRESTID (Capnodis cariosa), a LEPIDOPTEROUS TWIG BORER, a PISTACHIO SCALE (Lepidosaphes pistaciae) and a SPIDER MITE (Tetranychus sp.). Several other

* Van Eyndhoven, G. L. 1956. Ent. Bereich. 16:45-46.

insects caused minor damage to pistachios. Reliable sources estimate that 50 percent of the entire 1958 crop will be lost to insects, even though several million trees were treated. This would represent a loss of between 4 and 5 million dollars. An orchard near Kerman was observed where 95 percent or more of the pistachio crop was destroyed by a combination of insects.

Grape Insects: VINE MOTH (Lobesia botrana) caused minimum damage to grapes due to a very effective control program in infested areas. A GRAPE MOTH (Sparganothis pilleriana) infested grapes in the vicinities of Ghazvin and Tahkestan. GRAPE ERINEUM MITE (Eriophyes vitis) was common in Azerbaijan Province, but caused only minor damage. CICADAS infested grape roots in the Hamedan and Kermanshah areas and damage was sufficient to cause much concern.

Cotton Insects: SPINY BOLLWORM (Earias insulana) infestations were generally much less severe than in 1957. This probably may be attributed to more effective control measures and climatic conditions less favorable for buildup. A COTTON BOLLWORM (Heliothis armigera) caused less damage to cotton in the Caspian region than in 1957. Infestations rarely exceeded 25 percent, 5-10 percent being most common. SPIDER MITES (Tetranychus spp.) frequently necessitated the application of control measures in southern areas. APHIDS, THRIPS and WHITEFLIES were common in cotton, damage being severe in scattered localities. NOCTUIDS (Laphygma exigua, Prodenia litura and Xanthodes graellsii) (Det. H. W. Capps) attacked young cotton in Khuzistan Province, but damage was usually limited.

Forest, Ornamental and Shade Tree Insects: An ERMINE MOTH (Hyponomeuta sp.) completely defoliated many willow trees in early spring in the Shiraz area. POPLAR LEAF BEETLE (Melasoma populi) was generally distributed and caused extensive defoliation, particularly of poplar nursery trees, in western Iran. A POPLAR TRUNK APHID (Phloeomyzus passerinii) was very heavy on trunks of poplar trees in Borujerd. A BUPRESTID BORER (Capnodis sp.) killed a large percentage of trees in poplar nurseries at Borujerd and attacked larger trees to a lesser degree. GYPSY MOTH (Porthetria dispar) occurred in the deciduous forests of the Elburz Mountains, but no serious damage was reported or observed. MOROCCAN LOCUST (Dociostaurus moroccanus) - Adult flying locusts completely devastated an area of approximately ten square miles near Kazerun, stripping all leaves from jujube trees (Zizyphus sp.) and shrubs. CITRUS BLACKFLY (Aleurocanthus woglumi) was common on Zizyphus sp. throughout Khuzistan Province. COTTONY-CUSHION SCALE (Icerya purchasi) was extremely heavy on maples in Babol and very heavy on Spanish broom (Spartium junceum) in several Caspian localities. GREEDY SCALE (Aspidiotus camelliae) killed sections of euonymus and boxwood hedges in several Caspian Sea localities. BLACK SCALE (Saissetia oleae) heavily infested oleander at Ramsar.

Miscellaneous Insects: OLD WORLD DATE MITE (Oligonychus afrasiaticus) severely damaged the date crop in many widely scattered southern areas. The extent of damage caused by a DATE FULGORID (Ommatissus binotatus) was not reported, but control operations were greatly reduced in 1958. DATE STEM BORER (Oryctes elegans) was an important pest in Jahrom and Bam areas. DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi) was generally light on tea in the Caspian region. However, infestations sometimes became quite heavy in densely shaded plantings. EUROPEAN CORN BORER (Pyrausta nubilalis) (Det. H. W. Capps) attacked kenaf stems (Hibiscus cannabinus), a fiber plant grown for jute, throughout the Caspian region. Infestations averaged about ten percent. This borer also attacked stems of Abutilon avicenna. A SESAME POD BORER (Antigastra catalaunalis) (Det. H. W. Capps) was generally distributed in sesame-growing areas and frequently destroyed a high percentage of seed pods. A SESAME LEAFHOPPER (Circulifer opacipennis) was considered the most important pest of sesame in Khuzistan Province, destroying large areas and even entire fields. A LEAFHOPPER (Orosius albicinctus) also attacked sesame but was of less importance. TOBACCO APHIDS were most common

and serious on tobacco. In Azerbaijan Province extremely heavy infestations caused severe honeydew on tobacco. A TERMITE (Amitermes vilis) (Det. T. E. Snyder) caused heavy damage to building timbers and railroad ties in Khuzistan Province. Another TERMITE (Anacanthotermes vagans septentrionalis) (Det. T. E. Snyder) occurred throughout Iran, but generally did not cause extensive damage.

Beneficial Insects: About 80 million SENN PEST PARASITES(Microphanurus semistriatus) were again reared for field release. About 22,000 VEDALIA (Rodolia cardinalis), either field-collected or insectary-reared, were released for biological control of cottony-cushion scale. COCCINELLIDS (Brumus octosignatus, Chilocorus bipustulatus, Adonia variegata, Prophylaea 14-punctata and Exochomus flavipes) (Det. E. A. Chapin) were important predators of aphids and spider mites. BRACONID PARASITES - Phanerotoma sp. (Det. C. F. W. Muesebeck) was reared from sesame pod borer and great numbers of Bracon brevicomis (Det. C. F. W. Muesebeck) were reared from larval noctuids. Trioxys utilis and Praon palitans continued to affect control of spotted alfalfa aphid in all areas of the country. ICHNEUMONID PARASITES (Dicaelotus sp. and Horogenes sp.) (Det. L. M. Walkley) were reared from Gnorimoschema ocellatella and a PTEROMALID PARASITE (Dinarmus pistaciae) (Det. B. D. Burks) was reared from pistachio nut borer.

Summary of Insect Conditions in Afghanistan

By D. D. Shallow

Cereal and Forage Insects: SENN PEST (Eurygaster integriceps) was not serious in the Oxus River Valley. Twenty-eight fields were checked in nine locations and out of 9,680 sweeps, 34 adults and 99 nymphs were collected on May 19 and 20. During 1958 the senn pest was collected in Kabul for the first time. Three other species of stink bugs feeding on wheat in Mimanah Province earlier in the season were Nezara viridula, Dolycoris baccarum and Aelia sp.). CUTWORMS caused heavy damage in Khattagan, Jalalabad, Khandahar and Kabul Provinces in May and June. COWPEA APHID (Aphis medicaginis) was serious in Kabul with as many as 150 per tip on cowpeas and other legumes during June. This season the larvae of a type of LESSER CLOVER LEAF WEEVIL caused as much as 50 percent damage in the alfalfa fields. PEA APHIDS were again abundant during the entire growing season. DESERT LOCUST (Schistocerca gregaria) did not become a serious menace this season as expected. MOROCCAN LOCUST (Dociostaurus moroccanus) and ITALIAN LOCUST (Calliptamus poss. italicus) became epidemic in Mazari Shariff Province and between 35,000 and 50,000 acres were under control. As usual there were many species of GRASSHOPPERS in different crops, as well as forage crops.

Fruit Insects: APPLE APHID (Aphis pomi) was quite severe in orchards from Kabul to Shebar Pass and required controls. Two other APHIDS (Hyalopterus pruni and Pterocholorus persicae) fed in large numbers on apple trees. One of the worst fruit pests again in 1958 was a WEBWORM (Malacosoma sp.). About 527,000 trees were sprayed from Kalat in the south to Shebar Pass in central Afghanistan for this species and another moth. A serious pest on almond trees was a SOFT SCALE believed to be Lecanium kosswigi. Several thousand trees were treated when the crawlers were moving. CODLING MOTH (Carpocapsa pomonella) was relatively light in Kabul Province but reports from Khattagan Province indicate that up to 100 percent of the fruit was infested in many orchards.

Citrus Insects: In the Jalalabad area citrus was subject to severe infestation of an unidentified WHITEFLY (Dialeurodes sp.). During 1958, there were three generations and 30,000 trees were sprayed during the first-generation adult emergence period. A SPIDER MITE caused scattered damage from June through September.

Cotton Insects: In the main cotton-growing area of Khattagan where practically all cotton is raised, there is only COTTON APHID (Aphis gossypii) which was sporadic in area covered and severity of infestation. SPINY BOLLWORM (Earias insulana) increased from an average 10 percent square and boll infestation during the first week of August to a 42 percent infestation during the second week in September. In the southern cotton-growing area in the Helmand Valley the infestation increased from less than 1 percent in June to an average of 30 percent in September. PINK BOLLWORM (Pectinophora gossypiella) was collected in Jalalabad Province after 8 surveys in that area. It will be extremely important to keep this pest from moving into the real cotton-growing area of northern Afghanistan. Also present in the Helmand Valley in 1958 was A WHITE-FLY which thrived on the dense foliage of cotton and produced honeydew to support smutty black fungus. An estimated 10 percent of the fields were infested.

Sugarcane and Sugar Beet Insects: SUGARCANE STEM BORER (Argyria sticticraspis) infested about 10 percent of the cane in the Jalalabad area. The sugar beet crop in Khattagan Province was heavily attacked in the early stages by WIREWORMS and CUTWORMS. Many fields were replanted.

Insects Affecting Man and Animals: MOSQUITOES were serious as usual and many houses in the country were sprayed. BED BUG (Cimex lectularius) is always present as well as BODY LOUSE (Pediculus humanus humanus) and HEAD LOUSE (Pediculus humanus capitis). It is estimated that at least 20 percent of the people living in the slum areas of Kabul are pestered with these insects and to a lesser extent with FLEAS. CATTLE TICKS were found on at least 50 percent of the cows and to a lesser extent on sheep and horses. Control was obtained by hand picking.

Summary of Insect Conditions in Pakistan

By G. T. Brooks

Cereal and Forage Crop Insects: RICE STEM BORER (Schoenobius incertulus) caused only slight damage throughout the upper Hyderabad region of West Pakistan. In East Pakistan infestations ranged from moderate to heavy, with losses as high as 20 percent. RICE GRASSHOPPER (Hieroglyphus banian) caused minor damage in isolated areas of West Pakistan. A light, localized infestation of a RICE DELPHACID (Sogata furcifera) occurred in Hyderabad. RICE HISPA (Dicladispa armigera) and ARMYWORM (Pseudaletia unipuncta) were confined to East Pakistan, having a generalized distribution of serious proportions. No serious pest outbreaks were recorded on wheat. Localized heavy infestations of A PENTATOMID (Eurygaster maurus) were reported from small areas in the Khuzdar areas in the Quetta region. A TERMITE (Microtermes obesi) caused slight and scattered damage in the Punjab. MAIZE AND JAWAR BORER (Chilo zonellus) caused moderate damage to maize and jawar in the North-West Frontier Province and Punjab. SUGARCANE PYRILLA (Pyrilla perpusilla) was serious on these crops in the Peshawar region. ALFALFA throughout West Pakistan had only minor infestations of ALFALFA WEEVIL (Hypera postica) and COWPEA APHID (Aphis medicaginis). BEET ARMYWORM (Laphygma exigua) caused moderate damage to this crop in the Karachi area.

Sugarcane Insects: SUGARCANE TOP BORER (Scirpophaga nivella) and SUGARCANE STEM BORER (Argyria sticticraspis) were serious on sugarcane in the Punjab, and all of East Pakistan, with infestations ranging 10-30 percent. SUGARCANE PYRILLA continued to be serious in West Pakistan, being confined mainly to the Peshawar region; only light infestations occurred in the Punjab where previous control

measures had reduced the population. SUGARCANE WHITEFLY (Aleurolobus barodensis) was a minor pest in West and East Pakistan. SUGARCANE STEM BORER and a ROOT BORER (Emmalocera depresella) were serious and caused heavy damage to sugarcane in the Punjab.

Fruit Insects: A MANGO STEM BORER (Batocera sp.) was serious and MANGO LEAFHOPPERS (Idiocerus spp.) were light on mangoes in the Karachi area. In other mango-growing areas MANGO LEAFHOPPERS and MANGO MEALYBUG (Drosicha stebbingi) were serious. In the Karachi area, some trees close to guava orchards were lightly infested with FRUIT FLIES (Dacus spp.). Guava trees were also lightly infested in this area, but for the first time there was a heavy infestation of an unidentified LEAF ROLLER. Throughout the guava-growing area of other parts of West Pakistan, fruit flies continued as major pests. In the Quetta area, FIG BORER (Batocera rufomaculata) lightly infested figs. Apple trees in this region were severely infested with CODLING MOTH (Carpocapsa pomonella) and HAIRY CATERPILLAR (Euproctis signata). These pests extended into the Peshawar region but infestations were very light. Several APHIDS (Eriosoma lanigerum, Pterochlorus persicae and Myzus persicae) occurred throughout the fruit-producing areas of the Quetta and Peshawar regions on peach, pear, plum and apple in varying degrees from moderate to heavy. SAN JOSE SCALE (Aspidiotus perniciosus) on apple, peach and plum, OLIVE SCALE (Parlatoria oleae) on pears and Lecanium coryli on peach and plum, were distributed throughout these same areas and were also moderate to heavy. PEACH FRUIT FLY (Dacus zonatus) infestation was mild as result of previous control.

Vegetable Insects: CABBAGE BUTTERFLY (Pieris brassicae) occurred on cruciferous crops throughout Pakistan but was serious only in Peshawar, in West Pakistan. In the Karachi area, DIAMONDBACK MOTH (Plutella maculipennis) was serious on cabbage. Melons throughout West Pakistan were seriously infested by FRUIT FLIES (Dacus spp.), HADDA BEETLES (Epilachna spp.) and RED PUMPKIN BEETLE (Raphidopalpa foveicollis). Moderate infestations of an APHID (Aphis sp.) were reported from most of the area. Serious outbreaks of BRINJAL BORER (Leucinodes orbonalis)and a BRINJAL LACE BUG (Urentius sentis) occurred on eggplant in the Karachi and Punjab areas, whereas BRINJAL LEAF ROLLER (Eublemma olivacea) was a serious pest in East Pakistan. POTATO JASSID (Empoasca devastans) was the only serious pest of potato and appeared confined largely to the southern regions of West Pakistan. E. devastans was reported serious on peppers and tomatoes in the Karachi area. TERMITES (Odontotermes obesus and Microtermes obesi) caused sporadic damage to these crops in the same locality.

Fiber Crop Insects: COTTON STEM BORER (Sphenoptera gossypii) caused serious damage to cotton for the first time in the localized area near Rahimyar Khan, Multan region, and PINK BOLLWORM (Pectinophora gossypiella) was of major concern in the mountainous tracts of the Lahore region. This latter pest was of minor concern also in other cotton-growing areas. Severe damage was caused by SPOTTED BOLLWORMS (Earias spp.) in the canal-irrigated areas of the Sind. COTTON WHITEFLY (Bemisia tabaci) was serious in the Punjab area and in the Sind region. HOUSE CRICKET (Acheta domestica) infestations were light in West Pakistan, but serious outbreaks of GRASSHOPPERS (Chrotogonus spp.) were reported from the Punjab and upper Sind areas. A LEAFHOPPER (Empoasca sp.) was heavy throughout the cotton-growing area. Heavy sporadic infestations of TERMITES occurred throughout the cotton belt. There were no serious outbreaks on jute in East Pakistan; however, JUTE SEMI-LOOPER (Anomis bulifera) and JUTE HAIRY CATERPILLAR (Diacrisia obliqua) were reported as serious.

Summary of Insect Conditions in Tunisia

By E. R. Millet

Cereal Insects: HESSIAN FLY (Phytophaga destructor) causes about 20 percent damage to wheat in the north, but is never serious in the hotter and drier central region. Several species of insects, mostly COLEOPTEROUS and LEPIDOPTEROUS, cause severe damage to stored grain on small farms each year. EUROPEAN CORN BORER (Pyrausta nubilalis) was found in a small corn planting near Tunis. DESERT LOCUST (Schistocerca gregaria) occurred in heavy yellow invasion stages, coming mostly from Algeria. The largest occurrences were in the Sbietla area. A few pink invasion flights were observed in the north but were not heavy. Because of effective control, egg-laying was limited to about 3 percent and thus various instars were not a problem.

Fruit Insects: The most serious damage to apples was caused by CODLING MOTH (Carpocapsa pomonella). APPLE APHID (Aphis pomi) and WOOLLY APPLE APHID (Eriosoma lanigerum) were light. MITES on apples were light, but both EUROPEAN RED MITE (Panonychus ulmi) and a BRYOBIA MITE (Bryobia rubrioculus*) were observed. MEDITERRANEAN FRUIT FLY (Ceratitis capitata) was severe on peaches in the environs of Tunis, and twig damage from an OLETHREUTID MOTH (Grapholitha sp.) was prominent on peaches. On almonds, MITES and APHIDS were the main pests. A WAX SCALE (Ceroplastes rusci) was quite abundant on figs around Tunis.

Citrus Insects: Where citrus occurs in Tunisia, mostly in the Cap Bon and Soukra areas, SCALES were the most important insects that caused damage. These consisted mainly of DICTYOSPERMUM SCALE (Chrysomphalus dictyospermi), CALIFORNIA RED SCALE (Aonidiella aurantii) and FLORIDA RED SCALE (Chrysomphalus aonidum). In the Cap Bon area, CITRUS BUD MITE (Aceria sheldoni) was extremely severe on lemons, CITRUS RED MITE (Panonychus citri) was reported and damage was noted which was attributed to Brevipalpus sp. Considerable damage was also noted and believed to have been caused by CITRUS RUST MITE (Phyllocoptruta oleivora). MEDITERRANEAN FRUIT FLY caused severe losses to citrus fruit in the Cap Bon area in 1958. Other pests on citrus were COTTONY-CUSHION SCALE (Icerya purchasi) and BLACK SCALE (Saissetia oleae) in the Cap Bon area. The predator, VEDALIA (Rodolia cardinalis) was present.

Olive Insects: The most serious insect on olives was probably a SHOT-HOLE BORER (Hylesinus oleiperda) which was particularly damaging to young trees. A PSYLLID (Euphyllura olivina)was kept in check in the Sfax area during 1958 by parasitism. OLIVE FLY (Dacus oleae) generally causes about 20 percent damage, which is not considered too great; this is due to high temperatures in the Sfax area, but there were bad reports of it in Cap Bon, Sousse and Sahel, where the temperatures are not as high. OLIVE SCALE (Parlatoria oleae) was not serious and BLACK SCALE (Saissetia oleae) was reported in the Sfax area. OLIVE MOTH (Prays oleellus) was also observed as damaging olives in Tunisia.

Truck Crop Insects: NEMATODES were bad on tomatoes in the Sahel, Chott Maria and Monastir areas. TOMATO RUSSET MITE (Vasates lycopersici) was serious in the Medjerda Valley and at Cap Bon and Sahel. GREEN APHIDS occurred on many truck crops and were abundant on potatoes. BLACK CUTWORM (Agrotis ypsilon) was light. Although COLORADO POTATO BEETLE (Leptinotarsa decemlineata) is not yet officially recorded as occurring in Tunisia, there were several reports of traces of it in the north. MELON BEETLE (Epilachna chrysomelina) was light as was damage from NEMATODES. A LEPIDOPTEROUS LARVA (Lepidechidna acharnias) was heavy on artichokes in the Medjerda Valley and APHIDS, which are believed to transmit a yet undetermined virus of artichokes, were also heavy throughout the growing area.

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* Van Eyndhoven, G. L. 1956. Ent. Bereich. 16:45-46.

Household and Miscellaneous Insects: HOUSE FLY (Musca domestica) occurred very heavily throughout Tunisia, particularly in the cities, towns and villages where no preventive or sanitation methods are followed. BED BUG (Cimex lectularius) was quite common in all the poorer sections of villages, towns and cities. MOSQUITOES were quite annoying in Tunis. BROWN-BANDED and AMERICAN ROACHES (Supella supellectilium and Periplaneta americana) were observed in houses in Tunis as was SILVERFISH (Lepisma saccharina).

Summary of Insect Conditions in Libya

By A. F. Kaatz

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) appeared in Libya at three different locations during 1958, but at different times. From January through April, small intermittent swarms came up from the south, passed through the Sirte Gulf coast area and disappeared into the east. Some egg-laying en route occurred near Nofilia. These egg bed sites were treated with good results and the area was clear of locusts. During late April and May a few small swarms overflowed into Libya from Tunisia along the border country. Prompt treatment reduced their number and the remainder moved south. The first week of October a large swarm passed through Ghat Oasis and into Algeria. Several GRASSHOPPERS were found in alfalfa but not in numbers large enough to cause severe damage. They were Anacridium aegyptium, Aiolopus strepens, Thisoicetrus annulosus and Sphingonotus obscuratus lameerei. DURRA STALK BORER (Sesamia cretica) destroyed 50 percent of sweet corn at Wadi Kaam. Control was not very successful. Sorghum was heavily infested in the same area. A SCARABAEID (Tropinata squalida) destroyed several barley fields near Sebha before being controlled. Alfalfa had several insect pests in 1958. The most severe was EGYPTIAN COTTONWORM (Prodenia litura). An ALFALFA CATERPILLAR in the coastal belt alfalfa fields caused minor damage. SPOTTED ALFALFA APHID (Therioaphis maculata) occurred in many fields. Treatment by farmers gave control for a short time and repeat treatment was necessary. An ARMYWORM (Laphygma sp.) was serious in a few local areas near Tripoli. Broadbeans were heavily infested by COWPEA APHID (Aphis medicaginis). Many fields were ruined and had to be replanted with other crops. A SPHINGID MOTH also caused some damage but spraying operations brought it under control.

Peanut Insects: A MOLE CRICKET (Brachytrupes megacephalus) caused much damage to young peanut plants throughout the Coastal Belt. EGYPTIAN COTTONWORM (Prodenia litura) also caused severe damage in all peanut-growing areas. BEET ARMYWORM (Laphygma exigua) caused serious damage in some areas. SPIDER MITES ruined several fields near Zanzur.

Olive Insects: OLIVE FLY (Dacus oleae) appeared early in 1958. First punctured olive fruit was noted June 8th on the Italian varieties. Local varieties were not affected until after the large varieties had been harvested. A BLISTER BEETLE (Zonabris oleae) usually found only in northern Cyrenaica, also caused damage in the Gebel area near Tigrini. Near Misurata a DIPTEROUS LARVA (Clinodiplosis oleisuga) damaged most of the 2-year olive trees. SCALES, while present as always, were not serious, except for a few local areas where Pollinia pollini was serious. Saisettia oleae was found but was not serious.

Citrus Insects: MEDITERRANEAN FRUIT FLY (Ceratitis capitata) was present for ten months of 1958. Very serious on other fruits until September and then infested most orange groves. Only limited controls were attempted. There were many CITRUS MITES on lemons this season. No control was undertaken except for a few experiments. Two APHIDS (Aphis gossypii and Toxoptera aurantii) caused damage to growing tips of orange trees. COTTONY-CUSHION SCALE (Icerya purchasi) was on

the increase in 1958, while Parlatoria ziziphus and Chrysomphalus dictyospermi decreased. Many natural parasites, such as Chilocorus bipustulatus, appeared to keep the population down. SPIDER MITES also were found in many orange groves. A SNAIL (Theba pisana) overran many small orange trees and prevented normal growth early in spring.

Other Fruit Insects: MEDITERRANEAN FRUIT FLY was the serious pest of many fruits this season, starting with apricots, then peaches, pears, pomegranates, red peppers, and ending up on oranges. Figs were infested with FIG SCALE (Ceroplastes rusci) and Aspidiotus zonatus. Young apple trees were infested by a BLACK APHID, mostly near Sidi Mesri. An ALEYRODID (Siphoninus finitimus) was serious in the Uaddan Oasis. Control gave good results. WOOLLY APPLE APHID (Eriosoma lanigerum) occurred on young apple trees at Garabuli. Control gave good results. CODLING MOTH (Carpocapsa pomonella) was present in some apple groves. Peach trees throughout the country were attacked by PEACH TWIG BORER (Anarsia lineatella). APHIDS appeared early on peach trees but dry hot winds caused them to disappear. Pear trees from Collina Verdi to Sorman Oases were attacked by Carpocapsa spp. but treatment prevented much damage. APHIDS and TINGIDS (Stephanitis spp.) occurred in local areas only. DATE SCALE (Parlatoria blanchardi), found in most all southern oases, made only moderate attacks. Almond trees were attacked by a Scolytus sp. BEETLE and PEACH TWIG BORER. Grapes were attacked by HORNWORMS near Sidi Mesri. VINE MOTH (Lobesia botrana) was present but not serious.

Tobacco Insects: In the Gebel areas near Garian a BIBIONID FLY MAGGOT (Bibio hortulanus) caused severe damage to tobacco seedlings. TOBACCO SPLITWORM (Gnorimoschema operculella) was again serious in a few plots and control was necessary. NEMATODES were found in many areas as well as a GRASSHOPPER (Anacridium aegyptium).

Stored-product Insects: RICE WEEVIL, LESSER GRAIN BORER and ANGOUMOIS GRAIN MOTH were the most serious stored-grain pests. Some CADELLE, GRANARY WEEVIL and KHAPRA BEETLE were found. Bruchus pisorum was found in pea seeds and COCKROACHES in sacked wheat at Nalute. On dried figs Ephestia sp. and Myelois ceratoniae caused some damage.

Insects Affecting Man and Animals: FLIES and MOSQUITOES were serious as usual and BED BUGS were found in all villages. SCORPIONS were very numerous and many persons were stung. During one 3-week period, over 25 persons were admitted to the hospital for sting treatment. TICKS and LICE were found in all areas on camels, sheep and goats, as well as several HIPPOBOSCID FLIES.

Miscellaneous Insects: Melons were attacked by GRUBWORMS, APHIDS, MELON BEETLES and WHITEFLIES; tomatoes by GRASSHOPPERS and NEMATODES; eggplants by WHITEFLIES and Prodenia litura, seriously by both. In 1958, for the first time, an insect pest was found on potatoes. BEET ARMYWORM (Laphygma exigua) destroyed several fields of potatoes before being controlled. SPIDER MITES were serious on snapbeans and rose bushes.

Summary of Insect Conditions in Ethiopia

By W. C. Kurtz

Cereal and Forage Insects: DESERT LOCUST (Schistocerca gregaria) was heavy and widespread over the northern provinces, including Eritrea, and escapes threaten eastern and southern areas, besides adjacent Somali Peninsula and Kenya. Damage to sorghum, millet, wheat and barley was severe. Control was applied to some 30,000 acres. Considerable undetermined acreage was also treated.

A COCCINELLID (Chnootriba similis) was found on barley at Debra Brehan. Severe damage in conjunction with native GRASSHOPPERS was done. In some fields replanting was necessary. A NOCTUID larva doubtfully identified as Sesamia sp. considerably damaged corn in the Bishoftu area. PENTATOMIDS were heavy in limited areas in Eritrea on sorghum and caused considerable damage to cut and shocked sesame at Om Hera. Native GRASSHOPPERS were found on barley at Debra Brehan and were reported to have caused widespread damage in other areas.

Peanut Insects: DESERT LOCUST (Schistocerca gregaria) occurred in Eritrea. Grasshoppers were found on young plants. Good control was maintained. Later damage by fledglings was not severe as plants had matured.

Fruit and Nut Insects: MEDITERRANEAN FRUIT FLY (Ceratitis capitata) was serious on guava at Shashamani. A FRUIT FLY, possibly C. capitata, occurred on 50 percent of the tangerines at Erre. Larvae of a SWALLOWTAIL (Papilio demoleus v. demodocus) defoliated young orange trees at Bishoftu. A species of LASIOCAMPIDAE defoliated young orange trees at Bishoftu. Several types of SCALE INSECTS heavily infested citrus trees.

Truck Crop Insects: APHIDS were prevalent on tomatoes, cabbage, lettuce and brussel sprouts. SOUTHERN GREEN STINK BUG (Nezara viridula) damage light on cabbage. CUTWORMS caused considerable damage on cabbage in gardens at Addis Ababa. LEAFHOPPERS occurred on tomatoes and lettuce in small gardens in Addis and on potatoes at Holetta with slight damage. ANTS did considerable damage to potatoes in small gardens. They are reportedly harmful to other crops and flowers also. FLEA BEETLES were heavy on potatoes and strawberries. Control was effective. A FRUIT FLY caused considerable damage to tomatoes at Shashamani and MITES did considerable damage to cucurbits and tomatoes in gardens in Addis Ababa. CABBAGEWORMS were quite common.

Cotton Insects: THRIPS were a major pest and PINK BOLLWORM (Pectinophora gossypiella) caused some damage in the Tessenie area. SPINY BOLLWORM (Earias insulana) also caused some damage in the same area.

Oil Seed Insects: PENTATOMIDS were found in abundance on sesame in limited areas and caused considerable damage to cut and shocked sesame at Om Hera. DESERT LOCUST caused practically 100 percent damage to sesame in the Tessenie area.

Stored-product Insects: SAW-TOOTHED GRAIN BEETLE (Orzyaephilus surinamensis) occurred in stored flour in Addis Ababa. Other insects infesting stored products were prevalent and caused considerable damage. No suitable storage facilities exist.

Insects Affecting Man: FLEAS, FLIES, BED BUGS, COCKROACHES and MOSQUITOES were abundant. Malaria is quite prevalent in many areas up to 6500 feet, and a control program is in operation. Funds, personnel and commodities are being supplied by ICA. WHO and UNICEF are also assisting in the furnishing of technical personnel and commodities, respectively.

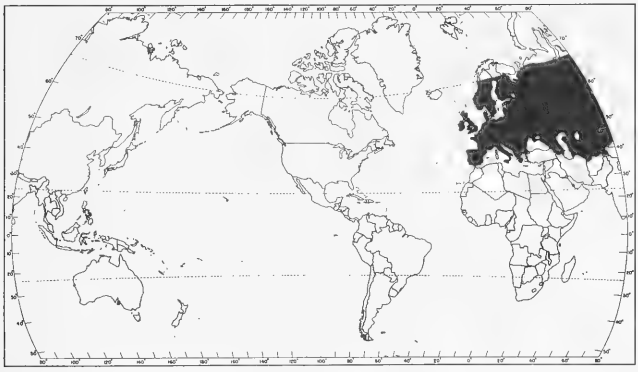
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

CABBAGE BUG (Eurydema oleraceum L.)

Economic Importance: This pentatomid is a very common pest of crucifers in most areas of Europe. Attacks have been very severe in outbreak years, hundreds of bugs being found on each plant at some locations. An attack can lead to the loss of the stand or severe stunting of the crop. Though crucifers seem to be the preferred hosts, damage to other crops, such as potatoes, has been recorded. There are numerous color varieties of this species within its general range of distribution, as well as several other species of Eurydema, but as far as known E. oleraceum appears to be the most important species in the genus in Europe. E. oleraceum has been intercepted several times at United States ports of entry in past years.

Distribution: Occurs throughout Europe, Turkey, Turkestan and areas of Siberia.

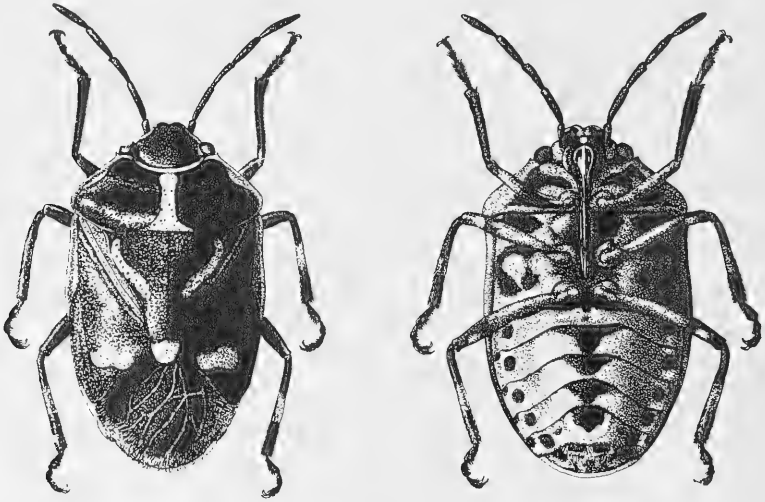
Hosts: A general feeder on crucifers. Also recorded on alfalfa, asparagus, beans, beets, cereals, clover, lettuce, gherkin, potatoes, Verbascum thapsus and ornamental plants.



General Distribution of Eurydema oleraceum

Life History and Habits: The insect overwinters as an adult under lumps of earth, dead leaves or other debris. The adult leaves hibernation in the spring when the weather becomes sufficiently warm. They are very agile and jerky in their movements. They fly easily in the sunlight for considerable distances. Adults puncture the plant tissue, causing small yellow spots at each puncture. One bug may be responsible for a number of such spots. Damage is not great on old plants, younger plantings suffering worst. Several days after mating, the females begin to oviposit. They deposit from 4 to 6 batches of eggs over a period of time. Each batch is symmetrically arranged in two rows of 5 or 6 eggs each. Oviposition takes place on the underside of leaves and petioles. Incubation requires about 30 days. The young nymphs disperse over the plant and feed on the foliage. They pass through 4 or 5 molts, becoming adults in around 45 days. In France there is one generation a year.

Description: Adult 6-8 mm; head short, the lateral edges of the juga distinctly sinuate, edges of pronotum straight, the transverse groove lightly marked, color gun-metal blue. Some individuals have dark undersurfaces, some light. In the former, legs are black with a pale ring on the tibiae (less on the posterior except in the variety nigripes where all tibiae are black). In the individuals with pale venter, femora are largely pale at the base and all of the tibiae have a ring of the same color. The venter is ornamented mid-ventrally with various-sized black spots and with black spots on each stigma and on external anterior angle of each segment. There are numerous varieties of this species. They may be grossly divided as follows: (1) corium without spots, (2) corium with a pale spot near apical end, (3) corium with a spot occupying all of the apical part. Abdomen of nymph pale yellow, tinged with brown, with four central black bars separated by red lines; outside these a broad vinous red band running all round the abdomen. Legs ochreous, tibiae with black lines, femora with black rings; antennae four-jointed, black; no ocelli. Eggs are greenish-yellow with a uniform white operculum and characteristic barrel-shape. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies.) CEIR 9 (6) 2-6-59



Dorsal Ventral

Adult of Eurydema oleraceum

Figures (except map) from Gomez-Menor, J. 1949. Bol. de Patol. Veg. y Ent. Agr. 16:31-68.

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

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COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID active as far north as Kansas and Virginia. (p. 85).

STRAWBERRY APHID and TWO-SPOTTED SPIDER MITE damaged strawberries in southern California. (p. 86).

WESTERN PINE BEETLE caused serious damage to pines in a 2,000-acre area in Madera County, California. (p. 86).

CALIFORNIA OAKWORM severe and general in Kenwood area of Sonoma County, California. (p. 86).

A NOCTUID (Melipotis acontioides) collected on Key Largo, Florida. (p. 86).

INSECT DETECTION: Pear psylla collected for first time in San Mateo County, California. (p. 85).

CORRECTION. (p. 87). ADDITIONAL NOTES. (p. 88).

SUMMARY OF INSECT CONDITIONS - 1958 - NEW JERSEY (p. 89), MARYLAND (p. 91), VIRGINIA (p. 95), WEST VIRGINIA (p. 99).

INSECTS not known to occur in the United States. (p. 101).

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Reports in this issue are for the week ending February 6, unless otherwise designated.

WEATHER OF THE WEEK ENDING FEBRUARY 9

The prolonged period of abnormally mild temperatures in the Far West was interrupted along the western slopes of the Rockies last week as a surge of cold air to the Mexican Border early in the period pushed the mercury below freezing levels on two mornings at Tucson, Arizona and a cold wave in northern sections during the weekend dropped minima to subzero levels in western Montana. Weekly averages were below normal in Arizona for the first time this year. Temperatures again averaged above normal in most of the remainder of the Far West but by only 3° or less. Abnormally cold weather continued in the mid-continent area, with weekly averages ranging from 9° below normal at Brownsville, Texas to 12° below at points near the Canadian Border, but east of the Appalachians, the week was a few degrees warmer than normal in Florida and northern New England and about seasonal elsewhere. Subzero minima occurred in all extreme northern areas east of the Divide the latter part of the week, when some extreme lows reported were -36° at International Falls, Minnesota on the 6th and -34° in the northern Adirondacks of New York State and at Newport, Vermont on the 9th.

Precipitation for the week exceeded $\frac{1}{2}$ inch along the Atlantic, Gulf and north Pacific coasts, as well as in most southeastern interior areas but was generally less elsewhere. From extreme eastern Texas to the Carolinas, heavy rains fell at the beginning and end of the week; and weekly totals of 1 to 6 inches relieved soil moisture deficiencies that had persisted for several months in some sections. On the 7th and 8th, a storm produced general precipitation over most of the Far West, the first general precipitation in extreme southern areas since last November. Moderate to heavy snows fell in the southern Sierras; Flagstaff, Arizona, measured 17 inches of snow, and some mountain stations in Arizona reported over 2 inches of moisture. As this storm moved across the lower Great Plains on the 9th, glaze, snow, rain and fog occurred from Kansas to the lower Great Lakes region, greatly hampering traffic. Some thunderstorms also occurred, and early on the morning of the 10th a tornado killed many persons, injured hundreds and caused heavy damage in St. Louis, Missouri. This was the third major tornado disaster in the city. The first was on May 27, 1896, when 306 persons were killed and property damage was estimated at about $13 million, and the second on September 29, 1927, when the death toll was 72 and damage $22 million. Only light snows occurred east of the Rockies during the week and snow depths in northern areas did not change significantly. (Summary supplied by U. S. Weather Bureau.).

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (Hypera postica) VIRGINIA - Larvae not observed in alfalfa fields in Franklin, Pittsylvania or Halifax Counties, week of January 27, but were present December 18, 1958, in Smyth and Pittsylvania Counties. (Bishop).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Populations scattered and light in southwestern small grain fields. Averaged 0-3 per linear foot. (VanCleave, et al.).

PEA APHID (Macrosiphum pisi) - NEW MEXICO - Large populations have been feeding in alfalfa fields in southern Dona Ana County. However, they have been almost completely destroyed by coccinellid larvae and adults. (N. M. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - VIRGINIA - Present in a Halifax County alfalfa field, January 27. (Bishop). OKLAHOMA - Averaged 10-150 per square foot in alfalfa fields in Tillman and Jackson Counties. (VanCleave, Pennington, Hatfield). Averaged 1.9 per trifoliate leaf in 300 samples from an alfalfa field in Payne County. (Bryan). NEW MEXICO - Generally light in most alfalfa fields in Dona Ana County. Two severe infestations found near Hatch. (N. M. Coop. Rpt.). KANSAS - Counts per 25 plants on January 30-31 were 1 and 18 in 2 fields in Riley County; 103 in Geary County; 25 and 52 in 2 fields in Marion County; 315 in one Butler County field; and 834 and 205 in 2 fields in Cowley County. (Simpson, Burkhardt).

GREENBUG (Toxoptera graminum) - OKLAHOMA - Infestations in southwestern area scattered and light, with 0-3 per linear foot. (VanCleave, et al.). Infestations common but very light in Payne County. Averaged less than one per linear foot in most fields. (Wood).

A FALSE CHINCH BUG (Nysius sp.) - CALIFORNIA - Heavy on alfalfa in the Blythe area of Riverside County. (Cal. Coop. Rpt.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Infestations in scattered fields of small grain throughout southwest area. Ranged 4-200 per linear foot. (VanCleave, et al.).

LEAFHOPPERS - OKLAHOMA - Unidentified species averaged 0-2 per linear foot in small grain fields in southwest area. Infestations fairly common. (VanCleave, et al.). CALIFORNIA - Aceratagallia obscura heavy in alfalfa fields in the Blythe area of Riverside County. (Cal. Coop. Rpt.).

FRUIT INSECTS

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - IDAHO - Heavy in a peach orchard of about 2 acres near Parma. Severe in some trees, with 10-12 in a six-inch square area at ground level. Every tree showed some evidence of activity. Very slight borer activity also noticed in 2 prune trees immediately adjacent to peach orchard. (Scott).

PEAR PSYLLA (Psylla pyricola) - CALIFORNIA - Single male specimen collected from citrus foliage in San Mateo, San Mateo County, is first report from this county. (Cal. Coop. Rpt.).

SCALE INSECTS - NORTH CAROLINA - Aspidiotus uvae severe on 20 acres of grapes in McDowell County. (Scott). CALIFORNIA - Parlatoria oleae medium on peach trees in Willows, Glenn County, and reported from 3 orchards in Littlerock area of the Antelope Valley, Los Angeles County. Aspidiotus perniciosus heavy

on red currants in Watsonville area, Santa Cruz County and on flowering peach trees in Willows, Glenn County. A. hederae infestations heavy on persimmon trees in Santa Paula, Ventura County, as are populations of Coccus hesperidum on Carob trees in San Diego, San Diego County. (Cal. Coop. Rpt.).

Citrus Insect Situation, Lake Alfred, Florida, Fourth Week in January - PURPLE SCALE activity declined and will remain near current low level through mid-February. FLORIDA RED SCALE activity decreased slightly. Downward trend of past month expected to level off in next 14 days with infestations still well above normal. Present moderate level of CITRUS RED MITE activity will continue until mid-February, after which it is expected to increase. There was a decrease in CITRUS RUST MITE activity. A below average level is predicted for February. (Fla. Coop. Sur.).

TRUCK CROP INSECTS

SEED-CORN MAGGOT (Hylemya cilicrura) - CALIFORNIA - Damaged a number of young fields of spinach in Orange County. Adults numerous in radish fields, but no damage observed to date. (Campbell).

THRIPS - NEW MEXICO - Populations building up on onions in Dona Ana County. Averaged 1-6 per plant, depending on field. (N. M. Coop. Rpt.).

A WHITEFLY (Aleyrodes spiraeoides) - CALIFORNIA - Heavy on pepper plants in Ventura County. (Cal. Coop. Rpt.).

STRAWBERRY APHID (Pentatrichopus fragaefolii) - CALIFORNIA - Damaging numbers have built up on strawberries in the southern part of the State, as a result of warm weather and very little rain. (Campbell).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Damaging numbers have built up on strawberries in the southern part of the State, as a result of warm weather and very little rain. (Campbell).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Causing complete killing of many ponderosa pines in the Bass Lake area of Madera County. Construction of new highway resulting in undisposed slash during a period of prolonged warm weather is responsible for this sudden outbreak. Serious damage to trees in a 2,000-acre area involved. (Whitfield).

A NOCTUID (Melipotis acontioides) - FLORIDA - Adults collected at light on Key Largo, Monroe County, January 30. (Denmark). This species caused considerable damage to poinciana at Key West in June, 1958. See CEIR 8(27):593.

CALIFORNIA OAKWORM (Phryganidia californica) - CALIFORNIA - Severe, general infestation in Kenwood area, Sonoma County. Fall egg hatch, with larvae feeding all winter. Some live oaks already defoliated. This unusual condition is probably due to the warm, open winter. (Hawthorne).

NANTUCKET PINE MOTH (Rhyacionia frustrana) - ALABAMA - Heavy infestation of pupae on 200 acres of 2-year old pines in Clarke County. Also, about 10 percent of a large number of one-year old seedlings show damage. (Ruffin).

SCALE INSECTS - ALABAMA - Spotted infestations of Icerya purchasi on ornamentals in Mobile County. Fiorinia theae and Lepidosaphes camelliae heavy on camellias in the same area. (Grimes). ARIZONA - Antonina graminis and Odonaspis ruthae severe on a Bermuda grass lawn in Phoenix, January 12. Det. H. Morrison. (Bibby). CALIFORNIA - Parlatoria camelliae heavy on camellia plants in Oakdale and medium in Modesto, Stanislaus County. Varying infestations of Aspidiotus perniciosus occurred on roses in Willows, Glenn County. (Cal. Coop. Rpt.).

CITRUS MEALYBUG (Pseudococcus citri) - CALIFORNIA - Heavy on stephanotis in Ventura, Ventura County. (Cal. Coop. Rpt.).

WHITEFLIES - ARIZONA - Tetraleurodes acaciae infested foliage of bird-of-paradise ornamental shrub at Phoenix, November 5, 1958. Det. L. M. Russell. (Bibby). CALIFORNIA - Aleyrodes spiraeoides heavy on iris in Porterville, Tulare County, and on rose in El Cerrito, Contra Costa County. (Cal. Coop. Rpt.).

SPIDER MITES - ALABAMA - Moderate infestations on ornamentals in Mobile County. (Grimes).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - NORTH CAROLINA - Examination of dairy and beef cattle during last half of January showed no grubs in 88 head in Hertford County (Royster); 3 head infested out of 235 in Gaston County (Taylor); 3 head infested of 172 in Mecklenburg County (Costner); 4 animals infested in 5 herds in Rutherford County (Toomey); of 11 animals in Jackson County all were infested (Gibson); and no grubs were found in 26 head in Hoke County (Williford). OKLAHOMA - Averaged 14 per animal on 160 yearling steers and 8 per mature cow of 210 examined in Harper County and 12 per animal on 80 yearling steers examined in Woodward County. (Howell). NEW MEXICO - Averaged 15-20 per head on cattle examined in Union and Harding Counties. (N. M. Coop. Rpt.). UTAH - Appearing in backs of cattle in Wayne, Sanpete and Grand Counties. (Knowlton).

AN ARGASID TICK (Ornithodoros kelleyi) - MARYLAND - Found in a home at Pikesville, January 19. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

PREDATORS - OKLAHOMA - Few isolated adult Hippodamia convergens found in alfalfa and small grain fields in southwest area on warm days. (VanCleave, et al.). Numbers decreased in Payne County alfalfa fields. (Bryan). Few adult Nabis sp. active in small grain fields in southwest area on warm days. (VanCleave, et al.).

CORRECTION

CEIR 8(40) : 846 - A WEBWORM (Nomophila noctuella) should be substituted for ALFALFA WEBWORM (Loxostege commixtalis). Det. H. W. Capps.

LIGHT TRAP COLLECTIONS

	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterranea
FLORIDA			
Gainesville 1/27,2/4		3	
LOUISIANA			
Baton Rouge 1/30-2/4	12	12	6
Franklin 1/31-2/3	3		3

ADDITIONAL NOTES

TEXAS - CORN LEAF APHID averaged 15-25 per linear foot in 2 small grain fields in Houston County. No other insect infestations found in fields checked in Houston and Madison Counties. (Hawkins). SPOTTED CUCUMBER BEETLE medium to heavy on spinach in Dimmit and Zavala Counties. Adults requiring treatment on spinach ready to harvest. (Harding). IMPORTED FIRE ANT inspections in Houston, Cherokee, Rusk, Panda, Shelby, San Augustine and Sabine Counties were negative. (Hawkins).

SUMMARY OF INSECT CONDITIONS - 1958

NEW JERSEY

Prepared by Department of Entomology,
Rutgers University

Highlights: Ample rainfall and a generally cool season had a great effect on the pest problem. APHIDS of several species were numerous, including GREEN PEACH APHID and APPLE APHID. CABBAGE LOOPER caused usual heavy damage to crucifers in late season. CORN EARWORM caused less damage than usual. CARROT WEEVIL damage was heavier than for many seasons. PEPPER MAGGOT damage was heavy in southern and central counties. APPLE MAGGOT was more active than usual. APHIDS were very abundant in spring on shade trees, particularly maples. MIMOSA WEBWORM increased in importance. BIRCH LEAF MINER was very destructive throughout the State. Flights of EASTERN SUBTERRANEAN TERMITE were heavy.

Cereal and Forage Insects: ALFALFA WEEVIL (Hypera postica) was serious on alfalfa wherever it was grown in the State. Instead of damage to alfalfa appearing at the 10-12 inch stem height, the cool, wet spring delayed weevil development and attack appeared at 18-24 inch stem height. PEA APHID (Macrosiphum pisi) was far less damaging than usual. MEADOW SPITTLEBUG (Philaenus leucophthalmus) and POTATO LEAFHOPPER (Empoasca fabae) caused lighter damage than usual. EUROPEAN CORN BORER (Pyrausta nubilalis) was present in small numbers only during early season but second-generation populations were heavier, particularly in central counties. ARMYWORM (Pseudaletia unipuncta) appeared in northern areas and caused some damage to grasses in mixed hay stands during June. CORN EARWORM (Heliothis zea) was less numerous than usual. First damage was found to early sweet corn in whorl stage, but late season damage was light. CORN FLEA BEETLE (Chaetocnema pulicaria) was not numerous on corn.

Fruit Insects: CODLING MOTH (Carpocapsa pomonella) caused less damage than usual. UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) caused some damage to apple foliage in southern counties. APPLE MAGGOT (Rhagoletis pomonella) was more serious than usual, with some damage appearing in southern parts of the State. ORIENTAL FRUIT MOTH (Grapholitha molesta) caused more than usual damage in some northern areas. EUROPEAN RED MITE (Panonychus ulmi) caused normal amount of damage, being severe in some apple orchards. PLUM CURCULIO (Conotrachelus nenuphar), MITES (Tetranychus spp.) and RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) were not especially damaging. APPLE APHID (Aphis pomi) was more numerous and difficult to control than usual. LESSER PEACH TREE BORER (Synanthedon pictipes) was found to be more damaging than in recent years.

Truck Crop Insects: CABBAGE LOOPER (Trichoplusia ni) was abundant on crucifers until late season when a virus disease killed many of them. FALL ARMYWORM (Laphygma frugiperda) egg masses were found from July on, but extensive predation of egg masses by coccinellids and chrysopids seemed to reduce damage by larvae to a low point. ASPARAGUS BEETLES (Crioceris asparagi and C. duodecimpunctata) were not as numerous as usual. MEXICAN BEAN BEETLE (Epilachna varivestis) became more numerous in late season than for several years. PEPPER WEEVIL (Anthonomus eugenii), which was present in 1957, did not appear in the infested area and presumably did not survive the winter of 1957-1958. CUCUMBER BEETLES (Acalymma vittata and Diabrotica undecimpunctata howardi) were very numerous and damaging on early cucurbits in southern part of the State. A GARDEN SPRINGTAIL (species unknown) was more numerous than usual on many vegetable crops and in alfalfa plantings. GREEN PEACH APHID (Myzus persicae) became very numerous on many crops including potatoes, tomatoes, spinach and lettuce late in the season. BEAN APHID (Aphis fabae) was much more numerous

than usual and caused damage to southern bean plantings. A FLEA BEETLE (Phyllotreta cruciferae) appeared to be the most numerous flea beetle on crucifers. GREEN CLOVERWORM (Plathypena scabra) was numerous on beans, tomatoes and other crops. PEPPER MAGGOT (Zonosemata electa) caused more losses than usual. Fields which were not protected suffered severe damage. Parsley plantings in central and southern counties were severely stunted by activity of CARROT WEEVIL (Listronotus oregonensis). STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) damaged several northern strawberry plantings.

Forest, Ornamental and Shade Tree Insects: Several species of APHIDS were very heavy during the early season, especially on maple. BIRCH LEAF MINER (Fenusa pusilla) was very abundant throughout the State on gray birch. Second-brood injury was almost as severe as that of first-brood. EASTERN TENT CATERPILLAR (Malacosoma americanum) and ELM LEAF BEETLE (Galerucella xanthomelaena) attacks were spotty. BAGWORM (Thyridopteryx ephemeraeformis) injury to arborvitae, willow, sycamore and maple was widespread but no more damaging than usual. MIMOSA WEBWORM (Homadaula albizziae) was of increasing importance on mimosa and honeylocust. Infestations ranged northward to Mercer County. LEAF GALLS on oak were abundant but of minor importance. SYCAMORE LACE BUG (Corythucha ciliata), DOGWOOD BORER (Thamnosphecia scitula) and TULIPTREE SCALE (Toumeyella liriodendri) infestations were widespread but of no greater importance than in previous years. Infestations of JAPANESE BEETLE (Popillia japonica) were heavy in some areas but infestations were spotty. Emergence was from 2-3 weeks later than normal. EUONYMUS SCALE (Unaspis euonymi) continued to be abundant on euonymus and pachysandra with crawlers present the first week of July and mid-August. AZALEA LACE BUG (Stephanitis pyrioides) was moderate with few reports of injury. In several areas, pachysandra was seriously attacked by a LEAF ROLLER (Archips purpurana). A minor brood of the PERIODICAL CICADA (Magicicada septendecim) was present in Union County but injury was slight.

Insects Affecting Man and Animals: SALT-MARSH MOSQUITO (Aedes sollicitans) was, as usual, the most important pest species. Where rapid resort development is taking place, there are reduced numbers of mosquitoes but increased public reactions. NORTHERN HOUSE MOSQUITO (Culex p. pipiens) is becoming more important with the expansion of homes into suburban areas. Rainfall during 1958 emphasized the Culex spp. problems with greater abundance than in recent years. Aedes vexans and Mansonia perturbans produced severe local annoyance where control measures were not taken. Recent ecological studies show that there are at present 49 distinct mosquito species recognized in the State. No definite problem of insecticide resistance exists at present. Use of pre-season or pre-flood treatment of woodland pool and swamp areas has been particularly sucessful and is now a widely accepted procedure. Established control procedures based on water management continue as they have in past seasons. All standard methods of chemical control are in use.

Miscellaneous Insects: HAIRY CHINCH BUG (Blissus leucopterus hirtus) was abundant and destructive to lawns primarily in the northern metropolitan counties. PAVEMENT ANT (Tetramorium caespitum) continued to be the dominant household ant pest. The flight of EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) was heavy and extended from late March to early June. CLOVER MITE was abundant in April and early May. Reports of BROWN-BANDED ROACH (Supella supellectilium) infestations are increasing and those of GERMAN COCKROACH (Blattella germanica are abundant.

SUMMARY OF INSECT CONDITIONS - 1958

MARYLAND

Compiled by W. C. Harding, Jr.*

Highlights: Damage by ALFALFA WEEVIL to unsprayed alfalfa was heavy, even though weevil activity started later than in 1957. CORN EARWORM on corn, beans and soybeans was the lowest in 3 years. EUROPEAN CORN BORER damage to corn, potatoes and peppers was above normal. Fall population in cornstalks was the highest in 3 years. Tobacco, potatoes and cabbage suffered considerably from attacks of FLEA BEETLES. FALL ARMYWORM appeared earlier and caused more than usual damage to corn. PINE SAWFLIES defoliated approximately 327,000 acres of pine in the central part of the State. ROSY APPLE APHID inflicted commercial damage in most western orchards. ANTS, CARPET BEETLES, COCKROACHES, MILLIPEDES and TERMITES were the chief pests that troubled homeowners during 1958. EUROPEAN EARWIG was found for the first time in the State, on a single property. Eradication measures were taken.

Cereal and Forage Insects: ALFALFA CATERPILLAR (Colias philodice eurytheme) caused unusual damage to alfalfa during late August and early September in Montgomery and Washington Counties. ALFALFA WEEVIL (Hypera postica) damage to unsprayed alfalfa was moderate to heavy, although spring activity was delayed by cool weather. In central area, larval populations did not reach their peak until late May. In the west, adults and larvae did moderate damage to second-growth alfalfa. Garrett County remains uninfested. ARMYWORM (Pseudaletia unipuncta) was light during 1958. A few isolated infestations in small grain on the Eastern Shore were reported during June. CLOVER LEAF WEEVIL (Hypera punctata) was about normal on alfalfa and clover during the spring. CLOVER ROOT CURCULIO (Sitona hispidula) adults were moderate during the spring and late fall on clover and alfalfa in central portions of the State. CORN EARWORM (Heliothis zea) infestations were considerably below normal. Winter temperatures were apparently unfavorable for pupae. CORN FLEA BEETLE (Chaetocnema pulicaria) populations were below normal, particularly in the spring. CORN LEAF APHID (Rhopalosiphum maidis) numbers on tassels and in whorls of sweet and field corn in most sections were light to heavy. In August, numbers on popcorn in Caroline County were heavy, requiring treatment. CORN ROOT APHID (Anuraphis maidi-radicis) caused light to moderate injury to young field corn in Kent and Charles Counties. In early June small larvae of CORN ROOT WEBWORM (Crambus caliginosellus) caused serious damage to young field corn plants in Harford County. Replanting of an entire large field was necessary. Other unidentified WEBWORMS on young corn were reported from Talbot and Montgomery Counties. CUTWORMS were about normal, being particularly troublesome in corn planted after sod.

On the Eastern Shore, first-generation damage by EUROPEAN CORN BORER (Pyrausta nubilalis) to early corn was moderate to heavy; light in other sections. Damage to mid-season and late corn on the lower Eastern Shore was above normal. The fall population as determined by the annual survey of standing cornstalks showed the State average to be 95 borers per 100 plants, the highest in 3 years. The greatest number of borers was on the Eastern Shore. Damage to wheat was generally light. FALL ARMYWORM (Laphygma frugiperda) appeared somewhat earlier than usual and damage to late sweet and field corn was above normal. Economic infestations were reported from all sections. GREENBUG (Toxoptera graminum) damaged orchard grass seedlings in Howard County in early November. Controls were applied. GREEN CLOVERWORM (Plathypena scabra) infestations on soybeans were generally lighter than in 1956 and 1957. MEADOW SPITTLEBUG (Philaenus leucophthalmus) nymphal populations on alfalfa and clover were generally light to moderate, except in western counties, where some heavy infestations were

*Cooperators were: W. E. Bickley, T. L. Bissell, L. P. Ditman, J. E. Foster, C. Graham, E. R. Krestensen and C. W. McComb.

noted. PALE-STRIPED FLEA BEETLE (Systena blanda) caused unusual feeding damage on alfalfa leaves in several Frederick County areas during June. PEA APHID (Macrosiphum pisi) appeared later on alfalfa than usual, resulting in less damage to the first crop than in previous years. Some second-growth alfalfa was injured in western counties. POTATO LEAFHOPPER (Empoasca fabae) was generally light on alfalfa throughout the summer. SAP BEETLES, particularly DUSKY SAP BEETLE (Carpophilus lugubris), were troublesome in ears of sweet and field corn throughout the season. In the early spring SEED-CORN MAGGOT (Hylemya cilicrura) caused more than normal damage to sprouting sweet and field corn. SOUTHERN CORNSTALK BORER (Diatraea crambidoides) was light to moderate in tassels and whorls of sweet and field corn on the Eastern Shore, during July and August. SPIDER MITE infestations on soybeans were the lowest in years. THRIPS caused light to moderate streaking of young corn and soybeans on the Eastern Shore during June.

Fruit Insects: APPLE MAGGOT (Rhagoletis pomonella) damaged apples at three localities in central and western Maryland. In one orchard serious damage occurred. Emergence of first-brood CODLING MOTH (Carpocapsa pomonella) began later than usual and extended to mid-July. Control proved more effective than in 1957, although moderate damage was caused by second and third-brood larvae. EUROPEAN RED MITE (Panonychus ulmi) populations on apple were higher than in 1957 and a more strenuous control program was required. During July, prunes in Washington County were damaged. ORIENTAL FRUIT MOTH (Grapholitha molesta) caused light to moderate damage to peaches in Montgomery County. PLUM CURCULIO (Conotrachelus nenuphar) was extremely light on apples and peaches. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) was normal on apple. ROSY APPLE APHID (Anuraphis roseus) was probably the most serious apple pest during 1958. Commercial damage to apples occurred in most orchards in the west and in some instances occurred before the petal-fall stage. In March, some growers reported infestations of SAN JOSE SCALE (Aspidiotus perniciosus) and FORBES SCALE (A. forbesi). TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was less abundant than in 1957, damage being confined to localized areas. UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) infestations were very light generally.

Truck Crop Insects: ASPARAGUS BEETLE (Crioceris asparagi) was heavier than usual in most sections. BEAN LEAF BEETLE (Cerotoma trifurcata) was below normal. CABBAGE APHID (Brevicoryne brassicae) was heavy on cabbage and broccoli, particularly late in the season. CABBAGE LOOPER (Trichoplusia ni) gave considerable trouble on cabbage, broccoli, tomatoes and spinach. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) numbers on potatoes and tomatoes were about normal. CORN EARWORM (Heliothis zea) was not as destructive to pods of late snap and lima beans as in 1956 and 1957. EUROPEAN CORN BORER (Pyrausta nubilalis) damage to peppers on the Eastern Shore was the heaviest on record. Well over one-third of the peppers grown for processing were lost. Damage to potatoes was also heavy. Among the FLEA BEETLES that caused damage were POTATO FLEA BEETLE (Epitrix cucumeris) on potatoes, TOBACCO FLEA BEETLE (Epitrix hirtipennis) on young tomato plants and Phyllotreta spp. on cabbage and other crucifers. GREEN CLOVERWORM (Plathypena scabra) was fairly common on lima beans on the Eastern Shore during the summer. GREEN PEACH APHID (Myzus persicae) was moderate to heavy on peppers late in the season. Some serious infestations on peppers were noted in northern Worcester County. HORNWORMS (Protoparce spp.) were about normal on tomatoes and peppers on the Eastern Shore. A few heavy infestations were reported. IMPORTED CABBAGEWORM (Pieris rapae) infestations on crucifers were general. MEXICAN BEAN BEETLE (Epilachna varivestis) was about normal on commercial acreages of lima and snap beans. As usual, home gardeners experienced considerable trouble. In the fall, MORNING-GLORY LEAF MINER (Bedellia somnulentella) seriously infested the foliage of a sweetpotato field at Salisbury. Populations of PEA APHID (Macrosiphum pisi) were not as injurious to peas as in 1956 and 1957, due primarily to its late occurrence. POTATO APHID (Macrosiphum solanifolii) was light to moderate on potatoes and tomatoes on

the Eastern Shore. Some heavy infestations were noted on tomatoes in Dorchester and Caroline Counties in June. POTATO LEAFHOPPER (Empoasca fabae) numbers on beans and potatoes decreased from previous years. SPIDER MITES on beans, cucurbits and tomatoes were less of a problem than in 1957. STRIPED CUCUMBER BEETLE (Acalymma vittata) was common and damaged young squash, cucumber and cantaloup plants in most sections. TOMATO FRUITWORM (Heliothis zea) caused some injury locally to tomatoes on the Eastern Shore. VINEGAR FLIES were again abundant at tomato canneries late in the season. YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) caused light injury to tomato foliage late in the summer.

Tobacco Insects: BLACK CUTWORM (Agrotis ypsilon) caused serious damage to 12 acres of newly-set tobacco plants in St. Marys County. GREEN PEACH APHID (Myzus persicae) infestations were generally light to moderate. A few fields required treatment. Populations of both broods of HORNWORMS (Protoparce spp.) were about normal. MIDGE LARVAE were abundant in tobacco beds near Waldorf, causing light to moderate damage by uprooting young plants. TOBACCO BUDWORM (Heliothis virescens) infestations increased for the third straight year. TOBACCO FLEA BEETLE (Epitrix hirtipennis) was heavy on newly-set plants in most areas. In some fields of newly transplanted tobacco,counts of 20 beetles per plant were common. During the summer, populations were moderate to heavy and in some fields the middle, choice leaves showed heavy feeding. VEGETABLE WEEVIL (Listroderes costirostris obliquus) damage reports were fewer than in 1957, although the insect did extend its range somewhat in the tobacco-growing area. A few heavy infestations were noted in Calvert County.

Forest, Ornamental, and Shade Tree Insects: Various species of APHIDS gave the usual amount of trouble on rose, tulip poplar, Norway maple, oaks and pine. ASIATIC OAK WEEVIL (Cyrtepistomus castaneus) adults caused light to moderate damage to the foliage of seedling oaks in the central counties. BAGWORM (Thridopteryx ephemeraeformis) seriously damaged arborvitae, cedar and occasionally other evergreens and deciduous trees in most sections. In early spring, tents of EASTERN TENT CATERPILLAR (Malacosoma americanum) were abundant in most sections. EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) damaged red pine in Garrett County. A JAPANESE WEEVIL (Pseudocneorhinus bifasciatus) occasionally damaged azalea, privet and other ornamentals in Montgomery and Prince Georges Counties. LACE BUGS caused considerable injury on azaleas, rhododendrons, oaks and sycamore. LOCUST LEAF MINER (Chalepus dorsalis) again seriously damaged black locust foliage over most of the State. NANTUCKET PINE MOTH (Rhyacionia frustrana) caused serious damage to natural and planted pines in eastern Maryland. PINE SAWFLIES - The first larvae of Neodriprion pratti pratti appeared on April 21 in central Maryland, and feeding continued until late May. Aerial surveys showed about 327,000 acres of pine defoliated, with over 12,000 acres classed as seriously defoliated. Another species (probably N. taedae) was present in large numbers on loblolly pine in St. Marys County in late July. Among the many species of SCALE INSECTS causing concern during 1958 were AZALEA BARK SCALE (Eriococcus azaleae) on azalea and rhododendron, EUONYMUS SCALE (Unaspis euonymi) on euonymus, OBSCURE SCALE (Chrysomphalus obscurus) on oak, OYSTERSHELL SCALE (Lepidosaphes ulmi) on lilac, birch, chestnut and maple, PINE NEEDLE SCALE (Phenacaspis pinifoliae) on various pines, PUTNAM SCALE (Aspidiotus ancylus) on dogwood, SAN JOSE SCALE (A. perniciosus) on Japanese quince and others, WHITE PEACH SCALE (Pseudaulacaspis pentagona) on flowering cherry and privet. SPIDER MITES were generally below normal on most trees and ornamentals. In July and August VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) seriously defoliated oaks in southeastern Cecil County. Other pests of trees and shrubs were ASIATIC GARDEN BEETLE (Autoserica castanea), AZALEA LEAF MINER (Gracilaria azaleella), BOXWOOD LEAF MINER (Monarthropalpus buxi), BOXWOOD PSYLLID (Psylla buxi), ELM LEAF BEETLE (Galerucella xanthomelaena), FOREST TENT CATERPILLAR (Malacosoma disstria) on mixed hardwoods at Town Hill Mountain, HOLLY LEAF MINER (Phytomyza ilicis), MIMOSA WEBWORM (Homadaula albizziae) on mimosa and honeylocust, ORANGE-STRIPED OAKWORM (Anisota senatoria) on hardwoods and PALES

WEEVIL (Hylobius pales) on white pine in a Christmas tree planting in Harford County. During August and September, grubs of JAPANESE BEETLE (Popillia japonica) and NORTHERN MASKED CHAFER (Cyclocephala borealis) were destructive to turf in suburban areas.

Man and Animal Insects: AMERICAN DOG TICK (Dermancentor variabilis) was abundant in most sections in early summer. During most of the season BLACK FLIES (particularly Simulium jenningsi) annoyed humans throughout the Maryland metropolitan area of Washington and at various western localities. BLACK WIDOW SPIDER (Latrodectus mactans) again caused considerable concern to homeowners in suburban sections. BROWN DOG TICK (Rhipicephalus sanguineus) infestations in homes were numerous, being about the same as in 1957. CATTLE LICE were more abundant than usual. FLEAS were troublesome on humans, dogs and cats, in most sections. HORN FLY (Siphona irritans) was serious on dairy cattle in most sections. As usual, HOUSE FLY (Musca domestica) was prevalent about homes and barns, particularly where sanitation was lacking. MOSQUITOES - Aedes spp. were not as numerous as in 1957; however, increases in Culex spp. and Psorophora spp., due to the extensive wet season, were noted. Decreases in populations were recorded in areas where permanent control work had been carried out. In September, one horse died of encephalitis at Cambridge. Homeowners in Carroll and Washington Counties were bitten by TROPICAL RAT MITE (Ornithonyssus bacoti).

Stored-product Insects: ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) was moderate to heavy in farm stored corn and small grains in all sections during the fall. It appears to be the number one pest of stored corn and small grains in Maryland. Other stored-product pests reported were CADELLE (Tenebroides mauritanicus) in wheat and barley, CIGARETTE BEETLE (Lasioderma serricorne) in cereals and spices, GRANARY WEEVIL (Sitophilus granarius) in wheat, barley and oats, INDIAN-MEAL MOTH (Plodia interpunctella) in wheat and meal, MEAL MOTH (Pyralis farinalis) on ground cattle feed, RICE WEEVIL (Sitophilus oryza) in wheat, SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) in small grains and cereals and a FLOUR BEETLE (Gnathocerus maxillosus) in refuse oats.

Household Insects: ANTS, particularly PAVEMENT ANT (Tetramorium caespitum), caused homeowners in most sections considerable concern during the spring and summer. CARPET BEETLES, principally Attagenus piceus and Anthrenus flavipes, seemed to be more abundant than usual. GERMAN COCKROACH (Blattella germanica) infestations in homes and apartments were common, particularly in Baltimore City. Reports of MILLIPEDES entering homes during the summer were more numerous than usual. Other household pests of importance during 1958 were BOXELDER BUG (Leptocoris trivittatus), BROWN-BANDED ROACH (Supella supellectilium), CENTIPEDES, CLOVER MITE, CRICKETS, EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes), GROUND BEETLES, OLD-HOUSE BORER (Hylotrupes bajulus), SILVERFISH (Lepisma saccharina) and SPRINGTAILS.

Miscellaneous Insects: EUROPEAN EARWIG (Forficula auricularia) adults were found for the first time on a single property at Silver Spring in September. They were brought in by a homeowner moving plants and furniture from an infested area outside the State. Eradication measures were undertaken. COWPEA CURCULIO (Chalcodermus aeneus) infested blackeyed peas at Lexington Park. Large numbers of JAPANESE WEEVIL (Calomycterus setarius) were found in and about a home at Cockeysville during July. MITES were abundant in the litter of a poultry house at Salisbury. During early May, WHARF BORER (Nacerdes melanura) larvae damaged a wood boat at Cambridge.

SUMMARY OF INSECT CONDITIONS - 1958

VIRGINIA

Compiled by A. P. Morris

Cereal and Forage Insects: EUROPEAN CORN BORER (Pyrausta nubilalis) infestation, in general, was one of the highest on record in the State. Larvae heavily damaged sweet corn and were heavy in field corn in all parts of the State. Heavy damage to corn occurred from mid-June through October. A fall abundance survey in 10 southwestern and 10 northern counties showed the average number of borers per 100 plants in the 2 areas to be 252 compared with 117 in 1957, and 80 percent of the stalks infested in the fields compared with 63 percent in 1957. Wheat was damaged to some extent in Southampton and Richmond Counties and sorghum was very heavily damaged in Westmoreland County. There were 3 generations during 1958. ALFALFA WEEVIL (Hypera postica) is estimated to infest approximately 245,000 of the total 280,000 acres of alfalfa in the State and controls were applied to approximately 195,000 acres during 1958. The net value of control was estimated to be $2,652,000. On the 50,000 acres infested, but not treated, the species was too light to justify control, but a part of this acreage will require control in 1959. Infestations were found in 4 additional counties during 1958, leaving only 6 extreme southwestern counties uninfested. Two of these, Buchanan and Dickenson Counties, have very little alfalfa. CORN EARWORM (Heliothis zea) caused heavy damage to field and sweet corn in all parts of the State during 1958 but damage to soybeans, peanuts and sorghum were much less than during the preceding 3 years. SOYBEAN CYST NEMATODE (Heterodera glycines) was found for the first time in the State in Nansemond County during September.

ARMYWORM (Pseudaletia unipuncta) damage to field and sweet corn, small grains, grasses, alfalfa and sorghum was light to severe during 1958. Infestations were not general, but were most common in eastern and southwestern counties with some scattered damage in other areas. FALL ARMYWORM (Laphygma frugiperda) damaged late corn, sorghum, soybeans, peanuts, rye, alfalfa and winter pastures in scattered localities. Late corn and sorghum suffered heaviest damage from this species. MEADOW SPITTLEBUG (Philaenus leucophthalmus) was heavy in pastures throughout the State and was especially heavy in alfalfa and clover in southwestern counties. Controls were justified in these counties, although practically none were used, and will be needed in most alfalfa fields in this area in the spring of 1959. SAP BEETLES were extremely heavy on sweet and field corn in all parts of the State during 1958 and caused considerable loss in some areas as controls were not always completely sucessful. Sweet corn in many eastern areas was especially heavily damaged. JAPANESE BEETLE (Popillia japonica) larvae damaged roots of lawn grasses and ornamentals and adults damaged corn, soybeans, roses, chestnut tree foliage, shrubs, flowering plants and other host plants in several parts of the State. Adults on weeds in fields of small grains passed through thrashing machines and into the grain in some eastern areas and in Shenandoah County, creating a quarantine problem. Populations were approximately the same as in 1957 although probably smaller in 2 or 3 areas. GREEN JUNE BEETLE (Cotinis nitida) larvae damaged lawns in most of the State but not to the extent experienced in 1957. POTATO LEAFHOPPER (Empoasca fabae) was a problem on peanuts in southeastern Virginia and on alfalfa in some scattered fields during 1958. PEA APHID (Macrosiphum pisi) populations increased until they posed a threat in many fields during the middle of May, but natural enemies built up and helped keep infestations down. VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) was a minor problem on soybeans in 1958. GREEN CLOVERWORM (Plathypena scabra), along with other species of caterpillars, was a problem by August but infestations practically disappeared and were not a problem the remainder of the year. YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) and SALT-MARSH CATERPILLAR (Estigmene acrea) became numerous and general on soybeans in eastern and southeastern Virginia counties about mid-August, but damage

was light. SPOTTED ALFALFA APHID (Therioaphis maculata) infestations were building up in southwestern counties during early October and two fields of heavily damaged fall-seeded alfalfa were observed in Franklin County in late November. BEAN LEAF BEETLE (Cerotoma trifurcata) was present in large numbers on soybeans in eastern and southeastern Virginia during August but did little economic damage. APHIDS were heavy on small grains, sorghum and alfalfa in a few instances during 1958. HESSIAN FLY (Phytophaga destructor) damaged wheat in Pittsylvania, Wythe and Montgomery Counties during June. Damage by this species may be more widespread than suspected during recent years.

Fruit Insects: The third brood of CODLING MOTH (Carpocapsa pomonella) larvae was the largest in several years in central orchards but no instances of heavy economic losses were reported. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) was expected to be severe in northern and central area apple orchards during 1958. However, only 5 percent of the apples in northern orchards had been damaged by third-brood larvae when the season was over. Damage was severe in scattered orchards where controls were not properly applied. ROSY APPLE APHID (Anuraphis roseus) was quite heavy in northern area orchards during June and required more than usual efforts to keep it below the injury level. This species accounted for one-third of the crop loss in some orchards where controls were not applied. JAPANESE BEETLE (Popillia japonica) did considerable damage to small plantings in home gardens and orchards. Grapevines were probably the heaviest damaged of the cultivated fruits. APPLE APHID (Aphis pomi), WOOLLY APPLE APHID (Eriosoma lanigerum) and APPLE GRAIN APHID (Rhopalosiphum fitchii) were of minor importance to apples during 1958. PLUM CURCULIO (Conotrachelus nenuphar) was only a minor problem in peach and apple orchards during 1958. However, one extra spray application was used in many peach orchards because of this pest. WALNUT CATERPILLAR (Datana integerrima) was heavy and partially defoliated walnut and pecan trees in southern Charlotte County and in Accomack, Northampton and Amherst Counties.

Truck Crop Insects: EUROPEAN CORN BORER (Pyrausta nubilalis) damaged potatoes, peppers and occasionally snap beans in the eastern area. Larvae heavily damaged potato vines in some fields in Westmoreland, Stafford, Hanover, Northampton, Accomack and Caroline Counties during late May and July. CABBAGE LOOPER (Trichoplusia ni) was responsible for extensive damage to some crops crops of kale, collards, cabbage, broccoli and tomatoes in eastern, southeastern and Eastern Shore counties. Regular controls failed to give adequate protection. Peppers, cucumbers and horseradish were damaged to a lesser extent. IMPORTED CABBAGEWORM (Pieris rapae) and DIAMONDBACK MOTH (Plutella maculipennis) larvae were responsible for losses to growers in some instances because of damage to cabbage, broccoli, kale, collards and several other cole crops in the truck-crop areas of the State. CORN EARWORM (Heliothis zea) damaged tomatoes and snap beans in truck areas of the State. Infestations heavily damaged tomatoes and sweet corn in eastern Virginia and on the Eastern Shore, where controls were not adequate. Various species of FLEA BEETLES damaged truck crops during 1958. POTATO FLEA BEETLE (Epitrix cucumeris) and SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) damaged potato and sweetpotato plants, PALE-STRIPED FLEA BEETLE (Systena blanda) was heavy on beans in some gardens and TOBACCO FLEA BEETLE (Epitrix hirtipennis) heavily damaged fall potatoes during September. Unidentified species also did heavy damage to young corn, cucumber plants, late cole crops, peppers and cabbage until late in September. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) damage was not extensive in 1958 because controls were effective. CUTWORMS damaged young tomato plants, cabbage, bean plants, sweetpotatoes, peppers, cole crops and almost mature tomato fruits in the truck-crop areas and in gardens. Rigid control schedules were necessary to protect young cole crops and peppers during August. Only two species were identified and reported, BLACK CUTWORM (Agrotis ypsilon) and VARIEGATED CUTWORM (Peridroma margaritosa). Black cutworm is believed to be the species mainly responsible for the damage during 1958. YELLOW-STRIPED

ARMYWORM (Prodenia ornithogalli) damaged tomatoes, some cole crops and peppers in the eastern area during July. Growers had to follow rigid control schedules to prevent heavy losses. FALL ARMYWORM (Laphygma frugiperda) damage occurred to some cole crops, almost mature tomatoes and sweet corn in eastern areas. MEXICAN BEAN BEETLE (Epilachna varivestis) was relatively light on snap beans in 1958. Various species of APHIDS were of minor importance to truck crops during 1958. POTATO LEAFHOPPER (Empoasca fabae) was a very minor problem on potatoes in eastern Virginia. CABBAGE CURCULIO (Ceutorhynchus rapae) adults were present in all of the cabbage fields examined in southern Northampton County during May, damage ranged from 2 to 100 percent.

Tobacco Insects: HORNWORMS (Protoparce spp.), TOBACCO FLEA BEETLE (Epitrix hirtipennis), BUDWORMS (Heliothis spp.), CUTWORMS and GREEN PEACH APHID (Myzus persicae) were of minor importance on tobacco during 1958, primarily because of the effectiveness of controls that were used in time to prevent damaging infestations.

Cotton Insects: BOLL WEEVIL (Anthonomus grandis) rate of survival in March for overwintering adults was 1.6 percent for 4 southern counties. The mean for the 4 county areas was 53.8 weevils per acre. Some fields had sufficient punctured squares to justify treatments during the first week of August. A fall survey in 4 counties during December revealed a mean of 511 weevils per acre in hibernation. COTTON APHID (Aphis gossypii) was generally light in cotton fields during 1958 and BOLLWORMS (Heliothis spp.) were also generally light in most fields.

Forest, Ornamental and Shade Tree Insects: IPS BEETLES (Ips grandicollis, I. pini, I. avulsus and I. calligraphus) damaged red, white, pitch, Virginia, shorfleaf, loblolly and Scotch pines in scattered localities, but no serious infestations were reported. Damage was frequently in association with other insects. SOUTHERN PINE BEETLE (Dendroctonus frontalis) damage was light and scattered during 1958, no serious infestations being reported. Most frequent damage was to loblolly and shortleaf pines. TURPENTINE BEETLES (Dendroctonus terebrans and D. valens) killed pine forest and shade trees in widely scattered localities, but no serious outbreaks were reported and damage was less than in 1957. PINE MOTH (mostly Rhyacionia frustrana) infestations were widespread and heavy in some plantations, light to medium in others in eastern and southeastern areas. Defoliation caused by SAWFLY (Neodiprion spp.) larvae occurred twice during 1958. Mostly Virginia and shortleaf pines were defoliated in the Piedmont Plateau area and in some eastern counties during April, May and June, while loblolly, Virginia and shortleaf pines were defoliated in northern, central, south central, eastern and other scattered areas from July through October. At least two species were responsible for damage during the two periods. WHITE-PINE WEEVIL (Pissodes strobi) damaged terminals of pine seedlings, young pines and plantations of pines in various areas. The greatest part of the trees damaged were white pines in the western area of the State. PALES WEEVIL (Hylobius pales) damaged about 50 percent of 100 acres of loblolly pines in Sussex County and pines in Nelson, Giles and Chesterfield Counties. Several species of SCALE INSECTS were of importance on forest and shade trees and ornamental plants during 1958. Infestations were usually scattered and affected individual or small groups of plants. Various species of APHIDS attack trees and ornamental plants in Virginia every year, but they are rarely the direct cause of the death of the host plants. Various species of SPIDER MITES, predominately Tetranychus telarius, damaged ornamental plants in most areas of the State to a varying degree. BAGWORM (Thyridopteryx ephemeraeformis) damaged cedars, arborvitae and evergreen shrubs and trees in all parts of the State from May into September. Reports of heavy infestations were received from several counties and cities. MIMOSA WEBWORM (Homadaula albizziae) damaged mimosa trees and in some instances locust trees in all areas of the State.

EASTERN TENT CATERPILLAR (Malacosoma americanum) was obvious on plum, cherry, apple and other host trees during late April and May. They were widespread and general in some areas in northern, eastern, southeastern and southwestern Virginia. FALL WEBWORM (Hyphantria cunea) fed on the leaves of hardwoods in general in Frederick, Clarke, Warren and Shenandoah Counties, on pecans in southeastern and Eastern Shore counties and were conspicious on pecan, sourwood and persimmon trees in Pittsylvania County. ELM LEAF BEETLE (Galerucella xanthomelaena) larvae fed to a varying degree upon leaves of elm trees in all parts of the State. GIANT HORNET (Vespa crabro germana) damage to lilac bushes was heavy during September and part of October in Lunenburg and Montgomery Counties. PINE SPITTLEBUG (Aphrophora parallela) was not as prevalent as in the past two years but was obvious on loblolly pines during May in several counties and heavy on approximately 100 pines in Montgomery County during early June. SYCAMORE LACE BUG (Corythucha ciliata) was heavy on some sycamore trees in King William and Southampton Counties.

Insects Affecting Man and Animals: CATTLE GRUBS (Hypoderma spp.) were a problem throughout the State again during 1958. From data collected, H. lineatum apparently emerges first in the State and H. bovis later, and H. bovis is the more common species in the mountainous area of the State. HOUSE FLY (Musca domestica) infestations remained lighter than usual in southeastern area during 1958. MOSQUITOES were a problem in some eastern and southeastern parts of the State. Different species of SAND FLIES caused discomfort and annoyance to man and animals in many areas, especially for short periods of time. TABANIDS were more numerous than usual this year and were troublesome on cattle and livestock in Goochland, Lunenburg and Cumberland Counties during late July and early August. STABLE FLY (Stomoxys calcitrans) did not become a serious problem in any area of the State. FLEAS were a problem in homes, some places. CATTLE LICE were a problem on animals in some herds during the winter, spring and fall of the year. SHEEP SCAB MITE (Psoroptes equi ovis) infestations occurred on 2,413 of 9,258 sheep inspected during 1958. Infested animals were treated under the supervision of personnel from the office of the State Veterinarian. TICKS were a problem in woods and along roadways in some eastern and southeastern areas where they bothered workers and animals. BROWN DOG TICK (Rhipicephalus sanguineus) was heavy in several homes and on dogs in some instances.

Stored-product Insects: HIDE BEETLE (Dermestes maculatus) larvae and adults damaged home cured meat in Sussex and Brunswick Counties. LARDER BEETLE (D. lardarius) damaged meat stored on a farm in Culpeper County. RED-LEGGED HAM BEETLE (Necrobia rufipes) larvae and adults damaged meat stored on a farm in Sussex County and at a home in Lunenburg County. TOBACCO MOTH (Ephestia elutella) larvae were heavy on tobacco in a pack house in Lunenburg County during October. KHAPRA BEETLE (Trogoderma granarium) survey of 67 business establishments during January, February and March revealed no infestations.

Beneficial Insects: LADY BEETLES were responsible for reducing or bringing under control infestations of aphids on alfalfa, corn, tobacco and various trees during 1958. SYRPHID larvae were present in large numbers and helped reduce populations of aphids during the spring, summer and fall.

Miscellaneous Insects: TERMITES were the most important of the structural wood insects during 1958 and POWDER POST BEETLES were second to them. Several additional termite infestations were found. OLD-HOUSE BORER (Hylotrupes bajulus) were the most prevalent of the powder-post beetles. COCKROACHES were the number one household insect pest during 1958 and infestations of ORIENTAL COCKROACH (Blatta orientalis) appeared to be the most prevalent of the several species. Infestations of GERMAN COCKROACH (Blattella germanica), BROWN-BANDED ROACH (Supella supellectilium) and AMERICAN COCKROACH (Periplaneta americana) were also reported from various localities. ANTS of various species emerged into and around many homes and buildings, causing concern to the owners.

SUMMARY OF INSECT CONDITIONS - 1958

WEST VIRGINIA

Compiled by C. K. Dorsey

Highlights: JAPANESE BEETLE populations were lighter for the State in general. EUROPEAN CORN BORER was less numerous in most counties. EASTERN TENT CATERPILLAR defoliation was heavy in many areas. POTATO FLEA BEETLE was prevalent in many counties and caused appreciable damage.

Cereal and Forage Insects: MEADOW SPITTLEBUG (Philaenus leucophthalmus) was not as numerous as in 1957, but in localized areas populations were heavy and damage was apparent. SPOTTED ALFALFA APHID (Theriophis maculata) summer and fall surveys were negative. ALFALFA WEEVIL (Hypera postica) continued its spread into five new counties; damage to the first cutting was heavy in untreated fields. PEA APHID (Macrosiphum pisi) infestations were light. CORN EARWORM (Heliothis zea) damage was general, but light; about 5 percent of the ears were infested in the principal sweet corn producing region. EUROPEAN CORN BORER (Pyrausta nubilalis) populations were lighter this year; in 109 fields surveyed in 14 counties the average was 24.86 borers per 100 stalks.

Fruit Insects: CODLING MOTH (Carpocapsa pomonella) damage was evident in some orchards; harvest damage estimate is about 5 percent. Infestations of SPIDER MITES (Panonychus ulmi and Tetranychus spp.) were lower than the anticipated levels. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) caused appreciable damage in some orchards.

Truck Crop and Garden Insects: POTATO FLEA BEETLE (Epitrix cucumeris) infestations were widespread and heavy in many sections of the State. STRIPED FLEA BEETLE (Phyllotreta striolata) caused considerable damage to cabbage in several areas. There were reports from some counties of damage by COLORADO POTATO BEETLE (Leptinotarsa decemlineata). Populations of both the STRIPED CUCUMBER BEETLE (Acalymma vittata) and SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) were below the usual level though cucurbits in at least 3 counties suffered rather heavy damage. CORN LEAF APHID (Rhopalosiphum maidis) infestations were severe in the northern panhandle.

Tree Insects: EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) and NANTUCKET PINE MOTH (R. frustrana) infestations were prevalent statewide and caused considerable damage particularly in Christmas tree plantations. EASTERN TENT CATERPILLAR (Malacosoma americanum) caused extensive and heavy damage statewide; a SARCOPHAGID (Sarcophaga aldrichi) was especially numerous this year in regions heavily infested with tent caterpillars. FOREST TENT CATERPILLAR (Malacosoma disstria) was numerous in several localized areas; in one of these they were the principal defoliators in about 300 acres of forest . A GEOMETRID (Phigalia titea) was the main defoliator in several forest areas; one of these included about 2,000 acres which was from 80 to 100 percent defoliated. A PSYLLID (Trioza tripunctata) was present in moderate to heavy infestations in many areas and caused damage to red, Scotch and white pine. A PISSODES WEEVIL caused damage to young pines in a number of counties. BARK BEETLES (Ips sp. and Dendroctonus spp.) caused severe damage to pines in widespread areas of the State. PALES WEEVIL (Hylobius pales) was damaging in several pine nurseries. PINE BARK APHID (Pineus strobi) infestations were common in pine nurseries and plantations. BLACK TURPENTINE BEETLE (Dendroctonus terebrans) was heavy in one county where it was attacking living trees. ASIATIC OAK WEEVIL (Cyrtepistomus castaneus) infestations were more widespread this year and in some southern areas of the State they were quite numerous. JAPANESE BEETLE (Popillia japonica) populations were lighter this year than last; in some areas, however, they were heavy and extensive damage was suffered by their host plants.

There was some spread into new areas of infested counties. MIMOSA WEBWORM (Homadaula albizziae) caused some damage in several localized sections. LOCUST LEAF MINER (Chalepus dorsalis) infestations were moderate to heavy in the northern half of the State. There were reports and observations of the following insects from various counties: rose chafer, bagworm, boxwood leaf miner, sycamore lace bug, rose leaf beetle, birch leaf miner, European fruit lecanium, woolly elm aphid, scurfy scale and euonymus scale. GYPSY MOTH (Porthetria dispar) trapping results and the EUROPEAN CHAFER (Amphimallon majalis) survey results for the State were negative this season.

Insects Affecting Man and Animals: HOUSE FLY (Musca domestica) populations were below the usual level in most areas of the State. DOG and CAT FLEAS were numerous this year. CATTLE GRUB (Hypoderma spp.) infestations in general were moderate. TICKS were moderate to heavy. SHEEP KED (Melophagus ovinus) infestations were moderate. Most CATTLE LICE infestations were reported as being of moderate intensity. In general, HORN FLY (Siphona irritans) populations were prevalent, but moderate. LICE were troublesome in localized areas on dogs and hogs where they were reported in medium to heavy infestations. Some of the other pests causing trouble in various counties were: ear mites on dogs, sheep bot fly, warbles in dogs and cats, horse biting lice, chicken lice and chiggers.

Stored-product Insects: The 1958 stored-product insect surveys revealed the usual common pests; no new species were observed. SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) and the FLAT GRAIN BEETLE (Laemophloeus pusillus) were particularly numerous.

New Insect Records: A WEEVIL (Brachyrhinus rugosostriatus) was collected for the first time in West Virginia in the Charleston area.

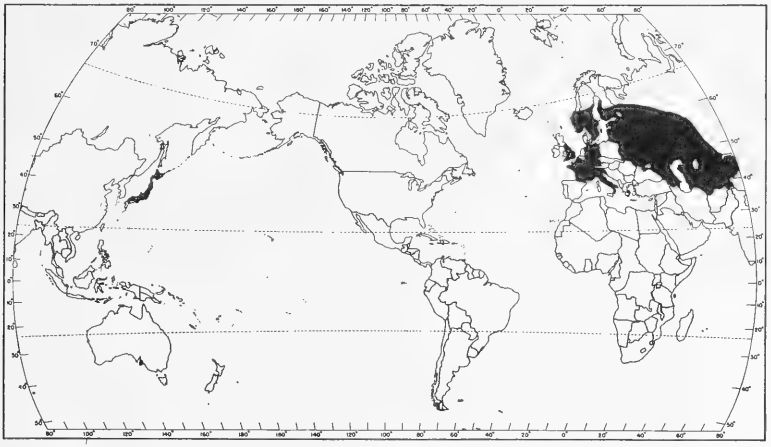
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

PLUM BORER (Rhynchites cupreus L.)

Economic Importance: This weevil causes damage to pome and stone fruits in many European countries and some areas of Asia. The overwintered adults feed on new growth, flowers and young fruit, but the greatest damage occurs from female oviposition punctures in young fruit and subsequent larval development. There seems to be a difference in host preference in different countries. In Germany, plums and cherries are the main hosts while in Finland the insect is mainly a pest of apple causing the greatest injury to the terminal shoots of young trees. It is also an important pest of apple in Norway and Sweden, injuring fruit as well as the young growth. Destruction of the shoots causes retardation and malformation in tree development.

Distribution: Most of Europe, USSR and Japan.

Hosts: Pome and stone fruits. Also reported from Sorbus spp., hazel, birch, hawthorn and grape.



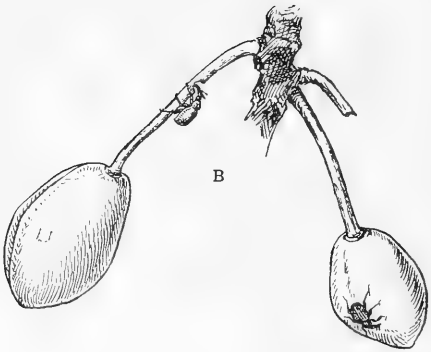
General Distribution of Rhynchites cupreus

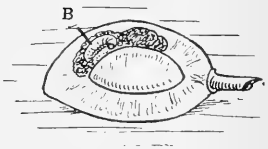
(Curculionidae, Coleoptera)

No. 77 of Series

Life History and Habits: Adults emerge from hibernation in early June and feed on new growth and young fruit. Females begin ovipositing by mid-June in first-year shoots and the young fruit. Oviposition takes place in cuts and punctures in the pedicels of the young fruit or in the tender shoots. One egg is deposited in each puncture and the female covers the cut with plant tissue. Hatching occurs in 4-11 days and the larva feeds in the tissues for 20-30 days. The infested fruit drops. Pupation takes place in the soil and lasts about 45 days. The young adults feed on the leaves of hosts before entering hibernation.

Description: Adult 3.5 to 4.5 mm., copper-brown in color. Larva white, curved, legless. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies.) CEIR 9 (7) 2-13-59





A - Adult of Rhynchites cupreus
B - Adult and Larval Damage

Figures (except map) from Diehl, F. and Weidner, H. 1946. Tierische Schadlinge. Ed. 2. 111 pp. Hamburg.

VOL. 9 NO. 8 FEBRUARY 20 , 1959

Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY

SURVEY & 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 & Detection Operations

Plant Pest Survey

Plant Pest Control Division

Agricultural Research Service

United States Department of Agriculture

Washington 25, D. C.

Volume 9 February 20, 1959 Number 8

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

NOTE: Separates of the series "Insects not known to occur in the United States", numbers 36 - 72, that were issued in the Cooperative Economic Insect Report during 1958, have been assembled under one cover and are now available upon request. The preceding 36 species have already been compiled under one cover. PPC Division personnel will receive copies through their Regional Offices.

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Reports in this issue are for the week ending February 13, unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-FEBRUARY TO MID-MARCH 1959

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 northern third of the Nation east of the Continental Divide. Above normal temperatures are predicted over the southern third of the country and also for the entire area west of the Divide. In areas not specified, near normal averages with large temperature fluctuations are in prospect. Precipitation over the eastern two-thirds of the Nation is expected to be subnormal over the south and also over the northern tier of states. Amounts exceeding normal are expected in West Coast states. 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 16

The week was cooler than normal by as much as 9° in the Far West, 15° in the northern Great Plains, and 3° in the extreme Northeast. Elsewhere, the week was unseasonably mild with weekly averages as much as 15° above normal in the Southeast. Subzero minima, occurring in the northern Great Plains on at least 4 nights, extended to southern Nebraska on the 10th and over Wisconsin on the 11th. Minima were near or below zero over much of New York and New England on the 12th, where extreme lows of -31° and -23° were recorded at Saranac, New York, and Newport, Vermont, respectively, and again on the 16th in northern areas. In the Southern States, afternoon temperatures ranged in the 60's and 70's on several days, and early in the week highs in the 60's were recorded as far north as Indianapolis, Indiana, Columbus, Ohio, and Pittsburgh, Pennsylvania.

Precipitation was both frequent and widespread, with heavy amounts in the East and the Pacific States. The moisture situation was much imporved in California by general precipitation from the 9th to 12th, and heavy precipitation was again falling in that State as the week ended. Unusually heavy rains fell in an area extending from the lower Mississippi Valley to the Great Lakes at the beginning of the week. Amounts of 2 to over 3 inches fell on frozen ground in Ohio and Indiana, causing severe floods in northwestern Ohio and in the Wabash Basin of Indiana. In the latter State, many factories and businesses and hundreds of homes were flooded. Severe glaze in southern Michigan, most of New York State and southern New England early in the period caused widespread damage.

Snowfall in northern areas east of the Rockies was mostly light, although a few locally heavy amounts were reported. Blizzard conditions occurred in North Dakota on the 15th. The snow cover east of the Rockies is now limited to rather extreme northern areas, where it is very heavy locally. The cover in central and east central Wisconsin, 15 to 20 inches, is unusually deep there. In the Far West, snowfall early in the week covered most of the eastern agricultural areas of Washington and the cover over the wheat region now ranges from a few inches in the south to 8 or 10 inches in the north. In the upper Mississippi Valley, the ground is frozen 3 to 6 feet deep in Wisconsin, and generally $4\frac{1}{2}$ to $5\frac{1}{2}$ feet deep in Minnesota. Wadena, Minnesota, reported that the ground was frozen 7 feet deep. Frozen underground pipes in sections of Minnesota indicate that this frost penetration is unusually deep. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - NEW MEXICO - Populations apparently decreased due to cold weather. Averaged 1-10 per linear foot on winter wheat in Curry and Roosevelt Counties. Heavier, 30-60 per linear foot, in grain fields near Artesia, Eddy County. (N. M. Coop. Rpt.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - NEW MEXICO - Light in grain fields in Curry, Roosevelt, Eddy, Chaves and Quay Counties. (N. M. Coop. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Occasionally light on barley in Eddy, Lea, Roosevelt, Curry, Chaves and Quay Counties. (N. M. Coop. Rpt)

COWPEA APHID (Aphis medicaginis) - ARIZONA - Populations increasing in small grain fields in Maricopa County. (Ariz. Coop. Sur.).

PEA APHID (Macrosiphum pisi) - ARIZONA - Becoming numerous on alfalfa in Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Heavy and damaging to seedlings and established alfalfa stands in Dexter-Hagerman area, Chaves County, and near Ft. Sumner, De Baca County. Few growers applying controls. (N. M. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Of populations examined in Stillwater area, 26 percent of aphids were on plants and 74 percent were in ground trash. (Ketner). Populations in alfalfa fields decreased in same area. (Bryan). ARIZONA - Becoming numerous on alfalfa in Maricopa County. (Ariz. Coop. Sur.). NEW MEXICO - Several heavy infestations found on nonresistant varieties in Eddy and Lea Counties. Light to moderate in southern and southeastern counties. Very few growers attempting control. (N. M. Coop. Rpt.). KANSAS - Counts per 25 plants on February 6 were 20 in Riley County and 5 in Pottawatomie County. On February 7, counts per 25 plants were 0 and 4 in two fields in Republic County and 0 in two fields and 2 in one field in Cloud County. (Simpson, Burkhardt).

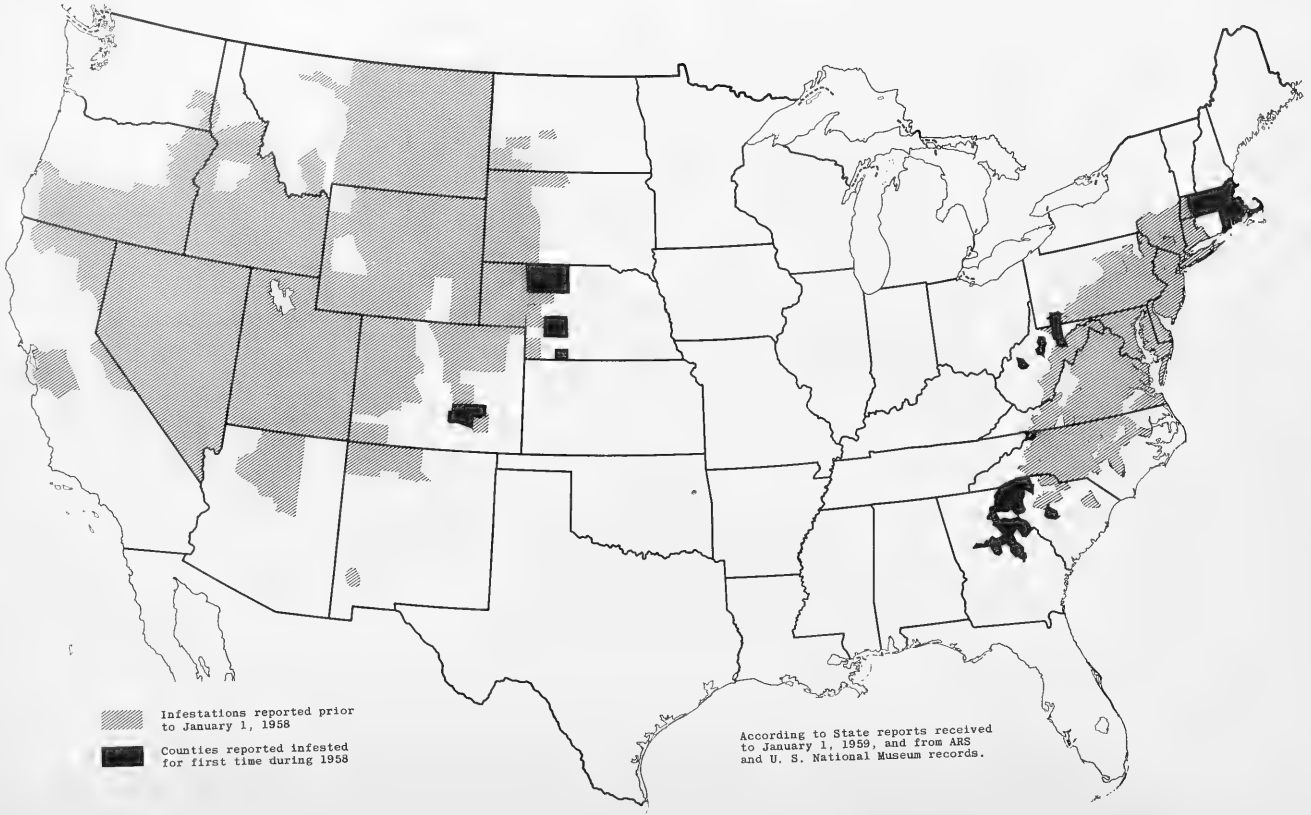
A CHINCH BUG (Blissus sp.) - FLORIDA - Appears to be decreasing in Brevard County. Damage noted on numerous St. Augustine grass lawns in Coconut Grove area of Dade County. (Fla. St. Plt. Brd., Jan. Rpt.).

PEA LEAF WEEVIL (Sitona lineata) - WASHINGTON - Specimens collected in August, 1958, at Quincy, apparently first record for eastern part of the State. Det. U. S. N. M. (Prescott, Donier).

Small Grain Insect Situation in Texas - No outstanding infestations found in fields checked in 5 counties in the Winter Garden area. (Hawkins).

A SHIELDBEARER CRICKET (Platycleis tessellata) - CALIFORNIA - Heavy populations were found in the Placerville area of El Dorado County on range grass in June of 1958. Det. A. B. Gurney. This species also occurs in Plymouth area of Amador County, Mokelumne Hill area of Calaveras County and in Placer County. This is an Old World species known to occur in Europe and North Africa. Apparently not considered of economic importance. (Cal. Coop. Rpt.). This species was first recorded in the United States in 1955 by H. F. Strohecker in the Pan-Pacific Entomologist 31 (4):203; though the first specimens were collected by R. O. Schuster on June 15, 1951, at Placerville, California. (PPC).

DISTRIBUTION OF ALFALFA WEEVIL *(HYPERA POSTICA)*



FRUIT INSECTS

SCALE INSECTS - FLORIDA - Aspidiotus perniciosus quite noticeable on pear trees in the Jacksonville and Macclenny areas. (Fla. St. Plt. Brd., Jan. Rpt.). ARIZONA - Spotted infestations of Icerya purchasi on lemons and shrubs in the Yuma area. Minor infestations reported on grapefruit east of Mesa, Maricopa County. (Ariz. Coop. Sur.). CALIFORNIA - Lepidosaphes beckii medium on citrus in San Diego County. Aonidiella aurantii light to heavy on lemon trees in the Dinuba area of Tulare County. (Cal. Coop. Rpt.).

SPIDER MITES (Tetranychus spp.) - FLORIDA - Heavy infestations in citrus groves and about 50 percent of citrus nurseries inspected in Hillsborough and Pinellas Counties. (Fla. St. Plt. Brd., Jan Rpt.).

TRUCK CROP INSECTS

BEET ARMYWORM (Laphygma exigua) - ARIZONA - Controls necessary in most lettuce fields in Maricopa County during January. Further control not necessary at present time. Injured cantaloups under caps in some fields in same county. (Ariz. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light infestations on cabbage in Colquitt, Thomas, Grady, Brooks and Lowndes Counties.(Johnson). ARIZONA - Small numbers on cole crops in Maricopa County. (Ariz. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Present in all fields of sugar beets grown for seed in Salt River Valley. Becoming numerous, with controls already started in some fields. (Ariz. Coop. Sur.).

AN APHID (Macrosiphum barri) - ARIZONA - Appeared on lettuce in Maricopa County, with control necessary in most areas. (Ariz. Coop. Sur.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - TEXAS - Some damage still observed on spinach in Zavala and Dimmit Counties. Controls applied as preventive measure. (Harding, Hawkins).

DARKLING BEETLES (Metoponium spp.) - ARIZONA - Caused slight damage in watermelon fields in the Litchfield area, Maricopa County. (Ariz. Coop. Sur.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - NEW JERSEY - Surveys were conducted in the Vineland area throughout the 1958 growing season. Observations were made for larvae during spring planting and adult surveys were conducted during July, August and September in and around properties formerly infested. The area was again checked in October and sweetpotatoes were checked for damage as they were dug. No live beetles were encountered. Beetle fragments were found on 2 formerly infested properties in July and August. Although this is not indicative of current infestation, treatment was applied at the spots involved. Despite negative findings, regulatory measures remain in effect in the involved area and will continue pending results of future surveys. The last live beetle was found during survey conducted in July, August and September, 1957. (PPC, East. Reg.).

SEED-CORN MAGGOT (Hylemya cilicrura) - TEXAS - Some damage still observed on spinach in Zavala and Dimmit Counties. Controls applied as preventive measure. (Harding, Hawkins).

THRIPS - TEXAS - Frankliniella sp. reported in CEIR 9(5):50 on spinach in Zavala County, determined as F. occidentalis. This is the first report of this species attacking spinach in the State. (Harding). CALIFORNIA - Frankliniella spp. caused severe damage to lettuce plantings in the El Centro area, Imperial County. (Peterson).

SPIDER MITES (Tetranychus spp.) - ARIZONA - T. telarius and T. pacificus severe in some fields of strawberries in the Glendale area of Maricopa County. Good control being obtained. (Ariz. Coop. Sur.).

TOBACCO INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light on tobacco plant beds in Tift, Colquitt, Thomas, Grady, Brooks and Lowndes Counties. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A NOCTUID (Melipotis acontioides) - FLORIDA - Larvae caused heavy defoliation of Delonix regia trees at Key West, Monroe County. (Martinez). This is the first report of defoliation for 1959. (Fla. Coop. Sur.).

A FIR ENGRAVER (Scolytus sp. near ventralis) - CALIFORNIA - Larvae heavy in maplewood bark in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - VIRGINIA - Damaged leaves of about 40 American boxwood trees in Fredericksburg. (Rowell).

SCALE INSECTS - FLORIDA - Fiorinia theae moderate to heavy on camellias and hollies across the northern portion of the State. (Fla. St. Plt. Brd., Jan. Rpt.). ARIZONA - Aonidiella aurantii light on ornamentals in the Yuma area. (Ariz. Coop. Sur.). CALIFORNIA - Diaspis boisduvalii medium on orchids in the Carpinteria area of Santa Barbara County, as is Parlatoria camelliae on camellia in Auburn, Placer County. Fiorinia fioriniae heavy on Rhus integrifolia in La Jolla, San Diego County. Aspidiotus juglans-regiae heavy on California holly at Corona, Riverside County. (Cal. Coop. Rpt.).

AN ERIOPHYID MITE (Aceria mackiei) - CALIFORNIA - Heavy on live oak in the Oakdale area of Stanislaus County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - FLORIDA - Populations increased in Brevard County. Remained very annoying on lower east coast of Volusia County. Continue at peak population in Indian River area. (Fla. St. Plt. Brd., Jan. Rpt.).

CATTLE GRUBS (Hypoderma spp.) - ARIZONA - Many cattle killed at Phoenix packing plants show heavy infestations. (Ariz. Coop. Sur.).

TROPICAL RAT MITE (Ornithonyssus bacoti) - OKLAHOMA - Caused dermatitis to some humans in some rural areas of Tillman County. (Howell).

HOG LOUSE (Haematopinus suis) - KANSAS - Of 100 hogs examined in Riley and Pottawatomie Counties, all were infested. (Knapp).

HORSE SUCKING LOUSE (Haematopinus asini) - VIRGINIA - Collected by veterinarian at Warrenton, Fauquier County. Det. C. F. W. Muesebeck. (Freund).

LIGHT TRAP COLLECTIONS

	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterranea
FLORIDA			
Gainesville 2/5-11	1		5
Quincy 1/20-26			1
SOUTH CAROLINA			
Charleston 2/2-15	28	28	54

Additional Collection: SOUTH CAROLINA - Charleston, 2/9-15, Prodenia ornithogalli 17.

CLOVER APHID

The following sampling method for clover aphid (Anuraphis bakeri) was developed for work in red clover fields in Washington.

Early in the season (up until about July 1 in the Columbia Basin of Washington), the aphids will be found under the stipules; later, they will be under the bracts of the heads; still later, they will be throughout the heads and on the stems and foliage in heavy infestations. Ten-stipule or 10-head samples (depending upon seasonal development) are taken at random from 5 areas of the field, the 4 sides and the middle. Sometimes only the margins of the field are sampled, since these areas become infested first.

With colonies of 25 aphids or less per stipule or head, actual counts are taken. When populations become high, the aphids are estimated in 5's or 10's. Such estimating can be done with good results if the stipules or heads are opened up and turned slowly while counting. Individual heavily-infested heads can be torn apart and the aphids counted as a check on the accuracy of estimations.

The figures for light, medium and heavy clover aphid in red clover grown for seed in the State of Washington are dependent upon the time of hay cutting.

Number of Clover Aphids per 10 Heads or Stipules

Degree of Infestation	Weeks after hay cutting				
	3	4	5	6	7
Light	0-5	0-10	0-15	0-50	0-150
Medium	10-25	15-50	20-100	60-250	200-750
Heavy	25+	75+	200+	500+	1000+

The aphids are moving from the stipules to the heads during the fourth and fifth weeks after hay cutting. Starting in 1959, a treatment will be recommended in this State during the fourth and fifth week after cutting if a medium infestation is present. It has been found that an early treatment is effective and that this level of infestation causes a reduction in yield which will more than pay for the treatment. (Carl Johansen)

SUMMARY OF INSECT CONDITIONS - 1958

KANSAS

Prepared by David L. Matthew and Leroy L. Peters*

Highlights: GRASSHOPPER populations were the highest in western counties since 1949. Over 87,000 acres of rangeland were treated in Morton County and over 122,000 additional acres were treated as part of a joint Federal-State-County-Rancher cooperative control program which included eighteen counties. Thirty-two other counties had organized control programs. CORN FLEA BEETLE caused much concern in early spring corn plantings. VARIEGATED CUTWORM infestations were the highest in several years in central and southern areas. SPOTTED ALFALFA APHID failed to establish any sizeable populations or increase to destructive numbers until late fall. WHITE GRUBS threatened 20,000 acres of rangeland in the Flint Hills area.

Cereal and Forage Crop Insects: A maximum hatch of GRASSHOPPERS, predominantly Melanoplus spp. and other mixed populations of range and crop species, threatened several thousand acres of crops in the western half of the State, particularly the western one-fourth. The severe infestation in 1958, heaviest since 1949, resulted in part from a heavy migration into western counties the fall of 1957. Dominant species was MIGRATORY GRASSHOPPER (Melanoplus bilituratus). Mixed population nymphal counts along roadsides, fence rows and weed fields ranged generally to highs of over 250 per square yard. One localized area had 1,200 nymphs per square yard. Over 122,000 acres of roadsides were treated in 18 western counties as part of a joint Federal-State-County-Rancher grasshopper control program. An additional 32 counties had control programs without Federal aid. In Morton County, over 87,000 acres of government rangeland were treated with excellent results. Counts of 35 per square yard were reduced to less than 3 per square yard. GREENBUG (Toxoptera graminum) was not found in any wheat, barley and oat fields surveyed during late winter and early spring. ENGLISH GRAIN APHID (Macrosiphum granarium) was noneconomic to light and nowhere significant. PALE WESTERN CUTWORM (Agrotis orthogonia) was practically nonexistent in western counties where infestations had been common in 1956 and 1957. ARMY CUTWORM (Chorizagrotis auxiliaris) feeding activity continued at a very low level, perhaps the lowest in the last five years. FALSE WIREWORMS (Eleodes spp.) continued to decrease in general infestation but occurred in a few localized areas in north central and western counties. Although HESSIAN FLY (Phytophaga destructor) populations continued at noneconomic levels, increases were evident in the counties bordering Missouri and Nebraska. BROWN WHEAT MITE (Petrobia latens) was practically nonexistent. Late-fall infestations of DATE MITE (Oligonychus pratensis) damaged wheat seedlings in Sheridan, Gove, Rawlins and Thomas Counties. By mid-May CHINCH BUG (Blissus leucopterus) infestations were common in wheat and barley fields in localized areas in central, east central and southeastern counties. A few fields of late-planted spring barley were seriously damaged. Stands of grain sorghum were thinned in a few localities in this general area of the State. By June, active nymphal infestations were found in several eastern areas. In two Bermuda grass plantings on the campus of Kansas State College during July, there were severe enough infestations to cause localized areas of the lawns to die. PEA APHID (Macrosiphum pisi) was slow to develop on early alfalfa crops. Little damage occurred although aphids were found in most fields surveyed. Populations were noneconomic to moderate and seldom ranged over 1500 per 25 sweeps.

*The following entomologists, and others, made contributions during the reporting season: R. E. Beer, J. E. Brady, C. C. Burkhardt, L. A. Calkins, L. J. DePew, E. L. Eshbaugh, H. D. Garwood, D. E. Gates, T. L. Harvey, F. A. Knapp, H. Knutson, F. A. Lawson, E. T. Jones, P. H. Marvin, R. H. Painter, S. Ratcliff, R. E. Simpson, W. H. Somsen, H. E. Thompson, G. D. White and D. A. Wilbur.

SWEETCLOVER WEEVIL (Sitona cylindricollis) caused more damage to second-year clover in 1958 than for the past five years. Damaged plants were particularly observed in north central and northeastern areas. CLOVER LEAF WEEVIL (Hypera punctata) was found in most alfalfa fields and in red clover; however, no great damage was observed as the larvae became diseased and feeding shortened. Counts ranged 1-9 per square foot in heavier infested fields. SPOTTED ALFALFA APHID (Therioaphis maculata) was very slow to develop throughout 1958 and failed to develop high populations until late summer and fall. Aphids were not found in northern counties until mid-August. However, in late fall, populations reached the highest level ever recorded in the State that late in the season. WEBWORMS (Loxostege spp.) were of much less importance in 1958 than in 1957. Populations were erratic in development and some occurred as late as mid-August in north central counties. Tip-infestation ranged 10-40 percent; however, timed cuttings prevented significant losses. CORN FLEA BEETLE (Chaetocnema pulicaria) was heavy in many localized areas, and during May was found in nearly all corn fields in the eastern half of the State. Populations were the highest in several years and counts ranged to 19 per plant, but averaged from 2-7 per plant in general. EUROPEAN CORN BORER (Pyrausta nubilalis) continued much the same as in 1957 and many fields in eastern and northeastern counties averaged 70 percent plant infestation. FALL ARMYWORM (Laphygma frugiperda) failed to develop to the highs of 1957; however, late infestations did develop in some fields of late corn. Even though late corn had whorl infestations that ranged to highs of 40 percent, eardrop from subsequent shank feeding nowhere approached 1957 levels and averaged only an estimated 2 percent. VARIEGATED CUTWORM (Peridroma margaritosa) was the heaviest in several years and caused extreme damage to many alfalfa fields and home gardens. Counts ranged to highs of 20 per square foot under baled alfalfa hay. Roadside sweetclover was stripped as were plants in some planted fields. ARMYWORM (Pseudaletia unipuncta) failed to cause the expected damage that was indicated by early summer counts. Moth flights were heavy but larvae failed to develop to destructive numbers and were only a problem in localized southeastern and north central areas, in fields of heavy and lodged barley. CORN EARWORM (Heliothis zea) was much lower than in previous years. Fall surveys showed fewer ears infested and much less over-all loss from secondary causes. SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) was higher than previous years with some fields in southern counties showing infestations as high as 80 percent. Infestations, however, were localized and not all fields affected. WHITE GRUBS (Phyllophaga spp.) caused vast damage to bluestem range in the Flint Hill areas of Wabaunsee, Geary, Pottawatomie, Riley and Osage Counties. Populations ranged 7-15 grubs per square foot and dead spots in the range varied from 5-12 acres in size. Over 20,000 acres of rangeland were affected.

Fruit Insects (E. L. Eshbaugh): APHIDS were not generally serious in orchards in 1958. Some damage by ROSY APPLE APHID (Anuraphis roseus) occurred in May and APPLE APHID (Aphis pomi) was numerous enough to curl leaves of terminal growth in some northeast orchards. CODLING MOTH (Carpocapsa pomonella) adults first emerged in the northeast area on May 19 and first entries were found June 2. Unsprayed Jonathan apple test trees in a well sprayed orchard were 75 percent "wormy" when harvested in September. Codling moth damage was greater in 1958 than for several years. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) caused severe damage to Wealthy apples in Doniphan County and to late fall varieties in all areas of the State except a few orchards in the Arkansas River Valley. PLUM CURCULIO (Conotrachelus nenuphar) was normal for the State. Light infestations of UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) occurred in May and June in Doniphan County. Although populations of EUROPEAN RED MITE (Panonychus ulmi) were light, this was the most noticeable mite on apples in Doniphan County in July and August. No destructive populations of TWO-SPOTTED SPIDER MITE (Tetranychus telarius) were found in Doniphan County or the Arkansas River Valley but were severe in the Kansas River Valley at Manhattan and Topeka. STRAWBERRY WEEVIL (Anthonomus signatus) was common during

the early bloom in Doniphan County. STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) was not serious and caused damage only where control measures were not applied. PEACH TREE BORER (Sanninoidea exitiosa) damage was severe in the Arkansas River Valley, especially south of Wichita. As many as 34 borers were removed from some trees. TARNISHED PLANT BUG (Lygus lineolaris) and STINK BUGS were plentiful during the early season on peaches.

Ornamental and Shade Tree Insects (H. E. Thompson): During the past two years CANKERWORMS, primarily SPRING CANKERWORM (Paleacrita vernata), have been on the increase on several species of shade trees, primarily elm and hackberry, throughout the eastern area and a few local areas in the western part of the State. Feeding injury in some communities during 1958 was moderate to severe. Hackberry trees were also attacked by three generations of larvae of a BRUSH-FOOTED BUTTERFLY (Asterocampa celtis) in May, July and September. On elms in Hays and Salina, there was an infestation by larvae of a GEOMETRID, tentatively identified as Lycia ursaria. The main economic effect resulted from the droppings and descending caterpillars on the sidewalks and roadways. PSYLLIDS (Pachypsylla celtidis-mamma and P. celtidis-vesicula) were severe enough to cause some defoliation of hackberry in July and August. On other trees the leaves were distorted and brown. HACKBERRY NIPPLE GALL (P. celtidis-mamma) caused curling and dying of leaf foliage of economic proportions in some eastern areas. There were several SCALE INSECTS of economic importance. In the soft scale group, injury from EUROPEAN ELM SCALE (Gossyparia spuria) was severe in several western communities. In the eastern half of the State, EUROPEAN FRUIT LECANIUM (Lecanium corni) killed branches on several varieties of trees, primarily elm. Infestations of OAK KERMES SCALE (Kermes pubescens) caused distortion and death in the terminal growth of bur and pin oaks throughout most of the State. Of the armored scales, there were several that were local problems and by far the most widespread and injurious was a CEDAR SCALE (Cryptaspidiotus shastae). There is an infestation on the cedars in practically every cemetery in the State. The most severe infestations are killing the trees. In eastern and central Kansas, leaves on pin oaks were twisted and curled by infestations of a GALL MIDGE (Parallelodiplosis florida). In cases of severe infestation, some premature defoliation took place. ELM LEAF BEETLE (Galerucella xanthomelaena) was identified for the first time in Ford County from 2 adults taken in Dodge City. The number one pest on juniper, arborvitae and Norway spruce continues to be BAGWORM (Thyridopteryx ephemeraeformis). ELM LEAF APHID (Myzocallis ulmifolii) caused considerable annoyance and some tree damage in eastern areas of the State.

Insects Affecting Man and Animals (Stuart Ratcliff): NORTHERN CATTLE GRUB (Hypoderma bovis) was collected from local cattle in Saline, Riley and Morris Counties. This confirmed earlier reports of this species in the State. H. lineata was reported from throughout the State. SCREW-WORM (Callitroga hominivorax) was collected in Clark and Marion Counties in August and September and SECONDARY SCREW-WORM (Callitroga macellaria) was collected in Kingman County in April.

Stored-grain Insects (G. D. White): INDIAN-MEAL MOTH (Plodia interpunctella) appeared in large numbers and was a control problem over the entire State. LESSER GRAIN BORER (Rhyzopertha dominica) numbers increased in the northeast portion of the State, especially in CCC bin sites. ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) increased in numbers from southeast areas to the Kansas River Valley. DERMESTIDS did not increase in numbers; however, they remained a problem. PSOCIDS increased in numbers.

Light Traps: Four dark-light insect traps continued in operation throughout the 1958 growing season. Traps were located in Finney, Ellis, Riley and Doniphan Counties. Abundance counts and migration patterns included armyworm, corn earworm, fall armyworm, European corn borer, variegated cutworm and army cutworm.

SUMMARY OF INSECTS CONDITIONS - 1958

NEBRASKA

Reported by Lloyd W. Andersen, Roscoe E. Hill, Robert E. Roselle

Highlights: Entomological highlights for 1958 included heavy first and second broods of EUROPEAN CORN BORER over much of the corn-growing areas; GRASSHOPPERS again present in injurious numbers throughout the western two-thirds of the State; high larval populations of ARMYWORM in wheat in the eastern half of the State; the virtual disappearance of PALE WESTERN CUTWORM after five years of damage; continuation of the eastward spread of ALFALFA WEEVIL; an increase in CORN ROOTWORM populations; another late buildup of SPOTTED ALFALFA APHID in the southwest; large flights of BEET WEBWORM at light traps but with less than expected damage from the larvae in the field; and another generally heavy outbreak of MOSQUITOES.

Cereal and Forage Crop Insects: Legumes - ALFALFA WEEVIL (Hypera postica) surveys revealed a light local infestation in alfalfa in panhandle and southwestern counties. Scotts Bluff, Sioux, Morrill and Cheyenne Counties had larval populations up to 120 per 100 sweeps. New records included Cherry, Lincoln and Red Willow Counties. SPOTTED ALFALFA APHID (Therioaphis maculata) was present in economic numbers in the western Republican River Valley and Frenchman Creek areas. It was first found during the second week in July, in Red Willow County, and did not buildup to economic numbers until mid-August. It was not found until September 13 in the central Platte Valley. By late September and early October the population had increased greatly, and surveys showed well over 11,000 per 100 sweeps in the western Republican Valley region. Yellowing of alfalfa plants was noticeable. Surveys in December revealed aphids under snow cover up to 300 per alfalfa crown in Red Willow County. GREEN CLOVERWORM (Plathypena scabra) populations were very light during 1958 in alfalfa and soybeans in the eastern half of the State. Counts in early June through July ranged 9-19 per 100 sweeps in alfalfa and averaged 0.3 per 10-plant sample in soybeans. Moths were picked up at light traps at Lincoln, North Platte, Scottsbluff and Alliance throughout the summer months. Light populations of ALFALFA CATERPILLAR (Colias philodice eurytheme) occurred generally throughout the alfalfa-producing regions. Infestation began in early May and continued through mid-September. Larvae averaged 5 per 100 sweeps in early May, reached peak of 1 per sweep by early June, then dropped off, averaging 32 per 100 sweeps for the remainder of the season. ALFALFA WEBWORM (Loxostege commixtalis) produced moderate webbing in the southeast, south central and southwestern areas in alfalfa, beginning in early August. Larval counts ranged 10-120 per 100 sweeps during the season. PEA APHID (Macrosiphum pisi) infestations first occurred in southeastern alfalfa and red clover in early April. Buildup was slow through April and May and by early June had reached 4,847 per 100 sweeps, despite a fungus (Entomophora sp.) in late May. A moderate population continued through June (1000 plus per 100 sweeps) in most areas and dropped during July, possibly because of predators. A buildup occurred again in mid-August and continued into November. Seasonal counts per 100 sweeps averaged 1000 in the east, 240 in the southwest and 320 in the Platte Valley. TARNISHED PLANT BUG (Lygus lineolaris) populations were moderately general to spotted heavy. In early April counts ranged 5-7 per 100 sweeps. A general buildup occurred through May in southern regions. Early-June populations averaged 362 per 100 sweeps and continued high through the year. ALFALFA PLANT BUG (Adelphocoris lineolatus) was generally light in alfalfa throughout most of the State. Infestations ranged 43-174 adults and nymphs per 100 sweeps through June and remained somewhat static through the remainder of the year. RAPID PLANT BUG (Adelphocoris rapidus) was relatively light and spotted in alfalfa in eastern areas. Counts averaged 20 per 100 sweeps and very little damage resulted.

First overwintered adults of SWEETCLOVER WEEVIL (Sitona cylindricollis) were observed in sweetclover and litter in the southeast in early April. Counts ranged 5-7 per 10-crown sample and later 6-8. Damage to newly emerged seedlings was serious. LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) was light and spotted on red clover in the southeastern portion of the State. Counts ranged 4-6 per 25 sweeps throughout the year. Very little damage occurred to blossoms or stems of plants. CLOVER LEAF WEEVIL (Hypera punctata) was light in alfalfa in eastern areas. Larval counts averaged 15 and adults 11 per 100 sweeps. There was very little damage. POTATO LEAFHOPPER (Empoasca fabae) infestations were generally light in alfalfa. The first known occurrance was May 13 in the southeast. Several other species of leafhoppers were found May 5 and 6. No serious yellowing or "hopperburn" resulted in alfalfa. Moderate populations of BLISTER BEETLES (Epicauta spp.) were found in alfalfa fields in the southwest, south central, southeast and northeast areas from mid-June through September. Counts in mid-summer ranged 14-32 per 100 sweeps and reached as high as 100 per 100 sweeps in August.

The GRASSHOPPER trend continued its movement to the west and populations were more widely scattered. The north central and eastern one-fourth of the State are comparatively free of damaging infestations. A general increase occurred in the south central and panhandle counties. The initial hatch in cropland began in early May in the east and that of rangeland species in early June. Generally the major hatch was later and more prolonged due primarily to greater precipitation in these areas. The dominant cropland species over the State was Melanoplus bivitattus, followed closely by M. differentialis. The areas to the south and west are subject to migrations of M. bilituratus, which has become more widespread and abundant than at any time in the past 10 years. One of the larger flights of this species extended from west of Kearney, Buffalo County, to the western end of the State. Melanoplus femur-rubrum never reached destructive proportions and the population is the lowest in many years. The rangeland has shown little change in populations. The chief areas of high populations remain in the southern sandhills, the breaks along the Platte River and the light sandy soils of southern Lincoln County. The dominant species on the range are Ageneotettix deorum, Aulocara elliotti, Phlibostroma quadrimaculatum, Melanoplus bilituratus, M. foedus, M. occidentalis, Trachyrhachis kiowa, Amphitornus coloradus, Eritettix tricarnutus and Boopedon nubilum. Egg survey conducted in fall of 1958 indicated populations equivalent to those of the adult survey. However, large areas in the east and central portions of the State had an extremely high degree of parasitism within the egg pod. There are some areas where egg dessication is also taking place, but for the most part eggs have gone into the winter in good condition. Heavy fungus disease occurred in the southeast and central portions of the State which took a heavy toll in these regions. Federal control programs were carried on in Deuel and Cheyenne Counties in the summer where 41,369 acres of range were sprayed. A total of approximately 2,201,625 acres of both range and cropland were sprayed in the State in 1958.

Corn and Sorghum - BLACK CUTWORM (Agrotis ypsilon) caused moderate to spotted severe damage in the eastern third of the State in heavier soils. In some areas as high as 21 of 25 plants were damaged. Moths were collected in light traps at Lincoln, North Platte, Scottsbluff, Alliance and Kearney throughout the growing season. CORN LEAF APHID (Rhopalosiphum maidis) infestations were generally moderate to severe in corn and grain sorghum in eastern and southern areas of the State during July and August. High predator populations developed rapidly in most areas to check the infestation. WIREWORM (Melanotus spp.) populations were moderate to spotted heavy in the more heavy soils in eastern areas. Damage necessitating replanting of corn occurred in several northeast areas. FALL ARMYWORM (Laphygma frugiperda) infestation was very light in Platte Valley corn. Moth flights began in late August at Lincoln and North Platte and reached their peak in mid-October. Practically no damage resulted.

ARMYWORM (Pseudaletia unipuncta) infestations were light to moderate in corn in eastern and central areas. Some defoliation of corn resulted. CHINCH BUG (Blissus leucopterus) migrations from overwintering habitats to wheat and barley began in early April. Migrations from small grains began in early July. Only light damage occurred and it was estimated that approximately 1,000 acres were treated this spring. The survey conducted in the fall in 35 southeastern counties revealed noneconomic to very severe conditions existing. Counts ranged upwards to 2,000 or more per square foot in some areas. CORN ROOTWORMS (Diabrotica undecimpunctata howardi, D. virgifera and D. longicornis) damage continued to mount especially in those areas which have developed irrigation. CORN EARWORM (Heliothis zea) infestations in field and sweet corn were generally light to moderate throughout southeast, south central and central regions. Moth flights occurred in May at Lincoln, North Platte and Scottsbluff. All stages were present until frost. Damage to corn ears was light to moderate in nearly all the southeastern and south central counties where 80-95 percent infestations occurred in early September. Heavy moth flights occurred in mid-October at Lincoln and North Platte with a high weekly catch of 1,620 at North Platte. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) populations were moderate in corn in panhandle counties during mid-summer. Damage to lower leaves was very noticeable. EUROPEAN CORN BORER (Pyrausta nubilalis) spring survival survey revealed a heavy winter mortality. In both northeast and Platte Valley areas mortality was approximately 96 percent with a 4 percent effective population. Populations per acre ranged from 1,328 in the southwest to 3,866 in the northeast. Pupation of overwintering borers began about May 20 in the southeast, east and central portions of the State, and by the first week in June had reached approximately 100 percent in all areas. Moths were collected at Lincoln June 3 and at North Platte June 6. Egg masses (50 per 100 plants) were found in the southeastern area June 10. Second-brood moths appeared during the third week in July and gradually reached a peak in mid-August. With the cool weather at that time, moths continued to fly until late September in some areas. The fall survey in 74 counties revealed 22-337 borers per 100 plants and infestation of 21.8 to 99 percent. Corn loss in 1958 was 23,102,178 bushels, valued at $23,102,178.

Other Cereal and Forage Crop Insects - Light infestations of WHEAT HEAD ARMYWORM (Faronta diffusa) occurred in winter wheat in southwest counties. Considerable injury to rye occurred in Lincoln County where counts ran 1.5 per sweep. ENGLISH GRAIN APHID (Macrosiphum granarium) was light to spotted moderate (averaged 12 per head in a 20-head sample) in small grains the early part of May through middle of June. The infested area embraced the eastern third, through the Platte Valley to the western part of the State. SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was very light in small grains during 1958 in comparison with 1957. WHEAT CURL MITE (Aceria tulipae) occurred throughout the panhandle and southwestern counties. Wheat streak mosaic was more widespread than it has been since the fall of 1953 and the spring of 1954. Examinations of wheat stubble taken in August from major wheat-producing counties indicated that infestation by HESSIAN FLY (Phytophaga destructor) was heavier than it has been since 1953. Parasitism of the flax-seed stage by either Merisus destructor or Eupelmus allynii was very prevalent, up to 90 percent in some areas. Supplemental surveys in the fall revealed a partial second brood which developed in early plantings of winter wheat and in volunteer wheat. ARMYWORM (Pseudaletia unipuncta) larval population was moderate to severe in rank and lodged wheat in the eastern third and central Platte Valley regions. Moth flights were extremely heavy at all light trap stations from late April into October. Five major moth flights were observed at light trap stations. A high single week catch at North Platte was 11,950 in early July. Larval infestations in small grains in the eastern half of the State were in accord with the number of moths collected at the light traps. Larval counts ranged 8-46 per square foot in many fields. PALE WESTERN CUTWORM (Agrotis orthogonia) infestations were very light in winter wheat and barley. This is the first

time in 6 years that there were no economic losses in the panhandle area. Moth flights at Alliance started in late August and continued through September in small numbers. The highest single-day catch was 19 in early September compared with 103 in 1957.

Vegetable and Truck Crop Insects: POTATO LEAFHOPPER (Empoasca fabae) was not serious on potatoes in eastern, central or western areas. First occurrance was May 13 on alfalfa in the southeast and the first appearance on potatoes was approximately June 12. POTATO PSYLLID (Paratrioza cockerelli) was light on lycium, potatoes and tomatoes in central and western areas. No serious yellowing occurred on western area potatoes as compared with 1957. Populations based on an average found at seven locations and at 100 sweeps per location ranged .57 on May 5 to 23.5 on June 30. MEXICAN BEAN BEETLE (Epilachna varivestis) occurred in light to spotted moderate infestations during August in field beans in the Scottsbluff vicinity. TUBER FLEA BEETLE (Epitrix tuberis) was normal on potatoes in central and western portions of the State. BEET WEBWORM (Loxostege sticticalis) moth flights were extremely heavy from North Platte on west in early June. High weekly light trap catches were 8,569 at Scottsbluff, 15,530 at North Platte and 28,948 at Alliance. Larval populations in beets were not in accord with the moth catches; counts averaged 12 per 100 sweeps. Local heavy populations of WESTERN BEAN CUTWORM (Loxagrotis albicosta) occurred in field beans on the lighter soils in the Scottsbluff vicinity. Light infestations were again found in field corn in Scotts Bluff, Box Butte, Morrill, Garden and Keith Counties. Moths appeared as far east as North Platte.

Insects of Shade and Fruit Trees, Perennials and Ornamentals: BAGWORM (Thyridopteryx ephemeraeformis) populations were moderate to spotted heavy on evergreen, sycamore, pin oak and spirea in southeastern areas from early June and through July. WALNUT CATERPILLAR (Datana integerrima) was light to spotted moderate on walnut trees in northeast areas during mid-summer with some defoliation. SPRING CANKERWORM (Paleacrita vernata) caused moderate to severe damage. Nearly all river valley areas were infested. Approximately 70-85 percent of the woodland areas and windbreaks in some regions were defoliated. FALL WEBWORM (Hyphantria cunea) populations were moderate on elm, poplar and roadside shrubs in the eastern third of the State. GREEN-STRIPED MAPLEWORM (Anisota rubicunda) infestations were light to moderate along the Missouri River Valley from Richardson County to Thurston County. OYSTERSHELL SCALE (Lepidosaphes ulmi) was very prevalent on lilac in south central, central and eastern areas. Heavy damaging infestations of EUROPEAN ELM SCALE (Gossyparia spuria) continued in the eastern third, central and western portions of the State. NANTUCKET PINE MOTH (Rhyacionia frustrana) continued to be abundant on young ponderosa pine in established forest areas and in isolated plantings as far east as the Missouri River Valley. PINE NEEDLE SCALE (Phenacaspis pinifoliae) was moderate to heavy on pine in the Pine Ridge area, Halsey Forest and in pine windbreaks in central and eastern parts of the State. SPIDER MITES (Tetranychus spp.) were moderate to heavy on conifers, roses and garden vegetables in the eastern third and central portions of the State. Controls were used extensively throughout these areas. Heavy damaging populations of a LEAF ROLLER continued along the Platte Valley and in the northeast on locust trees with severe defoliation in many areas. PEACH TREE BORER (Sanninoidea exitiosa) was very abundant in fruit tree plantings in early spring. Loss of trees resulted in some regions.

Insects Affecting Man and Animals: MOSQUITOES - This summer and fall, as was the case the past two years, again saw one of the most serious mosquito outbreaks. The predominant species was Culex tarsalis. All species of Culex became more important after mid-July and persisted to the end of the season. Aedes vexans was predominant in the early part of the summer, but dropped in numbers in mid-summer, increased again in late August and early September.

The peak populations of A. vexans and C. tarsalis occurred in September. CATTLE GRUBS (Hypoderma spp.) - Adult activity was noticeable in late April and continued into June in the sandhill region. The population then developed into a near normal situation for the State. Approximately 140,000 head of cattle were treated in 1958. HORN FLY (Siphona irritans) continued to be very numerous on livestock in west and north central regions. STABLE FLY (Stomoxys calcitrans) populations were much higher than in 1957. Severe problems developed around feed lots and farm yards in the eastern portion of the State. HOUSE FLY (Musca domestica) continued to be a constant nuisance in urban and rural areas until frost with populations much higher than in 1957. CATTLE LICE (Bovicola bovis and Hematopinus spp.) were normal on livestock in feed lots in eastern and central regions. Untreated cattle were heavily infested with one or more species in many cases.

Stored-grain Insects: In stored wheat, live and dead insects were found in 73.0 percent of 256 bins examined, a number of which had recently been fumigated. Live insects occurred in 17.2 percent of the bins. Rodent contamination was present in 11.7 percent and bird contamination in 0.7 percent of those examined. Dermestids, saw-toothed grain beetle, granary weevil, cadelle and flat grain beetle were the most abundant. In stored corn, live and dead insects were found in 25.6 percent of 51 bins examined with dermestids, saw-toothed grain beetle, flat grain beetle and cadelle the most abundant. Rodent contamination was found in 51.9 percent of the bins.

Cooperators: The following Nebraska entomologists also contributed to the Cooperative Economic Insect Survey during 1958: C. Jones, R. Staples, C. Walstrom, D. Fitchett, J. Bell, K. Pruess, A. Hagen, G. Weekman, W. Howe, M. McKnight, G. Manglitz, B. Kantack and W. Rapp.

SUMMARY OF INSECT CONDITIONS - 1958

SOUTH DAKOTA

Compiled by W. M. Hantsbarger and Gale Mast

Highlights: GRASSHOPPERS increased in 1958, with large areas averaging 8 to 14 adults per square yard during the fall abundance survey. A migratory flight of MIGRATORY GRASSHOPPER occurred in the southwest. CORN ROOTWORMS caused considerable damage in southeastern and south central areas. CRICKETS were more abundant than usual in the eastern part of the State. Heavy infestations of PEA APHID and ENGLISH GRAIN APHID appeared in late spring and early summer. EUROPEAN CORN BORER populations are reduced from those of 1957.

Cereal and Forage Insects: TWO-STRIPED GRASSHOPPER (Melanoplus bivittatus) began hatching in the southeast area around the middle of May. A light hatch of Camnula pellucida was observed in the Keystone area a week later. Heavy hatches of DIFFERENTIAL GRASSHOPPER (Melanoplus differentalis) and M. bivittatus were noted in many areas of the State by the first of June. By the second week in June RED-LEGGED GRASSHOPPER (M. femur-rubrum) began to hatch. Nymphal populations in the extreme southeastern area reached as high as 150 per square yard in margins and 30 per square yard in alfalfa fields. Economic infestations were reported the latter part of June in Lyman, Union, Yankton and Clay Counties; the dominant species were M. differentalis and M. bivittatus. Flights of MIGRATORY GRASSHOPPER (M. bilituratus) appeared in Bennett County and in an area extending over to the central and northern Black Hills. Many acres of winter wheat were treated to protect the crop. The adult survey conducted throughout the State in August showed many acres rated 8 to 14 or more per square yard.

Areas of heavy infestation exist in Union, Clay, Yankton, Spink, Brown, Lyman, Hughes, Sully, Potter, Walworth, Fall River, Perkins, Pennington and Harding Counties. Much of the State which was noneconomic last season now has light to moderate populations. This increase is largely a result of a buildup of M. differentalis and M. bivittatus. A grasshopper egg survey held in October in general approximated findings of the adult survey. In some areas, parasitism by BOMBYLIID larvae was noticeable on the egg pods. Loss to crops from grasshopper activities is estimated at approximately $2,957,700. It has been estimated by county agents that 223,070 acres were treated for grasshopper control, resulting in a saving of $1,260,600.

FALSE WIREWORM (Eleodes spp.) infestations averaged from one to two larvae per linear foot of row on winter wheat in Stanley, Haakon, Jones and Mellette Counties. Damage in most instances was slight. Light infestations of WIREWORMS (Limonius spp.) were found in spring wheat at several localities of the north central and northeast districts. Populations averaged one larva per linear foot of row. Actual damage to the wheat was slight. Populations of ARMY CUTWORM (Chorizagrotis auxiliaris) were much lower than in 1957. Infestations were noted in scattered wheat fields of the west central district where populations averaged one larva per linear foot of row and in alfalfa and small grains in the east central and southeast districts where larvae averaged three per square yard. Little damage occurred in 1958. Scattered infestations of ARMYWORM (Pseudaletia unipuncta) larvae appeared in eastern areas on small grains and alfalfa. The heaviest infestation occurred in Roberts County where approximately 1,000 acres were treated. EUROPEAN CORN BORER (Pyrausta nubilalis) spring surveys indicated a winter survival of approximately 84 percent in the 17 eastern counties. Pupation was underway the third week of May in the southeast district. Moth emergence and egg-laying commenced the second week of June. Egg hatch and accompanying "shot-hole" damage appeared the latter part of June. The first-brood infestation averaged 45 percent with an average of 84 larvae per 100 plants. First-brood pupation with second-brood moth emergence took place the latter part of August. Second brood was light, perhaps because of the very dry weather. The fall survey indicated an average of 51 percent infestation with an average of 91 borers per 100 plants for the 6 districts and 42 counties surveyed. It is estimated that approximately 2,835,000 bushels of corn were lost to the borer, representing a monetary loss of $2,353,000. ALFALFA WEEVIL (Hypera postica) was more troublesome than in 1957. Damage occurred to a number of alfalfa fields that were not treated. Populations in early June reached 40-60 larvae per 10 sweeps in untreated fields of Lawrence County. Larvae were detected for the first time in Ziebach County. Approximately 14,000 acres of alfalfa were treated. SWEETCLOVER WEEVIL (Sitona cylindricollis) adults were active and feeding by the first part of April. Feeding damage ranged up to 50 percent of the plants in older established stands. Larval damage to new seedings of sweetclover was comparatively light.

LYGUS BUGS (Lygus spp.) - Overwintering adults became active the latter part of April. By the middle of May newly-hatched nymphs appeared. Through the months of June and July populations were heavy on alfalfa. Counts averaged 40 per 10 sweeps with counts up to 180 per 10 sweeps noted in some areas. Many alfalfa seed fields had injurious infestations and were treated. ALFALFA PLANT BUG (Adelphocoris lineolatus) began to appear in economic numbers on alfalfa the first part of June, populations averaging 14 per 10 sweeps. Later in the summer populations averaged 36 per 10 sweeps on alfalfa. Injurious infestations were noted on many alfalfa seed crops. POTATO LEAFHOPPER (Empoasca fabae) was first collected in the State May 29th on alfalfa in the southeast district. On June 5 it was collected in the east central district. Populations were light on alfalfa throughout the growing season. Some "hopperburn" damage appeared in potato fields of the northeast. PEA APHID (Macrosiphum pisi) began to appear in alfalfa fields around the latter part of April and the first part of May. The spring season was cool and conducive to reproduction of this species. By the first part of June, hundreds per sweep were encountered.

Many calls were received requesting information on control. In certain areas, alfalfa showed some damage symptoms. The hot, dry weather of mid-summer, coupled with an increase in predators, reduced aphid numbers so that they ceased to be a problem for the rest of the season. ENGLISH GRAIN APHID (Macrosiphum granarium) infested small grain throughout the State during late spring and early summer. The weather was also conducive to rapid buildup of this pest. By early summer it was not unusual to see hundreds of aphids on a single small grain plant. Some damage occurred on small grains that were planted in light and sandy soils. The hot, dry weather of mid-summer reduced the populations to noneconomic levels. ALFALFA CATERPILLAR (Colias philodice eurytheme) larvae first began to appear in alfalfa fields around the middle of May. Populations remained light throughout the season; the larvae never averaged more than one per 10 sweeps. BEAN LEAF BEETLE (Ceratoma trifurcata) infestations were noted on soybeans in Clay and Union Counties. Slight damage occurred to foliage and populations averaged one adult per linear yard of row. Adults of SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) appeared the first part of June in alfalfa, feeding on the blossoms. By August and September, adults of WESTERN CORN ROOTWORM (D. virgifera) and NORTHERN CORN ROOTWORM (D. longicornis) were also appearing in alfalfa fields. Populations averaged 4 per 10 sweeps. Many reports were received of corn rootworm damage to corn fields in the southeast and south central districts. Most of the damage appeared to be confined to nonrotated fields. Approximately 52,490 acres were treated for control this spring. ASH-GRAY BLISTER BEETLE (Epicauta fabricii) appeared in alfalfa fields the latter part of May. During June and July they averaged one per net sweep. BLACK BLISTER BEETLE (Epicauta pennsylvanica) was noted in some localities of the north central district where they averaged one per sweep in alfalfa. A FIELD CRICKET (Acheta sp.) was more abundant than usual during the latter part of the summer. Some alfalfa seed fields were treated as population counts in some areas reached 15 per square yard. SPOTTED ALFALFA APHID (Therioaphis maculata) was not reported in the State during 1958.

Fruit Insects: APPLE MAGGOT (Rhagoletis pomonella) was the most troublesome and damaging insect pest of fruit in 1958. Considerable damage was reported from the east central and southeast districts on apple. PEAR-SLUG (Caliroa cerasi) infestations were reported from cherry trees and a pear tree in the south central district. EUROPEAN RED MITE (Panonychus ulmi) adults were observed by the middle of May feeding in apple trees in the east central district. Some leaf damage was noted by late summer.

Truck Crop Insects: CUCUMBER BEETLES, both Diabrotica unidecimpunctata howardi and Acalymma vittata, were abundant on cucurbits throughout the summer. POTATO LEAFHOPPER (Empoasca fabae) was quite abundant in some localities. "Hopperburn" on garden potatoes was quite evident in some areas. POTATO FLEA BEETLE (Epitrix cucumeris) was abundant in eastern areas on potatoes. Untreated potatoes showed leaf-feeding damage. CABBAGE APHID (Brevicornye brassicae) and MELON APHID (Aphis gossypii) were more abundant than usual in home gardens throughout the State.

Forest, Ornamental and Shade Tree Insects: PINE BARK APHID (Pineus strobi) was numerous and active on white pine in the Sioux Falls vicinity by the first part of June. COTTONWOOD LEAF BEETLE (Chrysomela scripta complex) infestations were reported from cottonwood and poplar in various parts of the State. APHIDS were very numerous on shade trees throughout the State. Many complaints were received on the excessive "honeydew". An infestation of ELM CALLIGRAPHA (Calligrapha scalaris) adults was reported from elm in Hutchinson County. Many FALL WEBWORM (Hyphantria cunea) infestations were noted on cottonwoods and aspen throughout the State. Various reports of OYSTERSHELL SCALE (Lepidosaphes ulmi) infestations on apple and shade trees throughout the State were received. ELM SAWFLY (Cimbex americana) infestations were reported on elm and willow from

various localities in the southeast and south central districts. PINE NEEDLE SCALE (Phenacaspis pinifoliae) continues to be a problem throughout the State on ornamental conifers.

Insects Affecting Man and Animals: CATTLE GRUBS (Hypoderma bovis and H. lineatum) - Counts made on 103 untreated calves in Meade County in March showed an average of 13 grubs per head. Heel fly activity was prevalent during early summer. Approximately 9 percent of the cattle in the State received some treatment for grub control. HORN FLY (Siphona irritans) was abundant throughout the State. It is estimated that 50 percent of the cattle in the State received some treatment for horn fly control. CATTLE LICE (Linognathus vituli and Haematopinus eurysternus) were prevalent on cattle throughout the State. Approximately 31 percent of the cattle received some form of treatment. POULTRY LICE and MITES were a problem to chicken flocks. NORTHERN FOWL MITE (Ornithonyssus sylviarum) was especially troublesome. An interesting problem occurred in the municipality of Brookings where a small child was being bitten by CHICKEN MITE (Dermanyssus gallinae). The infestation source was believed to be from pigeons which frequented the roof of the home.

Stored-product Insects: INDIAN-MEAL MOTH (Plodia interpunctella) infestations were reported throughout the State, some of them in homes as well as granaries. Infestations of FLOUR BEETLES (Tribolium spp.) were noted from many localities and many sources, including homes, granaries and cribs. SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) infestations were reported from several localities in the State, both from infestations in homes and granaries. Several infestations of CADELLE (Tenebroides mauritanicus) were reported from stored grain in the southern regions.

Miscellaneous Insects: POWDER POST BEETLES (Lyctus spp.) were reported several times in homes. SUBTERRANEAN TERMITES were reported from Pennington and Davison Counties. This was a first record for Davison County. BLACK CARPET BEETLE (Attagenus piceus) infestations were reported from homes in Minnehaha and Lincoln Counties.

SUMMARY OF INSECT CONDITIONS - 1958

NORTH DAKOTA

Compiled by Vance V. Goodfellow

Highlights: During 1958 approximately 778,000 acres were treated to control GRASSHOPPERS. Infestations, in general, were confined to western areas which had scattered, severe infestations. ENGLISH GRAIN APHID and CORN LEAF APHID populations were much above normal during June. Little injury was observed; however, 50,000 acres were sprayed to protect late crops of wheat, oats and barley. BEET WEBWORM moths were extremely abundant in all areas during the week of June 2. Scattered larval infestations attacked sugar beets, wheat, flax and safflower, and control measures were required to protect these crops. Approximately 75,000 acres of cropland were treated to control beet webworm. This year's infestation was the heaviest since 1950.

Cereal and Forage Insects: GRASSHOPPER infestations during 1958 were generally noneconomic over most of the State, although threatening to severe infestations did occur at scattered locations in the western area. In an area comprising Burke, Divide and northern Williams Counties the infestation was severe and widespread. The dominant species was Melanoplus bivittatus (75 percent) followed

by M. bilituratus and M. femur-rubrum. Chemical control measures directed at nymphal populations gave excellent crop protection. No serious grasshopper problem developed on rangeland. During 1958 approximately 778,000 acres were sprayed to control grasshoppers. Fall surveys indicate a generally light infestation in 1959 except for a few localized areas. The main area for concern is in northwestern counties where serious drought conditions prevailed in 1958. No serious rangeland infestation is expected. WHEAT STEM SAWFLY (Cephus cinctus) continues to be a major pest of wheat in the northwestern area. The 1958 infestation, however, was the lightest in the last four years. Cool, windy weather during the flight period may have contributed to this lowered infestation. The average infestation showed 20-40 percent of the stems infested. Only a few fields had infestations above 50 percent. An estimated 78 percent of the overwintering EUROPEAN CORN BORER (Pyrausta nubilalis) larvae survived the winter in southeastern counties. Pupation neared completion on June 15. Cool, rainy weather during June and July slowed corn growth, adult moth emergence and egg-laying. The hatch of first-generation borers reached its peak the week of July 28. At the peak period, infestations in general were noneconomic. An average of 45 percent of the plants were infested with approximately 4 borers per infested plant. Egg-laying, however, continued and was spread over a long period. It continued until August 15 resulting in an increased number of infested plants. First-generation borer development was slow; only 13 percent of the borers pupated and emerged as compared with 50 percent in 1957. No second-generation infestation developed. Fall abundance survey in six southeastern counties, Grand Forks, Traill, Cass, Richland, Sargent and Ransom, showed the highest borer population ever recorded. In this area 74 percent of the plants were infested with an average of 179 borers per 100 plants. The estimated corn loss due to corn borer injury in 1958 was 5.3 percent.

ENGLISH GRAIN APHID (Macrosiphum granarium) populations were general and high over most of the eastern area during June. Infestations were confined mostly to wheat and barley. Some control work was done in a few areas; however, no field surveyed showed aphid injury, and populations were mostly below economic levels. PREDATORS increased slowly but were present in numbers high enough to aid control of aphids. In late July, syrphid flies were more numerous in eastern North Dakota than they had been in many years. Scattered infestations of CORN LEAF APHID (Rhopalosiphum maidis) were present in barley and oats. Populations were generally below economic levels. Some control work was done in late planted fields. Light to moderate infestations occurred in corn during late July and August. Approximately 50,000 acres of small grain were sprayed for English grain and corn leaf aphids. Populations of THRIPS in barley were light and only an occasional field had economic numbers. Approximately 25,000 acres of late barley were treated. One of the most widespread infestations of BEET WEBWORM (Loxostege sticticalis) experienced in many years occurred in the State this season. Adults were observed in all areas during the week of June 2. Scattered severe infestations attacked sugar beets, wheat, flax and safflower, and control measures were necessary to protect these crops. A severe infestation in a two-year-old shelterbelt near Bismarck defoliated the trees. Approximately 75,000 acres of cropland were treated. Pupae were collected in several stubble fields during the fall, especially in the western part of the State. Severe infestations of ARMYWORM (Pseudaletia unipuncta) were confined to a few fields of rye in the southeastern area. Larvae in a wide range of development could be found in most grain fields throughout the southern Red River Valley; however, their numbers seldom exceeded one per square foot. No control measures were required except in rye fields where an estimated 9,000 acres were treated. The first collection of SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was made from sweetclover on May 13 at Mapleton; one adult per 100 sweeps. By May 30, adults were easily recovered from legumes and cereals but their numbers were low, six adults per 100 net sweeps. This trend continued throughout the season. Only a trace of the aster yellows was observed in flax during 1958. The first POTATO LEAFHOPPER (Empoasca fabae) specimen of

the year was collected on June 6 at Fargo. Populations in legumes remained light all season. Heavy adult populations of SWEETCLOVER WEEVIL (Sitona cylindricollis) caused severe defoliation in some mature sweetclover stands during early June. Heavy populations of PEA APHID (Macrosiphum pisi) occurred in alfalfa throughout the season in most of the State. TARNISHED PLANT BUG (Lygus lineolaris) infestations in alfalfa were generally higher than usual over the State. ALFALFA PLANT BUG (Adelphocoris lineolatus) populations were above normal this season. Heavy infestations of a FIELD CRICKET (Acheta sp.) occurred in Red River Valley counties and at other scattered locations during August. Larvae of a THISTLE BUTTERFLY were numerous on Canada thistle. Injury to soybeans was reported at three locations. DIAMONDBACK MOTH (Plutella maculipennis) larvae were numerous in wild mustard in the eastern part of the State. No crop injury was reported from any area. WIREWORM infestations damaging small grains were reported in a few localities. However, control measures were applied to an estimated 177,800 acres.

Fruit Insects: One of the heaviest and widespread outbreaks of PLUM CURCULIO (Conotrachelus nenuphar) in recent years occurred on plum in 1958. Petal-fall sprays gave good control where applied. CYCLAMEN MITE (Steneotarsonemus pallidus) is becomming more numerous in everbearing strawberry plantings.

Truck Crop Insects: ONION MAGGOT (Hylemya antiqua) was responsible for a 10-15 percent yield reduction in commercial onion fields in the Fargo area. Home garden plantings were destroyed at many other locations. The infestation was the heaviest in several years. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) populations were extremely light in potato-growing areas. POTATO FLEA BEETLE (Epitrix cucumeris) was fairly abundant the early part of the season. Some damage was observed in unsprayed fields. Despite favorable weather conditions, GREEN PEACH APHID (Myzus persicae) and POTATO APHID (Macrosiphum solanifolii) did not develop densities of major economic importance. Potatoes in a few fields in southeastern portions of the Red River Valley where aphids were not controlled showed symptoms of Virus Y and leaf roll. SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) and POTATO LEAFHOPPER (Empoasca fabae) were not abundant in potatoes in 1958. Purple top incidence was about normal. POTATO PSYLLID (Paratrioza cockerelli) was present but not in economic numbers. SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) infestations were very low. Adult flies were not abundant and oviposition was hampered by cold weather. Approximately 18,500 acres of sugar beets were treated with a custom-formulated, insecticide-fertilizer mixture to protect the crop. BEET WEBWORM (Loxostege sticticalis) infestations were moderate to heavy in sugar beets over a prolonged period. First larvae were observed the week of June 16, about a month earlier than in 1957. Substantial acreages were treated for control. The 1958 outbreak was the heaviest since 1950. Home garden infestations of CUTWORMS were numerous; however, infestations reported in field crops were very low.

Ornamental and Shade Tree Insects: PINE NEEDLE SCALE (Phenacaspis pinifoliae) continues to increase its range over the State. Severe infestations exist in several communities. OYSTERSHELL SCALE (Lepidosaphes ulmi), COTTONY MAPLE SCALE (Pulvinaria innumerabilis), SCURFY SCALE (Chionaspis furfura) and a LECANIUM SCALE infestations were numerous during 1958 and a general buildup of all scales throughout the State is indicated. Heavy infestations of SPIDER MITES (Tetranychus spp.) were present on spruce and juniper throughout western areas. Elsewhere, infestations were spotty. Infestations of APHIDS, although numerous on shade trees and ornamental shrubs, were not as heavy and widespread as in 1957. SNOWBALL APHID (Anuraphis viburnicola) caused severe leaf distortion where not controlled. Cinara palmerae and Cinara sp. (probably undescribed) collected from Black Hills spruce and Colorado spruce at Bismarck and Casselton, are new records for the State. Determinations by F. C. Hottes. WILLOW SAWFLY (Nematus ventralis) larvae were collected from willow in a shelterbelt planting in the eastern part of the State. Defoliation was severe

in 50 feet of a one-fourth mile row of trees. FALL WEBWORM (Hyphantria cunea) infestations were the lightest in a number of years. FOREST TENT CATERPILLAR (Malacosoma disstria) caused heavy defoliation in native timber stands at the Fort Totten Indian Reservation and Sullys Hill Federal Wildlife Refuge in the north central area. Surveys conducted by the Forest Service indicated a possible increase in tree defoliation and infested area in 1959.

Household and Stored-product Insects: CARPET BEETLE (Anthrenus scrophulariae) infestations continued numerous in all areas. BROWN-BANDED ROACH (Supella supellectilium) infestations are becoming more numerous and widespread in the State. Calls were numerous regarding CAMEL CRICKETS infesting home basements in the Fargo area. CLOVER MITE (Bryobia praetiosa) infestations in homes were numerous in the spring and fall.

Insects Affecting Man and Animals: The eastern areas of the State suffered the worst MOSQUITO problem ever recorded. Single night light trap counts in rural areas reached 35,000 to 70,000 per trap per might and in one trap exceeded 150,000 adults in a single night. The predominant species in light trap collections was Aedes vexans. Culex tarsalis populations were somewhat higher than normal although they constituted a lower than normal percentage of the total season's collections. C. tarsalis larvae were found in temporary pools during certain periods of the summer and were not uncommonly associated with A. vexans at these times. Other species, notably A. dorsalis, C. p. pipiens and C. restuans, were either of normal or slightly less than normal abundance. The unusually high populations of A. vexans stimulated interest in mosquito abatement in the Red River Valley area.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

SPRUCE BARK BEETLE (Ips typographus L.)

Economic Importance: This bark beetle is considered to be one of the most destructive pests of spruce on the continent of Europe. Extensive injury to forests, resulting from wars, fires and storms, has at numerous times made possible the buildup of high populations of the pest which caused excessive secondary damage. Observations in Sweden in 1932, following storms, showed a peak abundance of 520,000 beetles per acre in spruce forests. In addition to damaged trees, this species also attacks healthy trees. The capacity for breeding in very fresh bark, coupled with the habit of continuing to feed in the bark on completion of development, makes the insect a serious pest of spruce forests. Ips typographus prefers thick, succulent bark, but will adapt itself readily to bark of different thicknesses and generally prefers parts of the tree more than 3 feet from the ground. A very similar Ips beetle, recorded as I. t. japonicus Niij., is known to occur in Japan, Korea and the Soviet Far East, but is generally regarded as a subspecies of I. typographus.

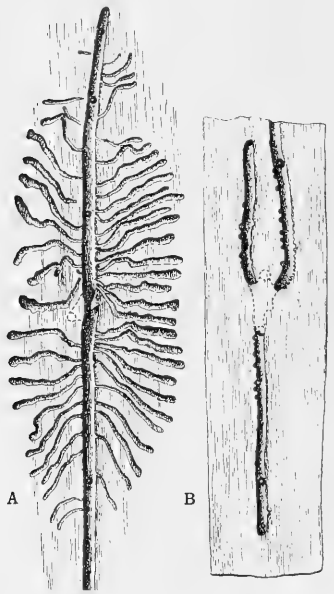
Distribution: Recorded in most of Continental Europe, USSR and Korea. Ips t. japonicus is recorded in Japan, Korea and the Soviet Far East.

General Distribution of Ips typographus

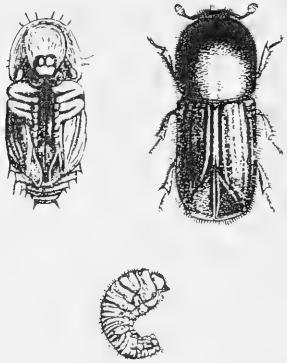
Hosts: Prefers spruce, but will attack pine and other conifers.

Life History and Habits: In Germany, breeding begins in early spring, the date varying according to weather conditions. Eggs are laid at regular intervals in egg-pockets along the sides of egg-galleries. Egg-laying often requires 3 weeks or more, larvae from the first-laid eggs being half grown before the last eggs are laid. Frequently the larvae, pupae and young adults are present in the same brood system. Under normal conditions, parents may produce 2 successive broods during the same year, the first brood developing in 2 or 3 months, the second maturing before winter. If, however, the second brood cannot mature before winter, development is completed the next spring. The sex ratio of Ips will vary according to the species, the normal being 2 or 3 females per male in I. typographus. The egg-galleries of Ips are fairly constant in pattern and to some degree may indicate the species present (see illustration). I. typographus normally constructs a 3-armed gallery system with egg-galleries starting from a central pairing chamber. The galleries extend about 5 inches, invariably directed to the long axis of the trunk. Larval tunnels seldom exceed 1¼ inches in length. Egg-galleries may vary from the general pattern, however, depending on population, and on whether attack is on felled or standing trees.

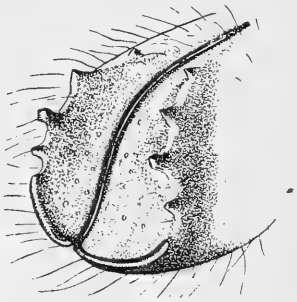
Description: Adults are dark brown, almost black. The front of head covered with long yellowish hairs and small granular tubercles; club of antenna flattened and almost circular, slightly narrower near tip. Sutures of club strongly arched or curved. The prothorax longer than broad, very rough and wrinkled in front and sides; finely punctured behind on each side of a smooth impunctate central line. Front and sides of prothorax thickly clothed with long yellow hairs; central rear portion without hairs. Elytra about one and one-half times as long as combined width. Striae on each side of elytra on upper portion deep and strongly punctured, becoming wider towards the apical declivity; elsewhere striae very shallow and regular. Front edge and sides of elytra with hairs, becoming dense along sides. Apical declivity strongly excavated; extending to about one-third of each elytron; a central depression along suture or central line, extending halfway along entire length. Apical declivity bounded on each side by raised margin bearing four distinct teeth, third tooth from top the largest. Characteristically dull, matt surface of silky luster, fine irregular punctures and hairless except along margins and narrow, upper portion. Total length 4 to 5½ mm. Mature larvae thickset, white, legless with light brown head and mandibles. About 5 mm. in length. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies.).



Galleries of I. typographus, Showing Larval Tunnels (A) and Egg-pockets as Indicated by Pips (B). Copulatory Chamber Outlined.



Stages of Ips typographus



Apical Declivity of Ips typographus

Figures (except map): Larva, pupa and adult from Tashenberg, E. P. 1884. Die insecten, tausendfussler und spinnen. Brehms Thierleben Allgemeine Kunde des Thierreichs. 2nd. Ed. Vol. 1 (Leipzig) 711 pp. Apical declivity from Balachowsky, A. 1949. Faune de France, Coleopteres, Scolytides. 320 pp., Paris. Galleries from Boas, J. E. V. 1923. Dansk Forstzoologi. 763 pp., Copenhagen.

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Cooperative ECONOMIC INSECT REPORT

Issued by

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AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY

SURVEY & DETECTION OPERATIONS

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

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Volume 9 February 27, 1959 Number 9

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

CORN LEAF APHID heavy in some Maricopa County, Arizona, barley fields (p. 129).

PEA APHID increased in Alfalfa in areas of Arizona and injured alfalfa in two areas in New Mexico. (p. 129).

Distribution of SPOTTED ALFALFA APHID. (p. 130).

WINTER GRAIN MITE heavily damaged oats in Dallas County, Texas.(p. 129).

New outbreak of DOUGLAS-FIR TUSSOCK MOTH, in combination with Galenara consimilis, damaged 1,500 acres of Douglas and white fir in New Mexico during December, 1958. (p. 132).

INSECT DETECTION: Cardiocondyla nuda minutior new to California. (p. 133).

SUMMARY OF INSECT CONDITIONS - 1958 - WASHINGTON (p. 135), IDAHO (p. 139).

Letter from Director E. D. Burgess to entomologists and other cooperators regarding the strengthening of the INSECT DETECTION program. (p. 145).

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Reports in this issue are for the week ending February 20, unless otherwise designated.

WEATHER OF THE WEEK ENDING FEBRUARY 23

The week was colder than normal east of the Continental Divide and slightly warmer than normal in most sections of the Far West. Precipitation, occurring on 1 to 4 days, was widespread with moderate to heavy amounts in the Pacific States and Pacific Northwest and a few small sections along the Gulf and Atlantic coasts. An extensive cold air mass overspread all areas east of the Rockies in the course of the week. Subzero minima were general from the Great Lakes to the Rockies on the 18th, 19th and 20th, extending southward to southern Nebraska and northern portions of Missouri, Illinois and Indiana. Pukwana and La Delle, South Dakota, reported -33° on the 19th and Pellston, Michigan, -37° on the 20th. In Wisconsin, ice thickness ranges from 15 inches in the south to 30 and 35 inches in the north, and frost penetration in the ground ranges from 3 feet in the south to 6 feet in the northwest. Subzero minima also occurred in inland areas of the Northeast the last few days of the period, and Presque Isle, Maine, reported -31° on the 24th. Frozen water pipes were reported in northern New England where frost penetration in the ground is unusually deep. Freezing occurred in the Southeast over the weekend, with Mobile, Alabama, reporting a low of 29° on the 21st and Jacksonville, Florida, 32° on the 22nd. Ahead of the incoming cold air, temperatures in the lower Great Plains rose to near record high levels for the season on the 17th, when highs ranged in the 80's and 90's in Texas and in the 80's at a few points in Oklahoma. As the cold air moved across the Northeast a deep low pressure disturbance developed off the north Atlantic coast, causing strong winds on the 19th, 20th and 21st with gusts of 40 to 50 m.p.h. in New England. No damage was reported.

Snow fell as far south as northeastern Texas where several stations reported an inch on the ground the morning of the 20th, but this cover all melted during the day. Heavier amounts fell in a belt from Kansas and Nebraska to the northern Greak Lakes, with about a foot reported at points in northeastern Iowa and central Wisconsin. Snow still covers the ground from New England to the Cascades, with depths ranging from 6 inches to over a foot in the Great Lakes region and extreme northern Great Plains. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Scattered and light (less than one per linear foot) in small grain fields in Bryan County. (VanCleave, Vick). Light (0-10 per linear foot) and scattered in barley fields in Hennessy-Enid-Tonkawa area. (Henderson, Thompson). TEXAS - Caused slight damage in fields in Dallas County. (Burriss). Averaged 1-5 per linear foot in fields in upper south plains and panhandle areas. (Daniels). No economic damage observed in fields checked in Rains, Van Zandt, Henderson, Anderson and Freestone Counties. (Hawkins). KANSAS - Not found on wheat in 4 south central counties nor in 2 southeastern counties. (Peters).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Averaged less than 5 per linear foot in small grain fields in Bryan County, with one isolated field with several hundred per linear foot. Averaged less than 3 per linear foot in Payne County. (VanCleave, Vick).

ENGLISH GRAIN APHID (Macrosiphum granarium) - ARKANSAS - Averaged 5-10 per linear foot in thick oats, 4-6 inches tall. None were found in short, thin oats. (Ark. Ins. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Heavy in some fields of barley in northern Maricopa County. A field of branching-stage barley north of Peoria averaged 50 or more per plant. Medium on some grazed barley. (Ariz. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Scattered populations averaged 25 per linear foot in small grain fields in Bryan County. (VanCleave, Vick). Populations light and scattered in barley fields in the Hennessy-Enid-Tonkawa area. One field, however, in the Enid area averaged over 200 per linear foot. (Henderson, Thompson). TEXAS - Caused heavy damage to oats in Dallas County. (Burriss). No economic damage observed in fields checked in Rains, Van Zandt, Henderson, Anderson and Freestone Counties. (Hawkins).

DATE MITE (Oligonychus pratensis) - KANSAS - Numerous in some wheat fields in Gray and Clark Counties. (DePew).

GRASSHOPPERS - TEXAS - Limited egg survey in 12 panhandle counties showed egg pods to be in good condition with predators and natural enemies few. Survey was limited to cropland areas and road margins. (Russell et al.).

A WIREWORM (Conoderus sp.) - OKLAHOMA - Larvae averaged 1.5 per square foot in a wheat field in the Tonkawa area. (Henderson, Thompson).

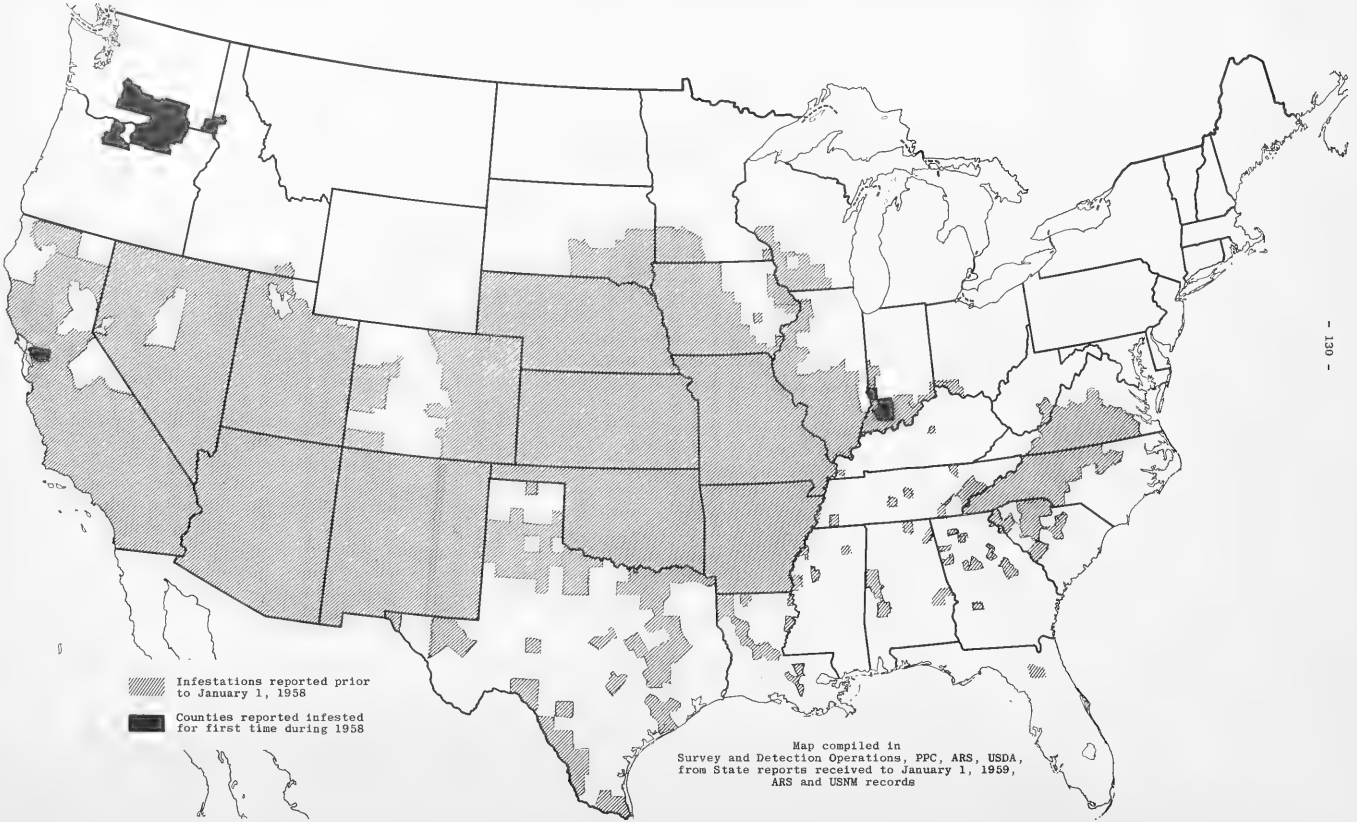
ALFALFA WEEVIL (Hypera postica) - NORTH CAROLINA - Eggs and larvae were found in early December at Raleigh. (Jones).

CLOVER LEAF WEEVIL (Hypera punctata) - ARKANSAS - Larvae averaged nearly one per linear foot in alfalfa and crimson clover in Washington County. (Ark. Ins. Rpt.).

A CLOVER WEEVIL (Hypera meles) - ALABAMA - Present for the first time this year in Bullock and Autauga Counties. (Grimes).

PEA APHID (Macrosiphum pisi) - ARKANSAS - Averaged less than one per linear foot on alfalfa in Washington County. None found on crimson clover. (Ark. Ins. Rpt.). ARIZONA - Infestations medium and increasing on alfalfa in Maricopa and Pinal Counties and in the Yuma area. (Ariz. Coop. Sur.). NEW MEXICO - Heavy and injured alfalfa near Artesia, Eddy County, and Roswell, Chaves County. Some growers treating. (N. M. Coop. Rpt.). KANSAS - Found on alfalfa in Hodgeman and Butler Counties. (Peters).

DISTRIBUTION OF SPOTTED ALFALFA APHID *(THERIOAPHIS MACULATA)*



SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Populations light, 75 per square foot, in alfalfa 4-5 inches high, in Bryan County. (VanCleave, Vick). Averaged 504 per square foot in some alfalfa fields in Payne County. (Ketner). ARIZONA - Infestation averaged less than one per trifoliate leaf in 10 alfalfa fields sampled in Maricopa County. Control not necessary. Infestations in Yuma area increased. (Ariz. Coop. Sur.). NEW MEXICO - Additional heavy infestations found in Chaves, Eddy and Dona Ana Counties. Some control measures being undertaken. (N. M. Coop. Rpt.). KANSAS - Light populations in alfalfa fields in Barton, Pawnee, Hodgeman, Cowley and Butler Counties. (Peters).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARKANSAS - Only one adult found on alfalfa in Washington County. (Ark. Ins. Rpt.). ARIZONA - Few numbers still appearing in alfalfa as they have been all winter, but there is no sign of a buildup. (Ariz. Coop. Sur.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW MEXICO - Overwintering larvae abundant in cocoons under bark on trunks of apple trees of many orchards in Bernalillo and Sandoval Counties. (N. M. Coop. Rpt.).

CALIFORNIA PRIONUS (Prionus californicus) - WASHINGTON - Half-grown and mature larvae taken from living cherry tree roots at Clarkston, Asotin County, January 8. (Johansen).

Citrus Insect Situation, Lake Alfred, Florida, Second Week in February - PURPLE SCALE showed a slight increase in activity and an upward trend will prevail through March with some districts showing a high level next month. Activity of FLORIDA RED SCALE is unchanged. The general level will be high for several weeks with considerable variation among districts. CITRUS RED MITE activity increased slightly, with further increase expected. A high level will be reached by March. There was little change in CITRUS RUST MITE activity and it is not expected to deviate from current normal level during remainder of February. (Simanton, Thompson, Johnson, Feb. 16).

TRUCK CROP INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - LOUISIANA - Heavy on turnips in East Baton Rouge Parish. (Spink). NORTH CAROLINA - Attacked newly-set lettuce in New Hanover County, February 9. (Baggett, Rabb).

YELLOW-MARGINED LEAF BEETLE (Microtheca ochroloma) - LOUISIANA - Heavy on turnips in East Baton Rouge Parish. (Spink).

DIAMONDBACK MOTH (Plutella maculipennis) - ARIZONA - Light on cabbage. (Ariz. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Light to moderate on cabbage in Colquitt, Brooks and Lowndes Counties. (Johnson).

ONION THRIPS (Thrips tabaci) - ARIZONA - Averaged one per plant on young onions in northern Maricopa County. (Ariz. Coop. Sur.).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light to moderate on tobacco in Brooks, Lowndes, Tattnall, Candler and Emanuel Counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light on tobacco in Tift, Colquitt, Brooks, Lowndes, Berrien, Coffee and Emanuel Counties and moderate in Bacon, Appling, Tattnall, Bulloch and Candler Counties. (Johnson).

POTATO TUBERWORM (Gnorimoschema operculella) - FLORIDA - Burrowing in leaves of tobacco plants at West Palm Beach, Palm Beach County. (Long, Messec).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - FLORIDA - Larvae reported on tobacco at West Palm Beach, Palm Beach County. (Long, Messec).

A NOCTUID (Agrotis sp.) - FLORIDA - Larvae on tobacco plants at West Palm Beach, Palm Beach County. (Long, Messec).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Inspection of a plowed infested field in the Solomon area of Graham County showed 2 live and 8 dead larvae from seed cotton on top of the ground which was not covered by plowing. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A FIR LOOPER (Galenara consimilis) - NEW MEXICO - Defoliated Douglas-fir and white fir on Capitan Mountain, Lincoln National Forest, during December 1958. Defoliation occurred on about 1,500 acres, being heavy on 600. (N. M. Coop. Rpt.).

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - NEW MEXICO - New outbreak found during December, 1958, on Capitan Mountain in same area damaged by a fir looper (Galenara consimilis). Separation of damage by these two insects was impossible. (N. M. Coop. Rpt.).

A BARK BEETLE (Phloesinus cristatus) - CALIFORNIA - Heavy on cypress trees at Friant Park, Fresno County. (Cal. Coop. Rpt.).

A GALL APHID (Chermes tsugae) - VIRGINIA - Caused considerable damage to hemlocks in Richmond area, and appears to be increasing. Also found on Colorado blue spruce. (Freund).

A WHITEFLY (Trialeurodes bellissima) - CALIFORNIA - Light on coast live oak at Brentwood, Los Angeles County. (Cal. Coop. Rpt.).

SCALE INSECTS - CALIFORNIA - Fiorinia fioriniae heavy on climbing ivy at La Jolla and camellia at Point Loma in San Diego County. Aspidiotus hederae locally heavy on acuba leaves at Hamilton City, Glenn County. Chrysomphalus dictyospermi collected on orange, rose and loquat at Santa Paula, Ventura County. This is only known locality in State where this scale persistently infests rose and citrus. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - NEW MEXICO - Counts averaged 6-30 per head in many herds of range cattle throughout the State. Specimens collected from 3 southern counties have been identified as H. lineatum. (N. M. Coop. Rpt.). UTAH - Numerous in cattle, especially younger animals, in Kane County. (Knowlton). NORTH CAROLINA - None found in 228 head in 3 counties. Not a problem in native cattle in Iredell County and less than one percent infested in 298 head in Cleveland County. (Miller et al.). No infestations found in several herds in Richmond County, except in recently acquired animals. (Goodman).

CATTLE LICE - NEW MEXICO - Many moderate to heavy infestations reported on range cattle in southern counties. (N. M. Coop. Rpt.). UTAH - Becoming problem in cattle herds in several counties. (Knowlton, Lindsey).

DOG FOLLICLE MITE (Demodex canis) - NORTH CAROLINA - Seven cases reported to State Veterinarian in January. (Cooperrider).

STORED-PRODUCT INSECTS

BROWN SPIDER BEETLE (Ptinus clavipes) - CALIFORNIA - Medium in stored barley at Anderson, Shasta County, and in stored grain at Fresno, Fresno County. (Cal. Coop. Rpt.).

BENEFICIAL INSECTS

PREDATORS - ARKANSAS - Geocoris punctipes active February 11, a warm day, in alfalfa, crimson clover and oats. Averaged less than one per 2 linear feet. (Ark. Ins. Rpt.). ARIZONA - Eleven fields sampled in Maricopa and Pinal Counties showed an average of 46 percent of spotted alfalfa aphid population parasitized by Trioxys utilis. (Ariz. Coop. Sur.).

MISCELLANEOUS INSECTS

AN ANT (Cardiocondyla nuda minutior) - CALIFORNIA - Collected in the State for the first time in San Diego, San Diego County, September 8, 1958. Det. M. R. Smith. (Cal. Coop. Rpt.).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - NORTH CAROLINA - Swarmed in a church in Wake County. (Jones, Farrier).

CORRECTION

CEIR 9(8):106 - Distribution of alfalfa weevil should be statewide for Connecticut. Remaining counties were found infested during 1957.

LIGHT TRAP COLLECTIONS	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterranea	Prodenia ornithogalli
FLORIDA				
Gainesville 2/11-17		1	4	
Quincy 2/3-9	1		2	
LOUISIANA				
Baton Rouge 2/6-19	73	41	86	53
Franklin 2/5-15	7	6	9	9
SOUTH CAROLINA				
Charleston 2/16-22	3	3	15	

SUMMARY OF INSECT CONDITIONS - 1958

WASHINGTON

Prepared by C. A. Johansen*

Highlights: The winter of 1957-58 was unusually mild, allowing greater populations of certain insects to overwinter. WOOLLY APPLE APHID colonies survived on aerial growth, PEA APHID and GREEN PEACH APHID eggs were hatching in January, PEAR PSYLLA winter adults were active by the first part of February. Above normal rainfall during the spring in western Washington encouraged SLUGS. Unusually high temperatures of summer caused a considerable increase in "southern" pests, some of which are normally minor. VARIEGATED CUTWORM, CABBAGE LOOPER and ALFALFA LOOPER were especially abundant. CORN EARWORM and COLORADO POTATO BEETLE epidemics in the central part of the State were the most serious in many years. CODLING MOTH attained a nearly complete third generation in some areas. SPOTTED ALFALFA APHID and SHALLOT APHID (Myzus ascalonicus) were recorded for the first time in the State.

Cereal and Forage Insects: The first colonies of CLOVER APHID (Anuraphis bakeri) were observed on red clover near Quincy in early June, up to 79 per 10 heads were counted by July and 500 per 10 heads in mid-July. These moderate infestations caused up to 14.5 percent reduction in seed yields estimated at $10,500 in eastern Washington with an additional $2,900 being spent on controls. CLOVER ROOT BORER (Hylastinus obscurus) infested up to 100 percent of the red clover seed fields in Lewis County; up to 5 or 6 larvae per tap root. The estimated loss to clover seed in the western area was $10,100. CLOVER SEED CHALCID (Bruchophagus gibbus) adult populations were up to 35 per 25 sweeps in red clover near Quincy by late June; 75 per 25 sweeps by mid-July. The estimated loss to clover seed in the eastern area was $12,200. CORN LEAF APHID (Rhopalosiphum maidis), though normally rare in Washington, was abundant on barley all season and may have been associated with the first serious cereal yellow dwarf epidemic in the eastern part of the State which occurred in 1958. This species was also collected in the western area on sorghum during the summer and on barley in the fall. ENGLISH GRAIN APHID (Macrosiphum granarium) populations were above normal on winter wheat in Walla Walla and Whitman Counties during April and May and appeared to be the primary source of cereal yellow dwarf epidemic in the eastern part of the State. This aphid dropped to low populations during the rest of the season. Many fields of barley, averaging several hundred acres each, were a complete loss in the eastern area because of cereal yellow dwarf. This disease was also very damaging to oats in the western part of the State as usual.

GRASS PESTS - Severe damage to grass grown for seed in Spokane County by Crambus topiarius and Chionodes psiloptera occurred in unprotected fields during late August and early September. LYGUS BUGS (Lygus elisus and L. hesperus) were more abundant and generally more damaging on alfalfa than in previous years, apparently because of warmer weather conditions. Population peaks occurred in late July (154 per 25 sweeps) and early September (101 per 25 sweeps) in untreated plots in the lower Yakima Valley. PEA APHID (Macrosiphum pisi) population peaks in alfalfa raised for seed in the lower Yakima Valley were 392 per 25 sweeps in late July and 251 per 25 sweeps in mid-August. As usual, this level did not cause observable damage. The heaviest populations in several years, 125 per 100 tips, were on alfalfa in the Walla Walla area during April. SPOTTED ALFALFA APHID (Therioaphis maculata) was recorded for the first time in Washington in Yakima, Benton, Walla Walla

* Cooperators: United States Department of Agriculture, Extension Service, Experiment Station personnel, Field personnel.

and Asotin Counties during September and October. Surveys showed only one field with injury, but no economic loss. Aphids were still living on alfalfa at the end of the year. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was moderate to heavy in red clover during May and June near Quincy. SWEETCLOVER WEEVIL (Sitona cylindricollis) damaged sweetclover in Whitman County during May. Considerable acreage of sweetclover was plowed up during early June because of damage. Future of the crop for green manure in the eastern area of the State is doubtful.

Tree Fruit Insects: APPLE APHID (Aphis pomi) winter eggs started hatching up to 7 days earlier than usual, about mid-April in the Pullman area. Damaging numbers built up in late June in the Wenatchee area, but were successfully controlled. BLACK PEACH APHID (Anuraphis persicae-niger) damaged two-year-old peach trees in the Yakima Valley during late February. WOOLLY APPLE APHID (Eriosoma lanigerum) adults and nymphs lived through the winter on apple limbs at Pullman. This pest was less damaging in the central area than it has been for several years. A BRYOBIA MITE (Bryobia rubrioculus)* appeared 1 to 2 weeks earlier, April 8, than previously on apples at Pullman. Hot weather kept populations down. EUROPEAN RED MITE (Panonychus ulmi) populations were moderate on stone and pome fruits in Yakima and Wenatchee areas during May. Infestations increased to heavy during hot weather of July and caused severe damage in many eastern orchards during August. ERIOPHYID MITES (Vasates schlechtendali and V. fockeui) were heavy on apple and cherry trees in Asotin County by late July. V. schlechtendali was abundant in the Wenatchee area and on nursery stock near Prosser by late season. PEAR LEAF BLISTER MITE (Eriophyes pyri) oviposition was observed in the Wenatchee area on March 4. Severe infestations occurred on pears in the Wenatchee and Chelan areas and heavy damage resulted in the Quincy area to young trees. Winter forms began migrating to pear buds in early July, becoming numerous in late August.

CODLING MOTH (Carpocapsa pomonella) caused more injury to apples and pears in 1958 than in recent years. The first-brood attack occurred before application of the first cover in many cases. The length of each generation was considerably shortened by hot weather and a nearly complete third generation was obtained in the central area. Bait traps in the Yakima Valley showed more moths flying during mid-summer than during the previous 12 years, twice as many being trapped as in 1957. A low level of resistance to DDT has developed in many areas and was especially noticeable this season when weather conditions were ideal for development. ORIENTAL FRUIT MOTH (Grapholitha molesta) was restricted to an area in the Yakima Valley north of the Yakima River between Parker Heights and Zillah. Damage to fruit was negligible and infestations were scarce. A PARASITE (Macrocentrus ancylivorus) was released at several locations where oriental fruit moth and strawberry leaf roller existed. PEACH TWIG BORER (Anarsia lineatella) larvae damaged tips of peach twigs at Wawawai by April 2. Damage was lighter than in 1957 in the eastern area. PEAR PSYLLA (Psylla pyricola) overwintered adults were active on pears during early February, oviposited by early March, but the heavy spring buildup was controlled in most orchards. This pest was not severe during the hot summer; however, some localized populations persisted even after standard treatments in the Yakima and Wenatchee areas during mid-September. SAN JOSE SCALE (Aspidiotus perniciosus) caused severe damage to cherry trees in the Wenatchee and Chelan areas. An 80 percent winter survival was recorded in March. Adults of WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) were first trapped at Prosser on May 16. An untreated check orchard had 33 percent "wormy" fruit at harvest, indicating a potentially bad year; however, controls were successful.

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* Van Eyndhoven, G. L. 1956. Ent. Bereich. 16:45-46. Also known as Bryobia arborea in Canada.

Small Fruit Insects: CYCLAMEN MITE (Steneotarsonemus pallidus) caused injury to strawberry plants in Puyallup area during the early spring and in Clark County by early June. ROSE LEAFHOPPER (Edwardsiana rosae) nymphs were abundant and damaging to blackberry in the Puyallup Valley during May. SHALLOT APHID (Myzus ascalonicus) was recorded in Washington for the first time on strawberries during April. Serious infestations were found in Whatcom, Skagit, Snohomish, Island and Lewis Counties during the spring. None were found in fall surveys. SLUGS (Deroceras reticulatum and Arion ater) heavily damaged strawberries in the Puyallup Valley and in the Vancouver area, seriously reducing yields. STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) damaged strawberries in Thurston and Cowlitz Counties during July. WEEVILS (Brachyrhinus ovatus, B. sulcatus and B. rugosostriatus) were only a problem in brushy areas where Nemocestes incomptus is prevalent. Control of the latter species continues to be difficult in Whatcom and Snohomish Counties. TWO-SPOTTED SPIDER MITE was active on raspberry by early April in the Puyallup Valley and caused severe damage during August and September in the Puget Sound area.

Truck Crop Insects: ALFALFA LOOPER (Autographa californica) and VARIEGATED CUTWORM (Peridroma margaritosa) adults were more abundant than normal in light traps at Walla Walla during May and June. The worst ALFALFA LOOPER outbreak since 1900 occurred in the western part of the State, and together with VARIEGATED CUTWORM and CABBAGE LOOPER (Trichoplusia ni) caused severe damage to ornamentals and vegetables. CABBAGE LOOPER, usually rare in the southeastern area, developed high populations. Controls were required on peas, spinach and lettuce. BEET ARMYWORM (Laphygma exigua)moth flights were very heavy from the south during September. Total light trap catches at Walla Walla were in the hundreds as compared with 1-12 per season normally; however, very little damage occurred in the southeastern area. CARROT RUST FLY (Psila rosae) resisted all standard controls and caused 160 acres in the Samish Valley to go out of carrot production. Moderate infestations of BEAN APHID (Aphis fabae) developed in the northwestern area by mid-August, but was practically nonexistent in the central area in contrast to their great abundance in 1957. BEET LEAFHOPPER (Circulifer tenellus) spring surveys to determine overwintered females showed a mean of 0.27 per square foot, which was about the same as in 1957. The largest light trap catch of the season was in late June at Walla Walla. There was much less curly top than in 1957. Observed predation by Geocoris of winter females in February may have been helpful. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) winter adults and eggs were unusually abundant in the Columbia Basin and the Yakima Valley. This pest became damaging by late May, severe by late July and completely defoliated large areas of potato fields in the Columbia Basin by early August. More than two broods developed. CORN EARWORM (Heliothis zea) was epidemic in the Yakima Valley. The severest damage in 12 years occurred by late July. Black light trap catches for 4 traps during July, August and September in the Toppenish area were 103,506 compared with 1955-57 average of 6,261. Estimated losses are $300,000 to field corn, $50,000 damage and $20,000 control cost on sweet corn, $5,000 damage and $5,000 control cost to market corn, $2,000 damage and $500 control cost on lima beans. Heavy damage also occurred to sweet corn near Quincy and in the Walla Walla area and as much as 10 percent loss of hop yards was reported throughout the Yakima Valley. Loss to hops was estimated at $5,000 and control costs at $1,000. CORN EARWORM was also a pest of tomatoes, peppers, alfalfa and garden crops not normally attacked in the State. The worst EUROPEAN EARWIG (Forficula auricularia) epidemic since 1955 occurred in the Pullman area. GARDEN SYMPHYLID (Scutigerella immaculata) severely damaged corn in Pacific County in June. White River Valley and Pacific County are new infestation records. GREAT BASIN WIREWORM (Ctenicera pruinina noxia) was at a minimum in the Columbia Basin because fields in truck crops are soil treated. SUGAR-BEET WIREWORM (Limonius californicus) damaged several fields of sugar beet seedlings in the Walla Walla area during the spring. GREEN PEACH APHID (Myzus persicae) eggs started hatching about January 31.

Moderate infestations required treatments on potatoes in Grant County by early July and were more abundant than usual on tomatoes near Yakima. Fall migrants were first observed on peach in October, 7-10 days later than normal. For the first time in more than 10 years, no visible GREEN PEACH APHID damage was observed on potatoes in the central area. A LEAFHOPPER (Empoasca filamenta) developed the heaviest population in several years on potatoes in Kittitas County; moderate damage occurred by late August. A WHITEFLY (Aleyrodes spiraeoides) was active during most of the winter in the Union Gap area. Moderate populations developed by late August on potatoes, red clover and weeds in Kittitas County and the Columbia Basin and later became extremely abundant on late potatoes. MILLIPEDES severely damaged potato tubers at Medical Lake. ONION MAGGOT (Hylemya antiqua) emergence began during February and March in the Walla Walla area. Populations were lower than usual during May and damage to onions by July was negligible. In the Moses Lake area, greater damage to onions was reported. In this area, 40 acres were not harvested, 200 acres with 50-75 percent loss in the field and 40 acres culled at harvest. SEED-CORN MAGGOT (Hylemya cilicrura) adults were trapped in slightly greater numbers than in 1957. No damage was observed on onions, spinach, carrots or lettuce. PEA APHID (Macrosiphum pisi) eggs started hatching in late January, two weeks earlier than usual in the Walla Walla area. Controls were required for the first time on early peas in the Yakima Valley. In the Walla Walla area, the highest populations since 1954 were recorded on peas during June and July. Most of the processing peas were treated at an estimated cost of $300,000 to $350,000. Heavy populations of PEA WEEVIL (Bruchus pisorum) were observed in Whitman and Yakima Counties in May. Controls were applied. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) caused widespread and heavy damage to beans, potatoes, sweet corn and sugar beets in the Columbia Basin during late July, August and September, especially at Othello. Heavy infestations of WHITE GRUBS (Phyllophaga spp.) were found in bean fields near Moses Lake during May.

Forest, Ornamental and Shade Tree Insects: FLEA BEETLES (Altica spp.) defoliated trees and shrubs in Lincoln, Asotin and Whitman Counties and throughout the northeastern area. BALSAM WOOLLY APHID (Chermes piceae) severely damaged firs, especially Pacific silver fir, in Gifford Pinchot National Forest and St. Helens tree farms. COTTONY MAPLE SCALE (Pulvinaria vitis) was abundant on silver maple in Whitman County. ELM LEAF BEETLE (Galerucella xanthomelaena) adults severely damaged elms in many eastern localities in late June, July and August. FALL WEBWORM (Hyphantria cunea) was common on poplars and peaches in the Wenatchee area during mid-August and slight damage to deciduous trees occurred in Pierce County in August, much earlier than usual. A SPIDER MITE (Eotetranychus lewisi) was found on poinsettia in several greenhouses in the Puget Sound area, a new record for the State. Controls were successful, only about $450 damage occurred. NARCISSUS BULB FLY (Lampetia equestris) populations were high in 1958. Infestations averaged 59 percent compared with 15 percent in 1955-57. TENT CATERPILLARS (Malacosoma pluviale and M. disstria) eggs began hatching the first of April in Puget Sound and were 5-10 times as abundant as in 1957 in localized areas of King County by mid-May. SLUGS (Deroceras reticulatum and Arion ater) damaged lilies, delphiniums and other ornamentals during March in the western area.

Insects Affecting Man and Animals: CATTLE GRUBS (Hypoderma lineatum and H. bovis) were particularly abundant in southeastern and south central areas. A SARCOPHAGID (Wohlfahrtia opaca) began parasitizing mink kits in late May and damage was somewhat heavier than usual on most mink ranches in the Spokane area. Moderate numbers of a MOSQUITO, Aedes nigromaculis, were found in Franklin and Benton County irrigation areas during August. Populations of another MOSQUITO, Culex tarsalis, were rather high in uncontrolled areas of the Columbia Basin by late summer.

Stored-product Insects: KHAPRA BEETLE (Trogoderma granarium) was found in a shipment of rice from Pakistan at a Tacoma dock on September 17. Successful eradication measurers were applied to the ship hold and a railroad shipment that was sent to Vancouver, British Columbia, Canada, by Plant Quarantine and Canadian officials, respectively. Stored-grain insects were more common than in the preceding storage season and damage was probably greater. Common pests were SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), RED FLOUR BEETLE(Tribolium castaneum)and RUSTY GRAIN BEETLE (Laemophloeus ferrugineus). The average cost for controlling insects in commercially stored wheat in Washington was estimated at $186,055. Inspections of seed establishments and feed mills showed Trogoderma glabrum, Attagenus piceus, Dermestes lardarius and Megatoma sp. apparently more abundant than in previous years.

Beneficial Insects: PAINTED-LADY (Vanessa cardui) adults were very abundant during the spring and summer in the eastern area. Larvae helped control Canada thistle, especially where weed killers were used. LADY BEETLES (Stethorus picipes and Hippodamia convergens) were active in apple orchards in February and together with SYRPHIDS were controlling apple aphids on young trees in the Wenatchee area during July. PREDATORS in red clover seed fields of the Columbia Basin attained population peaks as follows: Chrysopa spp., early July; Nabis alternatus, mid-July; Geocoris pallens and Hippodamia convergens, late July; Orius tristicolor, early August. PREDATORS in alfalfa seed fields of the lower Yakima Valley reached population peaks as follows: Chrysopa spp., uniform with slight peak early August; Nabis alternatus, early July; Geocoris pallens and Hippodamia convergens, late July; Orius tristicolor, early August. A PENTATOMID (Perillus bioculatus) was observed preying on Colorado potato beetle larvae at Othello, Adams County. PREDACEOUS MITES - Typhlodromus occidentalis became very abundant, feeding on two-spotted spider mite and rust mites on tree fruits in the Wenatchee area and T. fallacis and T. marinus were common on two-spotted spider mite in red clover in the Columbia Basin. T. cucumeris reached a peak population the second week of September in the lower Yakima Valley on alfalfa and Tydeus sp. peaked in mid-August. A PARASITE (Aphelinus lapisligni) parasitized about 25 percent of the clover aphid by late July. Unusually heavy field mouse populations caused up to 80 percent loss of ALKALI BEE (Nomia melanderi) larvae in Walla Walla, Benton and Yakima Counties during early spring. BUMBLE BEES (Bombus spp.) were moderate in red clover seed fields in Lewis County, best fields having less than one-half as many as in 1957. HONEY BEE (Apis mellifera) pollination of trees, fruits and red clover seed was good. A record crop of 5,141,000 pounds of honey was produced in 1958 which is 38 percent greater than the 1947-56 average.

SUMMARY OF INSECT CONDITIONS - 1958

IDAHO

Compiled by A. R. Gittins

Highlights: ALFALFA WEEVIL damage was generally considerably below that of 1957. Of approximately 690,781 acres of alfalfa grown for hay in 1958, it is estimated that some 636,778 acres were infested with a 19.5 percent loss, valued at $1,437,716. BEET LEAFHOPPER continued to be a major problem due to transmission of curly top virus to sugar beets and tomatoes. Incidence of the virus was the highest yet recorded in certain eastern counties. CORN EARWORM was considerably above average in 1958, being especially heavy in the Boise Valley. DOUGLAS-FIR BEETLE populations were considerably above those of 1957. ONION MAGGOT continued as a problem in the Boise Valley with fairly severe infestations in local areas. SPOTTED ALFALFA APHID was collected in the State in mid-October when adults were taken in alfalfa fields in Nez Perce County.

WESTERN CHERRY FRUIT FLY spread into Canyon and Gem Counties during the summer for the first time.

Cereal and Forage Insects: ALFALFA WEEVIL (Hypera postica) egg masses first appeared in early April. Larval populations were generally low during April and May with light damage to first-cutting alfalfa and increased during late May, with heavy damage in some untreated fields near Grangeville. Damage was generally much below that of 1957. Large numbers of ALFALFA LOOPER (Autographa californica) adults appeared in Caldwell during mid-May. Larvae became generally abundant on clovers in Latah, Clearwater, Lewis, Nez Perce and Idaho Counties during early June. Light damage occurred in northern Kootenai Valley area mint fields during early July. Adults of a CLOVER BUD CATERPILLAR (Grapholitha conversana) became active by May 2 in northern areas. By early June, infestations had spread over a wide area bounded by Grangeville, Deary, Lewiston and Stites. Severe damage to over 700 acres of clover near Grangeville caused 90 percent reduction in seed yields. Half-grown larvae of CLOVER LEAF WEEVIL (Hypera punctata) were generally distributed in southwestern alfalfa and red clover fields by early April. Damage was moderate to alfalfa near Weiser and larval feeding damage in red clover was severe near Kendrick in late April. CLOVER ROOT CURCULIO (Sitona hispidula) adults were active in most alfalfa from Jerome to Weiser during April, but became abundant in this area and in Latah and Nez Perce Counties later; however, populations declined rapidly. Larval feeding damage was generally moderate.

CLOVER SEED WEEVIL (Miccotrogus picirostris) adults were extremely abundant (exceeding 50 per sweep) in clover-grass pastures near Chilco, Kootenai County, but averaged 5-10 per sweep elsewhere in northern counties during May. CORN EARWORM (Heliothis zea) infestations were considerably above those of 1957, especially in the Boise Valley. Approximately 20 percent of commercial sweet corn ears were infested during late summer in southwestern areas. Some home gardens had up to 100 percent ear infestation. CUTWORMS caused considerable damage to young corn in the Melba area during early June. Larval populations were light to heavy in southern alfalfa and clover fields. ENGLISH GRAIN APHID (Macrosiphum granarium) populations were low in spring-sown grain fields of Bonner and Boundary Counties, apparently due to very high predator activity. Heavy damage occurred to some late-planted barley in Latah, Nez Perce and Lewis Counties. Approximately 75 per head on spring-planted wheat were counted in Lewis County, but this level dropped drastically by mid-July. Late barley in Idaho Falls was severely infested during early August. Approximately 71,580 acres were treated for GRASSHOPPERS during 1958. Populations were generally below those of 1957 with less damage. Melanoplus mexicanus and M. bivittatus were the most important species. LYGUS BUG adults were active in most alfalfa during early April, but overwintering populations were very low in southern counties during late April. Nymphs averaged as high as 20 per sweep in northern Canyon County red clover during early May. Counts were also high in northern counties. Populations increased in alfalfa seed fields in western Franklin County and nymphal and adult populations remained high throughout southern counties during late July and August. A very large nymphal population (up to 120 per sweep) developed in third-cutting alfalfa in Canyon County during early September. PEA APHID (Macrosiphum pisi) adults became active in alfalfa fields as early as March 28 in Canyon County, but populations were generally low during April and early May throughout the State, apparently due to predators. Colonization began in early May in southern alfalfa fields. Populations were far below normal in northern alfalfa fields during May, but increased in mid-June. Populations again declined in late July in northern counties due to buildup of predators and a fungus disease. A very large population developed in an alfalfa seed field in Canyon County during early August with counts of 2,630-19,450 per sweep and another very heavy population developed as late as October 24 in an alfalfa field in Hagerman Valley near Gooding. SPOTTED ALFALFA APHID (Therioaphis maculata) was collected during mid-October in alfalfa fields in Nez Perce County south and east of Lewiston. Populations were generally low.

Fruit Insects: APPLE AND THORN SKELETONIZER (Anthophila pariana) was very heavy in apple orchards in Bonner and Boundary Counties, some trees showing one-third of foliage skeletonized during early June. BLACK CHERRY APHID (Myzus cerasi) infestations were generally low and caused little damage throughout the State. First record for BLACK CHERRY FRUIT FLY (Rhagoletis fausta) in the Twin Falls area was obtained during early June. CODLING MOTH (Carpocapsa pomonella) was unusually heavy in the Moscow area and normal treatments did not prevent infestations. Little damage was reported from other areas in the State. Unsprayed apple trees suffered extensive terminal bud damage from EYE-SPOTTED BUD MOTH (Spilonota ocellana) in the Moscow area. A few infestations of FOREST TENT CATERPILLAR (Malacosoma disstria) developed on fruit trees in the Sandpoint area during early June. FRUIT TREE LEAF ROLLER (Archips argyrospila) infestations were generally low throughout the State. GREEN PEACH APHID (Myzus persicae) populations greatly exceeded those of 1957 in the Idaho Falls area with 15-40 percent of trees infested. Elsewhere, populations were more normal. A heavy infestation of IMPORTED CURRANTWORM (Nematus ribesii) developed on gooseberries in gardens at Parma and caused about two-thirds defoliation. Severe infestations of PEAR LEAF BLISTER MITE (Eriophyes pyri) developed on pears in several areas where dormant controls were omitted. Infestations were generally higher throughout the State than in previous years. Approximately 90 percent of the leaves were infested in one orchard near Fruitland. SAN JOSE SCALE (Aspidiotus perniciosus) was relatively unimportant except for one heavy infestation that caused considerable damage to cherry trees in the Caldwell area. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) caused moderate to severe damage to small fruits in southern areas. Large populations developed on apple in the Idaho Falls area. WALNUT APHID (Chromaphis juglandicola) populations were extremely large on black walnut in Parma and Payette during mid-July. WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) was recorded for the first time from Canyon and Gem Counties, during 1958. Approximately 25-30 percent of cherries examined in Canyon County were "wormy." First adults were taken in the Weiser area May 20 and strong populations had developed by mid-June. Backyard trees in Nampa were generally infested. YELLOW-NECKED CATERPILLAR (Datana ministra) caused moderate defoliation of apple trees in Boise, Lewiston and Moscow areas.

Truck Crop Insects: ASPARAGUS BEETLE (Crioceris asparagi) adults appeared in large numbers in commercial asparagus fields during late May in Owyhee County and large populations developed in Twin Falls area. Damage was minor. BEET LEAFHOPPER (Circulifer tenellus) populations remained generally high throughout the summer. Large migration of adults reached the south central area during May, apparently borne by winds from southern Nevada breeding areas. Populations in sugar beet fields in western Twin Falls increased 100-fold May 19-23, doubled May 23-26 and averaged over 13 per square foot by the end of May. Adverse weather conditions during early June greatly reduced adult populations in Canyon County from 50 per plant to 3 per plant. Populations in south central Idaho remained stable during June but increased greatly during July as nymphs appeared. Incidence of curly top on sugar beets and tomatoes was highest ever reported from Franklin County. Summer brood matured during late July in south central counties. Populations remained high during August with fields of sugar beets in Franklin, Minidoka and Cassia Counties showing 3 percent incidence of curly top. Studies made in bean fields during July near Rupert, Burley, Twin Falls and Jerome showed virus incidence ranging 0-44 percent, with an over-all average of 6.6 percent. Beans planted prior to May 28 showed higher damage than those planted later. Some bean fields in Twin Falls area were plowed up due to curly top. First outbreak of BEET WEBWORM (Loxostege sticticalis) occurred in Franklin County during early June and rapidly spread north to Rigby and west to Twin Falls. All stages were present, with adults predominating in the northern sector of infestation. By early July, beet fields near St. Anthony showed considerable feeding damage. In general, damage caused by first-generation larvae was considerably under that anticipated even though counts were far above normal. Second-generation feeding damage was relatively minor. CABBAGE SEEDPOD WEEVIL (Ceutorhynchus assimilis) overwintering

adults became active by late April in Latah and Nez Perce Counties. Damage was relatively minor during the summer. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) adults first appeared in mid-May in the Moscow area. Activity was rather general throughout south central and eastern counties during early June. In general, activity was above that of previous few years, but damage was spotted and relatively light except where controls were neglected. GREEN PEACH APHID (Myzus persicae) infestations of commercial potato fields in Idaho Falls area began in early August with an average of one per 8 leaves. Later in the month light infestations developed in Butte, Caribou and Fremont Counties. Caribou County populations ran as high as three per leaf. Potato seed fields from the Grace-Ashton-Teton Basin area were infested by early September. SYRPHID FLY populations in the Ashton area partially controlled infestations later in September.

Populations of a LEAFHOPPER (Empoasca filamenta) gradually increased as summer advanced with greatest numbers in commercial potato fields in the eastern area. Relatively few reports of severe feeding damage were received. Severe larval-feeding damage by IMPORTED CABBAGEWORM (Pieris rapae) occurred in commercial cabbage in Franklin County during August, with moderate damage elsewhere. LESSER BULB FLY (Eumerus tuberculatus) larvae infested overwintering onions as early as mid-March, but populations generally remained low. ONION MAGGOT (Hylemya antiqua) adults became active in southwestern areas during mid-March. Emergence increased, and by late April populations reached economic levels in certain southwestern areas. An occasional field in the southwestern area showed severe damage. Damage in the Twin Falls area was approximately 30 percent and many fields in this area were plowed up; heavy reduction of stands occurred. In general, however, 1958 populations were below those of 1957 with less damage occurring. POTATO APHID (Macrosiphum solanifolii) populations were generally higher in 1958 than in previous years, but increased activity of predators and parasites reduced populations by late August so that damage was relatively moderate. PEA APHID (Macrosiphum pisi) became active during late March, but was generally low during April and May due to moderately high predator populations. Populations in Nez Perce and Latah Counties were far lower during early June than in 1957, but built up rapidly during late June and early July on peas and lentils and again dropped during July due to a fungus disease and predators. RED-BACKED CUTWORM (Euxoa ochrogaster) caused moderate damage to sugar beets in eastern Jerome County, with sufficient defoliation to require control during mid-May. SPINACH LEAF MINER (Pegomya hyoscyami) became abundant in all sugar beet fields checked from Twin Falls eastward by late June, with extensive damage to lower leaves. An estimated 50 percent of eggs were viable. SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) caused considerable damage to asparagus shoots in home gardens in Moscow and Twin Falls. SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) caused moderate damage to sugar beet fields near St. Anthony. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) caused minor to heavy damage to potato fields near Idaho Falls and caused moderate damage to pole beans in Franklin County. WESTERN BLACK FLEA BEETLE (Phyllotreta pusilla) adults were severe on beets and radishes in Minidoka and Cassia Counties, with heavy damage in some fields during mid-May. High, above normal, populations continued through June in potato fields in southeastern counties. WESTERN POTATO FLEA BEETLE (Epitrix subcrinita) populations were moderate on early-planted potatoes in Custer, Butte, Fremont, Bingham and Lemhi Counties during June, but damage was not severe except in Custer County. STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) adults became common in commercial strawberry fields in Canyon County during mid-May and caused heavy damage to garden plantings near Weiser and Aberdeen. STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) was extremely heavy in a field near Parma, affecting approximately 80 percent of the plants. Damage was above average in the Preston area.

Forest, Shade Tree and Ornamental Insects: ALDER FLEA BEETLE (Altica ambiens) was very widely distributed throughout northern areas and caused heavy defoliation of alder and various species of willow. An ALDER SAWFLY caused heavy defoliation of alders from St. Maries north to the Rathdrum Prairie area during July and August. COTTONY MAPLE SCALE (Pulvinaria innumerabilis) crawlers appeared in Boise during late May and strong infestations developed as summer progressed. A very severe infestation appeared in mid-June in the Sandpoint area and at Twin Falls. Maples, black locust and hawthorns were attacked in Twin Falls. An infestation developed on grapes during early July at Moscow. DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) numbers increased considerably over 1957, with a large buildup in the St. Joe River drainage above Avery. Damage to Douglas-fir was several times that of the past two years in the drainage area of the North Fork of the Payette River. A widespread infestation of DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) developed during early June in Owyhee County. ELM LEAF BEETLE (Galerucella xanthomelaena) adults left hibernation quarters in large numbers during late April in Canyon County and became quite active in Payette and Washington Counties by mid-May. Hatching began in the Parma area during early June and larvae became extremely abundant by the middle of the month. Second generation appeared during mid-July in Parma. Heavy defoliation of new leaves by second-generation larvae occurred by late June in Canyon County after defoliation by first-generation larvae. Some elms in Parma were so severely attacked that it appeared they would not recover. Infestation was also extremely severe in the Twin Falls area. Second-generation larvae migrated from foliage during late August and early September in the City of Twin Falls. Severe infestations of EUROPEAN ELM SCALE (Gossyparia spuria) developed on elms in the Preston area during June. FALL WEBWORM (Hyphantria cunea) caused severe defoliation of chokecherries in Clearwater and Lemhi Counties during July and large populations developed on locust, poplars and cherries near Whitebird during August. Heavy defoliation of wild cherries occurred throughout northern parts of the State. A widespread infestation of LARCH CASEBEARER (Coleophora laricella) developed between St. Maries and Sandpoint during early June, with adults emerging in mid-June in Benewah County. The outbreak in northern Idaho covered 100 square miles and spread northward. A small infestation of MAPLE BLADDER-GALL MITE (Vasates quadripedes) was first recorded at Sandpoint on maples. MOUNTAIN PINE BEETLE (Dendroctonus monticolae) caused considerable damage to western white pine in the Clearwater National Forest. OYSTER-SHELL SCALE (Lepidosaphes ulmi) infestation was severe on ash at Twin Falls and moderate on golden willow at Idaho Falls. PINE NEEDLE SCALE (Phenacaspis pinifoliae) was moderate on ponderosa pine in the Moscow area. ROSE LEAF BEETLE (Nodonata puncticollis) caused moderate foliage skeletonization on willows and related trees in scattered northern areas. ROSE APHID (Macrosiphum rosae) colonization began on roses in the Twin Falls area as early as mid-April before leaf buds were open. By late May, roses in the city were quite heavily infested. A widespread infestation of a PINE SAWFLY (Neodiprion abietis complex) developed in Douglas-fir stands in many areas of Owyhee County during June. An active infestation of SPRUCE BUDWORM (Choristoneura fumiferana) persisted in grand fir over an area of 89,000 acres of State and private forestland south of Lewiston. The population increased sharply in 1958. WESTERN PINE BEETLE (Dendroctonus brevicomis) became quite abundant on ponderosa pine in Camp Creek area of Valley County.

Insects Affecting Man and Animals: BLACK FLIES were fairly abundant and annoying in Moscow and Idaho Falls areas. DEER FLIES (Chrysops spp.) were abundant and annoying near Blackfoot, Bingham County, during late June and were numerous during early August in localized areas of Bonneville County. HOUSE FLY (Musca domestica) early fall populations were considerably above average in Moscow and other cities. COMMON CATTLE GRUB (Hypoderma lineatum) adults became very common in southeastern and southwestern areas during June. HORN FLY (Siphona irritans) was abundant during August in Franklin County, with moderate infestations of cattle and horses. Very heavy deposition of eggs on horses by HORSE BOT FLY (Gasterophilus intestinalis) occurred near Parma during October.

MOSQUITOES - Late spring populations of Aedes implicatus were greatly below those of previous years in northern counties. Culex spp. became very abundant and highly annoying around Bonners Ferry and in scattered localities in Latah County during June and July in the Little Lost River Valley and in the eastern end of the Boise Valley. One moderate infestation of SHEEP BOT FLY (Oestrus ovis) in sheep occurred near Preston during early August. A heavy infestation of SWALLOW BUG (Oeciacus vicarius) in a sawmill near Bovill, Latah County, resulted in several workers being bitten during late June.

Stored-product Insects: FLAT GRAIN BEETLE (Laemophloeus pusillus), RED FLOUR BEETLE (Tribolium castaneum) and SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) were the most abundant and widespread species in northern grain storages. There were no reports of KHAPRA BEETLE (Trogoderma granarium) occurrence in the State during 1958. A heavy infestation of MEAL MOTH (Pyralis farinalis) in farm-stored feed grain was reported from the Donnelly area during early September. A TENEBRIONID (Alphitobius laevigatus) was found in pea screenings in a seed warehouse in Twin Falls, a new State record.

Household Insects: Infestations of DERMESTIDS (Anthrenus spp.) were reported from homes in Moscow and Coeur d'Alene during April. Scattered populations of CLOVER MITE occurred in homes in southern Idaho during April and early May. EUROPEAN EARWIG (Forficula auricularia) populations were about average with those of the past few years. There was one report of SUN SPIDERS (Solpugida) entering homes in Bingham and Power Counties during late September.

Beneficial Insects: A PARASITE (Bathyplectis curculionis) of alfalfa weevil averaged 80 per 30 sweeps in alfalfa fields near Parmer during early May and adults were generally common to abundant in most fields sampled in southern counties. Populations reached 30 per sweep in some Canyon County fields, but dropped somewhat as summer progressed. Alfalfa weevil larvae averaged 6 per 2 sweeps in Parma area fields. Adults of an ALKALI BEE (Nomia melanderi) emerged from nesting sites in the Homedale area during late May. Populations were generally more abundant than in previous years. The ALKALI BEE PARASITE (Zodion obliquefasciatum) was collected for the first time in Idaho. A BOMBYLIID (Heterostylum robustum) remained the most important parasite of nesting sites. Populations of BIG-EYED BUGS (Geocoris spp.) in southern clover and alfalfa fields ranged 2-5 per ten sweeps during late April and increased in many fields to 2 per sweep by late June and 3-6 by mid-August. Populations were about normal. A KLAMATHWEED BEETLE (Chrysolina gemellata) continued to successfully control the weed in the Salmon and Clearwater areas during 1958, but not in more northern counties, although adult populations during early June were very high in the Bonners Ferry and Moyie Springs areas. A ROOT BORER (Agrilus hyperici) - No evidence of Klamathweed reduction was observed during 1958. A PREDACEOUS MITE (Typhlodromus cucumeris) successfully controlled two-spotted spider mite in a few red clover fields in northern Canyon County. Other PREDACEOUS INSECTS varied in abundance over the State, but generally were at normal levels during 1958.

UNITED STATES DEPARTMENT OF AGRICULTURE
Agricultural Research Service
Plant Pest Control Division
Washington 25, D. C.

February 27, 1959

To: Entomologists and Other Cooperators

Subject: Insect Detection

The importance of plant pest detection, especially insect detection, has long been recognized. In recent years biological warfare aspects of the problem have added to its status.

Many of our most destructive crop and forest pests are species that have been introduced from foreign countries over the years. An example is the European corn borer. This insect caused an estimated loss of $158,000,000 to corn growers in 1957. An appropriation of that magnitude would support all cooperative State-Federal plant pest control programs, as currently operated, for a period of about eight years. This is only one example. As you know, there are many costly problems in our program work such as pink bollworm, gypsy moth, imported fire ant, Japanese beetle, white-fringed beetle, and others. If any of these pests had been discovered when the infestations were incipient or local, they probably could have been eradicated and the costs cut or eliminated entirely. Certainly, the chances of eradicating such outbreaks today are far better than heretofore. This is possible through the availability of low-cost insecticides and improved methods of application.

Success against a pest such as the Mediterranean fruit fly has led to optimism in plant pest control and regulatory agencies. They believe that if a pest can be found soon enough it can be eradicated, thereby saving American agriculture untold millions in losses and control costs.

Detection is obviously the starting point in an eradication program. Recognizing this, several plant pest regulatory and other agricultural agencies, including the Western Plant Board, National Plant Board, and the National Association of State Departments of Agriculture have gone on record requesting increased emphasis on plant pest detection. They have asked for a cooperative undertaking coordinated and directed at the national level. The Plant Pest Control Division has recognized this need by establishing a position within Survey and Detection Operations, devoted entirely to the detection phase of survey. Mr. Joseph W. Gentry, Assistant to the Chief Staff Officer, will be in charge of the program.

2-Entomologists and Other Cooperators

This work involves the initiation and operation of a specific nationwide program, in cooperation with the states and other appropriate organizations, to detect any introduced insect pests not now known to occur in the United States as well as economically important insects not known to occur in certain areas of the United States. By increased utilization of existing survey facilities, by coordinating detection efforts now in operation in many entomological agencies and by increasing the general awareness of the importance of plant pests not known to occur in this country, it is felt that insect detection will become a more effective and useful tool in plant pest control work. To accomplish this goal we must include a little more detection effort in our busy daily routines.

The combined efforts of many cooperators will insure the formation of a countrywide detection effort that will produce results. We urge each of you to participate in this important undertaking. As the plans are developed, you will be advised through correspondence, personal contracts, or other media.

Very truly yours,

E. D. Burgess

E. D. Burgess
Director

UNITED STATES DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.
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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY

SURVEY & 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 & Detection Operations

Plant Pest Survey

Plant Pest Control Division

Agricultural Research Service

United States Department of Agriculture

Washington 25, D. C.

Volume 9 March 6, 1959 Number 10

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SERPENTINE LEAF MINER more abundant in Dade County, Florida, than in past three years. (p. 151).

COLUMBIAN TIMBER BEETLE damaged large stands of sawtimber in areas of Indiana. (p. 152).

Distribution of JAPANESE BEETLE - 1958. (p. 153).

CATTLE GRUBS heavy on range cattle in New Mexico. (p. 154).

INSECT DETECTION: Soybean cyst nematode found for first time in Dunklin County, Missouri. (p. 150). Polia legitima reported for first time from Florida (p. 150), and Ptinus clavipes for the first time from South Carolina (p. 155). Imported fire ant found for first time in Union Parish, Louisiana. (p. 155).

CORRECTIONS. (p. 155).

SUMMARY OF INSECT CONDITIONS - 1958 - RHODE ISLAND. (p. 156).

A SURVEY METHOD for balsam gall midge damage appraisal. (p. 159).

INSECTS not known to occur in the United States. (p. 163).

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Reports for this issue are for the week ending February 27, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

MARCH 1959

The Weather Bureau's 30-day outlook for March calls for temperatures to average above seasonal normals along the West Coast and generally over the northwestern fourth of the Nation. Below normal temperatures are indicated for the West Gulf States and the Far Southwest, and also from the Great Lakes eastward through New England. In unspecified areas, near to slightly above normal temperatures are expected to prevail. Precipitation is expected to exceed normal along the Gulf Coast and over the Southeast as well as in the Pacific Northwest. Subnormal amounts are indicated over the Central and Southern Plateau States, Southern California, the Northern Plains and the Central North Atlantic States. In unspecified areas about normal amounts are indicated.

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

WEATHER OF THE WEEK ENDING MARCH 2

Unseasonably mild, dry, sunny weather prevailed most of the week over much of the country. Thawing occurred in northern areas on several days, and depths of the snow cover which remained near the Canadian Border at lower elevations was reduced. No serious storms or floods were reported. Temperatures for the week averaged a few degrees above normal everywhere except in the Northeast, where averages were a few degrees below normal due to very low temperatures during the first half. Subzero minima were recorded at many extreme north central stations on the 24th and many northeastern stations on the 25th. Frost has penetrated the soil 40 to 60 inches in northern Connecticut and to unusual depths over all the Northeast. Above-normal temperatures for the past week covered a greater portion of the country than those for any other week since November 10, and some central areas reported the warmest week since that time.

Heavy precipitation was mostly limited to the Gulf and lower Atlantic coastal areas and western Washington State. The heavy rains in the South occurred during the first half of the week, as a cold front moved slowly southward, and totals ranged up to 7 inches at New Orleans, Louisiana. Totals which ranged up to 3 inches in western Washington accumulated from intermittent light amounts which fell throughout the week. Up to near an inch fell in a belt extending from Little Rock, Arkansas, to Detroit, Michigan, but elsewhere totals were light, with none at all in California, Arizona, New Mexico and central Nebraska. More moisture is needed in the entire State of New Mexico and much of western Texas. Reports from nearby Oklahoma indicate that the accumulated precipitation deficiency for the past 5 months has been among the greatest on record, especially in central and southwestern portions. The snow cover at the end of the week had disappeared at lower elevations in the Far West and in the Great Plains as far north as South Dakota. In the upper Mississippi Valley the cover extends to northern Iowa, where 24-inch depths were reported at midweek. In the Northeast depths range up to 50 inches at Boonville, New York. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - TEXAS - Causing extensive damage to oats in Zavala and Bandera Counties. Some fields in Bandera County plowed under. (Tex. Coop. Rpt.). Infestations averaged 1-5 per linear foot in Falls, McLennan, Hill, Johnson, Navarro and Limestone Counties in the central area. One infestation of 15-25 per linear foot observed in Ellis County. The condition in grain has improved. (Hawkins). KANSAS - Found on wheat in Labette and Cherokee Counties. Populations ranged 0-6 per linear foot of row. (Peters). ARKANSAS - None found in cereal crops in Jefferson, Lincoln, Desha, Chicot, Ashley and Poinsett Counties. (Ark. Ins. Sur., Feb. 21). OKLAHOMA - Scattered populations in fields of small grains ranged 0-7 per linear foot in the east central area. (VanCleave). Populations remain light in Cleveland and McClain Counties; counts range 0-1 per linear foot. (Pennington). Small numbers found in two wheat fields near Lone Wolf, Kiowa County. (Hudson). Populations in eastern half of Tillman County building up rapidly, some control started. Counts ranged 75-100 per linear foot in 2 fields. (Hatfield).

ENGLISH GRAIN APHID (Macrosiphum granarium) - ARIZONA - Infestations on small grains in Pinal County declining. Averaged 4.5 per plant on barley beginning to head. (Ariz. Coop. Sur.). ARKANSAS - Small numbers, less than one per linear foot, in southeastern area. (Ark. Ins. Sur., Feb. 21). OKLAHOMA - Found in conjunction with a Toxoptera graminum infestation in field of oats near Wagoner. M. granarium averaged 7 per linear foot. (VanCleave).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Populations in most fields of small grains averaged less than 10 per linear foot in east central area. (VanCleave). Counts ranged 125-300 per linear foot in 2 wheat fields in eastern Tillman County. (Hatfield). Numbers low at Lone Wolf, Kiowa County. (Hudson). Populations remain low in small grain in Cleveland and McClain Counties. (Pennington).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Medium to heavy infestations observed on volunteer grain in Falls and Bandera Counties. (Tex. Coop. Rpt.). Light infestations observed in McLennan, Hill and Navarro Counties while no damage was apparent. Causing extensive damage to volunteer grain in Johnson County. (Hawkins). KANSAS - Found in one field in Labette County. Populations averaged about 12 per linear foot of row. (Peters). CALIFORNIA - Heavy infestation damaging wheat in the Montague area of Siskiyou County. (Cal. Coop.Rpt.). OKLAHOMA - Scattered infestations in some fields of small grain in east central area. Counts averaged less than 10 per linear foot. (VanCleave). Small numbers found in two wheat fields in Lone Wolf area. (Hudson). Abundant in an oat field in the Moore area. (Pennington).

SPOTTED ALFALFA APHID (Therioaphis maculata) - KANSAS - Counts per 25 plants from February 20 to 22 were 0 in Pottawatomie, Riley, Geary, Cloud and Republic Counties; 0-11 in Marion County; 19 in Butler County; and 25-173 in Cowley County. (Simpson, Burkhardt). Populations ranged from 0 to approximately 10 per plant in eastern and southeastern areas. (Peters). OKLAHOMA - Populations ranged 0-150 per square foot in most alfalfa fields in Grady, Garvin and Cleveland Counties. One field in Lindsay area had average counts of 300 per square foot. (Pennington). None noted in east central area or in fields checked in Arkansas River bottoms in Sequoyah County. (VanCleave, Washum). Counts averaged 720 per square foot of crown area in some fields of alfalfa in Payne County. An increase over previous week's count of 504 per square foot. (Ketner). NEW MEXICO - Occasional heavy infestation in Grant County alfalfa fields. Young stands in Virden Valley being damaged by heavy populations. (N. M. Coop. Rpt.). ARIZONA - Infestation in alfalfa fields in Maricopa County averaged 0.21 per trifoliate leaf; a slight decline from the previous week. Infestations also reported very light in the Casa Grande and Yuma areas. (Ariz. Coop. Sur.).

PEA APHID (Macrosiphum pisi) - KANSAS - Populations ranged 0-5 per plant in east central, southeast and northeast counties. (Peters). ARKANSAS - Averaged 2-3 per square foot in southeastern area. (Ark. Ins. Sur., Feb. 21). OKLAHOMA - Populations continue to increase slightly in alfalfa in east central area. Counts ranged 10-50 per square foot. (VanCleave). NEW MEXICO - Light to moderate infestations in alfalfa fields in Cliff-Gila area, Grant County. Coccinellid adults and larvae reduced populations considerably in alfalfa fields in southern counties. (N. M. Coop. Rpt.).

CUTWORMS - NEW MEXICO - Damaging young alfalfa in Hidalgo and Luna Counties. (N. M. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - NORTH CAROLINA - Larvae actively feeding in Richmond and Rowan Counties on alfalfa. (Jones, Thompson). SOUTH CAROLINA - Larvae and adults present and feeding in alfalfa in Spartanburg County (February 19) and larvae active in Laurens County. (Nettles, et al.). VIRGINIA - Larvae, one per bud, found on all alfalfa plants examined in a Pittsylvania County field. (Reynolds).

A THRIPS (Frankliniella sp.) - NEW MEXICO - Very abundant in alfalfa fields in southern counties. (N. M. Coop. Rpt.).

MORMON CRICKET (Anabrus simplex) - NEVADA - Recent checks of known egg-bed areas confirm indication that it will be necessary to bait approximately 10,000 acres of infestation to protect range sources involved. (PPC, West. Reg., Jan. Rpt.).

STRIPED GARDEN CATERPILLAR (Polia legitima) - FLORIDA - Larva collected on goldenshower tree (Cassia fistula), November 6, 1955, at Gainesville, Alachua County, is first record for the State. Det. H. W. Capps. (Fla. Coop. Sur.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - VIRGINIA - Confirmed identifications, as of January 30, are confined to 5 properties in Nansemond County, representing 380 acres. NEW JERSEY - Samples from 113 properties were processed with negative results. (PPC, East. Reg., Jan. Rpt.). ARKANSAS - Positive specimens were found on 5 properties with a total of 177 acres in Mississippi County. NORTH CAROLINA - Positive specimens were found on 1 property of 75 acres in Currituck County. OKLAHOMA - Examination of samples on hand were negative. MISSISSIPPI - Surveys in 7 delta counties gave negative results. (PPC, So. Reg., Jan. Rpt.). MISSOURI - Two new infestations were found during January. One consisted of 40 acres in Pemiscot County, within the regulated area. The other was found in Dunklin County, the first infestation in the county. (PPC, Cent. Reg., Jan. Rpt.).

FRUIT INSECTS

SCALE INSECTS - CALIFORNIA - In Glenn County, a medium infestation of Aspidiotus perniciosus damaged apple trees in Hamilton City and Parlatoria oleae was heavy on olive trees in the Willows area. Aspidiotus hederae was medium on peach trees in the Hemet area, Riverside County. (Cal. Coop. Rpt.). ARIZONA - An old infestation of Aonidiella aurantii was observed to be spreading near the city of Yuma. Control measures have been taken. (Ariz. Coop. Sur.).

A CERAMBYCID (Oberea sp.) - TEXAS - Damaged plum trees in Coryell County by boring in the twigs. (Harding).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Traps were operated throughout the month in Cameron, Dimmit, Hidalgo, Webb and Willacy Counties. The number of traps was increased slightly in the Winter Garden sections and at Laredo. No Mexican fruit flies were trapped. (PPC, So. Reg., Jan. Rpt.). ARIZONA - A total of 178 traps in 33 locations in Yuma and Santa Cruz Counties were inspected 4 times during the month with negative results. CALIFORNIA - All trapping

activities were maintained on regular schedule with negative results. (PPC, West. Reg., Jan. Rpt.). MEXICO - In the states of Baja California and Sonora, 2,065 traps were operated on 936 properties and 7,587 inspections gave negative results. (PPC, Mex. Reg., Jan. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Inspection of 127,608 citrus trees on 1,920 properties revealed 197 trees infested on 26 properties located in Municipio Hidalgo in the state of Tamaulipas, and in the vicinity of Allende and at Linares, in Nuevo Leone. The heaviest and most extensive infestation was at Allende. Inspections were completed at Matamoros, Tamaulipas, with negative results. (PPC, Mex. Reg., Jan. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - No suspicious specimens were found in examination of traps operated in ALABAMA, FLORIDA, LOUISIANA and TEXAS. (PPC, So. Reg., Jan. Rpt.).

TRUCK CROP INSECTS

DIAMONDBACK MOTH (Plutella maculipennis) - ARIZONA - Light on heads of cauliflower in the Yuma area. (Ariz. Coop. Sur.).

A FLEA BEETLE (Phyllotreta sp., probably pusilla) - TEXAS - Caused serious damage to turnips and mustard in Winter Garden area. (Harding).

GREEN PEACH APHID (Myzus persicae) - FLORIDA - All stages reported on potatoes in Dade County. Appeared in abundance about two months earlier than usual, but are not so abundant at present and appear to be disappearing. (Wolfenbarger, Feb. 19).

SERPENTINE LEAF MINER (Liriomyza sp.) - FLORIDA - Adults on potatoes, tomatoes, beans and cucurbits in entire Redlands area of Dade County. More abundant than for possibly the past three years. (Wolfenbarger, Feb. 19).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - Surveys in 69 counties and parishes revealed a total of 20 new infestations in 11 counties and parishes. No new areas were found to be infested. (PPC, So. Reg., Jan. Rpt.).

ONION THRIPS (Thrips tabaci) - ARIZONA - Infestations that averaged 6-7 per onion plant in some fields in the Casa Grande area of Pinal County have declined to less than 2 per plant. (Ariz. Coop. Sur.)

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light on tobacco in Bulloch, Wayne, Ware and Jeff Davis Counties and moderate in Tattnall County. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light to moderate on tobacco in Bulloch, Tattnall, Wayne, Pierce, Ware and Jeff Davis Counties. (Johnson).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - ARKANSAS - Larvae were found in trash from 6 locations representing more than 6,000 acres in Pulaski County and from one location exceeding 900 acres in Yell County. OKLAHOMA - Surveys indicate that larvae in bolls on standing stalks were killed by severe freezing weather, but some live larvae were found in surface debris at the same time. TEXAS - Infestation in material left in fields is much lighter in lower Valley counties than in 1958. (PPC, So. Reg., Jan. Rpt.).

ARIZONA - Thirteen new infestations found in Maricopa County in or near previously-infested areas and 2 found in Pinal County near previously-infested areas. No moths were taken in 3 light traps operated adjacent to infested properties in Maricopa County during January. (PPC, West. Reg., Jan. Rpt.). MEXICO - Debris inspection of 168 fields in the states of Nuevo Leone and Tamaulipas resulted in the finding of 82 live larvae. Inspection of 3,642 cotton blooms in one 15-acre location in the Culiacan zone, State of Sinaloa, gave negative results. Inspection of 28 bushels of cracked kenaf pods in this same zone gave negative results. (PPC, Mex. Reg., Jan. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Males and females collected on tree bands in Riley County. (Thompson, Poorbaugh).

GYPSY MOTH (Porthetria dispar) - NEW JERSEY - Intensive scouting of 225 woodland acres and 80 acres of open country around the 1958 attracting trap site at Hibernia was negative. PENNSYLVANIA - No egg masses found in area scouted around a 1957 positive trap site in Bucks County. (PPC, East. Reg. Jan. Rpt.).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Active in 3 locations near Sour Lake in Hardin County. All stages were present in 12 brood trees at one location. (Texas Coop. Rpt.).

DEODAR WEEVIL (Pissodes nemorensis) - PENNSYLVANIA - Infested Scotch pine in Wayne County during the fall of 1958. Det. U. S. N. M. (Drooz).

COLUMBIAN TIMBER BEETLE (Corthylus columbianus) - INDIANA - Reported from soft maple in the southern part of the State. Extension foresters report large stands of sawtimber in the Wabash, White and Patoka River Basins ruined by this beetle. Nearly all the lumber is ruined by the tunnels and the staining of the fungus. (Schuder).

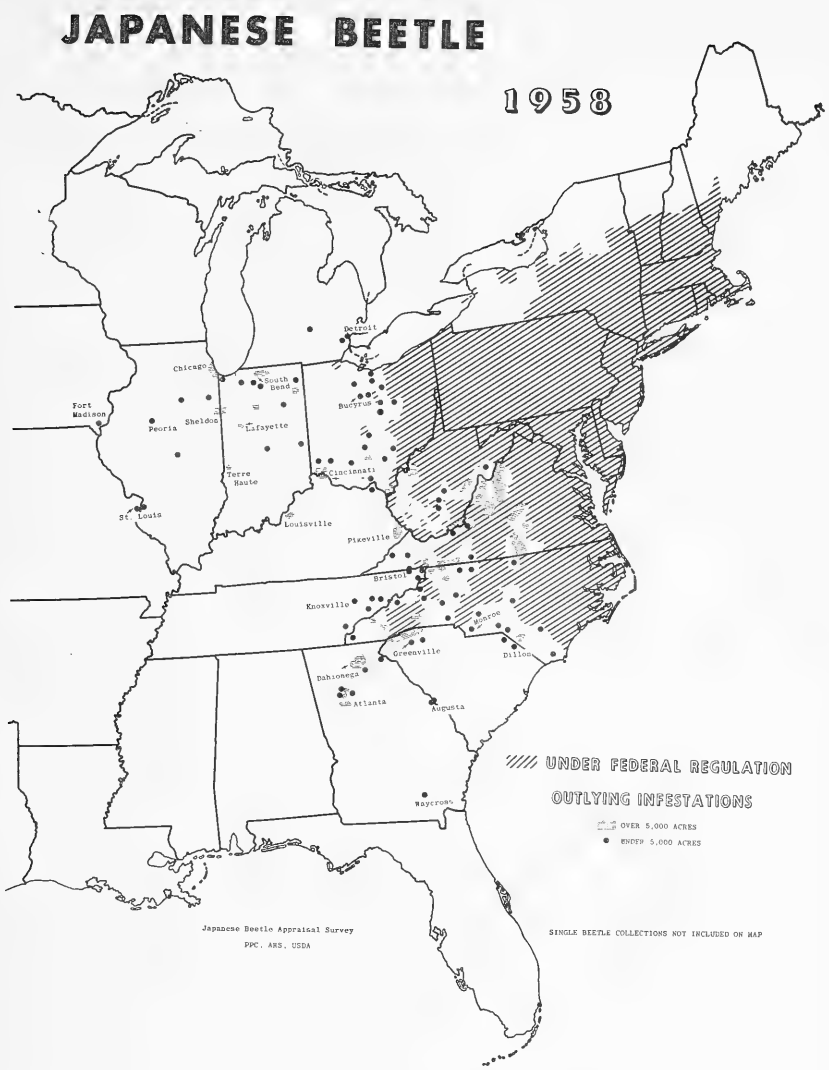
SAWFLIES - TEXAS - Overwintering cocoons heavily parasitized in northern Hardin County. This may indicate that very few adults will emerge and lay eggs this spring. (Texas Coop. Rpt.).

AN APHID (Rhopalosiphum rufomaculatum) - PENNSYLVANIA - Very heavy on chrysanthemums in a greenhouse in Johnstown, Cambria County, February 26. (Udine).

SCALE INSECTS - MARYLAND - Unaspis euonymi heavy on euonymus at Baltimore, February 15. (U. Md., Ent. Dept.). NORTH CAROLINA - U. euonymi infesting euonymus in Harnett County. (Scott, Farrier). Pseudaulacaspis pentagona infesting privet in Cumberland County. (Monroe, Farrier). CALIFORNIA - Heavy populations of Aspidiotus californicus occurred on Monterey pine in Stockton, San Joaquin County, while A. camelliae and A. hederae were light on euonymus plants in Golden Gate Park, San Francisco. Lepidosaphes ceanothi heavy on Ceanothus crassifolius in the Yucaipa area, San Bernardino County. (Cal. Coop. Rpt.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - VIRGINIA - Very heavy on boxwood plants (averaged 5-12 per 3-foot plant) at one location in Lynchburg, Campbell County. (Willey).

A TEPHRITID (Eutreta pacifica) - CALIFORNIA - Medium to heavy and caused galls on chrysanthemum plants in Kentfield, Marin County. This is the first record for this host in the State. (Cal. Coop. Rpt.).


JAPANESE BEETLE
1958
Detroit
Chicago
South Bend
Bucyrus
Fort Madison
Peoria
Sheldon
Lafayette
Terre Haute
Cincinnati
St. Louis
Louisville
Pikeville
Bristol
Knoxville
Monroe
Greenville
Dillon
Pahokee
Atlanta
Augusta
Waycross
UNDER FEDERAL REGULATION
OUTLYING INFESTATIONS
OVER 5,000 ACRES
UNDER 5,000 ACRES
Japanese Beetle Appraisal Survey
PPC, ARS, USDA
SINGLE BEETLE COLLECTIONS NOT INCLUDED ON MAP

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - VIRGINIA - Survey of one cattle herd in each of 5 counties revealed that of the grubs extracted, 163 were H. lineatum and 55 were H. bovis. No H. bovis have been extracted east of the Blue Ridge Mountains to date this year. (Turner, Morris, Morgan). NORTH CAROLINA - Examination of 141 animals in Davidson County showed only one bull purchased outside the county to be infested, and this animal had over 50 grubs. (Bernhardt). KANSAS - Averaged 7.5 per head in 63 infested animals out of 92 examined in Ellis County. Of 8 yearlings checked in Cheyenne County, grubs averaged 2.5 per head in 5 infested animals. (Knapp). NEW MEXICO - Reports from most counties indicate heavy infestations on range cattle. (N. M. Coop. Rpt.). UTAH - Numerous in young cattle in some parts of Washington County. (Knowlton).

CATTLE LICE - UTAH - Numerous in some Washington and San Juan cattle herds, severe on livestock near Ogden, Weber County, and moderate to severe throughout Emery County. (Knowlton, Olson).

SHEEP KED (Melophagus ovinus) - UTAH - Moderate to severe in Emery County. (Knowlton).

SHEEP SCAB MITE (Psoroptes equi ovis) - VIRGINIA - Found on 122 of 201 sheep inspected in State during January. (Va. Livestock Health Bull.).

TROPICAL RAT MITE (Ornithonyssus bacoti) - CALIFORNIA - Caused irritation to members of households in Bakersfield, Kern County, and in Carmichael, Sacramento County. (Cal. Coop. Rpt.).

BROWN DOG TICK (Rhipicephalus sanguineus) - CALIFORNIA - Apparently more numerous this year, with reports received from San Francisco and Fresno. (Keh).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - A total of 173 inspections were made in NEW JERSEY, NEW YORK, PENNSYLVANIA and CONNECTICUT. No positive determinations have been received. (PPC, East. Reg. Jan. Rpt.). ALABAMA - Five initial inspections were made in Barbour County and 4 in Henry County, with negative results. A total of 77 inspections were made at possible points of entry in 23 counties. OKLAHOMA - Three inspections in Garfield County were negative. TENNESSEE - Inspections were made of 29 establishments in 8 counties, with no infestations found. TEXAS - Inspections were made on 259 properties in 45 counties. (PPC, So. Reg., Jan. Rpt.). ARIZONA - First infestation for 1959 was found January 7 in Mesa County. (PPC, West. Reg., Jan. Rpt.). MEXICO - A total of 303 inspections were made in the states of Baja California, Sonora, Jalisco and Coahuila. No positive determinations were received during the month. (PPC, Mex. Reg., Jan. Rpt.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - UTAH - Common pest of granaries and many homes throughout Emery County. (Knowlton).

BENEFICIAL INSECTS

CONVERGENT LADY BEETLE (Hippodamia convergens) - KANSAS - Averaged less than one per square foot in a Linn County alfalfa field. (Peters). OKLAHOMA - Populations averaged 0.3 per square yard in some Payne County alfalfa fields. (Bryan). Occasional adult noted in fields of small grains and alfalfa in east central area (VanCleave) and in Garvin and Cleveland Counties. (Pennington).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - LOUISIANA - Union Parish was found infested during January, bringing the total number of infested parishes to 45. TENNESSEE - A total of 277 sites were inspected in Fayette, Hardeman, Haywood, McNairy, Shelby and Tipton Counties with negative results. Treatment was applied to a total of 110,307 acres during January. (PPC, So. Reg., Jan. Rpt.).

BROWN SPIDER BEETLE (Ptinus clavipes) - SOUTH CAROLINA - Found in abundance in a home in Aiken, Aiken County, and apparently feeding on a wool rug. This is a new record for the State. Det. T. J. Spilman. (McAlister).

GERMAN COCKROACH (Blattella germanica) - NORTH CAROLINA - Populations difficult to control in Wake County. (Smith).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - MARYLAND - Damaged a newly-constructed home at Westminster, Carroll County, February 18. (U. Md., Ent. Dept.). INDIANA - Has begun to swarm in homes in Tippecanoe County. (Osmun).

CORRECTIONS

CEIR 9(5):52 - IMPORTED FIRE ANT - "Treatments were underway in all 10 infested states....", should be changed to read "Treatments were underway in all 9 infested states....".

CEIR 9(8):106 - Distribution of alfalfa weevil should be statewide for Connecticut. Remaining counties were found infested during 1957.

CEIR 9(9):135 - Under Washington summary, last sentence under highlights should read: "SPOTTED ALFALFA APHID was recorded for the first time in the State and SHALLOT APHID was recorded for the first time on strawberries."

LIGHT TRAP COLLECTIONS

	Pseudaletia unipuncta	Agrotis ypsilon	Feltia subterranea	Prodenia ornithogalli
ARIZONA				
Mesa 2/18-24				18
FLORIDA				
Gainesville 2/17-23			8	
Quincy 2/10-16			3	
LOUISIANA				
Baton Rouge 2/20-26	1	2	9	2
Franklin 2/16-23	3	1	17	46
SOUTH CAROLINA				
Charleston 2/23-3/1	5	4	8	3

SUMMARY OF INSECT CONDITIONS - 1958

RHODE ISLAND

Reported by H. L. Hansen*

Highlights: ALFALFA WEEVIL was found for the first time in Rhode Island during 1958. The range and size of population indicate it is probably the second season of establishment in the State. It is expected to reach economic proportions during 1959. EUROPEAN CORN BORER populations were lower than for five years. The mean figure for the statewide fall abundance survey progressed from 39 in 1954, to over 300 in 1957. The figure for 1958 was 30. Two serious local outbreaks of ARMYWORM occurred on millet and corn. During late summer ORANGE-STRIPED OAKWORM caused more concern among the rural and suburban public than any other insect.

Cereal and Forage Insects: CORN LEAF APHID (Rhopsalosiphum maidis) was heavy on corn in the Newport area in August. EUROPEAN CORN BORER (Pyrausta nubilalis) populations were negligible as indicated by the fall abundance survey. An extremely prolonged cool, wet spell during the spring and early summer may have had an effect in reducing the population. An ARMYWORM (Pseudaletia unipunctata) outbreak reduced 10 acres of corn to stems and midribs in North Kingstown during August and was also heavy in a field of millet in Westerly. PEA APHID (Macrosiphum pisi) increased in June to moderate populations on alfalfa. MEADOW SPITTLEBUG (Philaenus leucophthalmus) occurred in negligible numbers on alfalfa and red clover in South Kingstown. Moderate numbers of adult CLOVER ROOT CURCULIO (Sitona hispidula) were swept from alfalfa and red clover fields in all areas in early August. MARGINED BLISTER BEETLE (Epicauta pestifera) adults caused light damage to alfalfa in August in North Kingstown. ALFALFA WEEVIL (Hypera postica) was first collected in Rhode Island August 1. At that time counts were 1-3 adults per 100 sweeps in Providence, Kent and Washington Counties. Few larvae were present in August, but an increase was noted October 17, in South Kingstown. TARNISHED PLANT BUG (Lygus lineolaris) and CLOVER SEED CHALCID (Bruchophagus gibbus) were found in moderate numbers in red clover and alfalfa in South Kingstown during late July and August.

Fruit Insects: CODLING MOTH (Carpocapsa pomonella) eggs were first noted on fruit June 17, in Kenyon. APPLE MAGGOT (Rhagoletis pomonella) was heavy and first reported ovipositing August 22. PEAR LEAF BLISTER MITE (Eriophyes pyri) was heavy on pear foliage in Exeter in late July. PEAR-SLUG (Caliroa cerasi) skeletonized cherry leaves in Warren, Bristol and North Providence during early July. Old injury of PLUM CURCULIO (Conotrachelus nenuphar) was observed on fruit in South Kingstown in June. BLACK CHERRY APHID (Myzus cerasi) was abundant on cherry in the Smithfield area during May. PEACH TREE BORER (Sanninoidea exitiosa) larval activity was noted in Woonsocket in July. There was a heavy emergence of SHOT-HOLE BORER (Scolytus rugulosus) from apricot trees in Warwick in early September. RASPBERRY SAWFLY (Monophadnoides geniculatus) was a problem on raspberry in Esmond during June. Grape buds in West Warwick were attacked by ROSE CHAFER (Macrodactylus subspinosus) during June. CHAIN-SPOTTED GEOMETER (Cingilia catenaria) was locally abundant during July, feeding on blueberry foliage on Conanicut Island.

Truck Crop Insects: POTATO FLEA BEETLE (Epitrix cucumeris) was heavy on sprouting potato foliage in West Kingston at the end of May. Injury was heavy on potato and tomato plants in South Kingstown by June 17. The new generation was 7-10 days late in 1958 with the peak of adult activity reached in Kingston August 1. First egg masses of COLORADO POTATO BEETLE (Leptinotarsa decemlineata)

* Based on data contributed by J. A. Mathewson, J E. Panone, W. N. Stoner, T. W. Kerr, K. E. Hyland, N. E. Caroselli, F. L. Howard, G. J. Stessel, A. V. Boaro, J. T. Hannah, H. W. Peabody and G. B. Tibbitts.

were noted in Newport June 10. Larvae were moderate on tomato plants in Providence and North Scituate July 9. The first adults of THREE-LINED POTATO BEETLE (Lema trilineata) were observed in West Kingston June 16 with slight damage in inadequately sprayed potato fields July 10. Asparagus was attacked during early summer by adults of SPOTTED ASPARAGUS BEETLE (Crioceris duodecimpunctata) and ASPARAGUS BEETLE (C. asparagi) in all areas. CABBAGE MAGGOT (Hylemya brassicae) larvae infested radishes in North Scituate in early June as well as cantaloup seedlings in Kingston. Mature CABBAGE LOOPER (Trichoplusia ni) larvae were common on cabbage by August 8. At this time, adults of IMPORTED CABBAGE WORM (Pieris rapae) were noted ovipositing in the Narragansett area and CABBAGE APHID (Brevicoryne brassicae) was moderate.

Forest, Ornamental and Shade Tree Insects: ORANGE-STRIPED OAKWORM (Anisota senatoria) was very heavy locally throughout the State. Small larvae first appeared in mid-August and fed until late September. Pupation was general about September 22. A heavier than usual population of EASTERN TENT CATERPILLAR (Malacosoma americanum) occurred principally on wild cherry in most areas. First instar larvae were observed in Warwick April 18. First hatching of GYPSY MOTH (Porthetria dispar) occurred in Little Compton May 2. Various other defoliators occurred locally. IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) damaged nursery stock in Warwick in the early summer. JAPANESE BEETLE (Popillia japonica) was first noticed July 1 in Kingston on sassafras. Adults were generally light throughout the State. ASIATIC GARDEN BEETLE (Autoserica castanea) flights were heavy to light in Narragansett and other local areas in mid-summer. PAINTED-LADY (Vanessa cardui) larvae defoliated hollyhock in South Kingstown and Esmond during July. FALL WEBWORM (Hyphantria cunea) infestations were scattered and light beginning in early August. Zinnia and marigold plantings in the Smithfield area were damaged by STALK BORER (Papaipema nebris). PEAR-SLUG (Caliroa cerasi) damaged cotoneaster in the Middletown area and was light on roses in South Kingstown during June and July. Light feeding on various oaks by PALE TUSSOCK MOTH (Halisidota tessellaris) and RED-HUMPED CATERPILLAR (Schizura concinna)occurred in South Kingstown late in the summer. BIRCH LEAF MINER (Fenusa pusilla) adults were first observed statewide in early May. Larvae were heavy on birch in Providence in late May with adults again being evident in Warwick and Johnston at the end of June. LOCUST LEAF MINER (Chalepus dorsalis) adults fed on locust in the Warwick area in early June. HOLLY LEAF MINER (Phytomyza ilicis) was observed from late May to June in most areas of the State. BOXWOOD LEAF MINER (Monarthropalpus buxi) mines contained pupae and some adults in late May. ROSE APHID (Macrosiphum rosae) developed heavy populations on young rose growth in South Kingstown during late May. BALSAM TWIG APHID (Mindarus abietinus) was heavy on fir at the same time in the Smithfield area and later on balsam in Warwick. LARCH APHID (Cinara laricis) was reported troublesome in East Providence. In June heavy infestations of a BEECH APHID (Phyllaphis fagi) were observed in Kingston. WHITE-PINE APHID (Cinara strobi) was locally abundant in the Coventry area. EASTERN SPRUCE GALL APHID (Chermes abietis)occurred in scattered local infestations during June and July. MULBERRY WHITEFLY (Tetraleurodes mori) was severe on linden in Providence in middle August. RHODODENDRON LACE BUG (Stephanitis rhododendri) was a problem in Barrington and Newport areas in May. Heavy populations of FLETCHER SCALE (Lecanium fletcheri) on yew were evident in late May with new generation hatching from late June to mid-July in the Warwick and Middletown areas. OYSTERSHELL SCALE (Lepidosaphes ulmi) was troublesome on lilac and contoneaster with crawlers present in the North Kingstown area during mid-June. JUNIPER SCALE (Diaspis carueli) was present on arborvitae and juniper in North Kingstown, producing crawlers in mid-June. GOLDEN OAK SCALE (Asterolecanium variolosum) was heavy on white oak in Lincoln. Dogwood in Johnston was infested with TERRAPIN SCALE (Lecanium nigrofasciatum). PINE NEEDLE SCALE (Phenacaspis pinifoliae) was heavy on hemlock in Cranston during June with hatching at that time. AZALEA BARK SCALE (Eriococcus azaleae) infested rhododendron in Newport and Warwick. SPRUCE BUD SCALE (Physokermes piceae) crawlers were present in the northern area of the State during mid-July. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) built up in late May on arborvitae in Foster.

Many inquiries were received regarding MAPLE BLADDER-GALL MITE (Vasates quadripedes) during May and June. ROSE CHAFER (Macrodactylus subspinosus) adults first appeared June 12 with complaints of feeding on garden flowers until July. ROSE CURCULIO (Rhynchites bicolor) was troublesome on roses in Warwick in late June. DOGWOOD TWIG BORER (Oberea tripunctata) was prevalent in nursery stock in Westerly and DOGWOOD BORER (Thamnospecia scitula) occurred in the Pawtucket area. RHODODENDRON BORER (Ramosia rhododendri) damaged some plantings in Newport and MAPLE-PETIOLE BORER (Caulocampus acericaulis) was heavy on maple in Smithfield. Many oaks throughout the State were damaged by the TWIG PRUNER (Elaphidion villosum). Several red pines in the Scituate watershed area were killed by PINE ENGRAVER (Ips pini). Pupation of SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) was delayed beyond the time when adults usually appear in Kingston. It had not begun by June 10. EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) was detected in a planting in Johnston. Several weevils were reported locally, ARBORVITAE WEEVIL (Phyllobius intrusus) in Johnston, WHITE-PINE WEEVIL (Pissodes strobi) from Providence and BLACK VINE WEEVIL (Brachyrhinus sulcatus) from a nursery in Warwick.

Insects Affecting Man and Animals: Multiple stings from a WASP (Vespula arenaria) were involved in the death of a 66-year-old man in East Greenwich, July 16. BLACK FLIES were numerous after season of heavy rainfall in most areas of the State during April, May and early June. The weather also seemed to favor heavy populations of AMERICAN DOG TICK (Dermacentor variabilis) in all areas, mostly during May, June and July. DOG and CAT FLEAS (Ctenocephalides canis and C.felis) were abundant and troublesome in most areas during August. MOSQUITOES (Aedes fitchii, A. abserratus, A. canadensis and A. excrucians) were collected in the wooded areas of Cumberland, Lincoln and Smithfield, June 20. Larvae of a PHANTOM MIDGE (Chaoboris punctipennis) were collected in the water supply at Johnston, May 23. A commercial pheasant flock in East Greenwich was infested with SHAFT LOUSE (Menopon gallinae) in April. LITTLE HOUSE FLY (Fannia canicularis) built up at a poultry farm in Johnston during June.

Household Insects: EUROPEAN EARWIG (Forficula auricularia) continued to be of concern in and about homes throughout the State. An infestation of SILVERFISH (Lepisma saccharina) was reported from a library in Olneyville in April. ORIENTAL COCKROACH (Blatta orientalis) was prevalent in many homes throughout the State during the winter. HOUSE CENTIPEDE (Scutigera coleoptrata) caused concern in homes in Portsmouth and elsewhere during early spring. Insects damaging structural wood were reported from all areas. EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) flights began in early March and were reported occasionally until early June. A heavy infestation of SOUTHERN LYCTUS BEETLE (Lyctus planicollis) was found in oak flooring in Narragansett. Many complaints were received regarding BLACK CARPENTER ANT (Camponotus herculeanus pennsylvanicus) with swarming prevalent generally during June and early July. PAVEMENT ANT (Tetramorium caespitum) swarming was general during late May and June. VARIED CARPET BEETLE (Anthrenus verbasci) occurred in heavy infestations in homes at Lincoln and Narragansett. There were also reports of damage by BLACK CARPET BEETLE (Attagenus piceus) in Providence and vicinity during the winter. CASEMAKING CLOTHES MOTH (Tinela pellionella) infestations were reported from the same area. LARDER BEETLE (Dermestes lardarius) built up in the winter, killed beehives in the State and was reported from homes in Middletown and Wakefield. Some homeowners were annoyed by DRUG-STORE BEETLE (Stegobium paniceum), SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis), STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus), CLOVER MITE and CLUSTER FLY (Pollenia rudis).

Beneficial Insects: HONEY BEE (Apis mellifera) swarming was common from May to August. Numerous complaints of vagrant swarms were reported. During the season, 12 percent of 116 bee yards visited contained colonies infected with American foul brood. A VELVET ANT (Dasymutilla occidentalis) was received from people concerned about the possibility that it was a fire ant.

Survey Methods

Uniform Survey Procedure Approved By
The Lake States Forest Insect Survey Committee - 1959

BALSAM GALL MIDGE DAMAGE APPRAISAL SURVEY[1]/

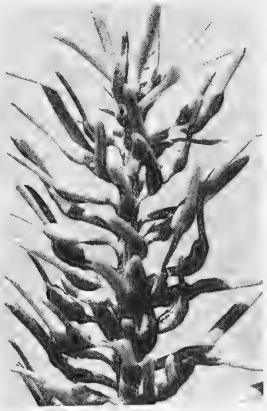


Figure 1. Needles damaged by the balsam gall midge

PURPOSE:

The balsam gall midge, Dasyneura balsamicola (Lint.), seriously damages fir by stimulating proliferation of the needles, and causes the formation of needle galls (figure 1). The galls are ovoid, about one-eighth inch long and normally occur singly on the needle. The range of the gall midge closely parallels that of balsam and Fraser fir throughout North America. Epidemics have been reported periodically since the late 1800's. During epidemics over 90 percent of the current needles may be infested, and as many as 150 needles of each current elongation may be deformed. Often up to 5 galls may form on one needle. A delayed indirect defoliation results, with the needles dropping in the fall of the first year, following larval migration. This abscission is about three years premature. Because needle fall is accelerated by bringing severely infested trees into the home, infestations frequently prohibit the harvest of trees for Christmas stock.

The minute size of all stages of the gall midge would require an unnecessarily complex sampling technique; therefore, galled needles and subsequent defoliation are employed in the appraisal survey. Of primary interest is the severity of infestation and secondarily, the past history of its presence.

INSTRUCTIONS:

Date of Survey

The survey may be conducted any time after June and before November.

Stand Requirements

The survey is restricted to balsam and Fraser fir trees between 5 and 20 feet in height, open growing stands in the lowland habitat and plantations and top cut-managed stands in any habitat.

Procedure

Five plots of 4 trees each are examined for each 40 acres. Smaller areas require 1 plot per each 5 acres. Plots are distributed uniformly throughout the stand. The quarter method automatically selects the trees. At any given station, the observer visually "quarters" the area, i.e., front left, front right, rear right and rear left. The closest tree in each imaginary quarter is sampled. On the whorl in the upper one third of the crown, select 4 branches representing the cardinal directions. For each branch, examine 10 apical current twigs and record the number of these that are infested. This requires a numerical value (rather than a check) to be entered on the tally sheet. On the same branches, estimate the damage level of ten 2 and ten 3-year-old

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1/ This survey procedure was developed in conjunction with biological-ecological studies of the balsam gall midge financed by the Wisconsin Conservation Department. Approved for publication by the Director of the Wisconsin Agricultural Experiment Station.

internodes (the 2-year-old internode immediately follows the current terminal twig and the 3-year-old internode is immediately behind the 2-year-old internode). About one percent of the galled needles remain on the tree indefinitely; any other galled needles will be represented by abscission scars. Numerous abscission scars reveal a heavy infestation one or two years ago. The actual estimate of previous damage is arbitrarily made by the observer, then entered on the tally sheet. (This portion of the survey is optional and depends, in part, upon stand conditions and general vigor of the trees. In a very few instances, densely shaded, poor vigor trees drop the needles after one year (as opposed to the normal 4-10). In such cases previous damage levels will be impossible to detect.)

Evaluation

The number of galled and nongalled twigs on current wood for the stand are totalled and the percent of twigs galled determined.

$$\frac{\text{Total twigs infested}}{\text{Total twigs sampled}} \times 100 = \text{percent twigs infested}$$

The damage level is then derived from the damage level tables.

Damage Level Tables

A. Current Growth—

Percent Current Twigs Infested	Damage Level
1 - 5	Light
6 - 40	Moderate
41 - 100	Heavy

B. Previous Growth (2 and 3-year internodes only)—

Description	Damage Level
Nearly all of old needles present, several scars, 1 or no galls remaining	Light
Between 10 and 50 percent of needles absent, several galls remaining	Moderate
Over 50 percent of needles absent, abscission scars abundant, several galls remaining	Heavy

If currently heavy, the survey (only the current twig portion) is repeated the following year. If light, 3 years may elapse before another survey is necessitated.

The previous growth observations are summarized with the current growth data on the summary evaluation sheet. These data enable the observer to predict the rise and decline of populations under normal conditions and detect severe damage. Extreme heavily infested pockets are occasionally encountered. The locations of these are noted and observed at annual intervals; since these pockets may serve as infestation loci, future cutting when midge populations are low should be considered.

R. L. Giese, Research Assistant
D. M. Benjamin, Associate Professor
University of Wisconsin

BALSAM GALL MIDGE APPRAISAL SURVEY SUMMARY AND EVALUATION

Stand number _____ Date _____

County_____ T _____ R _____ S _____ Forty _____ Observer _____

Number acres _____ Number of plots _____

Percent current twigs infested _____
Damage level current twigs Light_____ Medium _____ Heavy _____
Damage level of two-year-old internodes Light _____ Medium _____ Heavy _____
Damage level of three-year-old internodes Light _____ Medium _____ Heavy _____

Population trend _____

Survey to be conducted again _____

Marketing recommendations

BALSAM GALL MIDGE APPRAISAL SURVEY

Stand No. _____ Starting Point and Course _____ Date _____
County _____ T _____ R _____ S _____ Forty _____ Observer _____
Stand Composition _____

Current Twigs Infested Per Ten Sampled — Damage Level Old Growth Indicate L. M. or H.

Plot	Tree	Two year old Internode 1	2	3	4	Two year old Internode 1	2	3	4	Three year old Internode 1	2	3	4	Three year old Internode 1	2	3	4
1	Branch 1 :																
	2 :																
	3 :																
	4 :																
2	Branch 1 :																
	2 :																
	3 :																
	4 :																
3	Branch 1 :																
	2 :																
	3 :																
	4 :																
4	Branch 1 :																
	2 :																
	3 :																
	4 :																
5	Branch 1 :																
	2 :																
	3 :																
	4 :																

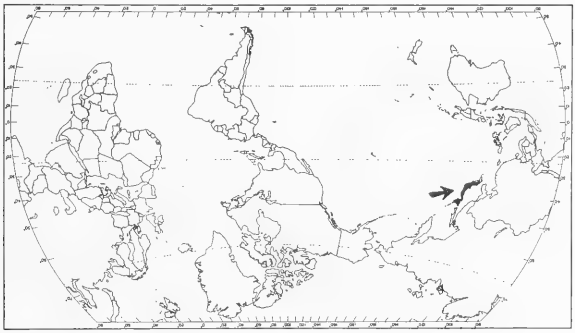
Trend Check One L.__ M.__ H.__ — Trend Check One L.__ M.__ H.__

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

RICE LEAF MINER (Agromyza oryzae (Munakata))

Economic Importance: This leaf miner has been called the most serious pest of rice in Japan. Its damage is especially severe in the more northern areas where the growing season is shortened. Infested plants have dried leaf tips and reduced number of side shoots. Growth and maturity are retarded. Heavily infested fields have a scorched appearance. About four percent of the crop is lost annually to this in Akita Prefecture.

Damage to Rice Leaves



General Distribution of Agromyza oryzae

Hosts: Cultivated and wild rice, reed and foxtail grasses.

Distribution: Japan (north temperate).

Life History and Habits: In the Hokkaido region there are one to three generations annually. The insect passes the winter in the pupal stage in the soil on rice stubble in the fields. Adult emergence begins about June 1. The flies are very active on warm,calm days. The female inserts her eggs singly in the epidermis of the rice leaf. An infested leaf has a speckled appearance. The larvae hatch in 6 days and mine downward in the leaf. This leads to formation of a white to brown irregular blotch. The larval period covers about 10 days; after which pupation occurs, usually on the upper or lower surface of the leaf or on the sheath. Most of the flies of the earlier generations emerge after 7 to 18 days but some of the puparia remain in diapause. Most of the puparia of the later generations go into hibernation.

Description: Adult about 2.5 mm. long, wing expanse 6 mm.; black or brownish with light brown or reddish eyes. Egg elongate, elliptical, white, about 1 mm. long. Larva white, flattish, 5 mm. long. There are two types of puparia. They may be distinguished as follows: the hibernating are light yellowish-white, changing to dark-gray to nearly black and are easily dislodged from leaves; the non-hibernating are light yellowish-white to pale-green to greenish-brown and adhere closely to the leaves. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies.) CEIR 9(10) 3-6-59.

Adult male of Agromyza oryzae

Figures (except map): Adult from Iconographia Insectorum Japonicorum. Ed. 2., 1954. 1736 pp., Tokyo. Damage from Kuwayama, S. 1928. Hokkaido Agr. Exp. Sta. Bul. No. 47. (Both publications in Japanese).

VOL. 9 NO. 11 MARCH 13, 1959

Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY

SURVEY & 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 & Detection Operations

Plant Pest Survey

Plant Pest Control Division

Agricultural Research Service

United States Department of Agriculture

Washington 25, D. C.

Volume 9 March 13, 1959 Number 11

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

Heavy GREENBUG populations caused serious damage in some wheat fields in Tillman County, Oklahoma, and CORN LEAF APHID heavy in barley in Maricopa County, Arizona. (p. 167).

GREEN PEACH APHID flights heaviest on record in Yuma area of Arizona. Could become a problem in Yuma Valley lettuce and melon fields. (p. 169).

Outlook for BEET LEAFHOPPER in the Intermountain Regions calls for light to moderate movement into crop areas. (p. 169).

APHIDS heavy in several areas on trees and ornamentals. (p. 170).

MOSQUITOES a nuisance along the Sacramento River in California. (p. 170).

First KHAPRA BEETLE infestations since March 1957 found in New Mexico. First known POTATO TUBERWORM infestation in stored potatoes in Idaho since 1946 found at Boise. (p. 171).

INSECT DETECTION: Centrinaspis penicellus apparently reported for first time from Connecticut. (p. 167). Musca autumnalis collected from two localities in Virginia for a new State record. (p. 171).

CORRECTION. (p. 172).

SUMMARY OF INSECT CONDITIONS - 1958 - NORTH CAROLINA (p. 173), GEORGIA (p. 177), ARKANSAS (p. 180).

Distribution of SOUTHERN GREEN STINK BUG. (p. 185).

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Reports in this issue are for the week ending March 6, unless otherwise designated.

WEATHER OF THE WEEK ENDING MARCH 9

Dust, drifting snow, damaging winds and heavy rains were features of the weather of the week, as a storm moved from the Far Southwest northeastward across the Great Lakes into Canada during the period March 4 to 7. Winds up to 60 mph on the 5th whipped up dust over the dry sections of western Nebraska, Kansas, Oklahoma and over most of Texas. The blowing dust damaged wheat in the plains area of the latter State. Snowfall ranged from 2 to 6 inches in the central Great Plains and up to 20 inches or more in portions of the upper Mississippi Valley and Great Lakes region. Drifts up to 4 feet in Kansas and up to 20 feet farther northeast blocked numerous highways, and thousands of cars, caught in the snow, were abandoned. More than 40 deaths, 20 in Iowa alone, were blamed on this snowstorm. Most deaths, as usual, resulted from traffic accidents, heart attacks and asphyxiation. This was reported to be the heaviest snowstorm in Wisconsin in many years. In the Northeast, heavy snowfall was limited mostly to northern Maine, but rains on frozen ground resulted in heavy runoff and some flooding in southern New England. The storm produced unusually heavy rains in a belt south of a line joining Cape Hatteras, North Carolina, and Pensacola, Florida, except in the Florida Peninsula where amounts were light. At Charleston, South Carolina, more than 6 inches of rain in 24 hours set a new March record.

Precipitation totals for the week were moderate to heavy in nearly all sections east of the Great Plains, and wet soil continued to delay fieldwork in much of the South. In most of the remainder of the Nation amounts were light with little or none in California and Nevada and adjacent areas of nearby states. More precipitation is needed from the southwestern Great Plains to southern California. Temperatures for the week, although near normal in most of the country, averaged 6° above normal in northern Maine, along the California coast, and in parts of North Dakota and Montana, and 3° below in the Rio Grande Valley and Southeast. Scattered frost occurred as far south as the Everglades of Florida on the 3rd, but caused little or no damage. Subzero minima were recorded at some mountain stations in the extreme Northeast and in parts of Michigan, Wisconsin and Minnesota. The snow cover at the end of the week had disappeared at most lower levels west of the Continental Divide and the pack in the Cascades and Sierras had decreased considerably. The Great Plains were bare except for a few inches near the Canadian Border. The cover is still substantial in northern and southern Minnesota and most of Iowa, Wisconsin and Michigan. More than a foot of snow covers most of Wisconsin, and depths still exceed 40 inches in northern Michigan. A storm left 2 to 4 inches of snow in the northern half of Indiana near the end of the period and Indianapolis reported a 4-inch depth on the morning of the 10th. Depths decreased in the Northeast. (Weather supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Heavy populations, up to 2,000 per linear foot, killed plants and caused serious damage in some wheat fields in eastern Tillman County. Parasitic wasps active in the area. (Hatfield). Populations more common in northwestern counties. Found in 16 of 23 small grain fields checked in 5 counties, with 0.2-30 per linear foot. (VanCleave, Hudson, Owens). TEXAS - Found in all but 3 of 25 panhandle and 3 rolling plains counties surveyed, February 15 to March 2. Populations generally low (less than one to 10 per foot), except in Parmer, Hutchinson, Hansford and Swisher Counties, where counts averaged 5-20 per foot. One field in Parmer County had spotted populations of 5-40 per foot. Predators generally scarce. (Daniels). Light to medium and attacking oats and barley in Kaufman County. (Davis).

APPLE GREEN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Found in 9 of 23 small grain fields checked in 5 northwest counties. Most counts averaged less than 10 per linear foot. Averaged over 500 per linear foot in one Kingfisher area field. (VanCleave, Hudson, Owens).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Averaged less than one per linear foot in two of 23 fields of small grains checked in 5 northwestern counties. (VanCleave, Hudson, Owens).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Attacked oats and barley in Rockwall and Kaufman Counties. (Davis). ARIZONA - Continued heavy in most barley fields in Maricopa County. Averaged over 50 per plant in 10 fields sampled between Peoria and Mesa. (Ariz. Coop. Sur.).

BROWN WHEAT MITE (Penthaleus major) - TEXAS - Populations found in Gray, Roberts and Ochiltree Counties, with 30-60 per foot in one field examined in Gray County. (Daniels).

WINTER GRAIN MITE (Petrobia latens) - OKLAHOMA - Found in 4 of 23 small grain fields checked in 5 northwestern counties. Averaged 75 per linear foot in one field, less than 10 per linear foot in 3 fields. (VanCleave, Hudson, Owens).

A LEAFHOPPER (Dikraneura carneola) - UTAH - Generally active on winter wheat and roadside grasses in Box Elder County. (Knowlton).

CUTWORMS - TEXAS - Small numbers noted in wheat in Rockwall County. (Davis). Few Chorizagrotis auxiliaris found in Dallam County. (Daniels).

EUROPEAN CORN BORER (Pyrausta nubilalis) - KANSAS - Populations ranged 2-73 borers per field in 13 fields surveyed in Jefferson County for winter mortality. (Burkhardt, Peters).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - KANSAS - One larva found in Jefferson County in fields sampled for European corn borer. (Burkhardt, Peters).

CURCULINOIDS - CONNECTICUT - Centrinaspis penicellus collected on corn at Mt. Carmel, August 2, 1958. From all available records, this appears to be the first record for the State. (Johnson). FLORIDA - All stages of Hyperodes delumbus collected on sweet corn in Palm Beach County. Approximately 50 percent of all corn fields are infested and infestations are close to 100 percent of all plants in infested fields. Serious damage occurred to plants 1-2 feet high. (Harris).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Averaged one per bud on all plants examined in a Pittsylvania County alfalfa field, February 18. (Reynolds). Also present in alfalfa in Halifax and Henry Counties (Morris)and in Roanoke County (Rowell). SOUTH CAROLINA - Larvae damaged alfalfa stands in Newberry County.

Some controls have been applied. (Nettles et al.). IDAHO - Adults active in fields near Rupert, Minidoka County. Soil temperature was 38°F. at time of observation. (Priest).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Averaged 288 per square foot of crown area in some Payne County alfalfa fields, a decrease from the 720 per square foot reported last week. (Ketner). None found in 2 Caddo County alfalfa fields checked. (Hudson). TEXAS - Medium to heavy widespread infestations in Delta and Rockwall Counties. (Davis). NEW MEXICO - Many fields heavily infested in northern Dona Ana County. Only an occasional specimen found in southern areas of county. (N. M. Coop. Rpt.).

PEA APHID (Macrosiphum pisi) - TEXAS - Small numbers observed on vetch in Rockwall and Kaufman Counties. (Davis). CALIFORNIA - Light on alfalfa in the Redding area, Shasta County. (Cal. Coop. Rpt.). NEW MEXICO - Remained light in Dona Ana and Sierra Counties. Moderate on 400 acres of fall-seeded alfalfa in De Baca County. Some growers treating. (N. M. Coop. Rpt.).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Averaged 1-2 per square foot in alfalfa fields in northern Dona Ana County. (N. M. Coop. Rpt.).

LYGUS BUGS (Lygus spp.) - TEXAS - Caused concern on alfalfa in Rockwall County. (Davis).

THRIPS - NEW MEXICO - Very abundant in alfalfa fields in southern counties. (N. M. Coop. Rpt.).

FRUIT INSECTS

CLIMBING CUTWORMS - UTAH - Some activity about apricot trees near Willard, Box Elder County. (Knowlton).

SCALE INSECTS - ARIZONA - Icerya purchasi observed on citrus near Mesa, Maricopa County. (Ariz. Coop. Sur.). CALIFORNIA - Aonidiella citrina heavy and Coccus pseudomagnoliarum medium on citrus locally in Placer County. Aonidiella aurantii light on fig at Willows, Glenn County. (Cal. Coop. Rpt.).

AN AVOCADO MITE (Oligonychus punicae) - CALIFORNIA - Medium on avocado trees in Baldwin Park area of Los Angeles County. (Johnson).

A WHITEFLY (Trialeurodes ruborum) - CALIFORNIA - Heavy on blackberry vines in Wasco, Kern County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

DIAMONDBACK MOTH (Plutella maculipennis) - GEORGIA - Light on cabbage in Colquitt County. (Johnson).

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

CUTWORMS - NEW MEXICO - Caused considerable damage to one lettuce field in Dona Ana County. (N. M. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Light but increasing in some lettuce fields in Maricopa County. In Yuma area, flights were reported to be heaviest on record, with aphids so numerous they were visible in the sky as they were blown on wind currents. As a carrier of virus diseases, they could be a problem in lettuce and melon fields in the Yuma Valley. (Ariz. Coop. Sur.).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Caused minor damage to lettuce in Dona Ana County. (N. M. Coop. Rpt.).

THRIPS - NEW MEXICO - Caused some damage to outer leaves of lettuce plants and averaged 1-2 per onion plant in Dona Ana County. (N. M. Coop. Rpt.).

TULIP APHID (Anuraphis tulipae) - ARIZONA - Present on carrots in a few fields in the Salt River Valley. Treatment necessary in some cases with fair control being obtained. (Ariz. Coop. Sur., Feb. 13).

SEED-CORN MAGGOT (Hylemya cilicurura) - WASHINGTON - Adults have been flying all winter, with peak of brood about December 30, 1958. Many fresh gravid females present in February. Sticky-stake catches, per 50 stakes, in onion fields in Walla Walla area were 524 on December 30, 1958; 133 on January 13; 266 on February 10; and 144 on February 24. (Woodworth).

Beet Leafhopper Conditions in Utah, Western Colorado, Southern Nevada, Southeastern California and Central Arizona - 1959

The beet leafhopper spring movement from the southern desert breeding grounds to the cultivated districts of central Arizona and southeastern California is expected to be light. The movement to southern Nevada and southern Utah is expected to be light to moderate. The movement to south central Utah is expected to be light to moderate. The movement to northern Utah and western Colorado is expected to be light. The local movement from the breeding ground of northern Utah and western Colorado to the adjacent cultivated districts of northern Utah and western Colorado is expected to be light.

This statement is based upon present conditions. The movement of the leafhopper into the cultivated districts of southern Nevada and southern Utah is expected to start by late March to early April. The movement to central Utah and western Colorado is expected to start by late April and will reach its peak by mid-May. The local movement to northern Utah and western Colorado is expected to start by late May and reach its peak in mid-June. The abundance of the population engaged in these movements will depend to some degree upon unpredictable weather fluctuations during the next two months. However, as a result of experience in previous seasons, conditions as observed in 1959 are similar to 1948 and have been associated with a light to moderate movement of leafhoppers to the cultivated districts. A later statement will be issued on beet leafhopper conditions based on additional information obtained from field studies now in progress.

The distant southern breeding ground estimated to encompass some 50,000 square miles was studied in mid-February, 1959, in cooperation with State and Federal officials. Host plants were found to be present in 10 percent of the 370 ten-mile sampling points in the entire southern breeding grounds in 1959 in comparison to 70 percent in 1958, 14 percent in 1957, 3 percent in 1956, 36 percent in 1955, 48 percent in 1952 and 18 percent in 1948. The average leafhopper population in the approximately 5,000 square miles studied where plants were present averaged 0.05 per square foot of weed host as compared with 0.66 in 1958, 0.22 in 1952 and 0.12 per square foot in 1948. Beet leafhoppers collected from various annual host plants in the southern breeding grounds in mid-February, 1959, showed about 3 percent to be viruliferous or capable of transmitting the virus that causes curly top disease. This is in comparison with 7 percent in 1958, 6 percent in 1957, 10 percent in 1956, 20 percent in 1955, 10 percent in 1952 and 4 percent in 1948. The percentage of viruliferous beet leafhoppers that overwintered in 1959 in northern Utah has not yet been determined.

On the basis of the acreage of host plants, the beet leafhopper population and the percentage of the insects that are infective, it is estimated 0.2 billion infective leafhoppers were present in the southern breeding grounds during the February study. By comparison, the population in 1958 was estimated at 45.0 billion, 1957 at 0.16 billion, 1956 at 0.004 billion, 1955 at 0.85 billion and 1952 at 7.2 billion. (Dorst, Knowlton).

TOBACCO INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light on tobacco plant beds in Tift, Berrien, Cook, Colquitt, Grady, Thomas and Worth Counties. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE MOTH (Rhyacionia frustrana) - SOUTH CAROLINA - Field inspections February 26 showed scattered adult emergence. Most still in pupal state. (Nettles et al.).

PINE TUBE MOTH (Argyrotaenia pinatubana) - DELAWARE - Pupae rather numerous on white pine north of Smyrna, New Castle County. (Burbutis, Conrad).

PINE REPRODUCTION WEEVILS - SOUTH CAROLINA - No adults were discovered, but fresh feeding evidence was found. Field evidence shows that emergence from hibernation has begun. (Nettles et al.).

PINE SAWFLIES (Neodiprion spp.) - VIRGINIA - Egg survey indicates presence over a wider area than in 1957 and may be particularly heavy in central and south central counties. (Va. Pine Sawfly Cont. Comm.).

APHIDS - SOUTH CAROLINA - Widespread, heavy population of a pine aphid in Clemson area, especially on shortleaf and loblolly pines. Twig mortality not uncommon and injury is increasing. (Nettles et al.). CALIFORNIA - Thoracaphis umbellulariae heavy and damaged California bay trees in San Mateo, San Mateo County. (Cal. Coop. Rpt.). NEW MEXICO - Building up on roses, arborvitae and other ornamentals in southern areas. (N. M. Coop. Rpt.).

SCALE INSECTS - NORTH CAROLINA - Pseudaulacaspis pentagona infesting mulberry in Halifax County. (Scott, Farrier). ARIZONA - Icerya purchasi observed on ornamental pittosporum in the Yuma Valley. (Ariz. Coop. Sur.). CALIFORNIA - Aonidiella citrina heavy on privet in Penryn, Placer County. Aspidiotus perniciosus medium on cotoneaster in the Arvin area, Kern County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - CALIFORNIA - Great numbers coming out of hibernation after heavy rains followed by unseasonably warm weather and creating considerable nuisance to residents in cities along Sacramento River. (Cal. Coop. Rpt.).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - NEW MEXICO - Two properties at Truth or Consequences, Sierra County, found infested. These are first infestations in the State since March, 1957. (N. M. Coop. Rpt.).

POTATO TUBERWORM (Gnorimoschema operculella) - IDAHO - Causing heavy damage to potatoes in storage in Boise. All stages present. This is first known case of infestation in potatoes in State since eradication of an introduced infestation in 1946. (Manis).

PINK SCAVENGER CATERPILLAR (Pyroderces rileyi) - ARIZONA - Found infesting some grain sorghum coming into Phoenix for storage. (Ariz. Coop. Sur.).

Stored-grain Insects in Texas - RICE WEEVIL (Sitophilus oryza), FLAT GRAIN BEETLE (Laemophloeus pusillus), CONFUSED FLOUR BEETLE (Tribolium confusum) and SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) infesting store grain sorghum in Karnes County. Insects appeared on top two feet of grain, being heaviest where grain was piled highest. Laemophloeus pusillus light in milo in Lubbock County. (Texas Coop. Rpt.). A FLOUR BEETLE caused concern in elevators in Parmer and Castro Counties. (Russell).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - TEXAS - Brood rearing increased greatly from early blooms in the Winter Garden area. Colonies came through winter in fine condition, but have used up more stores than usual. (Harding).

PREDATORS - OKLAHOMA - Few active Hippodamia convergens found in a small number of small grain fields checked in 5 northwestern counties. Nabis sp. and lacewings present in very limited numbers in same area. (VanCleave, Hudson, Owens). NEW MEXICO - Coccinellid adults averaged 4 per square foot in fields in southern Dona Ana County, very few larvae and pupae. In northern part of county where spotted alfalfa aphid infestations were heavy, very few adults were present but larvae averaged 2-10 per square foot in many fields. (N. M. Coop. Rpt.)

MISCELLANEOUS INSECTS

STINK BUGS - ARIZONA - Chlorochroa sayi and Thyanta custator increased on globemallow in the desert bordering cultivated areas in Maricopa County. (Ariz. Coop. Sur.).

A MUSCID (Musca autumnalis) - VIRGINIA - Specimens collected from 2 localities in Loudoun County during December, 1958, and February, 1959. Previously not reported in the United States outside of the State of New York. Det. C.W. Sabrosky. (Morris).

BROWN-BANDED ROACH (Supella supellectilium) - WYOMING - Collected in housing at Laramie, Albany County. (Davison).

TERMITES - MARYLAND - Winged forms of Reticulitermes flavipes noted in homes at Cambridge, Dorchester County, and at Silver Spring, Montgomery County. (U. Md., Ent. Dept.). WYOMING - Caused extensive damage to a house in Douglas, Converse County, and to a house in Wheatland, Platte County. (Davison). KANSAS - First swarm of R. flavipes of season reported at a house in Riley County. (Knutson).

CORRECTION

CEIR 9(9):138 - Under Forest, Ornamental and Shade Tree Insects, COTTONY MAPLE SCALE (Pulvinaria vitis) should be changed to read COTTONY MAPLE SCALE (Pulvinaria innumerabilis).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Feltia subt.
ARIZONA					
Mesa 2/26-3/4			31	7	
FLORIDA					
Gainesville 2/24-3/2					1
Key West 2/1-28					19
Monticello 2/25-3/3	1				2
Quincy 2/24-3/2	1				
SOUTH CAROLINA					
Charleston 3/2-8	1				
Clemson 2/28-3/6		1	1	3	

SUMMARY OF INSECT CONDITIONS - 1958

NORTH CAROLINA

Prepared by M. H Farrier*

Highlights: Flue-cured tobacco growers lost an average of $5.48 per acre due to HORNWORMS and BUDWORMS (Heliothis spp.) in 1958. Feeding by larvae and adults of ALFALFA WEEVIL on ladino clover was much heavier than in past years. An adult of the CHINCH BUG was first taken in Wake County on April 24. During late May and early July, 1958, spotty infestations of CHINCH BUGS were mostly limited to the Coastal Plain. Blissus leucopterus insularis was taken in New Hanover County in August but Blissus leucopterus was identified from Craven County in June. This suggests the northern limit of B. l. insularis was between these two coastal counties. Injury by EUROPEAN CORN BORER was more widespread in 1958. In Pasquotank County, and about 50 percent of the larvae pupated by April 21 and emergence was 70 percent complete May 13. At Raleigh adults first emerged May 1. In late May, larvae infested potato vines from northeastern coastal counties to Carteret County, where pupation first was noted on June 4. Inland, European corn borer attacked wheat, corn , peanuts and sweet corn, usually in limited numbers and localities, but a few corn fields in Surry County had as high as 3-4 borers per stalk in early July. CUTWORMS were more widespread in 1958. Over 100 acres of corn and burley tobacco were destroyed in Cherokee and Macon Counties by the BLACK CUTWORM in early June and VARIEGATED CUTWORM caused a 40 percent loss of cabbage heads in Carteret County. ARMYWORM was injurious in most northern Coastal Plain counties and in some Piedmont counties. Infestations of YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) was limited to the Piedmont and Mountains. A survey including 1,988 head of cattle indicated a generally moderate to very severe infestation of CATTLE GRUBS (Hypoderma spp.) in the western mountainous areas. Only local light to moderate infestations were found in the Piedmont and even less in the Coastal Plain. A MIRID (Spanogonicus albofasciatus) destroyed many lawns in Faison in late August. Other locally severe or unusual infestations were the LESPEDEZA WEBWORM on sericea lespedeza, GARDEN FLEAHOPPER on sweetpotato, BALSAM WOOLLY APHID (Chermes piceae) on Fraser fir and an ERIOPHYID MITE (Vasates magnolivora) discoloring magnolia leaves. Unusually large numbers of MILLIPEDES invaded homes in 1958.

New Records of Economically Important Insects: In May, a SAWFLY (Neodiprion pratti pratti) defoliated over 5,000 acres of pine, principally Virginia pine, in northern Granville, western Vance and eastern Person Counties. Spotty defoliation occurred westward to Guilford County and south into Wake County. In early November, adults were flying at the heaviest spring infestation site in Granville County; however, oviposition was not heavy on small trees previously defoliated. IMPORTED FIRE ANT (Solenopsis saevissima v. richteri) appeared in local areas in Onslow and Robeson Counties and eradication was immediately attempted by State and Federal authorities. EUROPEAN CORN BORER (Pyrausta nubilalis) was taken from corn in Johnston and Scotland Counties for the first time. ALFALFA WEEVIL (Hypera postica) reached the western boundary of the State with 8 newly infested counties. ELM SPANWORM (Ennomos subsignarius) defoliated a number of hardwoods in Cherokee County.

Cereal and Forage Crops: The first POTATO LEAFHOPPER (Empoasca fabae) collection for the year was made in Iredell County on May 15 with other species of Empoasca. Feeding injury by ALFALFA WEEVIL (Hypera postica) was seen on alfalfa in late January in Wake County and larvae were half grown in Richmond and Montgomery Counties on March 5. Untreated alfalfa fields in severely infested areas had a

*Summarizing over 800 reports of more than 150 individuals, representing over 24 Federal, State and private agencies who submitted specimens or data regarding 276 species of the 11,000 arthropods known to be in North Carolina. The aid of Miss Phyllis Pake in preparation of specimens and compilation of data is gratefully acknowledged.

loss of first cutting and delayed the second cutting. Two treatments were necessary in the southern area. Other pests of alfalfa included CLOVER ROOT CURCULIO (Sitona hispidula), grubs of GREEN JUNE BEETLE (Cotinis nitida) and PEA APHID (Macrosiphum pisi). ALFALFA WEEVIL larvae caused moderate foliage loss to ladino clover in Gates and Richmond Counties and adults severely damaged margins of fields in Iredell County when they migrated from alfalfa fields. Associated with ALFALFA WEEVIL on ladino clover, were CLOVER LEAF WEEVIL (Hypera punctata) and a CLOVER WEEVIL (Hypera meles). Corn was replanted in some western counties due to injury by BLACK CUTWORM (Agrotis ypsilon) and in some southeastern fields due to SUGARCANE BEETLE (Euetheola rugiceps). Injury to corn by SOUTHERN CORNSTALK BORER (Diatraea crambidoides) was limited to the Coastal Plain. A maximum stalk infestation of 15 percent was observed but most were only 1 or 2 percent. CHINCH BUG (Blissus leucopterus) infestations of corn were principally in the Coastal Plain or eastern Piedmont. BILLBUGS (Calendra spp.) caused injury in the Coastal Plain in almost every corn field, though severe injury was more limited. CORN EARWORM (Heliothis zea) was more general and injurious in whorls of corn than the past several years, but infestations were usually from 1-5 percent of the plants. EUROPEAN CORN BORER (Pyrausta nubilalis), ARMYWORM (Pseudaletia unipuncta) and FALL ARMYWORM (Laphygma frugiperda) also attacked field corn. One hundred acres of sericea lespedeza in Hoke County were injured, some severely, by LESPEDEZA WEBWORM (Tetralopha scortealis). Larvae of GREEN JUNE BEETLE (Cotinis nitida) completely destroyed large areas of a newly seeded pasture in Union County. Foliar feeders of soybeans included JAPANESE BEETLE (Popillia japonica), MEXICAN BEAN BEETLE (Epilachna varivestis), ARMYWORM, GREEN CLOVERWORM (Plathypena scabra) and BEAN LEAF BEETLE (Cerotoma trifurcata). All caused moderate or less injury in different locales. Peanuts throughout the Coastal Plain were moderately injured by a LEAFHOPPER (Empoasca sp., prob. fabae) in August. TOBACCO THRIPS (Frankliniella fusca) was not the problem of past years. Some injury to peanuts by EUROPEAN CORN BORER and CORN EARWORM was reported.

Fruit Insects: SCARABS (Phyllophaga spp.) caused local defoliation of fruit trees in Cleveland and McDowell Counties. EUROPEAN RED MITE (Panonychus ulmi) was general on apples in the western area in early August. APPLE APHID (Aphis pomi), WOOLLY APPLE APHID (Eriosoma lanigerum), an APHID (prob. Anuraphis roseus), SHOT-HOLE BORER (Scolytus rugulosus) and LEAF CRUMPLER (Acrobasis indiginella) were all reported from apple. SOFT SCALES (Pseudococcus sp. and undet. sp.) infested blueberries in the Coastal Plain. A ROUND-HEADED WOOD BORER (Oberea myops) bored in blueberry stems in Watauga County. Figs were infested by a SCALE (Aspidiotus lataniae) and a STINK BUG (Euthyrhynchus floridanus). GRAPE FLEA BEETLE (Altica chalybea) was widespread on grapes in the Coastal Plain and injury was light to moderate. Other pests of grape included GRAPE LEAF SKELETONIZER (Harrisina americana), a SCARAB (Anomala nigropicta), GRAPE LEAF FOLDER (Desmia funeralis), GRAPE ROOT BORER (Vitacea polistiformis) and a MIDGE. PLUM CURCULIO (Conotrachelus nenuphar) was abundant in unsprayed peach orchards in the Sandhills area on May 9. The first "wormy" drops fell on May 13. Adults of the summer generation were emerging the week of June 27 and adults were more abundant in 1958 than in the past several years. Pre-harvest sprays were important. Home orchards in northeastern counties were heavily infested in late May. WHITE PEACH SCALE (Pseudaulacaspis pentagona) was reported many times on hosts other than peach. It was particularly widespread in the southern Piedmont. Local pests of pecans included PECAN NUT CASEBEARER (Acrobasis caryae), PECAN CARPENTERWORM (Cossula magnifica), PECAN WEEVIL (Curculio caryae), TWIG GIRDLER (Oncideres cingulata), PECAN LEAF CASEBEARER (Acrobasis juglandis), a PHYLLOXERA (Phylloxera sp.) and a SCARAB (Phyllophaga sp.).

Truck Crop Insects: Beans were not as severely attacked by MEXICAN BEAN BEETLE (Epilachna varivestis) as in 1957. Highest foliage loss was only 5 percent. BEAN LEAF BEETLE (Cerotoma trifurcata) was worse in 1958 than the past five years in Coastal Plain counties, with leaf losses up to 10 percent in local areas. CORN EARWORM (Heliothis zea) damage caused rejection of some lots of wax beans in Chowan County. SPIDER MITES (Tetranychus spp.) were more general on beans than

in 1957. Fifteen to 20 percent of experimental broccoli was a loss due to CABBAGE MAGGOT (Hylemya brassicae) in Henderson County. Late season broccoli plantings in Wake County were severely attacked by IMPORTED CABBAGEWORM (Pieris rapae). DIAMONDBACK MOTH (Plutella maculipennis) was the principal pest of cabbage in late May in the Coastal Plain. In July, reports of CABBAGE LOOPER (Trichoplusia ni) became more numerous. VARIEGATED CUTWORM (Peridroma margaritosa) caused 40 percent loss of 75 acres of cabbage in Carteret County in May. Ripening canteloups were injured in New Hanover County by MILLIPEDES. First adult HARLEQUIN BUG (Murgantia histrionica) appeared week of May 16 in Duplin County. Untreated collard plants averaged over 1 adult and numerous nymphs per plant in Duplin County in early September. On April 20, first adults of STRIPED CUCUMBER BEETLE (Acalymma vittata) were seen in Wake County and by mid-May destructive numbers were present on cucumbers in Duplin County. SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi), TOOTHED FLEA BEETLE (Chaetocnema denticulata) and SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) were pests of cucumbers in Duplin County. EGGPLANT FLEA BEETLE (Epitrix fuscula) caused severe injury to some young eggplant in Duplin County. Injury to eggplant by TOBACCO FLEA BEETLE (Epitrix hirtipennis) also was noted. ONION MAGGOT (Hylemya antiqua) caused up to 30 percent loss in some onion fields in the southern Coastal Plain. Feeding by a MIRID (Alydus pilosus) wilted tips of field peas locally in southeastern counties.

Potato vines in coastal commercial production areas were mined by EUROPEAN CORN BORER (Pyrausta nubilalis) and STALK BORER (Papaipema nebris). Highest infestations by EUROPEAN CORN BORER in potatoes approached 5 percent of the vines in 1958. Secondary invasion by fungi was important in causing additional loss. Feeding of COLORADO POTATO BEETLE (Leptinotarsa decemlineata) was first noted in Duplin County during the week of April 25 and in Granville County on May 13. Complete destruction of 30 percent of untreated potato plants occurred at a site in Duplin County and remaining plants were stunted. Complete losses of home plantings were not uncommon in the eastern part of the State. POTATO FLEA BEETLE (Epitrix cucumeris) was numerous on potatoes in Pasquotank County. PICKLEWORM (Diaphania nitidalis) occurred locally in squash in Martin County. Complaints of SAP BEETLES feeding on sweet corn were more widespread than in past years. CORN FLEA BEETLE (Chaetocnema pulicaria), EUROPEAN CORN BORER and a BILLBUG (Calendra sp.) were locally severe in the Coastal Plain. JAPANESE BEETLE (Popillia japonica) fed so severely on sweet corn silks maturing in late August at Faison that kernel set was reduced over 50 percent per ear. GARDEN FLEAHOPPER (Halticus bracteatus) ranged 2-6 per leaf on untreated sweetpotatoes in Johnston County in October. Tomatoes were plagued by TOMATO HORNWORM (Protoparce quinquemaculata), TOMATO FRUITWORM (Heliothis zea), STALK BORER (Papaipema nebris) and FLEA BEETLES. Local severe infestations of adults and larvae of a STRAWBERRY ROOTWORM (Paria sp.) and larvae of GREEN JUNE BEETLE (Cotinis nitida) were reported on strawberries. SOWBUGS (undet. spp.) and a SAP BEETLE (Glischrochilus quadrisignatus) invaded ripe fruit.

Tobacco Insects: Flue-cured tobacco growers lost an average of $5.48 per acre due to HORNWORMS (Protoparce spp.) and BUDWORMS (Heliothis spp.) in 1958; but, even more important was the number of fields with little or no injury.

Percent of samples of tobacco growers' fields examined in North Carolina which had no injury by hornworms or budworms in 1958

Portion of plant examined	Number of fields examined	Fields not injured by hornworms	Fields not injured by budworms
Lower 9 leaves (1st Brood)	121	55%	16%
Upper 9 leaves (2nd Brood)	179	25%	34%

An average of $3.02 was the estimated loss of burley tobacco due to HORNWORMS and BUDWORMS. Distinct differences in losses of flue-cured tobacco caused by first and second-brood HORNWORMS (early and late season losses to BUDWORMS) indicate erroneous conclusions could be made, if these losses were totaled for the season. Losses caused by HORNWORMS also had wider variations than did losses caused by BUDWORMS. Heaviest losses were caused by second-brood HORNWORMS in Davidson, Iredell and Randolph Counties. Heaviest losses caused by BUDWORMS were in late season in Carteret, Onslow and Pamlico Counties; the other end of the flue-cured tobacco production area. Losses caused by first-brood HORNWORMS and early-season BUDWORMS were more uniform over the area than those of the second-brood HORNWORMS and late-season BUDWORMS.

Injury by TOBACCO FLEA BEETLE (Epitrix hirtipennis) was most important at the time of transplanting, especially if controls were not used on plant beds prior to transplanting. A WIREWORM (Conoderus sp., prob. vespertinus) injured up to 70 percent of the plants in fields of heaviest infestation in Wake and Wilson Counties. Other tobacco foliage pests included JAPANESE BEETLE (Popillia japonica), VEGETABLE WEEVIL (Listroderes costirostris obliquus) and COLORADO POTATO BEETLE (Leptinotarsa decemlineata) larvae.

Cotton Insects: Overwintered BOLL WEEVILS (Anthonomus grandis) appeared in cotton fields during week of May 16 in Scotland County. Few adults were present in early June, but by early August numbers were increasing rapidly in the south central area. Local severe outbreaks of BOLLWORMS (Heliothis spp., et al.) resulted in defoliation of some fields in early July. In early August, outbreaks did not occur in spite of much moth activity and oviposition on cotton. Some limited early-season injury was caused by GARDEN SPRINGTAIL (Bourletiella hortensis), COTTON APHID (Aphis gossypii), TOBACCO THRIPS (Frankliniella fusca) and other pests.

Forest, Shade Tree and Ornamental Insects: Adults of JAPANESE BEETLE (Popillia japonica) were emerging prior to June 13 in southeastern areas. By July 18, adult populations were decreasing in most eastern areas and reached a peak in the western areas. As a group, SCARABS came to attention more often on ornamentals in 1958 than in previous years. BALSAM WOOLLY APHID (Chermes piceae) caused some mortality in 1,400 acres of Fraser fir atop Mt. Mitchell. A SPITTLEBUG (Tomaspis bicincta) was very abundant in 1958 and caused tips of holly, particularly, to wilt. In addition to the defoliation of pine by a SAWFLY (Neodiprion pratti pratti), SOUTHERN PINE BEETLE (Dendroctonus frontalis) caused spotty kills in the eastern quarter of Tyrrell County and northwest corner of Hyde County.

Insects Affecting Man and Animals: No infestations of SCREW-WORM (Callitroga hominivorax) were known in the State in 1958. CATTLE GRUBS (Hypoderma spp.) (see Highlights). Larvae determined to be COMMON CATTLE GRUB (Hypoderma lineatum) were collected in Mitchell County in April. On April 22, cattle were first noticed running from heel flies in Ashe County. Thirty-four infestations of DOG FOLLICLE MITE (Demodex canis) were reported to the State veterinarian in 1958 as were also 3 cases of tick paralysis of dogs. An unusual outbreak of an ANT (Formica integra) occurred around a marsh in Duplin County. Hogs avoided usual resting places and watering sites. Neither mules nor man could stand long in the area adjacent to the marsh. Apparently the outbreak was caused by recent bulldozing of the area around the marsh, which resulted in abundant soil contact with piles of wood in which the ants tunneled. A MOTH FLY bit some hogs in Northampton County until their eyes had swollen shut. Larvae of SALT-MARSH MOSQUITO (Aedes sollicitans) first appeared in early April in Brunswick, New Hanover, Onslow and Pender Counties. By mid-May, severe infestations had been reported along the entire coast. With minor fluctuations, populations decreased rapidly in late June and remained low until mid-August when increases were again noticed in limited areas. By late September, adult biting counts were as high as 200 per minute. In October, they again decreased, but by late October 63-100 adults were landing per minute at near 70-degree temperatures. Reports of

WHEEL BUG (Arilus cristatus) were more numerous than in past years. A severe outbreak of a MOSQUITO (Aedes sticticus) followed flooding of the Roanoke River in early May. Local infestations of BED BUG (Cimex lectularius) were reported.

Household Pests: The usual assortment of pests in households came to attention. Three CARPET BEETLES were identified, Attagenus piceus, Anthrenus verbasci and Anthrenus flavipes. Pantry pests include INDIAN-MEAL MOTH (Plodia interpunctella), DARK MEALWORM (Tenebrio obscurus), SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) and MEDITERRANEAN FLOUR MOTH (Anagasta kuhniella). CLOTHES MOTHS include Tinea pellionella and Tineola bisselliella. GERMAN COCKROACH (Blattella germanica), ORIENTAL COCKROACH (Blatta orientalis) and BROWN-BANDED ROACH (Supella supellectilium) were identified from homes. Pests of animals in the home were BROWN DOG TICK (Rhipicephalus sanguineus) and NORTHERN FOWL MITE (Ornithonyssus sylviarum). Five species of ANTS (Crematogaster sp., Acanthomyops sp., Camponotus herculeanus pennsylvanicus, Lasius alienus americanus and Monomorium pharaonis) were identified from homes. Invaders were CLOVER MITE, MILLIPEDES, BOXELDER BUG (Leptocoris trivittatus), GIANT HORNET (Vespa crabro germana) and a FLANNEL MOTH (Norape cretata).

Structural Pests: Earliest flight of TERMITES reported in 1958 was on February 7 in Forsyth County. Reports were received through May, and all that were received for determination were EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes), except one, which was Reticulitermes virginicus. SOUTHERN LYCTUS BEETLE (Lyctus planicollis) was reported from hardwoods in structures and OLD HOUSE BORER (Hylotrupes bajulus) from structural pine. Adults of SOUTHERN PINE SAWYER (Monochamus titillator) emerged through sheetrock panels after being incorporated into houses while larvae.

Beneficial Insects: Loss of some HONEY BEE (Apis mellifera) colonies in bee-yards occurred in western counties due to starvation last winter.

Miscellaneous Pests: Only one infestation of an EARTHWORM MITE (Fuscuropoda agitans) was reported from earthworm beds last year.

SUMMARY OF INSECT CONDITIONS - 1958

GEORGIA

Prepared by W. C. Johnson*

Highlights: ALFALFA WEEVIL was found infesting alfalfa in Lincoln County in late April and in 22 northeast and northwest counties later in the season. A BILLBUG caused heavy damage to young corn throughout southern areas. THRIPS infestations were heavy on peanuts in early season. ARMYWORM was heavy on coastal Bermuda and Bahia grass and millet during late August in the north. CORN EARWORM was moderate to heavy in corn whorls throughout southern areas. CABBAGE APHID was moderate to heavy on cole crops. MEXICAN BEAN BEETLE was serious on lima, pole and snap beans. PLUM CURCULIO was heaviest since 1947. PECAN BUD MOTH was locally heavy in Decatur County. FALL WEBWORM was heavy on pecan trees in southern areas. EUROPEAN RED MITE and TWO-SPOTTED SPIDER MITE were general and heavy on apples. TOBACCO BUDWORM was moderate until late season, then became heavy. BOLLWORM infestations were found in mid-May before cotton had squared. Much feeding on terminal buds occurred. Infestations were generally heavy. Egg counts reached a high of 212 per 100 terminals and larvae 87 per 100 terminals. BOLL WEEVIL infestations were light to moderate until

*With assistance from entomologists from research, teaching and Extension of the University of Georgia; U.S.D.A.; Georgia Department of Entomology and other agencies.

about July 1. Heavy and frequent rains contributed to heavy infestations for the remainder of the season. ELM SPANWORM was heavy on hardwood in northern counties. Large numbers of moths were observed in the Athens-Gainesville area. NANTUCKET PINE MOTH was heavy and is now infesting slash pine as well as other pines. EASTERN TENT CATERPILLAR on wild cherry and persimmon in the south, CHINCH BUG on St. Augustine and centipedegrass and MIMOSA WEBWORM on mimosa trees were all heavy. SCREW-WORM infestations occurred only in Brooks and Camden Counties.

Cereal and Forage Insects: ALFALFA WEEVIL (Hypera postica) was found in Lincoln County April 26. This was the first record for the State and has since been reported from 22 counties. The area infested ranges from Stephens to Johnson Counties in a north-south direction and Lincoln to Spalding Counties from east to west. Most fields had light to moderate infestations with some being heavily infested. SPOTTED ALFALFA APHID (Therioaphis maculata) was generally light; however, one field of seedling alfalfa was destroyed in Lamar County during the fall. LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) was moderate to heavy on crimson clover. Some farmers producing seed stopped harvest because of poor seed yield. A CLOVER WEEVIL (Hypera meles) also caused much damage to the crimson clover seed crop. CORN EARWORM (Heliothis zea) was heavy in whorls of corn just before tasseling. Damage to corn in the field during 1958 was 4.3 percent compared with 3.89 percent in 1957. Infestations were moderate to heavy on sweet corn and light to moderate on peanuts. FALL ARMYWORM (Laphygma frugiperda) was light to moderate in the whorls of corn and light to heavy on grain sorghum throughout the State. A BILLBUG (Calendra callosa) was light to heavy on corn and general in southern counties. Some fields were destroyed even after the third planting. EUROPEAN CORN BORER (Pyrausta nubilalis) was reported for the first time in Carroll, Forsyth, Fulton, Gordon, Haralson and Meriwether Counties. ARMYWORM (Pseudaletia unipuncta) was heavy on millet, coastal Bermuda and Bahia grass in several northern counties. MEXICAN BEAN BEETLE (Epilachna varivestis) was light to heavy, CABBAGE LOOPER (Trichoplusia ni) light to moderate and VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) moderate on soybeans. SORGHUM WEBWORM (Celama sorghiella) was light to moderate on grain sorghum. A SPITTLEBUG (Tomaspis bicincta) caused moderate damage to fields of coastal Bermuda grass in several southern counties. THRIPS were heavy in early season on peanuts. Light to moderate infestations of RED-NECKED PEANUTWORM (Stegasta basqueella) occurred over the entire peanut area. A BURROWING BUG (Pangaeus sp.) was light to medium on peanuts in several southern counties. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) infestations of field peas reached 20 percent during mid-August. There was a gradual increase of the infestation from one-half (0.5) percent in early June.

Fruit and Nut Insects: PLUM CURCULIO (Conotrachelus nenuphar) was the heaviest since 1947. However, enforcement of control measures resulted in generally good control throughout the season. One packing shed reported a good many "wormy" peaches from one orchard. The hibernating-adult population in the peach belt in the winter of 1958-59 is heavier than that of an average year. PEACH TREE BORER (Sanninoidea exitiosa) is heavy in many orchards in the same area and much damage to peach trees has been caused. ORIENTAL FRUIT MOTH (Grapholitha molesta) was much more abundant than usual. An unusually late peach harvest contributed to a buildup in the infestation, with Sullivan's and regular Elberta varieties suffering most. LESSER PEACH TREE BORER (Synanthedon pictipes) continued heavy in a number of orchards, especially where there are winter injured trees or in neglected orchards. SHOT-HOLE BORER (Scolytus rugulosus) is heavy in devitalized, weak or diseased trees and in neglected orchards. STINK BUGS and CATFACING INSECTS were of only average abundance. SAN JOSE SCALE (Aspidiotus perniciosus) was heavier than usual. EASTERN TENT CATERPILLAR (Malacosoma americanum) nests were observed in forks of limbs of wild cherry as early as April 16 at Fort Valley. The infestation was very heavy and some wild cherry trees were practically defoliated by April 29. FALL WEBWORM (Hyphantria cunea) was much heavier on pecan than usual and caused considerable concern to growers. Larval nests with full-grown larvae were numerous by June 15.

EUROPEAN RED MITE (Panonychus ulmi) and other SPIDER MITES (Tetranychus spp.) were heavy and general on apples. CODLING MOTH (Carpocapsa pomonella) infestations were light on apples. A local heavy infestation of PECAN BUD MOTH (Gretchena bolliana) occurred in Decatur County. HICKORY SHUCKWORM (Laspeyresia caryana) caused serious damage to the pecan crop. PECAN WEEVIL (Curculio caryae) infestations were light and not as important as in some years. MITES and APHIDS were not troublesome on pecans.

Truck Crop Insects: TOMATO FRUITWORM (Heliothis zea) was light to moderate on tomatoes and TOBACCO HORNWORM (Protoparce sexta) was light. VEGETABLE WEEVIL (Listroderes costirostris obliquus) was light to moderate on tomato plant beds and heavy on some tomatoes in the field. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) infestations were light to heavy on this crop. A STINK BUG which was a problem in 1956 and 1957 was extremely light during the past growing season. ONION THRIPS (Thrips tabaci) was light to moderate on onions. MEXICAN BEAN BEETLE (Epilachna varivestis) and BEAN LEAF BEETLE (Cerotoma trifurcata) were light to heavy on lima, pole and snap beans. Heavy infestations of STRIPED BLISTER BEETLE (Epicauta sp.) were noted on tomatoes in Berrien County and light to moderate infestations of CUCUMBER BEETLES (Acalymma vittata and Diabrotica undecimpunctata howardi) on cucumbers and watermelons in several southern counties. HORNWORMS (Protoparce sexta and P. quinquemaculata) were light to moderate on pimiento pepper. CABBAGE APHID (Brevicoryne brassicae) was moderate to heavy on cole crops while IMPORTED CABBAGEWORM (Pieris rapae) was light on cabbage. DIAMONDBACK MOTH (Plutella maculipennis) infestations were light to moderate. CABBAGE LOOPER (Trichoplusia ni) caused light damage to collards in localized southern areas.

Tobacco Insects: TOBACCO FLEA BEETLE (Epitrix hirtipennis) was light to moderate on tobacco plant beds and mostly light in field tobacco, with some moderate to heavy infestations. Light to heavy infestations of VEGETABLE WEEVIL (Listroderes costirostris obliquus) occurred on tobacco plant beds. A MOLE CRICKET was light to moderate on plant beds and on field tobacco, as was GREEN PEACH APHID (Myzus persicae). TOBACCO BUDWORM (Heliothis virescens) was light to heavy, being mostly light until late season. Heliothis zea infestations were heavy in late season. SOUTHERN GREEN STINK BUG (Nezara viridula) and BROWN STINK BUG (Euschistus servus) were very light compared with 1956 and 1957 infestations. TOBACCO HORNWORM (Protoparce sexta) infestations were light. CUTWORMS and GRASSHOPPERS were not a serious problem on tobacco. VEGETABLE WEEVIL and TOBACCO FLEA BEETLE were the two most important insect pests of tobacco in the bed. TOBACCO BUDWORM, APHIDS and TOBACCO FLEA BEETLE were the three most important insects of tobacco in the field.

Cotton Insects: BOLL WEEVIL (Anthonomus grandis) infestations were light to moderate in early and mid-season or until about July 1, when heavy and frequent rains were general over the State. Many growers were unable to apply controls on recommended schedule, which undoubtedly contributed to heavy infestations in late season. The 1958 fall trash examinations for hibernating boll weevils showed an average of 1,133 live weevils per acre as compared with 2,081 in 1957 and the 8-year averaged of 1,279 live weevils per acre. Infestations of BOLLWORMS (Heliothis spp., et al) were heavy by mid-May, before cotton had squared,and continued through the season. Egg counts went as high as 212 per 100 terminals and larval counts up to 87 per 100 terminals. This was an unusually early and heavy infestation. PALE-STRIPED FLEA BEETLE (Systena blanda) and THRIPS were light to moderate on cotton. COTTON APHID (Aphis gossypii) infestations were light to heavy, but mostly moderate. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) and DESERT SPIDER MITE (T. desertorum) infestations were light to moderate. Infestations were less than those in 1956 and 1957, which were rather heavy. Infestations of CABBAGE LOOPER (Trichoplusia ni) were mostly light to moderate and many were beneficial since larvae began feeding on the bottom leaves where the cotton was mature. The three most important economic pests of cotton in 1958 were BOLL WEEVIL, BOLLWORMS and APHIDS.

Forest and Ornamental Insects: ELM SPANWORM (Ennomos subsignarius) infestations were heavy on northern hardwood. Large numbers of moths were observed in the Athens-Gainesville area. NANTUCKET PINE MOTH (Rhyacionia frustrana) was heavy and is now infesting slash pine as well as other pines. EASTERN TENT CATERPILLAR (Malacosoma americanum) defoliated large numbers of wild cherry and persimmon trees. BAGWORM (Thyridopteryx ephemeraeformis) was heavy on arborvitae, MIMOSA WEBWORM (Homadaula albizziae) serious on mimosa throughout the State and a CHINCH BUG (Blissus leucopterus insularis) was heavy on St. Augustine and centipedegrass. Moderate to heavy infestations of ELM LEAF BEETLE (Galerucella xanthomelaena) were observed on elms. RED-HEADED PINE SAWFLY (Neodiprion lecontei) infestations were scattered and mostly light. FALL WEBWORM (Hyphantria cunea) was heavy on pecan and hickory, with some trees being completely defoliated. BLACK TURPENTINE BEETLE (Dendroctonus terebrans) infestations were light to moderate,as were those of SOUTHERN PINE BEETLE (Dendroctonus frontalis).

Insects Affecting Man and Animals: HORN FLY (Siphona irritans) infestations were moderate. COMMON CATTLE GRUB (Hypoderma lineatum) infestations were light to moderate. DOG FLEA (Ctenocephalides canis) and CAT FLEA (Ctenocephalides felis) infestations were moderate to heavy over the State. HOUSE FLY (Musca domestica) was moderate to heavy where good sanitation and insecticidal practices were not carried out. SCREW-WORM (Callitroga hominivorax) infestations were found only in the extremely southern counties of Brooks and Camden. IMPORTED FIRE ANT (Solenopsis saevissima v. richteri) is now infesting approximately 400,000 acres in 48 counties. All known infestations have been treated in 16 counties.

Beneficial Insects: The number of HONEY BEE (Apis mellifera) colonies decreased from 217,000 in 1957 to 213,000 in 1958. Honey production per colony was 31 pounds, the same as in 1957. Most colonies went into winter with ample stores. American foulbrood continues to be the number one bee disease. Few complaints were heard from beekeepers on the losses of colonies or production from the use of agricultural chemicals.

SUMMARY OF INSECT CONDITIONS - 1958

ARKANSAS

Reported by W. P. Boyer

Highlights: The year was near average in total rainfall with some areas reporting slightly above normal amounts. Seasonal fluctuations were typical, with some extremes. All of the State had excessive spring rains which delayed planting. A change in weather resulted in the bulk of spring-planted crops being planted in a short period of time. Northeast Arkansas suffered a six-weeks drought following the planting season. Summer rainfall was sufficient to excessive. The fall season was dry and very favorable to crop maturity and harvest. Temperatures were slightly below normal throughout the year. Cotton insects, over all, were not as serious in 1958 as they were in 1957. BOLL WEEVILS were much lighter, while BOLLWORMS and MITES were more serious. PINK BOLLWORM moved into the delta of eastern Arkansas. CORN BORERS, European and Southwestern, continued their advance into new areas. CHINCH BUGS in hibernation are somewhat higher in number than a year ago. GRASSHOPPER counts in the summer of 1958 were lower than in 1957. FALL ARMYWORM was much lighter in 1958 than it was in 1957. Soybean and alfalfa insect infestations were light. Increased problems arose from insect infestations in grain sorghum. Additional acreage was treated for IMPORTED FIRE ANT. There were no outstanding changes in forestry insects.

Cereal and Forage Insects: SPOTTED ALFALFA APHID (Therioaphis maculata) populations remained low during 1958. Occasional light infestations occurred but none were of damaging proportions. PEA APHID (Macrosiphum pisi) infestations were comparable with those in 1957. Numbers built up in cool seasons but only minor damage occurred. THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) infestations were, in general, lighter than in 1957. BEAN LEAF BEETLE (Cerotoma trifurcata) infestations were rather light, with few, if any, of economic importance. GARDEN WEBWORM (Loxostege similalis) infestations on soybeans in early 1958 were heavier than they have been in many years. The occurrence of a second generation in damaging numbers was unusual. The annual CHINCH BUG (Blissus leucopterus) survey showed more bugs in hibernation this winter than a year ago. (see table).

Chinch Bug Infestation Classification

	Non-Economic	Light	Moderate	Severe	Very Severe
No. of Counties (1958)	8	2	1	6	0
No. of Counties (1957)	11	1	2	3	0

GREENBUG (Toxoptera graminum) infestations were heavier and more widespread in the spring of 1958 than in many years. Some oat crops were damaged. Surveys in the fall of 1958 showed that greenbug successfully oversummered. Further checks in late December showed survival at 0°F. in the northwestern area. ARMYWORM (Pseudaletia unipuncta) infestations in oats were quite common. Infestations required treatments in many fields in the southeastern area and were approximately two weeks later than normal. RICE STINK BUG (Oebalus pugnax) was a minor pest of oats. GRASSHOPPERS caused very little damage in 1958. Economic infestations occurred in only a few isolated spots in the extreme northwestern area. SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) spread to 20 previously uninfested counties. All counties in the State are now infested. Early-planted corn was practically free of infestation whereas late corn suffered severe infestations. EUROPEAN CORN BORER (Pyrausta nubilalis) continued its advance southwestward across the State. Eighteen new counties became infested. The pest has now been found in all but 6 of the State's 75 counties. SUGARCANE BEETLE (Euetheola rugiceps) was not a serious pest of corn as it was in 1956. CORN LEAF APHID (Rhopalosiphum maidis) infestations were common throughout 1958. Little apparent injury occurred, however. Sorghum insects continued to increase in importance. SORGHUM WEBWORM (Celama sorghiella) and SORGHUM MIDGE (Contarinia sorghicola) were the two principal pests. Of next importance were CORN EARWORM (Heliothis zea) and FALL ARMYWORM (Laphygma frugiperda). Economic loss was greatest as a result of SORGHUM MIDGE infestations though the problem was more localized and more severe in late-planted sorghum.

Rice insects of most importance in the field were RICE WATER WEEVIL (Lissorhoptrus oryzophilus), GRAPE COLASPIS (Colaspis sp.) and RICE STINK BUG. Control measures are well established for RICE WATER WEEVIL and little economic loss occurred. Larvae of GRAPE COLASPIS have become a problem, since they attack the roots of seedling rice and reduce stands. Lespedeza appears to be one of the most attractive hosts to ovipositing females in the fall of the year. The larvae overwinter in the ground and become active feeders in the spring prior to pupation. Rotation, to avoid rice following lespedeza, along with chemical soil and seed treatment are being practiced. RICE STINK BUG has not caused serious losses but is causing more concern. Limited surveys have been made for LEAFHOPPERS on rice to determine if Sogata orizicola is present in the State. These surveys were all negative in 1958. CHINCH BUG infestations in rice were light and caused no economic losses. Although soybean insects have not been serious, surveys for possible damage by various pests will be increased in the future due to the increased acreage and importance of the crop. The acreage of soybeans climbed to around 2,000,000 acres, which is approximately double the acreage of cotton in the State. Cotton ranks second in total row crop acreage.

Cotton Insects: The following comments pertaining to cotton insects are based in part on a summary of weekly checks and reports by 69 cotton insect scouts who scouted close to 100,000 acres of cotton from June 10 to September 3. The data in the tables are all taken from scout reports. THRIPS infestations were light and of little significance. COTTON APHID (Aphis gossypii)was heavier in early season, but lighter in late season, when compared with 1957 (See Table 1.). Beneficial insects kept aphids in check in most instances. Late season boll weevil and bollworm treatments reduced beneficial insects, resulting in the necessity for aphicides to be included in the treatments.

Table 1. Percentage of fields infested with aphids in 17 counties in 1958 and 23 counties in 1957

	June		July					August				Sept.
	18	25	2	9	16	23	30	6	13	20	27	3
1958	67	72	63	39	27	22	27	26	30	30	47	53
1957	20	17	11	12	17	13	35	47	61	59	64	59

COTTON FLEAHOPPER (Psallus seriatus) infestations were of minor importance in 1958. COTTON BOLLWORMS (Heliothis spp., et al.) infestations were much heavier in 1958. Infestations occurred early and persisted throughout the season. Beneficial insects were very important in preventing larvae from "breaking through" to harmful size until treatments began (See Table 3.). BOLL WEEVIL (Anthonomus grandis) infestations were much lighter in the delta section of eastern Arkansas in 1958 (See Table 2.). In the hill sections and the upper Arkansas River Valley, infestations were much heavier in 1958. A fairly cold 1957-58 winter probably reduced hibernating weevils in the delta, while winter survival was much greater in the hills and along the upper Arkansas River Valley due to more favorable hibernating areas. Late, uniform planting of the crop followed by a dry period resulted in wide, uniform dispersal and considerable mortality of emerging overwintered weevils. Resistance to the chlorinated hydrocarbons developed in several new areas.

Table 2. Boll weevil infestations based on percent punctured squares in 17 counties in 1958 and 23 counties in 1957. Rainfall in inches.

	June		July				August					Sept.	
	18	25	2	9	16	23	30	6	13	20	27	3	10
1958 Infestation	-	-	-	2.2	2.7	3.7	6.5	8.7	10.8	13.9	17.4	22.4	-
Rainfall*	1.47	0.66	0.84	2.55	1.17	0.87	1.5	0.44	0.57	1.10	0.57	0.29	-
1957 Infestation	6.1	6.9	7.1	7.1	9.2	12.4	17.2	20.9	26.8	29.4	26.8	25.5	26.8
Rainfall*	2.4	0.39	0.14	0.98	0.09	1.2	0.6	0.06	0.35	0.90	0.03	1.51	0.0

*Rainfall data are based on the average of 27 stations in the same area.

Table 3. Percentage of cotton fields infested with boll weevils and bollworms in 17 counties in 1958 and 23 counties in 1957

	June			July					August				Sept.
	10	18	25	2	9	16	23	30	6	13	20	27	3	10
						Boll Weevil								
1958		4	5	7	33	45	57	71	78	81	89	93	94	
1957		18	26	43	59	67	78	81	89	93	98	100	98	
						Bollworms								
1958		37	27	29	39	35	44	60	75	82	73	66	61	
1957		8	16	19	21	28	37	42	44	60	55	36	46	

SPIDER MITE infestations were much heavier in some areas in 1958 (See Table 4.). The percentage of fields infested was comparable to 1956 though individual infestations were heavier, more persistent and caused more concern in 1958. Infestations were unusually heavy and persistent considering the amount of rainfall. This was apparently due, in part, to the early dry period in northeast Arkansas and to unnecessary early treatments in other areas.

Table 4. Percentage of fields infested with spider mites in 17 counties in 1958 and 23 counties in 1957

	June		July						August			Sept.
	18	25	2	9	16	23	30	6	13	20	27	3
1958	0.4	1.0	1.2	1.1	2.3	8.0	14	25	26	33	40	47
1957	0.12	0	0	0	0.2	0.2	1.0	2.0	5	8	15	25

CABBAGE LOOPER (Trichoplusia ni) infestations were somewhat heavier in 1958 but were of little, if any, economic importance. WHITEFLY (Trialeurodes sp.) infestations were more common than in past years. A few infestations reached minor economic importance. A PLANT BUG (Neurocolpus nubilus) was observed in a few fields in 1958. Light infestations appeared to be more common in the northeast section of the State. A GARDEN WEBWORM (Loxostege similalis) outbreak on small cotton covered nearly all areas of east Arkansas, several thousand acres requiring treatments.

Forest Insects: Through a cooperative survey program, forest insects are checked closely and conditions reported once per month. This is a cooperative project of the Department of Entomology, University of Arkansas; Extension Entomologist; Arkansas Forestry Commission and State, Federal and commercial foresters. The principal forest pests reported on are NANTUCKET PINE MOTH (Rhyacionia frustrana), SAWFLIES (Neodiprion spp.), PINE BARK WEEVILS, BLACK TURPENTINE BEETLE (Dendroctonus terebrans) and IPS BEETLES. Checks are made for SOUTHERN PINE BEETLE (Dentroctonus frontalis) which has not been found in Arkansas. Activity of Nantucket pine moth, sawflies, pine bark weevils, Ips beetles and black turpentine beetle has been very similar to past years. Sporadic infestations have appeared, but there have been no serious outbreaks. Local infestations of ELM LEAF BEETLE (Galerucella xanthomelaena) caused serious defoliation of Chinese elms in some areas. MIMOSA WEBWORM (Homadaula albizziae) caused severe defoliation in the southwestern area.

Livestock Pests: The annual CATTLE GRUB (Hypoderma spp.) survey showed an average of 2.24 grubs per head compared with the 1957 average which was 2.27 and the 1956 average of 8.48 grubs per head. The survey showed zero to extremely low numbers in the flat delta areas of east Arkansas.

Beneficial Insects: The role of beneficial insects is very important and is becoming more recognized, especially in cotton production. An early aphid outbreak on cotton was brought under control by LADY BEETLES with the help of PARASITIC WASPS. Other important PREDATORS were Orius insidiosus, Geocoris punctipes, Chrysopa spp. and Nabis spp.

Miscellaneous Insects: IMPORTED FIRE ANT (Solenopsis saevissima richteri) - A 5,000 acre tract in Union County was treated by air in early 1958. Individual mound treatments have been used for isolated mounds found in scattered areas.

Outlook for 1959: BOLL WEEVIL infestations should not be as severe in 1959 unless conditions are extremely favorable next summer. The past year was considered a fairly light boll weevil year, especially when compared with 1955 and 1957, two very heavy years. Low temperatures this winter should reduce the hibernating weevils to a fairly low number, especially in eastern Arkansas. Winter sampling of trash has not been completed. Sampling to date indicates low hibernating numbers of weevils. GRASSHOPPERS should not be a problem except in localized areas. CHINCH BUG may be more numerous yet the cold winter should reduce numbers. No serious outbreaks are expected. Little trouble has been experienced with soybeans, but they will be watched carefully. Rice will continue to be checked for pests. Special attention will be given to the possible presence of the vector of hoja blanca virus. More attention will be given to insects of sorghum. The cotton insect scouting program and the forestry insect survey will be continued.

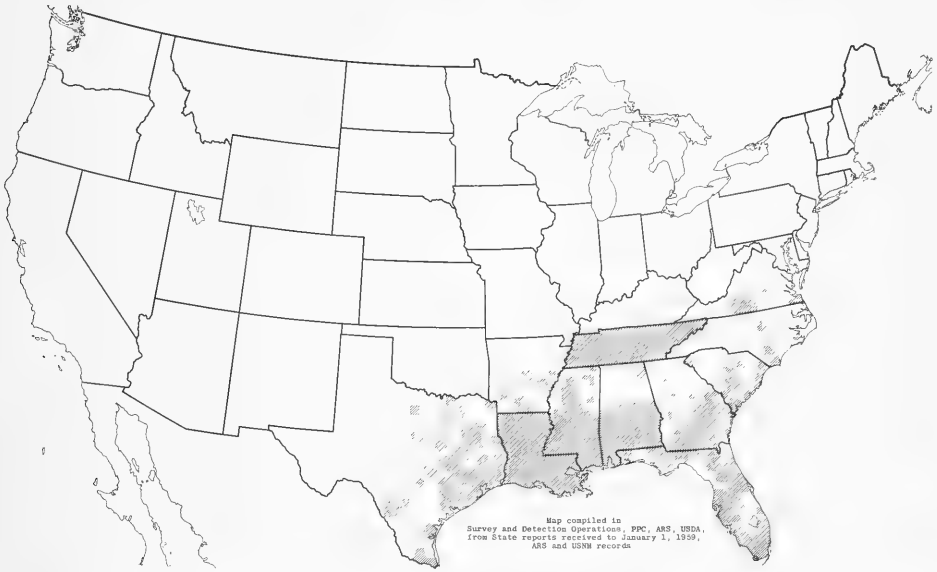
SOUTHERN GREEN STINK BUG (Nezara virdula(L.))

Economic Importance: This stink bug is one of the more important insect pests in several southern States. It often becomes serious on cultivated plants, the nymphs and adults attacking all parts of the host plants, but preferably the young tender growth and fruit. Excessive injury causes loss of fruit or plant mortality. Attack on young fruit produces severe distortion with hard callouses being formed around the feeding punctures. Nezara viridula, described by Linnaeus in 1775, is of foreign origin and was probably introduced into the United States and the West Indies many years ago.

Distribution: Occurs in southern Europe, Africa, southern Asia, Australia and the Pacific Islands, Central and South America, West Indies and in the southern United States (see map).

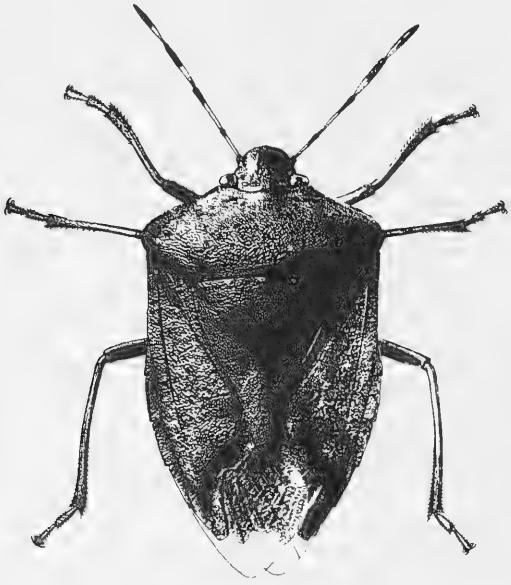
Hosts: This insect has a wide host range. Among its hosts are cucurbits, crucifers, legumes, Solanum, sweetpotato, sunflower, citrus, corn, tobacco, cotton, rice, pecan, hackberry, mulberry, peaches and pepper.

DISTRIBUTION OF SOUTHERN GREEN STINK BUG *(NEZARA VIRIDULA)*



Life History and Habits: About the middle of March hibernating adults appear and mating begins almost immediately. Females deposit eggs about 3 to 5 weeks after becoming an adult. Eggs are deposited about mid-April, in regular rows in hexagonal clusters and are firmly glued together on the under side of the leaves. Hatching occurs in approximately 6 days. There are five nymphal instars, each with distinct color patterns and characteristics. There are 4 generations annually. Adults from the last generation seek hibernating quarters in any secluded place that offers protection. However, a few may be found during mild periods throughout the winter.

Description: The egg is cylindrical, rounded at the lower end and flattened on top, about 30 chorial processes on the cap, 1.24 mm. long and 0.85 mm. wide. Eggs when first deposited, cream-colored, later salmon-colored and, just before hatching, the crimson markings of enclosed nymphs are visible. Nymphs have marked variation in coloration from day to day and instar to instar, the color patterns and characteristics of each identify the instar. The adult is large, light green and shield-shaped. The average size about 12 mm. long and 8 mm. wide. The female is usually a little larger than the male. The antennae are 4-segmented, legs and wings well-developed and the rostrum 4-jointed. There is a close similarity of N. viridula to Acrosternum hilare, the former being distinguished by the longer head, concolorous abdominal margins and short truncated osteolar canal. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U. S. National Museum) CEIR 9(11) 3-13-59.



Adult of Southern Green Stink Bug (Nezara viridula L.)

USDA Photograph

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COOPERATIVE ECONOMIC INSECT SURVEY

Highlights of Insect Conditions

Present EUROPEAN CORN BORER spring population twice that of 1958 in Delaware and overwintering larval mortality in Kansas is lower than in 1958. (p. 189).

ALFALFA WEEVIL active in several states. (p. 189).

Distribution of SOUTHWESTERN CORN BORER. (p. 190).

PEA APHID damaged alfalfa in several counties in New Mexico. (p. 191).

SPOTTED ALFALFA APHID killed established alfalfa stands in Otero County and is moderate to heavy in other counties of New Mexico. (p. 191).

BOLL WEEVIL winter survival survey in Louisiana. (p. 193).

GYPSY MOTH infestation in Connecticut lightest since 1952. (p. 194).

INSECT DETECTION: Haplothrips clarisetis new to California and to the United States. (p. 193). Khapra beetle found for first time in Texas at El Paso and in Luna and Dona Ana Counties, New Mexico. (p. 194).

SUMMARY OF INSECT CONDITIONS - 1958 - OKLAHOMA (p. 196), MISSOURI (p. 201).

SURVEY METHODS - Fly baits and traps. (p. 207). Addendum to balsam gall midge appraisal survey. (p. 208).

INSECTS not known to occur in the United States. (p. 209).

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Reports in this issue are for the week ending March 13, unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-MARCH TO MID-APRIL 1959

The Weather Bureau's 30-day outlook for the period mid-March to mid-April calls for temperatures to average below seasonal normals from the Great Lakes eastward to New England, and also along the Gulf and South Atlantic coasts. Above normal averages are expected over most areas west of the Continental Divide and also over the Central and Northern Plains. In unspecified areas, near normal temperatures with wide fluctuations are anticipated. Precipitation is predicted to exceed normal from the Midwest northeastward through New England, as well as in Gulf and South Atlantic States. Subnormal amounts are indicated for the Central and Southern Plateau, California and the Central Plains. Elsewhere, near normal amounts are in prospect.

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

WEATHER OF THE WEEK ENDING MARCH 16

Last week's weather, typical of March, was blustery with frequent temperature changes and rather general moderate to heavy precipitation east of the Mississippi River. The weather in the eastern half of the Nation was controlled mainly by two low pressure disturbances which gained strong storm intensity as they moved northeastward. The first storm, March 11 to 13, moved in an erratic course from the lower Mississippi Valley to an offshore position along the north Atlantic coast and finally turned northward across eastern Maine. This storm produced heavy rains in the South and heavy snows in the Northeast as high winds raked the entire east coast. Snowfalls ranged up to 10 inches in the central Appalachians, from 3 inches at Massena to 20 inches at Cobleskill in New York State, and from 5 to 15 inches in southern portions and 12 to 20 inches in northern portions of New England. Lightest amounts in New England, under 10 inches, fell in southern coastal areas where scattered thunderstorms with hail occurred and some precipitation fell as rain or sleet. Traffic was greatly hampered in New England, many schools closed and eleven deaths were blamed on the storm. Total snow depths increased to 45 to 55 inches in northern Maine and 30 to 40 inches in northern sections of New Hampshire and Vermont. The second storm, March 14 to 16, moved from the lower Great Plains across the Great Lakes, and was responsible for more heavy rains in the South and a band of heavy drifting snow from Nebraska to Michigan. Three to 12 inches of drifted snow closed most highways in the northeastern half of Iowa, 8 to 10 inches closed roads in a 100-mile-wide belt from southwest to east central portions of Wisconsin and 10 to 15 inches of new snow isolated some communities in northern Michigan. Similar conditions also were experienced in southeastern Minnesota and extreme northwestern Illinois. Tornadoes were reported in Arkansas, were suspected in southeastern Illinois, and high winds estimated at 80 to 100 m.p.h. at Memphis, Tennessee, on the 14th, caused damage of about $250,000. Damaging winds raked the entire State of Michigan on Sunday, the 15th.

Winds raised dust on several days in eastern Colorado, in New Mexico on the 14th, and in many sections of Arizona on both the 11th and 15th. In Oklahoma strong winds on Saturday, the 14th, caused much blowing dust and blew several grass and brush fires out of control. Thousands of acres were burned over in the State, and some cattle and property were lost. This was the second consecutive week with temperatures about normal in most of the country. Highest average departures from normal were 6° above in portions of North Dakota and Minnesota and along the southern California coast, and 6° below in the extreme Northeast. Freezing, however, was widespread, occurring everywhere except in

(Weather continued on page 195)

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - ARIZONA - Few first-instar nymphs of Melanoplus bilituratus in alfalfa near Tempe, Maricopa County. Aulocara elliotti and M. bilituratus hatching in the intermountain short grass range areas in the southeast earlier than usual, probably due to low rainfall and sparse growth of annual plants. Egg survival sampling in study areas indicates an abundance of grasshoppers in 1959 if weather conditions are favorable for hatching. (Ariz. Coop. Sur.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Brief check of one corn field in Jasper County revealed approximately 30 percent of larvae overwintered. (Kyd, Thomas).

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - The spring abundance survey showed an overwintering survival rate of 46 percent, which represents a rather high population of borers based on the fall data of 248.5 borers per 100 plants. Furthermore, the average number of live borers per infested plant revealed a present spring population that is twice as high as that for the spring of 1958 (1.7 borers per infested stalk in 1959 compared with 0.85 in 1958). Indications are, that should weather conditions this season again favor borer development, possibly 1959 will be another record year for this species in the State. (Burbutis, Conrad). NORTH CAROLINA - Area of previous highest infestation in potato production area of Pasquotank County, with 46 forms per 100 corn stalks and 4 of these newly pupated. (Farrier). KANSAS - Survey of 11 fields in Jefferson County showed mechanical mortality at harvest plus overwintering mortality to be 66 percent, which is lower than the 86 percent in 1958. (Burkhardt, Peters).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - Second-instar larvae common on young alfalfa in Sussex County. (Burbutis, Conrad). VIRGINIA - Larvae feeding on alfalfa in Princess Anne, Southampton and Prince George Counties (Morris) and in Nansemond County (Boush). Practically all larvae are in the first instar. No stands of fall-seeded alfalfa have been infested to date. (Morris). GEORGIA - Feeding injury occurred on 10-50 percent of plants in fields in Oconee, Clarke, Putnam, Oglethorpe, Wilkes, Lincoln, Hancock, Washington and Johnson Counties. (Johnson). NEVADA - Adults have been active and laying eggs since early February in Churchill, Douglas, Lyon, Pershing and Washoe Counties. Treatment completed in many fields and being applied in others. (Nev. Coop. Rpt., March 6). UTAH - Adults active in alfalfa fields in Box Elder and Weber Counties, on warm south slopes. (Knowlton).

CLOVER LEAF WEEVIL (Hypera punctata) - VIRGINIA - Larvae observed in Prince George County. (Morris). MISSOURI - Averaged 1-4 early-instar larvae per alfalfa crown over west central and southwest areas. (Kyd,Thomas).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - NEVADA - Adults active and in moderate numbers on red clover in Smith Valley, Lyon County.(Batchelder, March 6).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - VIRGINIA - Nymphs hatching in alfalfa, clover and other forage crops. (Morris).

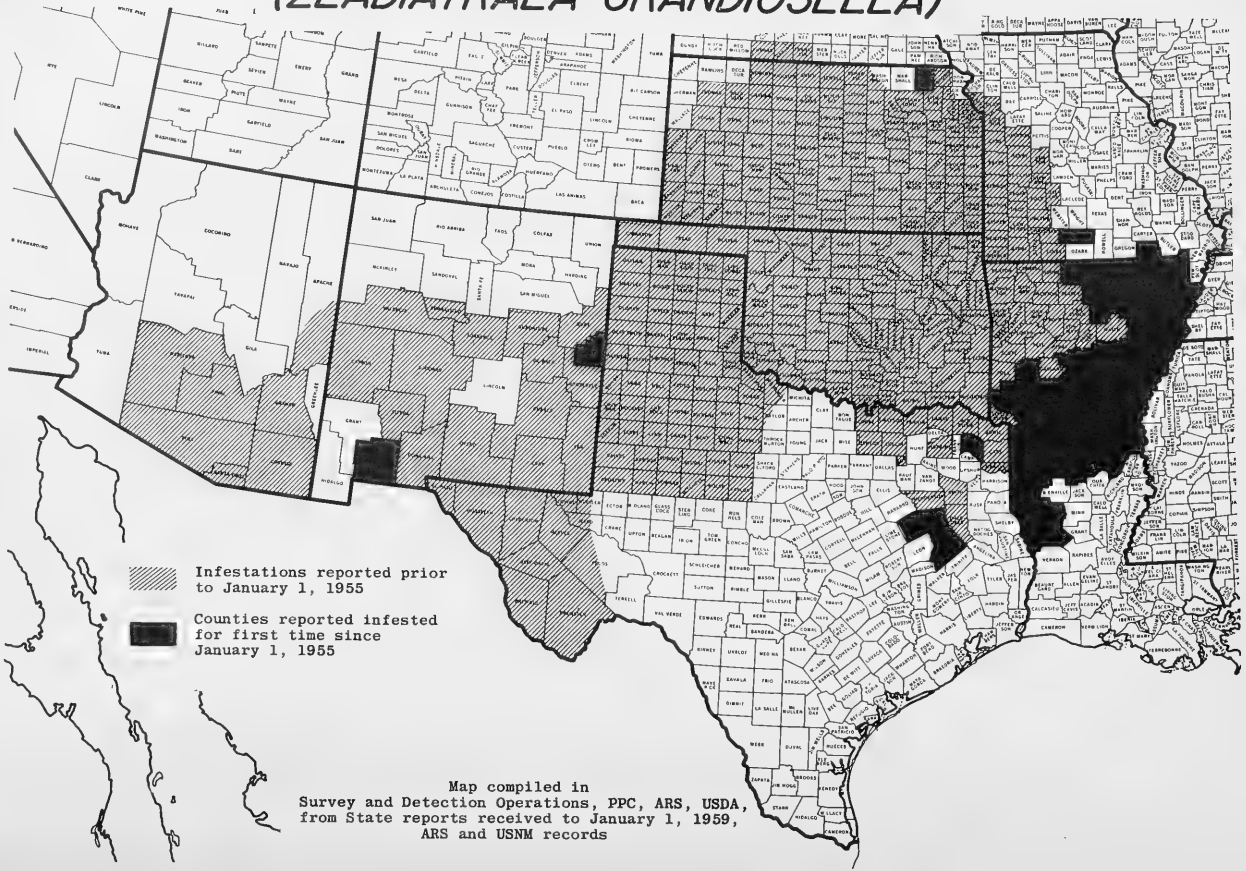
COWPEA APHID (Aphis medicaginis) - NEW MEXICO - Moderately heavy but spotty on alfalfa in Dexter-Hagerman area, Chaves County. (N. M. Coop. Rpt.).

PEA APHID (Macrosiphum pisi) - DELAWARE - Stem mothers and young nymphs common on new alfalfa growth in Sussex County. (Burbutis, Conrad). VIRGINIA - Very light in practically every alfalfa field surveyed in the State to date. (Morris). ARKANSAS - Averaged 2 per square foot on alfalfa in Conway County. (Ark. Ins. Sur., March 9). OKLAHOMA - Found in 8 of 23 alfalfa fields checked in central area, with counts of 20-100 per square foot (VanCleave,Ritter,Pennington) and averaged 2-30 per square foot in 2 fields checked in Choctaw County. (Goin).

(Continued on page 191)

DISTRIBUTION OF SOUTHWESTERN CORN BORER

(ZEADIATRAEA GRANDIOSELLA)



ARIZONA - Medium but increasing slightly on alfalfa in the Salt River Valley. (Ariz. Coop. Sur.). NEW MEXICO - Extremely heavy infestations damaged alfalfa in Otero, De Baca, Chaves, Eddy and Roosevelt Counties. Lighter in other southern counties. Many growers have applied controls. (N. M. Coop. Rpt.). MISSOURI - Ranged 0-9 per alfalfa crown in west central and southwest areas. Few winged adults observed in southwest area. (Kyd, Thomas).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - None found in alfalfa in Conway County. (Ark. Ins. Sur., March 9). OKLAHOMA - Present in 15 of 23 alfalfa fields checked in central area. Counts ranged 10-2,000 per square foot, with plants in many fields becoming sticky. (VanCleave, Ritter, Pennington). Very scarce in 3 alfalfa fields checked in the Braggs area of Muskogee County (Washum) and ranged 0-1 per square foot in 2 alfalfa fields in Choctaw County (Goin). Averaged 288 per square foot of crown area in fields checked in Payne County.(Ketner). TEXAS - Few fields on stream bottoms have been heavily infested in Denton County. Controls were applied. Most other fields only lightly infested, but populations may build up rapidly. (Chada). ARIZONA - Increased slightly on alfalfa in the Salt River Valley. (Ariz. Coop. Sur.). NEW MEXICO - Heavy populations killed established stands of alfalfa at Tularosa, Otero County. Infestations heavy on alfalfa near Bethel, Roosevelt County, and moderate to heavy in Chaves and Eddy Counties. Many growers treating. (N. M. Coop. Rpt.). KANSAS - None found in Republic, Cloud, Riley and Pottawatomie Counties March 6-8. (Simpson, Burkhardt). MISSOURI - None observed in west central and southwest areas. (Kyd, Thomas).

AN APHID - NEVADA - Winged and wingless forms heavy on 30 acres of red clover in Smith Valley, Lyon County. (Batchelder, March 6).

LYGUS BUGS (Lygus spp.) - DELAWARE - Some L. lineolaris adults on alfalfa in New Castle County. (Burbutis, Conrad). UTAH - Active in alfalfa fields and meadows near Brigham and Plain City. Mostly L. elisus. (Knowlton).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - DELAWARE - Adults on clover in Sussex County. (Burbutis, Conrad).

GREENBUG (Toxoptera graminum) - ARKANSAS - Averaged less than one per linear foot on oats in Faulkner and Conway Counties. (Ark. Ins. Sur., March 9). OKLAHOMA - Present in 26 of 36 small grain fields checked in central area. Counts ranged 1-100 per linear foot with heaviest numbers in isolated fields in northern Grady, Canadian and southern Kingfisher Counties. (VanCleave, Ritter, Pennington). Ranged 0-25 per linear foot in small grain fields in Hennessey-Kingfisher area. Averaged 40 per linear foot in one field. (Wood). Populations of 30-1,000 per linear foot in small grain fields checked in Cotton, Tillman and southern Kiowa Counties, with dead spots in some fields. (Hatfield). Averaged 5 per linear foot in 2 fields checked in northern Kiowa County (Hudson), 2 per linear foot in 2 wheat fields in northwestern Texas County (Owens) and none were found in 4 fields checked in the Arkansas River bottoms (Washum). TEXAS - Light, 25 per foot of row, in Knox County. (Turney). Readily found in 48 of 57 fields examined in 16 central and southern counties. Averaged less than one per foot of row in 14 fields, 2-25 in 32 fields and more than 100 per foot of row in 2 fields, with considerable damage. Heaviest infestations were in Gillespie, Kendall, Kerr and McLennan Counties. (Chada). MISSOURI - No specimens or evidence of damage observed in small grains in west central and southwest areas. (Kyd, Thomas). NEW MEXICO - Averaged 10-50 per linear foot of row in wheat near Clovis, Curry County. Lighter in dry land and irrigated wheat in other areas of Curry and Roosevelt Counties. (N. M. Coop. Rpt.).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Counts ranged 1-300 per linear foot in 23 of 36 small grain fields checked in central area. (VanCleave, Ritter, Pennington). Populations in one field near Grandfield, Tillman County, approaching 600 per linear foot. (Hatfield). Averaged 10 per linear foot in

2 wheat fields in northwestern Texas County. (Owens). TEXAS - Light infestations observed, especially in fields of volunteer grain. (Chada).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Continued heavy, 40-50 per plant, in many barley fields in Maricopa County. Averaged 5 per plant in 12 fields sampled in Pinal County. (Ariz. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - ARKANSAS - Averaged less than one per linear foot on oats in Faulkner and Conway Counties. (Ark. Ins.Sur., Mar.9). OKLAHOMA - Present in 7 of 36 small grain fields checked in central area. Counts ranged 1-5 per linear foot. (VanCleave, Ritter, Pennington). TEXAS - Light infestations observed, especially in fields of volunteer grain. (Chada). MISSOURI - Averaged 0-2 per linear foot of row in wheat over west central and southwest areas, with an occasional winged form observed. (Kyd, Thomas).

ARMY CUTWORM (Chorizagrotis auxiliaris) - KANSAS - Averaged 3-5 per linear foot of row in several areas in a wheat field in Ellis County. (Harvey). Probably this species reported in wheat, alfalfa and barley in the south central area. (Marvin).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Light infestations in 2 isolated small grain fields checked in central area averaged less than one per linear foot. (VanCleave, Ritter, Pennington). TEXAS - Present in 14 of 57 fields examined in 16 southern and central counties, with heaviest infestations in the Comfort-Kerrville-Fredericksburg and the McGregor areas. Populations decreasing rapidly with advent of warm weather. Some controls applied in the southern area. (Chada). MISSOURI - None observed in any small grain fields in southwest area. Damage to orchardgrass reported in Christian County. (Kyd, Thomas).

FRUIT INSECTS

PEAR PSYLLA (Psylla pyricola) - CALIFORNIA - Eggs light to heavy on pear trees in Newcastle area, Placer County. (Cal. Coop. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Increasing on Yuma Valley citrus. (Ariz. Coop. Sur.).

CITRUS FLAT MITE (Brevipalpus lewisi) - ARIZONA - Increasing on citrus in the Yuma Valley. Controls required in some cases. (Ariz. Coop. Sur.).

Citrus Insect Situation, Lake Alfred, Florida, First Week in March - PURPLE SCALE activity increased slightly but is expected to rise more rapidly during the remainder of March. Infestation level is currently very low for this time of year. Hatching will increase during next 14 days. Little change in FLORIDA RED SCALE activity. Present high level will continue for next 2 weeks. Little change in CITRUS RED MITE activity, which will remain near present level for 2-3 weeks. CITRUS RUST MITE activity increased slightly on leaves and decreased on fruit, with an overall level slightly higher than average for this time of year. An increase is expected during the next 14 days. TEXAS CITRUS MITE is increasing, but is still less prevalent than in December and January. (Simanton, Thompson, Johnson).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Damaged grapes in Yuma County by breeding in new buds in recently cultivated fields. (Ariz. Coop. Sur.).

TWIG GIRDLER (Oncideres cingulata) - VIRGINIA - Damaged a number of pecan trees in Appomattox County by girdling many twigs. (Morris, Motley).

TRUCK CROP INSECTS

APHIDS - OKLAHOMA - General infestations on tomato and pepper plants in greenhouses in Logan County. (Latham).

BEET LEAFHOPPER (Circulifer tenellus) - NEVADA - Populations in southern Nevada breeding grounds were very light in mid-February. Only traces of host plants were found and over 80 percent of sampling failed to yield specimens for viruliferous tests. About 3 percent of specimens collected were found capable of transmitting curly top. (Dorst, Zoller, March 6).

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

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

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Averaged 10 per lettuce plant in some fields in Maricopa County. (Ariz. Coop. Sur.). CALIFORNIA - Medium on young lettuce in the Soledad area, Monterey County. (Dr. L. McLean).

THRIPS - ARIZONA - Injury resulted in culling of a lettuce field near Yuma. Numerous near Queen Creek, Maricopa County. (Ariz. Coop. Sur.).

CONCHUELA (Chlorochroa ligata) - TEXAS - Light infestations attacking spinach and mustard in Zavala County. (Harding).

RED-NECKED CANE BORER (Agrilus ruficollis) - NORTH CAROLINA - Infesting boysenberry canes in Davidson County. (Bernhardt, Farrier).

A THRIPS (Haplothrips clarisetis) - CALIFORNIA - A new African-Near Eastern species reported from Riverside County infesting dandelions, Russian thistle and mesembryanthemum. Verified by Dr. J. Faure as this species or very near. Dandelions are a specialty commercial crop in the State. Economic value of thrips not determined. This species is new to the State and to the United States. (Dr. W. H. Ewart).

TOBACCO INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light on tobacco beds in Tift, Colquitt, Brooks, Lowndes, Cook, Berrien and Coffee Counties and moderate in Bacon, Appling, Tattnall, Evans and Bulloch Counties. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light on tobacco beds in Bacon and Tattnall Counties. (Johnson).

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light on tobacco plant beds in 11 tobacco-growing counties. (Johnson).

COTTON INSECTS

Boll Weevil Winter Survival Survey: LOUISIANA - Collections of surface woods trash made February 24 to March 6 in the northeast area showed 3,067 weevils per acre in East Carroll, 3,026 in Madison and 646 in Tensas Parishes, with an average of 2,246 for the three parishes. Compared with the fall population of 5,756 per acre, this gives a winter survival of 39 percent. During the 23 years that these records have been made in Madison Parish, the number of weevils per acre (3,026) found this spring, has been exceeded only once in the spring of 1956, when 3,654 weevils per acre were found. (Smith et al.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A PINE TIP MOTH - Adults have begun to emerge in southern areas. Numbers appear to be light. (Ark. For. Pest Rpt., March).

AN ARCTIID (Halisidota sp., prob. argentata) - CALIFORNIA - Heavy on fir trees in Santa Rosa, Sonoma County. (Cal. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - In 1959, 9,600 acres in 10 towns have been certified as in danger of infestation reaching epidemic proportions. The infestation is heavy enough to cause more than 50 percent defoliation on only approximately 700 acres in Bethany. This is the lightest infestation since 1952. (Turner).

RHODODENDRON BORER (Ramosia rhododendri) - DELAWARE - Infesting many plants in New Castle County. This infestation survived a thorough treatment applied in 1958. (Burbutis, Conrad).

SCALE INSECTS - MARYLAND - Aspidiotus sp., Asterolecanium puteanum and Leucaspis japonica infesting holly (Ilex crenulata) at Cabin John, Montgomery County, March 10. (U. Md., Ent. Dept.). OKLAHOMA - Coccus hesperidum taken on chrysanthemums at Cushing, March 3, and Unaspis euonymi heavy on Euonymus japonica at Chickasha, March 9. (Apt). CALIFORNIA - Phenacaspis pinifoliae and Aspidiotus californicus heavy on pine in Applegate, Placer County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Adults active at Stillwater, Payne County. (Ealy).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - NEVADA - Aedes campestris and A. niphadopsis third and fourth-instar larvae present in seepage ponds in Fallon-Hazen area, Churchill County. Aedes sp. first-instar larvae present in snow pools in Lake Tahoe area. (Chapman, March 6).

CATTLE LICE - OKLAHOMA - Heavy on cattle in Le Flore County. (Washum).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - TEXAS - Found for the first time in the State in a feed mill in El Paso, El Paso County, February 9. As of March 16, cooperative surveys have revealed an additional 13 infestations in various types of establishments in the same county. These are classified as one heavy, 5 light and 7 very light. NEW MEXICO - Since report in CEIR 9(11):171, of finds in Sierra County, as of March 16, one additional infestation has been found in that county, one in Luna and 8 in Dona Ana Counties. The latter two counties are reported for the first time. (PPC).

CONFUSED FLOUR BEETLE (Tribolium confusum) - TEXAS - Light infestation at bottom and on surface of grain in Van Zandt County. Adults medium and attacking barley and oats in Howard County and heavy in wheat warehouse on Texas-Oklahoma State line. Light in Lubbock County. (Texas Coop. Rpt.).

CORN SAP BEETLE (Carpophilus sp.) - ARIZONA - Infested wet grain sorghum brought to Phoenix for storage. (Ariz. Coop. Sur.).

FLAT GRAIN BEETLE (Laemophloeus pusillus) - TEXAS - Medium in milo in Lubbock County. (Texas Coop. Rpt.).

GRAIN WEEVILS - TEXAS - Sitophilus oryza medium to heavy and attacking stored grain in Uvalde and Howard Counties and infestations noted along Oklahoma-Texas State line. (Texas Coop. Rpt.). Light in stored milo in Haskell County. (Turney). Unknown species reported in milo in Potter, Hale and Hamilton. Sitophilus sp. light in Van Zandt County and heavy in Lubbock County. (Texas Coop. Rpt.).

LESSER GRAIN BORER (Rhyzopertha dominica) - TEXAS - Medium to heavy on wheat and milo in Potter County and around Oklahoma-Texas State line. (Texas Coop. Rpt.). Light in milo in Haskell County. (Turney).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - TEXAS - Adults attacking stored wheat near Oklahoma-Texas State line. (Texas Coop. Rpt.).

BENEFICIAL INSECTS

PARASITES - TEXAS - Parasitism by Aphidius testaceipes heavy in fields heavily infested by greenbug in 16 central and southern counties. Greenbugs practically eliminated in several fields in Gillespie and McLennan Counties. It is believed the parasite will keep the greenbug population down to a point where no more damage will occur to the crops. (Chada).

PREDATORS - OKLAHOMA - Hippodamia convergens becoming common in alfalfa and small grain fields in central area but averaged less than 0.3 per linear foot (VanCleave, Ritter, Pennington), and numerous adults active in Kiowa County fields. (Hatfield, Hudson).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Feltia subt.
ARIZONA					
Mesa 3/4-10			18	4	
ARKANSAS					
Fayetteville 2/26-3/4				1	
Kelso 2/26-3/4		2		3	
Morrilton 2/26-3/4				1	
SOUTH CAROLINA					
Charleston 3/9-15	20	3		5	1
Clemson 3/7-13		1		1	

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the Gulf, south Atlantic and Pacific coastal areas and the extreme Far Southwest. Subzero minima were limited to the upper Great Lakes region and upper portions of New England and New York State. No precipitation fell from western Texas to California and weekly totals were generally light to very light elsewhere west of the Continental Divide. However, the snowpack increased slightly in the Cascades. The snow cover melted in the northern Great Plains by the end of the period, although some drifts were still left. From 1 to 2 feet of snow still covers most of Wisconsin and the cover is still heavy in northeastern Iowa, eastern Minnesota and northern Michigan. The cover in the Northeast is limited mostly to New England and eastern and northern New York, with extreme depths ranging up to more than 3 feet. (Summary supplied by U. S. Weather Bureau).

SUMMARY OF INSECT CONDITIONS - 1958

OKLAHOMA

Reported by Horace W. VanCleave

Highlights: GRASSHOPPER populations were heavy and general in western and panhandle counties. Over 242,000 acres were treated under a cooperative Federal-State program, with good to excellent results. SORGHUM MIDGE caused heavy damage to grain sorghums in many areas. PECAN NUT CASEBEARER damage was much higher than in 1957. PINK BOLLWORM populations increased but mortality was high as a result of severe freezes in December. ELM LEAF BEETLE caused extensive damage to Siberian elms in many areas. Infestations of CATTLE LICE increased in 1958 in southern counties. Several species of SCALES and a ZORAPTERON were found for the first time in the State.

Cereal and Forage Insects: A heavy, general GRASSHOPPER infestation occurred in western and panhandle counties, with light to severe damage to sorghums, legumes and rangeland. Populations were heavier throughout the remainder of the State than in 1957, but damage was generally light. An estimated 2,693,182 acres of western rangeland were infested. Approximately 235,000 acres of rangeland in Cimmaron and Texas Counties and 7,000 acres of roadsides in Texas County were treated under a cooperative Federal-State program. An estimated 60,000 acres of rangeland and 20,000 acres of cropland were treated by farmers and ranchers in western and panhandle areas. Results were generally good to excellent. The most abundant species in western counties on rangeland were Aulocara elliotti, Melanoplus packardii, Phlibostroma quadrimaculatum and Aeoloplides turnbulli and along roadsides and margins, A. turnbulli, M. bivittatus, M. packardii and M. bilituratus predominated. The second-generation hatch of M. bilituratus was heavy in the panhandle during late summer, with considerable marginal damage to fall-seeded small grains. The fall egg survey indicated that egg deposition in western and panhandle counties was generally light.

First-generation EUROPEAN CORN BORER (Pyrausta nubilalis) populations were higher in Payne County than in 1957. None were found in limited fall surveys in Nowata and Tulsa Counties and only one was found in 1,200 plants inspected in Payne County. CORN EARWORM (Heliothis zea) built up in corn fields during late spring and by June, 10 percent of Bixby area corn showed damage. Infestations were common statewide in grain sorghum, alfalfa and other crops until late fall. Damage estimates on corn in central, east central and northeastern areas averaged 1.6 percent loss of grain, slightly less than in 1957. VARIEGATED CUTWORM (Peridroma margaritosa) became widespread in alfalfa throughout the State during May, being heaviest in the southwestern area, where larvae averaged 45 per 10 sweeps. Slightly lower counts were reported in central and south central areas. Populations in margins of southwest small grain fields were light. ARMY CUTWORM (Chorizagrotis auxiliaris) averaged 1-2 per linear foot of row at Ames during January. Populations which averaged 0.5-1 per square yard in small grain in Beckham and Washita Counties in late March and early April, were slightly lower than those of 1957. ARMYWORM (Pseudaletia unipuncta) populations built up during May in central, south central and southwestern areas. Although damage occurred to many small grain fields, losses were less than in 1957. FALL ARMYWORM (Laphygma frugiperda) populations in alfalfa and grain sorghums were lower than in 1957. Heavy populations destroyed most volunteer wheat and rye fields in Custer and Dewey Counties in October. Extensive marginal damage to fall-seeded small grain fields necessitated controls. Populations continued low elsewhere. SORGHUM WEBWORM (Celama sorghiella) caused light to moderate damage to seed heads in many grain sorghum fields during the summer and early fall, being heaviest in Wagoner and Bryan Counties with up to 20-30 per head in a few isolated fields. SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella)

infestations occurred in east central, central and southwestern areas during the summer. Second-generation larvae averaged 2 per stalk in field corn in Payne, Caddo and Oklahoma Counties during late August. Populations showed a moderate increase over the 1957 infestation.

SORGHUM MIDGE (Contarinia sorghicola) caused heavy losses to grain sorghum production in central and eastern areas. Adult swarms were reported in sorghum fields in the Stillwater area in late August, with 100 percent loss of seed in some fields. Losses of 20-50 percent were common throughout central and eastern areas in early fall and lighter in southern areas. Adults emerged from infested seed heads as late as mid-October. A check made in late November of a Payne County infested sorghum field showed a 12.2 percent overwintering larval infestation. This was the most serious outbreak in the State in several years. FLEA BEETLES were common on a wide variety of crops from late April to October, statewide. Damage was severe to young corn in late spring and early summer and moderate to heavy to late corn and grain sorghums in the latter part of the summer. Damage to these crops was considerably heavier than in preceding years. GREENBUG (Toxoptera graminum) was heavier in small grains than in 1957 and overall damage in the Kingfisher County area was light on wheat and medium to severe on barley in the spring, with controls applied to some fields. Populations were very light and noneconomic in other areas. Fall buildups were heaviest in northeastern areas, decreasing toward western and southwestern areas. Populations averaged 25-50 per linear foot in the northeast and decreased uniformly to 0-5 in the southwest. Numbers remained fairly constant during December despite subzero temperatures and snow. ENGLISH GRAIN APHID (Macrosiphum granarium)was light and scattered in most northwestern counties in early January. Light infestations were common in other areas during the spring, being slightly higher than in 1957 in southwestern small grains during May. By late May, populations declined rapidly and were not noted again until late December when light numbers appeared in Jackson County. APPLE GRAIN APHID (Rhopalosiphum fitchii) was considerably higher than in 1957 but rarely reached economic levels. Light or medium infestations were common statewide in the spring, with some isolated heavy infestations. Populations decreased in late April, with no further reports until November. Numbers increased statewide for the remainder of the year with averages of 50-150 per linear foot common in north central and northwestern areas and lighter infestations common in other areas.

WINTER GRAIN MITE (Penthaleus major) was common in central and southwesern areas in the spring, but populations were lower than during the same period in 1957. No infestations were noted in the fall and early winter. The only verified reports of BROWN WHEAT MITE (Petrobia latens) were from scattered wheat fields in the panhandle and extreme northwestern areas, which had up to 10 mites per linear foot. CHINCH BUG (Blissus leucopterus) built up in eastern corn fields during May. Moderate to heavy damage occurred to corn and sorghums by mid-June and July in central and east central areas. Numbers remained high in the eastern half of the State the remainder of the season, exceeding those found in 1957. The annual hibernation survey, however, showed the average county ratings to be generally lower. The average ratings dropped in 39 counties from those in 1957, while 30 counties remained the same and 8 increased. Only 10 of the 77 counties showed a potential infestation rating of severe to very severe, compared with 32 in the 1957-58 survey. Light populations of CORN LEAF APHID (Rhopalosiphum maidis) were common in barley statewide and averaged 0-20 per linear foot in the spring and 50-300 in the fall. Infestations were light in sorghums statewide in the early summer, becoming medium to heavy later in the year. Populations increased to 300-1,000 per seed head in some sorghum fields in September and October. A WIREWORM (Conoderus sp.) destroyed a 50-acre field of fall-seeded wheat in the Tonkawa area in November when the population averaged 0.5 larva per square foot. An APHID (Rhopalosiphum subterraneum) was light in Hennessey area small grain fields in early March, but caused no economic damage. ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) larvae were heavy in corn fields at harvest in Nowata, Tulsa and Payne Counties and adults were numerous.

ALFALFA CATERPILLAR (Colias philodice eurytheme) was common in alfalfa from April to mid-October, but numbers remained light and did not become economic. SPOTTED ALFALFA APHID (Therioaphis maculata) remained low statewide during the first half of 1958, being considerably lower than during the same period in 1957. Numbers increased rapidly in southwestern area alfalfa in July, with 300-600 per sweep in Kiowa County, but continued low throughout other areas. Populations in fall-planted alfalfa became severe in central and northwestern areas, with heavy losses in some Enid area fields in October and continued high the remainder of the year despite subzero temperatures, high winds and snow during December. Populations continued low in other areas. PEA APHID (Macrosiphum pisi) appeared in central area alfalfa in early February and was common and on the increase statewide by early April. These numbers remained medium in most areas until the first cutting in mid-May or early June, then declined generally. Populations were very low statewide from early July through mid-November, when a slight buildup occurred in eastern and northeastern fields. This buildup was slow,never exceeding 25 per sweep. The only serious infestation occurred in a vetch field in McClain County in April where numbers reached thousands per 10 sweeps. THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) was collected in the east central area in early April, but did not buildup statewide until mid-July when numbers increased until late October and then decreased gradually until early December. WEBWORMS (Loxostege spp.) were common in alfalfa statewide during the summer, but populations remained well below those of the preceding two years. GREEN CLOVERWORM (Plathypena scabra) numbers were common in alfalfa, but lower than those of 1957. TARNISHED PLANT BUG (Lygus lineolarus) was common in alfalfa over most of the State and averaged 5-25 nymphs and adults per 10 sweeps, which was slightly lower than in 1957. RED-NECKED PEANUTWORM (Stegasta basqueella) appeared on volunteer peanut foliage in early June in Caddo County. Terminal infestations in southwest and north central areas ranged 21-30 percent by the first generation to 60-70 by the fourth generation. Two Payne County fields had 32 percent of shoots and 95-100 percent of buds damaged in late September. Overall losses were lower than in 1957. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) caused considerably less damage to peanuts than in 1957. VETCH BRUCHID (Bruchus brachialis) became fairly common in central and south central vetch fields during late April and May, being heaviest in Logan and McClain Counties where counts averaged 18-50 per 10 sweeps. Counts were considerably lower than in other fields. Other insects which damaged a variety of cereal and forage crops to a limited degree included CLOVER LEAF WEEVIL (Hypera punctata), SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi), BLISTER BEETLES (Epicauta spp.), SNOWY TREE CRICKET (Oecanthus niveus), HARLEQUIN BUG (Murgantia histrionica), POTATO LEAFHOPPER (Empoasca fabae), RAPID PLANT BUG (Adelphocoris rapidus), RED HARVESTER ANT (Pogonomyrmex barbatus), LEAF-FOOTED BUG (Leptoglossus phyllopus), THRIPS and SUBTERRANEAN TERMITES.

Fruit Insects: PECAN NUT CASEBEARER (Acrobasis caryae) damage was higher than in 1957. Larval entries in nut clusters averaged up to 33 percent in some areas by midsummer. Damage in the Okemah-Okmulgee area was considered heavy for the year. EASTERN TENT CATERPILLAR (Malacosoma americanum) became common on native plums in the southern area during April and by early May was statewide,with severe damage in some western counties. PEACH TREE BORER (Sanninoidea exitiosa) caused less damage than in 1957. SPRING CANKERWORM (Paleacrita vernata) was very abundant in late April on plum, peach, apple, elm and oak in north central, central and south central areas. WOOLLY APPLE APHID (Eriosoma lanigerum) infested apple trees in the north central, east central and southeastern areas during spring and summer. PECAN WEEVIL (Curculio caryae) populations continued low but were higher than in 1957. WALNUT CATERPILLAR (Datana integerrima) caused slightly more damage than in 1957, with light to moderate defoliation in most areas and heavy defoliation in local areas. BLACK-MARGINED APHID (Monellia costalis) averaged 15-30 per pecan leaflet in the Payne County area during October and early November and counts throughout 1958 were higher than in 1957. A PECAN CATOCALA (Catocala maestosa) caused heavy to severe damage in one area of Okfuskee County and light damage over the State and

a CURCULIO (Conotrachelus retentus) caused severe damage to a walnut grove in Okfuskee County in early June. RED-NECKED CANE BORER (Agrilus ruficollis) populations in brambles in the Payne County area were lower than in past three years. HICKORY SHUCKWORM (Laspeyresia caryana) larvae averaged 1-4 per infested shuck in approximately 90 percent of pecan shucks in the Stillwater area in late November. Pecans were also damaged by PECAN LEAF PHYLLOXERA (Phylloxera notabilis), an APHID (Monellia caryae) and STINK BUGS. Minor damage was caused to a variety of fruit crops by CODLING MOTH (Carpocapsa pomonella), PLUM CURCULIO (Conotrachelus nenuphar), FALL ARMYWORM (Laphygma frugiperda), APPLE LEAF TRUMPET MINER (Tischeria malifoliella), SAN JOSE SCALE (Aspidiotus perniciosus), PUTNAM SCALE (A. ancylus) and SPIDER MITES.

Truck Crop Insects: SEED-CORN MAGGOT (Hylemya cilicrura) caused moderate damage to roots and stems of seedling spinach in the Bixby area during October and heavy populations of GREEN PEACH APHID (Myzus persicae) occurred on some untreated east central area spinach fields during the spring and fall. VARIEGATED CUTWORM (Peridroma margaritosa) damaged tomato plants at Stillwater in late May and a SAND WIREWORM caused some damage to young tomato plants in the east central area in late April and early May. TURNIP APHID (Rhopalosiphum pseudobrassicae) was heavy on turnips and mustard greens in scattered areas during November, while BEAN LEAF BEETLE (Cerotoma trifurcata) was light to prevalent in central and east central area bean fields in late summer. Damage to a variety of crops was caused by CORN EARWORM (Heliothis zea), FALL ARMYWORM (Laphygma frugiperda), MELON APHID (Aphis gossypii), SQUASH BUG (Anasa tristis) and Lygus spp.

Cotton Insects: COTTON LEAFWORM (Alabama argillacea) populations were lighter statewide than they had been for the past several years. BOLLWORMS (Heliothis spp., et al.) caused generally light damage throughout the season. Gin stand and lint cleaner inspections for PINK BOLLWORM (Pectinophora gossypiella) during January and February were positive in eight Red River counties. A survey of stalk and surface debris in 18 eastern counties during March was negative. The first larva collected during the 1958 growing season was taken in early September in Tillman County from lint cleaner inspections. Infestations were heavier in the southwest and south central areas than in 1957. Gin trash and lint cleaner inspections were positive in 18 south central and southwestern counties by late September. Inspections of dry bolls taken from stalks and on the ground after severe freezes during December, showed a very high larval mortality. CABBAGE LOOPER (Trichoplusia ni) was generally light in central, south central and southwestern areas with ragging in a few isolated fields of rank cotton in late August and early September. Numbers were lower than for the past two years. BOLL WEEVIL (Anthonomus grandis) was generally light, with only late squares showing severe damage, which averaged up to 70 percent in many areas. COTTON APHID (Aphis gossypii) was generally light with only localized heavy populations. COTTON FLEAHOPPER (Psallus seriatus) was light throughout the season, with heaviest populations of 40-50 per 100 terminals in the east central area during June. Numbers were considerably below those of 1957. THRIPS were of only minor importance. COMMON STALK BORER (Papaipema nebris) caused considerable damage in localized areas of Caddo County during June. Oviposition of TREE CRICKETS (Oceanthus spp.) caused alarm in certain southwest areas in July. Approximately 3 percent damage resulted in the breaking off of stalks in fields with heaviest infestations.

Forest, Ornamental and Shade Tree Insects: IPS BEETLES (Ips. spp.) were very light in southeastern pine forests during late summer, being found only in cut-over areas and mechanically damaged trees. BLACK TURPENTINE BEETLE (Dendroctonus terebrans) was light in southeastern area and largely restricted to stumpage and "lightning strikes." ELM LEAF BEETLE (Galerucella xanthomelaena) heavily defoliated central and east central Siberian elms in the summer and early fall. Other varieties were attacked less severely. Controls were used in

many localities. Three generations were completed by September 6 when adults began invading homes. NANTUCKET PINE MOTH (Rhyacionia frustrana) caused heavy damage to central area pines and larvae fed until late September in the Stillwater area, where pupation was nearly complete in early October and damage ceased. ELM CALLIGRAPHA (Calligrapha scalaris) was widespread in central and north central areas. Large numbers entered hibernation in Blaine County in mid-October. A BUCK MOTH (Hemileuca nevadensis) was heavy and active in southeastern Ellis County on shinery oak during late October. During mid-October, ELM LEAF APHID (Myzocallis ulmifolii) counts of 2-7 per leaf were common on elms in the Stillwater area. LEAF GALLS were heavy on persimmon in the Okemah area in late spring and very heavy on leaves of scattered elms in the Stillwater area in midsummer SYCAMORE LACE BUG (Corythucha ciliata) damaged sycamore in Le Flore County in late August and HAWTHORN LACE BUG (C. cydoniae) was abnormally heavy on Payne County pyracantha in early October. Several species of SCALES, including Coccus hesperidum and Saissetia oleae, were reported from a variety of plants. Scales reported for the first time from the State included Phenacoccus solenopsis, Rhizaspidiotus dearnessi, Apsidiotus pseudospinosus, Lepidosaphes beckii, Pinnaspis aspidistrae and Toumeyella sp., probably parvicorne. Other insects which caused damage included BAGWORM (Thyridopteryx ephemeraeformis), SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus), SAWFLIES, WHITEFLIES and SPIDER MITES.

Insects Affecting Man and Animals: COMMON CATTLE GRUB (Hypoderma lineatum) - Most grubs had emerged from the backs by late February. Counts were much lower in mature animals in Harper County in January than in yearling steers. In December, counts were lower in Woodward, Canadian and Kiowa Counties than in Harper County. HORN FLY (Siphona irritans) was active on cattle from April to November but populations were lighter than in 1957. TABANID populations were well below those of 1957, with heaviest counts reported from Latimer County in August. STABLE FLY (Stomoxys calcitrans) populations were slightly higher than in 1957 with peaks during September in the north central area. HOUSE FLY (Musca domestica) remained low most of the year, but was extremely high in sheltered areas of Payne and Sequoyah Counties during early October. Egg laying by HORSE BOT FLIES (Gasterophilus spp.) on horses was heavy in northeastern, medium to heavy in central and north central and light to medium in southern areas during October and November. SCREW-WORM (Callitroga hominivorax) populations were low. CATTLE LICE were the heaviest in several years in southern counties during March and April. FLEAS were very numerous in many central area homes and yards in the summer and early fall. BROWN DOG TICK (Rhipicephalus sanguineus) was troublesome in homes all year, EAR TICK (Otobius megnini) was heavy in isolated areas in September and November and WINTER TICK (Dermacentor albipictus) averaged 4 per square inch on necks and heads of cattle in the southeastern area during late November.

Stored-product Insects: SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) was generally light. A few severe and heavy infestations of LESSER GRAIN BORER (Rhyzopertha dominica) occurred in north central, eastern and southwestern areas. Statewide surveys during March showed INDIAN-MEAL MOTH (Plodia interpunctella) present in 50 percent of the establishments checked, with approximately 5 percent rated as severe. RED FLOUR BEETLE (Tribolium castaneum) was scattered and light to heavy in approximately 20 percent of the mills, warehouses and farm-stored grain checked. CADELLE (Tenebroides mauritanicus) was light and scattered. DERMESTIDS were light to heavy in approximately 40 percent of the inspections made. A few RICE WEEVIL (Sitophilus oryza) infestations varied from light to severe. FLAT GRAIN BEETLE (Laemophloeus pusillus) infestations were found only in the eastern and northeastern areas. All surveys for KHAPRA BEETLE (Trogoderma granarium) were negative.

Beneficial Insects: CONVERGENT LADY BEETLE (Hippodamia convergens) was present in most alfalfa fields surveyed by mid-April and numbers remained high during the remainder of the year, and materially reduced aphid populations in some areas. LACEWINGS (Chrysopa spp.) were generally abundant in most alfalfa fields as were NABIDS (Nabis spp.). BEE FLY larvae contributed substantially to grasshopper egg destruction in the panhandle area in the fall and Sarcophaga kellyi larvae affected approximately 20 percent of the grasshopper population in the same area. Populations of a COCCINELLID (Olla abdominalis) aided in the reduction of aphid numbers on elms in the Stillwater area in late October.

Miscellaneous Insects: Surveys for IMPORTED FIRE ANT (Solenopsis saevissima richteri) in southeastern counties were negative. RED HARVESTER ANT (Pogonomyrmex barbatus) was active statewide by April. A ZORAPTERON (Zorotypus hubbardi) was found in decaying sawdust at Harris, December 31, a first record for the State.

SUMMARY OF INSECT CONDITIONS - 1958

MISSOURI

Reported by G. W. Thomas, Stirling Kyd and R. E. Munson

Insect Outbreak Highlights: Heavy infestations of CORN FLEA BEETLE appeared on southwest area seedling corn in early May and were common statewide, by midmonth. Counts ranged 1-8 per plant with 90-100 percent of stand showing some degree of damage. Adult counts reached 12-23 per plant during second half of June and bacterial wilt incidence was very high over southern and central areas. ARMYWORM appeared 3 weeks later than for past 4 years. Small larvae, in economic numbers, were present in small grains in the extreme southeast area by mid-May. By late May and early June, damage was moderate to heavy in widely scattered central and northwestern area barley, wheat and fescue fields. CHINCH BUG migration from overwintering habitats was completed by mid-May. Moderate to heavy damage occurred on small corn, grain sorghums and Sudan grass through most of June in scattered areas of several southwestern, west central and north central counties. Overwintering survey in 26 counties showed ratings of severe in 6, moderate in 5, light in 2, noneconomic in 12. Following the alltime high overwintering larval populations of 1957, first-generation EUROPEAN CORN BORER egg mass counts ranged 100 to over 400 per 100 plants of early corn. High larval infestations failed to develop except in a few fields and second-generation egg mass and larval counts declined in most areas. The State average for districts surveyed in 1958 was 96 compared with 346 in 1957.

GARDEN WEBWORM was locally very severe during early June in parts of southwest, west central and extreme southeast areas, with alfalfa, corn and soybeans damaged in southwest and west central areas and soybeans, cotton and alfalfa in the southeast. A second severe outbreak occurred in late July in the extreme southeast area, damage being confined largely to late-planted soybeans, cotton and alfalfa. GRAPE COLASPIS caused widely scattered severe damage by June to small soybeans and corn in some extreme southeast fields where lespedeza had been plowed down. Similar damage occurred to widely scattered central and northwest area corn, soybeans and grain sorghums by late June. Egg-hatch of VARIEGATED CUTWORM began in the southwest area by mid-May and continued well into June, and moderate to heavy damage occurred to new-growth alfalfa, red clover, improved pastures, gardens and flower beds except in the northeast area. COTTON APHID built up during late June, with light to moderate leaf curling common throughout the cotton area. A spectacular COCCINELID population developed in late June and by early July the aphid problem was eliminated with practically no controls

necessary. Mixed populations of SPIDER MITES increased from late June through August and damage increased from spot defoliation to complete defoliation over large areas of several counties. First and second generations of NANTUCKET PINE MOTH were moderate to severe over much of the southern third of the State, but third and fourth generations failed to develop, resulting in a lower overwintering population than in past several years. SPRING CANKERWORM larvae caused scattered moderate to heavy defoliation of elms in western and central areas. MOSQUITO outbreaks occurred throughout the State following heavy rains and flooding during early and mid-July.

New or Unusual Records: PECAN LEAFROLL MITE (Aceria caryae), first reported from pecans in 1957, heavily infested cultivated varieties in areas of southern Dunklin and Pemiscot Counties. WALNUT BLISTER MITE (A. erinea) was taken from black walnut at Columbia. PEAR LEAF BLISTER MITE (Eriophyes pyri) was recorded from nursery stock near St. Joseph, Buchanan County, the second record for the State since 1922. A DAGGER NEMATODE (Xiphinema americanum), first reported from soil in the extreme southeast part of the State in 1955, was taken from cotton near Morley, Scott County, in 1958. EUROPEAN CORN BORER (Pyrausta nubilalis) was recorded for the first time from Douglas and Ozark Counties,making all 114 counties of the State infested. Very light numbers of SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) were recorded in Douglas, Ripley and Dunklin Counties. The latter county marks the easternmost advance of this pest in the State and establishes it in the extreme southeastern delta farmlands.

Corn Insects: (Reported by Munson, Peters, Jackson, Kyd, Thomas). DINGY CUTWORM (Feltia subgothica) and YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) caused light damage to widely scattered fields of small corn in extreme southwestern area the last of May. ARMYWORM (Pseudaletia unipuncta) caused light to moderate marginal damage to widely scattered fields of small corn in early June, where the fields adjoined heavily infested small grains or pastures. DINGY CUTWORM damage to a few fields of corn up to 36 inches high necessitated replanting in the Missouri River bottom in the central portion of the State and a very few fields in river bottom areas in the extreme northwest. WIREWORM (mainly Melanotus spp.) infestations were the lightest in the past 6 years, with no area showing more than a fraction of 1 percent loss. CORN FLEA BEETLE (Chaetocnema pulicaria). (see highlights). A few widely scattered northwestern area fields had small spots yellowed and dwarfed by CORN ROOT APHID (Anuraphis maidi-radicis) with counts of 20-55 per infested plant. Damage to a few fields of small corn by GRAPE COLASPIS (Colaspis sp.) varied from portion within fields to entire fields destroyed in southeast, central and northeast areas, and occurred only in fields where lespedeza was plowed under prior to seeding. CHINCH BUG (Blissus leucopterus), GARDEN WEBWORM (Loxostege similalis) and EUROPEAN CORN BORER (Pyrausta nubilalis). (see highlights).

CORN LEAF APHID (Rhopalosiphum maidis) was light to moderately heavy on corn in all areas from mid-July through August, but there was no evidence of injury or yield reduction from any of the heavier infestations. Larval feeding by NORTHERN CORN ROOTWORM (Diabrotica longicornis) caused spotty lodging in scattered fields along creek and river bottoms in southeast and central areas, and adults ranged 1-18 per silking ear during late July and early August. FALL ARMYWORM (Laphygma frugiperda) was light to moderate on small corn in the extreme southeast area by early July and during periods of hot weather larvae were again observed just below the ground line, causing injury similar to cutworm feeding. Light to moderate infestations were common throughout the southern half of the State by early August, with 1-4 larvae per stalk and 20-53 percent of stalks infested. The first CORN EARWORM (Heliothis zea) record for the season was from a light trap at Sikeston on May 10. Damage to corn was considerably less than during preceding years, with 1-5 percent of stalks damaged over the southern half of the State. Examination of 1,500 ears in 60 counties in the fall revealed 91.6 percent of the ears damaged with an estimated loss of 3.25 percent of the grain. Following entrance into stalks of the first-brood

European corn borers, CORN SAP BEETLES (Carpophilus spp.) became very abundant and continued high during the season. Damage to ears by larvae and adults was less than previous years. Examination of girdled stalks in late April in 6 extreme southwestern counties showed a 1.5 percent survival of overwintering SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) larvae. First-brood infestation was very light and succeeding generations failed to increase their potential. Fall survey showed percentage of girdled stalks to be less than any preceding year, with an average of 6.3 percent in 8 southwestern counties. Survey of 28 counties gave negative results in 5, and new records for Douglas, Ripley and Dunklin Counties.

Grain Sorghum Insects: (Reported by Munson, Jackson, Kyd, Thomas). CHINCH BUG. (see highlights). CORN LEAF APHID (Rhopalosiphum maidis) populations were low throughout much of the season, except in the extreme southeastern area where counts were 500-1,000 per plant in early July. Predators build up rapidly and there was no discoloration to leaves or crop damage. By late August, CORN EARWORM (Heliothis zea) counts ranged 0-60 per 100 heads, with heavier infestations in southwest and south central areas where loss ranged 5-25 percent of grain destroyed. Populations were light or noneconomic in the remainder of the State. FALL ARMYWORM (Laphygma frugiperda) larval counts averaged 1-6 per 100 heads over southwest and south central areas and occurred in conjunction with corn earworm. SORGHUM WEBWORM (Celama sorghiella) larvae averaged 0-5 per head in widely scattered fields throughout extreme southern counties by late August. Populations and infested fields gradually increased during early September, but most damage was noneconomic. Very few fed in tassels of late-planted corn and seed heads of Johnson grass. Noneconomic to low numbers of SORGHUM MIDGE (Contarinia sorghicola) occurred in several extreme southeast area fields. Adults were reared from seed heads of Johnson grass and purpletop. A few fields had 1-4 percent of head stalks broken over by EUROPEAN CORN BORER (Pyrausta nubilalis) larval feeding and a very few third and fourth-instar larvae fed in heads before boring into stalks.

Cereal Insects: (Reported by Munson, Kyd, Thomas). WINTER GRAIN MITE (Penthaleus major) populations were extremely low in all southwest area small grain fields. ENGLISH GRAIN APHID (Macrosiphum granarium) averaged 0-5 per linear foot of row in barley, rye and wheat over the southern third of the State by mid-April. Populations gradually increased, and when wheat began to head in late May counts ranged 5 to over 200 per linear foot, with the heavier infestations in the southwest area. Populations in heads of wheat did not develop as expected and infested fields averaged 4-15 aphids per head in most areas. No infestations of GREENBUG (Toxoptera graminum) were observed although there were several reports from the southwest area, none of which were confirmed. SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was considerably lighter than in 1957, with counts of 1-2 per sweep in margins of some barley fields scattered over southwest and south central areas. No damage was evident. For ARMYWORM and CHINCH BUG, see highlights. A large number of wheat fields over the western half of the State had 1-20 percent of the straws broken from HESSIAN FLY (Phytophaga destructor) feeding immediately prior to harvest. Stubble survey during July and August failed to show any increase in percentage of infested straws or number of "flaxseed", and showed a State average of 2.6 percent of straws infested in 58 counties. The highest county average of 17.2 percent was in Lafayette County.

Legume and Pasture Insects: (Reported by Blickenstaff, Brown, Jackson, Kyd, Munson, Peters, Thomas). PEA APHID (Macrosiphum pisi) averaged 2-15 per sweep on alfalfa in the southern half of the State by mid-April and gradually increased during May to 112 per sweep in this area and 100-500 per sweep in the northwest area. A fungus disease, in conjunction with parasites and predators, became abundant in May, when up to 95 percent of populations in many fields were

diseased. No successful overwintering of SPOTTED ALFALFA APHID (Therioaphis maculata) was observed. Adults were not found on alfalfa until August in the southwest, but built up to 135 per sweep in some south central and southwest area fields. VARIEGATED CUTWORM (Peridroma saragitosa). (see highlights). POTATO LEAFHOPPER (Empoasca fabae) appeared on extreme southeastern alfalfa on May 6. Populations increased slowly and averaged 1-7 adults and nymphs per sweep by late July, with the heavier numbers in northeast and north central areas. Slight yellowing of leaves occurred in more heavily infested fields. GARDEN WEBWORM (Loxostege similalis). (see highlights). THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) commonly occurred in very low numbers in southwest and central area alfalfa fields and in widely scattered southeast area fields. Girdled stems never exceeded 0.25 percent in any area and counts were generally less than 1 per 100 sweeps. BLISTER BEETLES (Epicauta spp.) stripped or severely damaged small areas within a few scattered alfalfa fields in the southern half of the State. During September E. pennsylvanica averaged 1-3 per sweep with some light damage to terminal growth and flower heads. Small spots in a very few soybean fields were defoliated by Epicauta sp. in the extreme southeast area. CLOVER LEAF WEEVIL (Hypera punctata) larval populations were considerably lower than in past several years, with counts of 0.5-2 larvae per crown of red clover and alfalfa in most areas by mid-April. A fungus disease increased during April and largely eliminated larval populations by May. CLOVER ROOT CURCULIO (Sitona hispidula) and SWEETCLOVER WEEVIL (S. cylindricollis) were considerably lower than during the past several years. Root feeding and foliage injury were light and confined to a few scattered 3 to 5-year-old alfalfa and red clover fields. Mixed populations of CLOVER APHID (Anuraphis bakeri) and YELLOW CLOVER APHID (Therioaphis trifolii) were very light except in the northwest where infestations gradually increased on first-cutting red clover during June. No economic injury occurred because of predators and adverse weather conditions. Populations of LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) continued to decline throughout the State, with no more than 20 percent of stems showing larval damage. DINGY CUTWORM (Feltia subgothica) was generally lighter in pastures, alfalfa and red clover than in past several years. Heaviest infestations averaged 1-2 per square yard in a few central area red clover fields. SWEETCLOVER APHID (Myzocallidium riehmi) was commonly very light in sweetclover over the northern half of the State. Populations of PLANT BUGS (mainly Lygus lineolarus) varied considerably over the State. By late July, L. lineolarus ranged 2-14 adults and nymphs per sweep of northeast area alfalfa which appeared to be the most heavily infested area within the State.

WHEAT STEM MAGGOT (Meromyza americana) destroyed 1-2 percent of bluegrass seed stems in the northwest area and an occasional stem of orchardgrass and wheat in western and northern areas. GRASSHOPPERS (Melanoplus differentialis, M. bivittatus, M. femur-rubrum and M. biluturatus) - Egg hatch occurred from early May through most of June. Nymphal populations were the lowest in 6 years, except in scattered isolated fields or farms in the western third of the State where counts ranged up to 35 per square yard of margin. Populations were reduced to noneconomic numbers over the State by heavy rains in July except in widely scattered fields in west central and northwest areas. No damage occurred to field crops. GREEN CLOVERWORM (Plathypena scabra) larvae ranged 1-6 per linear foot of row on soybeans in the extreme southeast where considerable ragging of foliage occurred in some fields. Populations were lighter in all soybean-producing areas. Larvae ranged up to 2 per sweep in many alfalfa fields over the southern half of the State. THRIPS caused some silvering of soybean leaves in the extreme southeast and in scattered fields over the remaining soybean-producing areas. Initial injury was light. CORN EARWORM (Heliothis zea) larvae averaged 1-2 per yard of row in a few soybean fields scattered over the west central area. Damage was moderate to severe, occurring when plants were 6-11 inches high. Most plants recovered in time to produce a normal crop. GRAPE COLASPIS (Colaspis sp.). (see highlights). BEAN LEAF BEETLE (Cerotoma trifurcata) adults ranged 1-3 per linear foot of germinating soybeans and garden beans in the central area by late May. By August, counts decreased in the central area but increased to 2-4 adults per linear foot of row in the extreme

southeast and caused considerable ragging of foliage but little or no injury to blossoms, newly set pods or seeds. STINK BUGS (Acrosternum hilare, Euschistus servus and E. variolarius) increased greatly in soybean fields throughout the State in late season. Adults and nymphs of A. hilare were common on soybeans, while mainly adults of the other two species were found. Some species fed on the beans within the pods and the extent of the damage was not fully determined. The quality and oil content of the beans upon which they fed were probably reduced. The known SOYBEAN CYST NEMATODE (Heterodera glycines) infested area is confined to the 3 extreme southeast counties of Stoddard, New Madrid and Pemiscot. Samples were taken from 7,415 fields comprising 197,085 acres of soybeans and lespedeza land in 70 counties. As of December 31, 112 fields are known to be infested, totaling 3,940 acres.

Fruit Insects: (Reported by Enns). Apples - APPLE APHID (Aphis pomi) numbers were few and STINK BUGS (Euschistus spp.) were present in scattered infestations in May. By mid-May a few reports of ROSY APPLE APHID (Anuraphis roseus) were received. CODLING MOTH (Carpocapsa pomonella) was largely in the pupal stage by mid-May with first adult being taken May 17, but second-brood moths appeared on schedule in early July. Controls were satisfactory and only very few third-brood moths were noted in August. By mid-May a few RED-BANDED LEAF ROLLERS (Argyrotaenia velutinana) were noted. First and second-broods, although not overly abundant, caused considerable damage just as Jonathan picking began. No reports of FORBES SCALE (Aspidiotus forbesi) infestations were received during the season. Peaches - The abundant crop in the southeast and Kansas City areas was attacked as usual by ORIENTAL FRUIT MOTH (Grapholitha molesta), PLUM CURCULIO (Conotrachelus nenuphar), LYGUS BUGS and STINK BUGS. Most growers obtained good control and no unusual problems appeared. Grapes - The major problem in the Rosati area was a heavy outbreak of MEALYBUGS which became evident by May 20 and continued until mid-August. Most growers achieved good control and there was no apparent loss. Small numbers of GRAPE BERRY MOTH (Paralobesia viteana), GRAPE LEAF FOLDER (Desmia funeralis) and LEAFHOPPERS were noted but caused no serious injury. GRAPE SCALE (Aspidiotus uvae) continued troublesome near Kansas City. GRAPE ROOT BORER (Vitacea polistiformis) was found in grape roots at Rosati in mid-June.

Cotton Insects: (Reported by Harrendorf, Hare, Thomas). The 1958 growing season was generally good, but there was an unprecedented drought during May and early June that delayed germination and necessitated some replanting in scattered areas of several southern counties. Rainfall was ample during the remainder of the season and was followed by an excellent harvesting season. MIRIDS (including Lygus lineolarus and Adelphocoris rapidus) - Economic populations of the flea-hopper complex developed in early August, two weeks later than in 1957. There was no apparent difference in square set or yield in a few fields operated under an early season control program, when compared with surrounding untreated fields. Widely scattered marginal infestations of SPIDER MITES (mainly Tetranychus atlanticus) began in late May and early June. By July, marginal and spot controls were applied in several counties. Infestations built up and spread and caused defoliation over much of the cotton-growing area by mid-August. Populations declined in all counties by early September. Controls were widely used, with failures reported from all chemicals recommended. BOLLWORM (Heliothis spp., et al.) infestations were low until late July when an increase began and reached a peak by September. Egg counts were unusually high in early September, but subsequent larval infestations failed to develop. Good control was obtained with 1-3 applications in more heavily infested fields.

No live BOLL WEEVILS (Anthonomus grandis) were recovered from ground trash during the spring and very few apparently successfully overwintered, as the first field infestations were detected in mid-July, two weeks later than in 1957. Numbers slowly increased, with a peak in late September. A few fields were treated with only moderate success in late August and early September in Butler, Dunklin and

Stoddard Counties. Little damage resulted to the late top crop. SEED-CORN MAGGOT (Hylemya cilicrura), CUTWORMS (Agrotis ypsilon and Feltia subgothica) and COTTON LEAFWORM (Alabama argillacea) were not problems in 1958. COTTON APHID (Aphis gossypii) built up to outbreak proportions over the entire cotton-growing area by early June and began to curl leaves when parasites and predators rapidly increased and eliminated the problem. STALK BORER (Papaipema nebris) marginal damage became apparent in widely scattered fields in Butler, Dunklin and Stoddard Counties during June and early July, with 0.5-6 percent of the stalks killed in the first 4-8 marginal rows. A heavy outbreak of GARDEN WEBWORM (Loxostege similalis) followed the aphid outbreak in June in those fields treated for aphid control. A second outbreak occurred in late July on cotton, soybeans and alfalfa. A few third-brood larvae of EUROPEAN CORN BORER (Pyrausta nubilalis) were found for the fourth consecutive year boring in main stems and bolls in several counties. PINK BOLLWORM (Pectinophora gossypiella) - Inspection of 123 lint cleaners and 1,613 bushels of gin trash from 73 gins in 7 counties gave negative results for pink bollworm.

SURVEY METHODS

FLY BAITS AND TRAPS

Preliminary tests in Colorado during 1956 showed that fly baits sprayed on beet plants gave rather spectacular results on kills of adult sugar beet root maggots. In 1957 bait traps, using several attractants, particularly hydrolysate materials, were found to attract a wide variety of Diptera. Tests during 1957, beginning in April and continuing weekly until October, gave population data on sugar beet root maggot, seed-corn maggot, western wheat stem maggot and spinach leaf miner. This method has also proved very successful in determining emergence, broods and seasonal activity of these four pests. The study of baiting technique was expanded in 1958.

Materials used in Bait Traps for Sugar Beet Root Maggot Adults 1957

A. Dylox, 1 oz., sugar 1 lb., water 2 qts.

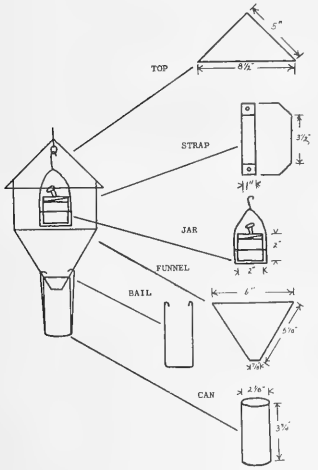
B. Dylox, 1 oz., sugar 1 lb., water 2 qts., yeast hydrolysate 1/2 oz.

C. Dylox, 1 oz., sugar 1 lb., water 2 qts., casein hydrolysate 1/2 oz.

D. Dylox, 1 oz., sugar 1 lb., water 2 qts., soy hydrolysate 1/2 oz.

E. Dylox, 1/2 oz., water 1 pt., protein bait No. 2* 4 oz.

F. Dylox, 1/2 oz., water 1 pt., protein bait No. 7* 4 oz.



Fly Bait Trap

Trapping Procedure and Results

A wood cylinder 1.25 inches in diameter by 3 inches long, or a corn cob 3 inches long, was dipped in one of the above baits and suspended over the 6-inch funnel of a Japanese beetle trap or a similar funnel-type trap. (see illustration). Flies attracted to the bait dropped into the container under the funnel. All of the above baits caught adults of the sugar beet root maggot. Bait A caught the most and bait D was next in numbers. Bait B, containing yeast hydrolysate, fermented and did not attract many of the root maggot flies but did attract and kill many sarcophagids and calliphorids. In 1958, the bait traps were modified by replacing the corn cob with a wick in a two (2) ounce salve jar. (L. E. Jenkins).

* Protein bait contains amino acids.

See CEIR 9(10):159

Uniform Survey Procedure Approved By
The Lake States Forest Insect Survey Committee - 1959

BALSAM GALL MIDGE DAMAGE APPRAISAL SURVEY

Addendum

Control of the balsam gall midge through management or insecticides has not yet been reduced to practical levels. Recommendations concerning this insect, hence are directed not toward its control but toward the prevention of damaged trees reaching the market. The following marketing practices are recommended.

1. Trees moderately to heavily infested will not be marketed.

2. Trees lightly infested may be marketed if needle galling was no heavier than moderate the previous year.

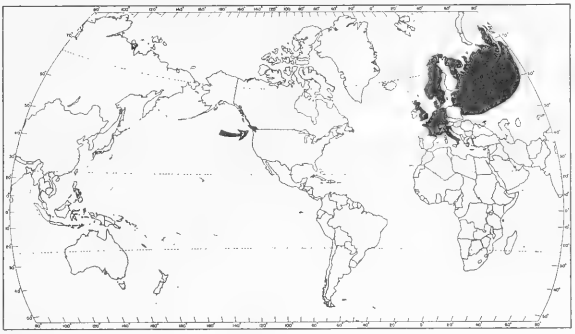
R. L. Giese, D. M. Benjamin

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

A BRAMBLEBERRY LEAFHOPPER (Macropsis fuscula (Zetterstedt))

Economic Importance: An outbreak of this leafhopper was discovered on loganberry on Lulu Island, British Columbia, in 1952. It had not been reported previously from North America. Heavy infestations have occurred yearly since 1952 in the Lulu Island area causing considerable damage to various brambleberries through feeding on flowers and fruit and through heavy deposits of honeydew. The infestations have been difficult to control. Although the insect has been known to cause direct plant damage for some time, it assumed a more important economic status when it was shown to be the vector of the destructive Rubus stunt virus of Europe in 1953. This virus is not known to occur in North America.

Symptoms of Rubus virus on loganberry are as follows: New canes weak, short, thin, much more numerous than usual, giving bushy appearance. The following season weak canes generally fail to flower. Flowers on infected canes less numerous than normal and may be malformed, floral parts becoming foliar. Disease is progressive, plant becoming more stunted and bushy in successive years. On raspberry, best diagnostic characters are late development and shortness of laterals early in season.

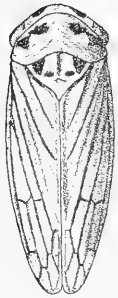


General Distribution of Macropsis fuscula

Distribution: Europe (Italy, France, Belgium, Netherlands, Germany, England, Denmark, Norway, Sweden, Finland, northern USSR) and British Columbia, Canada.

Hosts: Rubus spp. (loganberry, raspberry, thimbleberry, blackberry, et al.).

Life History and Habits: The insect overwinters in the egg stage in canes of wild and cultivated Rubus spp. In British Columbia, the eggs hatch in late May, about the time loganberries begin to blossom. Nymphs are numerous by mid-June, with as many as 7 per cluster of fruit buds in some plantings. There are 5 instars, each stage requiring about 10 days. Adults appear in mid-summer. Apparently there is only one generation a year. In the Netherlands, the virus is spread from old to new berry plantations by adults.



Adult

Male Genitalia

Description: According to Beirne - Length 4.5-5.0 mm. Dull yellowish-brown to light fuscous; markings of head, pronotum and scutellum black; veins of forewings fuscous or blackish. Distinctive features: black spot at base of hind tibiae; rounded or comma-shaped spot beneath each ocellus, a smaller spot beneath each of these; a large, elongate pair lower down and the sides of the clypeus black. Size of black markings and general color of insect variable. Other North American species having black-spotted tibiae may be readily distinguished from fuscula by the absence of dark facial spots and by host plants. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies.) CEIR 9 (12) 3-20-59.

Macropsis fuscula

Left: Stunted Right: Normal

Norfolk Giant Raspberry

Figures (except map): Adult and male genitalia from Beirne, B. P. 1956. Canad. Ent. 88(Suppl. 2), 180 pp. Stunted and normal growth of raspberry from Prentice, I. W., 1951. Jour. Hort. Sci. 26(1):35-42.

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Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
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UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY

SURVEY & 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:

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Plant Pest Survey

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Volume 9 March 27, 1959 Number 13

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GREENBUG variable in small grains in several states. (p. 213).

SPOTTED ALFALFA APHID damage light to heavy in Oklahoma, Texas and Nevada. (p. 214).

Survey of POTATO PSYLLID on overwintering host indicates potential outbreak populations this season. (p. 215).

BOLL WEEVIL survival survey, Mississippi, spring, 1959. (p. 216).

Severe outbreak of BARK BEETLES developing on 1,000 acres of pine in Shasta County and potential outbreak possible in Napa County, California. (p. 217).

INSECT DETECTION: First report of occurrence of Haplothrips clarisetis in New Mexico, with damage to lettuce in Dona Ana County. (p. 215). IMPORTED FIRE ANT found for first time in Polk County, Florida. (p. 219). ARGENTINE ANT found in Baltimore, Maryland. Has not been reported in this locality for several years. (p. 219).

CORRECTIONS and ADDITIONAL NOTES. (p. 220).

Illustrated key for the recognition of the IMPORTED FIRE ANT and closely related species. (p. 221).

SUMMARY OF INSECT CONDITIONS - 1958 - OHIO. (p. 224).

INSECTS not known to occur in the United States. (p. 227).

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Reports in this issue are for the week ending March 20, unless otherwise designated.

WEATHER OF THE WEEK ENDING MARCH 23

The week was abnormally cold in Gulf coastal sections and east of the Mississippi River, and unseasonably mild elsewhere. Precipitation was heavy in parts of the Southern States and along the north Pacific coast but mostly light elsewhere, with none at all in large areas of the Southwest for the fourth consecutive week. Both the area and depths of snow cover at lower elevations were reduced, with local minor flooding occurring in the upper Mississippi Valley. Two low pressure areas gained moderately strong to strong storm intensity, one crossing the southern portion of the country from west to east on the 19th to the 22nd and the other developing in the Northeast on the 21st. The storm of the 19th to the 22nd caused near blizzard conditions and whipped up dust in the southwestern Great Plains on the 20th, and triggered tornadoes and severe thunderstorms with hail in Texas. Drifting snow closed roads in northeastern New Mexico and the Texas Panhandle and forced many schools to close in eastern Colorado. Tornadoes in Texas destroyed some farm buildings near Trenton, damaged 2 houses and uprooted trees in Marshall and damaged 22 homes in Paxton. Stormy conditions in New England on the 21st included gale-force winds, rain, snow, sleet and scattered thunderstorms. Almost daily rains occurred in the Florida Peninsula, and weekly totals ranged from 6 to 9 inches in central and northern portions and 3 to 5 inches in northwestern and extreme southern portions of the State. Overflowing streams and lakes inundated farmlands and closed some roads. In that portion of the Peninsula north of Lake Okeechobee, March rainfall now generally totals 8 to 12 inches, setting new March records at numerous points.

Even though maxima in the 60's reached the Northern Border States during a midweek warm spell in the eastern third of the country, cold snaps early and late in the week, with freezing temperatures to the northern portions of the Southern States resulted in weekly averages of 3° to 6° below normal. Owing to well below normal temperatures for 3 consecutive weeks in the Southeast, spring continued to lag there. The snow cover is now mostly limited to mountainous areas and portions of Minnesota, Wisconsin, Michigan, New York and New England. Most of Wisconsin is still covered and, even though depths decreased from 2 to 10 inches last week, La Crosse still has 13 inches. Depths range up to 45 inches in extreme northern Michigan. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

A GRASSHOPPER (Oedaleonatus enigma) - CALIFORNIA - First-instar nymphs averaged up to 12 per square yard in rangelands of Kettleman Hills, Maricopa area of Kern County. Scattered infestations appearing in large numbers in San Luis Obispo County. (Cal. Coop. Rpt.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - SOUTH DAKOTA - Preliminary survey in 12 southeastern counties indicates approximately 14 percent mortality in the overwintering population. (Mast, March 14).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Found in one field in Tillman County out of 41 fields surveyed in 7 counties. Populations were generally light, but plentiful in spots. (Henderson). TEXAS - Light in most small grain fields examined in 9 north central counties. Populations did not exceed 25 per foot. (Chada).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Populations ranged up to 150 per linear foot in 5 wheat fields checked in Caddo County. (Hudson). TEXAS - None observed in any of 9 north central counties surveyed. (Chada).

ENGLISH GRAIN APHID (Macrosiphum granarium) - DELAWARE - Alates and nymphs common on ryegrass cover crop in Sussex County. (Burbutis, Conrad). OKLAHOMA - Light populations of 0-10 per linear foot found fairly common in small grain fields surveyed in 11 counties. (VanCleave, Owens, Meharg). Populations averaged less than 10 per linear foot in a few small grain fields surveyed in 7 counties. (Henderson). TEXAS - Light in most small grain fields examined in 9 north central counties. (Chada). NEW MEXICO - Building up in wheat fields in Artesia area, Eddy County, and in Roosevelt and Curry Counties. (N. M. Coop.Rpt.) KANSAS - Averaged less than one per linear foot in one wheat field in Labette County. (Peters).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Found in approximately half of the small grain fields surveyed in 11 counties with populations of 0.5-100 per linear foot. (VanCleave, Owens, Meharg). Counts ranged 100-500 per linear foot in 3 fields checked in Grady County (Pennington), 25-200 per linear foot in 3 fields in Canadian County (Ritter), and populations were present in 31 of 41 small grain fields surveyed in 7 counties with counts of 0-360 per linear foot. (Henderson). TEXAS - Very heavy, as many as 500-1,000 or more per foot, in a few fields having dense growth of grain in north central area. Presence of numerous parasites and predators should reduce populations. (Chada).

GREENBUG (Toxoptera graminum) - LOUISIANA - Infestations extremely light in northern part of State. (Spink). OKLAHOMA - Survey of small grain fields in 7 counties showed an average of 17-157 per linear foot. (Henderson). Great quantities of winged forms present in Tillman County. Approximately 20,000 acres have been treated. (Hatfield). Averaged 10-50 per linear foot in 5 small grain fields in Caddo County and 0-5 in 2 Custer County fields. (Hudson). Ranged 200-1,000 per linear foot in 3 fields in Grady County (Pennington), 50-100 per linear foot in 2 small grain fields in Canadian County (Ritter), 158-777 in 5 small grain fields in a localized area north of Guthrie, Logan County, and none were found in a wheat field checked in Payne County and another field in Creek County. (Stiles). Counts ranged 0-50 per linear foot in most fields checked in 11 counties. One field in Pawnee County averaged several hundred per linear foot. (VanCleave, Owens, Meharg). TEXAS - Present in 24 of 26 small grain fields examined in 9 north central counties. Averaged 250 per foot, with considerable damage in one field near Burkburnett, Wichita County, and averaged 175 per foot in one field near Crowell, Foard County. Averaged less than one to 75 per foot in other fields. (Chada). Heavy in Knox County, with 500-700 per foot of row. (Turney). Light to medium, 15-20 per foot of row, in Rockwall County. (Davis). NEW MEXICO - Building up in wheat fields in Artesia area, Eddy County, and in Roosevelt and Curry Counties. (N. M. Coop. Rpt.).

KANSAS - Found in 2 of 26 fields observed in east central and southeast areas and ranged 0-5 per linear foot of row. (Peters). None found in wheat fields examined in Montgomery, Chautauqua, Elk, Greenwood, Lyon and Wabaunsee Counties. (Knutson).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Fields checked in Madison, Pope and Yell Counties showed an average of 22 percent winter survival, with range of 7-50 percent. (Whitcomb, March 14).

FLEA BEETLES - TEXAS - Phyllotreta pusilla heavy and attacked corn roots in Dimmit County. Averaged 1-4 adults per 3-inch corn shoot. (Harding). ARIZONA - Chaetocnema ectypa heavy on sweet corn and early planted sorghum in some fields in Maricopa County. (Ariz. Coop. Sur.).

AN EARWIG (Euborellia cincticollis) - CALIFORNIA - Taken from corn in West Sacramento, Yolo County. This is farthest north species is reported in State. (Cal. Coop. Rpt.).

CUTWORMS - DELAWARE - Amathes c-nigrum larvae prevalent under debris in a clover field in Sussex County. (Burbutis, Conrad). NEW MEXICO - Chorizagrotis auxiliaris infestations light and spotty in barley fields near Artesia, Eddy County. (N. M. Coop. Rpt.). KANSAS - Chorizagrotis auxiliaris found in one wheat field in Butler County and ranged 1-4 per linear foot in a damaged area about 40 feet in diameter within the field. (Peters).

CLOVER ROOT CURCULIO (Sitona hispidula) - MARYLAND - Some old alfalfa stands in Harford and Howard Counties showed considerable root damage. (U. Md., Ent. Dept., March 3).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Larvae hatching in Rockfish Valley of Nelson County, March 13-14. (Swain). UTAH - Larvae active and some controls have been applied in Salt Lake County. (Knowlton).

CLOVER LEAF WEEVIL (Hypera punctata) - DELAWARE - Late-instar larvae common in some clover and alfalfa fields in Sussex County. (Burbutis, Conrad). KANSAS - Larvae found in one alfalfa field in Lyon County and averaged about 3 per square foot of crown area. (Peters).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Populations common in alfalfa fields in Noble, Payne, Pawnee, Lincoln, Okfuskee, Seminole, Pontotoc and Hughes Counties, with counts of 5-450 per square foot. Lighter and scattered in Tulsa, Creek and Okmulgee Counties with 0-25 per square foot. (VanCleave, Owens, Meharg). Averaged 25 per square foot in an alfalfa field in Grady County (Pennington) and severely damaged alfalfa in a field in the same county, with plants very sticky from honeydew. (Henderson). Averaged 460 per square foot of crown area in some Payne County alfalfa fields, an increase from the 288 reported last week. (Ketner). TEXAS - Medium to heavy infestations in Rockwall County. (Davis). NEVADA - General in alfalfa fields at Mesquite, Clark County, with light to heavy damage. (Hoff). NEW MEXICO - Remained heavy in northern Dona Ana County and near Tularosa, Otero County. (N. M. Coop. Rpt.). KANSAS - Fifteen found on 75 alfalfa plants observed on roadside embankment in Riley County, March 13. On March 14, one was found on 25 plants in Cloud County, none on 50 plants in Marion County, 2 on 25 plants in Butler County and 20 on 50 plants in Cowley County. (Simpson, Burkhardt). Populations in southeast area ranged 0-50 per 10 sweeps. None were found by examination of individual plants. (Peters).

PEA APHID (Macrosiphum pisi) - ALABAMA - Light to moderate on vetch in several areas of northeastern part of State. (Grimes). OKLAHOMA - Counts ranged 0-100 per linear foot in alfalfa fields in 11 counties. (VanCleave, Owens, Meharg). KANSAS - Present in most alfalfa fields observed in east central and southwestern areas and ranged 0-50 per 10 sweeps. (Peters). ARIZONA - Light on alfalfa in Graham County. (Ariz. Coop. Sur.).

FRUIT INSECTS

COWPEA APHID (Aphis medicaginis) - ARIZONA - Heavy infestations on some dooryard plantings of citrus in the Phoenix area. (Ariz. Coop. Sur.).

SAY STINK BUG (Chlorochroa sayi) - CALIFORNIA - Light infestation on grapefruit and tangerine twigs in Borrego Valley, San Diego County. Not usually associated with these hosts. (Cal. Coop. Rpt.).

THRIPS (Frankliniella sp.) - TEXAS - Medium infestation on citrus blooms in Zavala and Dimmit Counties with 0-6 adults per bloom. (Harding).

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Light infestations on navel orange fruit in Centerville, Fresno County, and on fruit of an orange tree in Ojai, Ventura County. (Cal. Coop. Rpt.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - NORTH CAROLINA - Infesting peach tree in a Warren County backyard. (Jones, Farrier).

DRIED-FRUIT BEETLE (Carpophilus hemipterus) - CALIFORNIA - High daytime temperatures ranging above 70 degrees have increased emergence and flight of adults. Large numbers taken in the Chowchilla area of Madera County bait pots. (Fig Inst.).

TRUCK CROP INSECTS

A CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Causing minor damage to lettuce in several Dona Ana County fields. (N. M. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Light infestations on bell peppers in the Encanto area of San Diego County. (Cal. Coop. Rpt.). ARIZONA - Infestations on lettuce in Maricopa County increased slightly over last week. Many fields averaging 12 aphids per plant. (Ariz. Coop. Sur.).

CUTWORMS - NEW MEXICO - Causing some damage to lettuce fields, especially along fence rows and ditch beds. (N. M. Coop. Rpt.).

HARLEQUIN BUG (Murgantia histrionica) - TEXAS - Medium on mustard, turnips and broad beans in Zavala and Dimmit Counties. Great numbers in field margins. (Harding).

SEED-CORN MAGGOT (Hylemya cilicrura) - TEXAS - Light on seedling potatoes. (Turney).

THRIPS - NEW MEXICO - Frankliniella sp. average 2 per plant on onions in Mesilla Valley. Haplothrips clarisetis killing young lettuce in Dona Ana County fields. First report of occurrence in the State. (N. M. Coop. Rpt.). TEXAS - Thrips tabaci light to heavy, widespread, attacking onions in Dimmit and Zavala Counties. Reproduction heavy. Seven to 23 adults per plant in the Winter Garden area. (Harding).

Potato Psyllid Survey on Overwintering Host

Potato psyllid surveys were conducted March 5-10 in the southern overwintering areas. Generally, the weather was favorable for the 1959 survey in Arizona and California, but not so in New Mexico, where high winds prevailed throughout the survey period. Development of lycium varied considerably between sections and condition of the plants was fair to excellent. An abundance of psyllid eggs was found in most areas surveyed in both Arizona and California, with a few in Texas.

Lycium was abundant and well advanced in growth in Arizona and California; mostly dormant in the Las Cruces area of New Mexico; generally dormant and droughty in Texas except in the El Paso area. Potential populations for 1959 are much greater than in 1958, even though lycium is not as abundant as in 1958. Texas is the exception with populations much lower than 1958 except in the El Paso area. The survey indicates a potentially severe outbreak this season. A comparison of populations found in 1957, 1958 and 1959 spring surveys is shown in the table below.

Potato Psyllid Survey on Overwintering Host

State	District	Average No. per 100 Sweeps 1959	1958	1957
Texas	Howard County (Big Springs)	24	227	516
	Terrell-Pecos-Brewster (Sanderson-Marathon)	130	181	129
	El Paso	42	6	158
New Mexico	Las Cruces (Southern)	54	7	158
Arizona	Phoenix-Tucson (Southern)	992	93	95
California	Blythe-Barstow (Southern)	237	96	143

Note: Names in parenthesis are 1957 and 1958 designations of same areas.

(PPC and Coop. States)

A SAP BEETLE (Lobiopa insularis) - LOUISIANA - Moving out of hibernation areas into strawberry fields. (Spink).

COTTON INSECTS

Boll Weevil Survival Survey - Spring 1959

MISSISSIPPI - Collections of woods trash were begun March 3 and examinations completed March 17. Wherever possible, samples were taken from the same locations that were sampled last fall. Results of the survey are shown in the following table.

	Area	Average No. Weevils Per Acre	Percent Survival
1.	Lower delta	781	17.68
2.	Central delta	364	7.73
3.	North delta	284	9.43
4.	Hill section	429	14.04

These percentage survivals are lower than 1956 and 1957 but higher than the record low of 1958. (Merkl et al.).

BOLL WEEVIL (Anthonomus grandis) - MISSOURI - During late February, 60 trash samples were collected and run through a trash machine. Thirty-eight were from Campbell, Dunklin County, and 22 from Commerce, Scott County. No live weevils were recovered. (Harrendorf).

BOLLWORMS (Heliothis spp., et al.) - TEXAS - Light infestation of adults in cotton fields in Matagorda County. (Cason).

GARDEN WEBWORM (Loxostege similalis) - TEXAS - Numerous adults observed in Matagorda County. (Cason).

A MEALYBUG (Pseudococcus eriogoni) - CALIFORNIA - Light infestation on cotton reported from Holtville, Imperial County. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE MOTH (Rhyacionia frustrana) - ALABAMA - Emergence has begun in southern part of State, with peak probably between March 6-15. Emergence also noted in several northern areas. (Grimes).

PINE TUBE MOTH (Argyrotaenia pinatubana) - WISCONSIN - Pine tubes containing hibernating pupae numerous in some white pine plantings in southern and northeastern parts of the State. (Wis. Coop. Sur.).

A PINE WEBWORM - ALABAMA - Activity increased in several areas. (Grimes). Damaged seedlings on several acres in Colbert and Franklin Counties. (Vickery). Damaged an average of 2 seedlings per acre over a 5,000-acre plot in Baldwin County. (Wright). Damaged a few two-year-old longleaf trees on experimental plots in Monroe County. (Downing).

TENT CATERPILLARS (Malacosoma spp.) - LOUISIANA - Not as numerous in northern part of State as in 1957. Nests average 4-6 inches in diameter. (Spink). ARIZONA - M. disstria beginning to appear on cottonwood in parts of Pinal County. (Ariz. Coop. Sur.).

BARK BEETLES (Dendroctonus spp.) - ALABAMA - D. terebrans activity increased in several localized areas of the State. (Grimes). TEXAS - D. frontalis continues active near Sour Lake, Hardin County. (Young). CALIFORNIA - D. brevicomis and Ips confusus caused considerable damage and killed ponderosa pines near experimental plantings in El Dorado County. Severe outbreak developing in 1,000 acres of pines in Gibson area of Shasta County and possibility of a severe outbreak developing in the Howell Mountain area near Angwin in Napa County. (Averella, Denny, Fairbanks).

WHITE-PINE WEEVIL (Pissodes strobi) - VIRGINIA - Larvae damaged leaders of pines in a Patrick County plantation. (Morris, Reed).

A WEEVIL - LOUISIANA - Infesting tips of branches of pines near Homer, Claiborne Parish. (Spink).

WHITE-PINE APHID (Cinara strobi) - WISCONSIN - Egg deposition heavy on white pine plantings in Walworth and Columbia Counties. (Wis. Coop. Sur.).

PINE SAWFLIES - VIRGINIA - Neodiprion sp. eggs averaged 3-4 per needle on 3 pine tips from a plantation in northern Cumberland County. (Morris, Seay). NORTH CAROLINA - Few eggs of Neodiprion pratti pratti hatched prior to March 13 in northern Piedmont area. (Green). ALABAMA - Caused defoliation on limited acreage in Shelby County. (Haynes). Caused considerable damage in one and two-year-old plantations in Mobile County. (Arnold).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - MARYLAND - Severe on English boxwood at Annapolis, Anne Arundel County. (U. Md., Ent. Dept., March 10).

LEAFHOPPERS (Empoasca spp.) - ARIZONA - Damaged some bedding plants and bulbs in Pinal County. (Ariz. Coop. Sur.).

AN APHID (Thoracaphis umbellulariae) - CALIFORNIA - Heavy infestations damaged and deformed bay trees in Lafayette, Contra Costa County. (Cal. Coop. Rpt.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - DELAWARE - Pupae very common in leaves of American holly in Sussex County. Few larvae still present. (Burbutis, Conrad).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - Heavy and damaging privet in Escalon, San Joaquin County. (Cal. Coop. Rpt.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - ARIZONA - Heavy on some evergreens in Coolidge and Elroy areas, Pinal County. (Ariz. Coop. Sur.).

SCALE INSECTS - VIRGINIA - Unaspis euonymi infestations present on euonymus in Prince William County and Falls Church (Amos) and in Arlington County (Rowell). CALIFORNIA - Aspidiotus perniciosus heavy on cotoneaster in San Leandro, Alameda County. (Cal. Coop. Rpt.). IDAHO - Lepidosaphes ulmi extremely heavy on several blue ash trees in Twin Falls. Phenacaspis pinifoliae fairly severe on mugho pine, in same area. Large numbers of eggs present. (Gibson).

A BARK BEETLE (Monarthrum dentiger) - CALIFORNIA - Heavy on California live oak in O'Neil Park, Orange County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Leaving hibernation in Cleveland County. (Pennington).

A SESIID (Paranthrene robiniae) - CALIFORNIA - Heavy on weeping willow in Ojai, Ventura County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS (Hypoderma spp.) - VIRGINIA - Of grubs extracted during week ending March 20, in King George, Albemarle, Sussex, Washington and Montgomery Counties, most were H. bovis. (Turner). ARKANSAS - Survey of 583 head during January and February revealed 2,262 grubs, with an average of 3.88 per head. (Lancaster, Watson, March 14). OKLAHOMA - Adults of H. lineatum active and running cattle in Pond Creek area of Grant County on March 13. (Owens). NEW MEXICO - Specimens collected in San Miguel and Harding Counties identified as H. lineatum. (N. M. Coop. Rpt.). WYOMING - Averaged 5-12 per animal in 3 treated herds in Sheridan County in February. Check of 12 horses treated in September, 1958, showed 2 grubs in one and 1 grub in another. (Davison).

SHEEP SCAB MITE (Psoroptes equi ovis) - VIRGINIA - Found on 62 of 334 sheep inspected during February. (Va. Livestock Health Bull.).

MOSQUITOES - DELAWARE - Aedes canadensis larvae, mostly second-instar, averaged 5 per dip in New Castle County. (Burbutis, Conrad). CALIFORNIA - Culex tarsalis populations light in natural habitats over most of the State and very low in southern portions. (Public Health Vector Control). NEVADA - Aedes niphadopsis adults emerging in Fallon area, Churchill County, and northern Lyon County. Fourth-instar A. dorsalis larvae very abundant in western Churchill, northern Lyon and southern Washoe Counties. (Chapman).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - NEW MEXICO - Eleven properties now infested in southern part of State and two properties have been fumigated. (N. M. Coop. Rpt.).

RICE WEEVIL (Sitophilus oryza) - TEXAS - Heavy surface infestation reported in Willacy County. Reported only in hot spots in the grain in Bexar County. Heavy surface and 3-foot infestation in grain sorghum in Medina County. (Texas Coop. Rpt.).

LESSER GRAIN BORER (Rhyzopertha dominica) - TEXAS - Light in milo in Floyd County. (Texas Coop. Rpt.).

BENEFICIAL INSECTS

PARASITES AND PREDATORS - DELAWARE - Two Iseropus coelebs and one Itoplectis conquisitor emerged from 10 pupae of Hemerocampa leucostigma collected in New Castle County in fall of 1958. (Burbutis, Conrad). OKLAHOMA - Generally light in 41 small grain fields surveyed in 7 counties. (Henderson). Light in alfalfa and small grain fields surveyed in 11 counties. Hippodamia convergens and Nabis sp. averaged 0.2 per square foot. (VanCleave, Owens, Meharg). TEXAS - Coccinellid larvae and adults numerous (10-28 per linear foot) in all fields infested with greenbug in 9 north central counties surveyed. Aphidius testaceipes present in most fields and should be very effective in controlling populations with warmer weather. (Chada). Coccinellids, Geocoris spp. and Orius sp. widespread and building up in wheat. (Turney). NEW MEXICO - Praon palitans adults observed in alfalfa fields at Tularosa, Otero County. Coccinella sp. adults and larvae very abundant in alfalfa fields heavily infested with spotted alfalfa aphid. (N. M. Coop. Rpt.). WYOMING - Survey of several alfalfa fields in Park County revealed presence of many over-wintering cocoons of Bathyplectes curculionis. (Davison). KANSAS - Averaged less than one per square foot in several alfalfa fields in east central and southeastern areas. (Peters).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Collected for the first time in Polk County at Lake Wales, during February. (Fla. Coop. Sur.).

ARGENTINE ANT (Iridomyrmex humilis) - MARYLAND - Ten workers collected in early February from a home in Baltimore. Det. M. R. Smith. Probably brought to property in, or with, soil around young trees from out of the State in July, 1958. Survey of grounds and home on March 17 showed no ants present. This is not a new record for the State, as this ant was found in Baltimore many years ago but has not been reported since 1932. (U. Md., Ent. Dept.).

TERMITES - VIRGINIA - Sexual forms emerging from beneath a home in Prince William County. (Morris, Cox). MARYLAND - Winged forms of Reticulitermes flavipes observed in buildings at Baltimore and at Centerville, Queen Annes County. (U. Md., Ent. Dept.). NORTH CAROLINA - Swarming from a house in Wake County. (Jones).

CLUSTER FLY (Pollenia rudis) - PENNSYLVANIA - Fairly common in homes in the northeastern part of the State and generally more abundant than usual statewide. (Gesell, March 4).

CORRECTIONS

CEIR 9(10):152 - DEODAR WEEVIL - PENNSYLVANIA - Should read "Infested Scotch pine at Wayne, Delaware County, during the fall of 1958." Det. U. S. N. M. (Drooz).

CEIR 9(10):154 - CATTLE GRUBS - VIRGINIA - Disregard statement "No H. bovis have been extracted east of the Blue Ridge Mountains to date this year." (Morris).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Feltia subt.
ARIZONA					
Mesa 3/11-17			22	7	
FLORIDA					
Gainesville 3/9, 17	1				11
Monticello 3/10, 18	1	1			19
Quincy 3/10, 16	11	14			
LOUISIANA					
Baton Rouge 3/1-20	63	45	7	27	40
Franklin 2/24-3/2	7	4	3		6
SOUTH CAROLINA					
Clemson 3/14-20	1		2	1	
TEXAS					
Brownsville 2/14-3/13	67	20	3	9	19

ADDITIONAL NOTES

GEORGIA - ALFALFA WEEVIL infesting alfalfa in Polk County. (Robertson). First eggs of PLUM CURCULIO under laboratory conditions found March 10, but none have been found in orchards to date. It has been too cold to date for adults to appear from hibernation in numbers. Very heavy infestation of PEACH TREE BORER observed in a commercial peach orchard near Reynolds, Taylor County, March 20. Damage heavy and tree vitality will be greatly lowered unless controls are applied. (Snapp). VEGETABLE WEEVIL light on tobacco beds in 12 tobacco-growing counties and TOBACCO FLEA BEETLE light on tobacco in 4 counties. DIAMONDBACK MOTH light on cabbage in Thomas, Colquitt and Lowndes Counties. (Johnson).

AN ILLUSTRATED KEY FOR THE RECOGNITION OF THE IMPORTED FIRE ANT AND CLOSELY RELATED SPECIES

Prepared by Insect Identification and Parasite Introduction
Laboratories, Entomology Research Division

The accompanying pictorial key is expected to help in the separation of major workers of the three kinds of fire ants known to occur in the area from North Carolina and Florida to Arkansas and Texas. The species involved are the native fire ants Solenopsis geminata (F.) and S. xyloni McCook, and the imported fire ant S. saevissima richteri Forel.

Within the area under consideration ants of the genus Solenopsis may be distinguished from those of other genera that build similar mounds by the extreme variation in the size of the individuals comprising a colony. They commonly range from 1/15 to 1/4 inch in length. Individual specimens of Solenopsis are characterized by a shiny body, a ten-segmented antenna having a prominent two-segmented apical club, two nodes (petiole and postpetiole) between the thorax and abdomen, and by the absence of paired spines on the posterior part of the thorax. An additional difference of no mean consequence is their ability to inflict painful stings.

The largest (or major) workers offer the best taxonomic characters for the recognition of these species, and the key has been based on specimens of this caste. It must be noted that most characters vary from specimen to specimen and reliable use of this key requires study of a combination of characters. The key is not intended for use with a hand lens in the field.

An accurate mental picture of the species can be established most readily by comparison of correctly identified specimens. Such specimens may be obtained by submitting samples to State or Federal agencies concerned with the imported fire ant program with a request that identified specimens be returned. Additional information concerning biology and general characteristics of the imported fire ant may be found in the publication entitled "Observations on the Biology of the Imported Fire Ant" prepared by the Insects Affecting Man and Animals Research Branch, Entomology Research Division, ARS-33-49, issued in August 1958.

Collections of ants for which identifications are desired should be large enough to include about 10 or 12 major workers. Often it may be necessary to dig to considerable depth in the nest to secure workers. The specimens should be clean and undamaged. A good method of collecting is to let an ant run up a straw or small twig and then force it into a vial of 70 percent ethyl alcohol (formaldehyde is not a satisfactory preservative). If winged specimens or the large pupae are found in a colony, samples of them should be preserved in order to obtain important data on the biology of the species.

A label bearing complete information on locality, date, name of collector, and a notation regarding the habitat, i. e., cultivated field, pasture, woodland, marsh, etc., should be included in each vial of preserved specimens. Such labels should be legibly written on good quality paper with a moderately hard lead pencil. It is good practice to use code numbers corresponding to numbered field notes prepared in sufficient detail so that the collector can return to, or direct another person to the site of the nest from which the sample was collected.

AN ILLUSTRATED KEY FOR THE RECOGNITION OF THE IMPORTED FIRE ANT AND CLOSELY RELATED SPECIES

SOLENOPSIS GEMINATA (F.)	SOLENOPSIS XYLONI MCCOOK	SOLENOPSIS SAEVISSIMA RICHTERI FOREL
Carina on anterior margin of mesopleuron variously interrupted, the interruptions forming one or more tooth-shaped projections. 	Carina on anterior margin of mesopleuron continuous, not forming tooth-shaped projections. 	Carina on anterior margin of mesopleuron continuous, not forming tooth-shaped projections. 
Petiolar node narrow in profile, the posterior face forming a nearly straight line. 	Petiolar node broader at top, the posterior face forming a line that curves forward near apex.	Petiolar node broader at top, the posterior face forming a line that curves forward near apex.
Head extraordinarily large, obviously more than twice as broad as pronotum.	See Fig. 1	Head not remarkably large, distinctly less than twice as broad as pronotum.	See Fig. 2	Head not remarkably large, distinctly less than twice as broad as pronotum.	See Fig. 3
Mandible sharply curved inward, the stronger curvature near middle of outer margin.	See Fig. 1	Mandible less sharply curved inward, the curvature not stronger near middle of outer margin.	See Fig. 2	Mandible less sharply curved inward, the curvature not stronger near middle of outer margin.	See Fig. 3
		Antennal scape shorter, about as long as the distance from its base to a point half-way between the upper margin of the eye and the top of the head.	See Fig. 2	Antennal scape longer, obviously longer than the distance from its base to a point half-way between the upper margin of the eye and the top of the head.	See Fig. 3
		Biting edge of mandible with three teeth. 		Biting edge of mandible with four teeth. 
		Body generally more hairy, this condition especially apparent on disc of gaster. 		Body with fewer and more scattered hairs, this condition especially noticeable on disc of gaster. 
		Petiole with antero-ventral tooth or keel. 		Petiole without antero-ventral tooth or keel. 

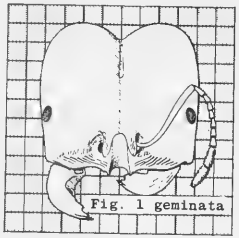


Fig. 1 geminata

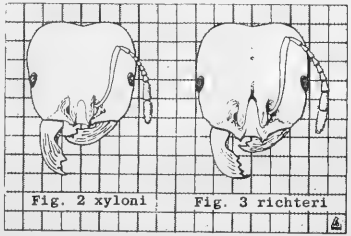


Fig. 2 xyloni Fig. 3 richteri

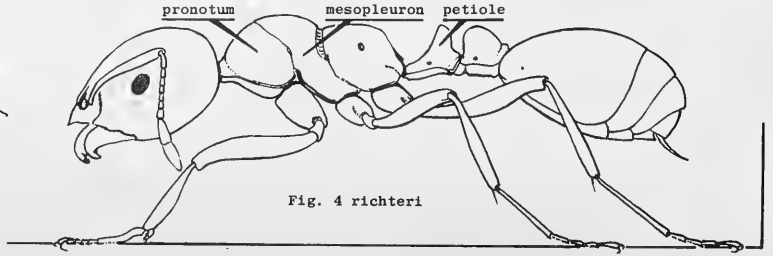


Fig. 4 richteri

Species of fire ants cannot be reliably distinguished by means of mound characteristics, as these depend largely on such factors as colony size and age, as well as upon the nature of the soil, and particularly on ground moisture conditions. Additional characters that are useful for separating xyloni and saevissima richteri, but which were omitted from the key because of space limitations, are as follows:

S. xyloni: The index number obtained by dividing the length of antennal scape by the distance between the eyes, ranging between 0.68 and 0.83 (these measurements to be made with an ocular micrometer, not judged by eye); sculpture on mesopleuron weak and, as a result, mesopleuron somewhat shiny; top of node of petiole and postpetiole usually without distinct longitudinal, finger-shaped impressions.

S. saevissima richteri: The index number obtained by dividing the length of antennal scape by the distance between the eyes, ranging between 0.85 and 1.0; sculpture on mesopleuron more obvious, the mesopleuron therefore not shiny; top of node of petiole and postpetiole with distinct longitudinal impressions, which are seen best in a posterodorsal view.

SUMMARY OF INSECT CONDITIONS - 1958

OHIO

Submitted by C. R. Neiswander

Cereal and Forage Crop Insects (Robert E. Treece): MEADOW SPITTLEBUG (Philaenus leucophthalmus) was the most important pest of these crops in 1958, with an earlier hatch than usual by April 14 at Columbus and April 15 at Wooster. Maximum populations at Columbus were 13.5 nymphs per stem with 98 percent of stems infested. Counts averaged 4.55 nymphs per stem in Lorain County, 2.66 in Wayne County and 10.7 in Franklin County. Adult population in September was lower than at the same time in 1957. However, numbers should be sufficient to warrant controls in 1959 except in the southeastern area and along the southwestern shore of Lake Erie. First-cutting red clover and alfalfa loss was estimated at 8 percent ($6,000,000). LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) was less than in previous years. Damage averaged 0.25-1.1 buds per stem and loss to first-cutting red clover was an estimated 2 percent ($800,000). POTATO LEAFHOPPER (Empoasca fabae) was first collected May 11. Populations remained low all season with no damage to alfalfa observed. CLOVER ROOT BORER (Hylastinus obscurus) was greatly reduced by cool, wet weather in the spring and early summer. Damage was light and second-cutting growth of red clover was generally good. No damage estimate was made. SWEETCLOVER WEEVIL (Sitona cylindricollis) was present in usual numbers, but no infestations of ALFALFA WEEVIL (Hypera postica) or SPOTTED ALFALFA APHID (Therioaphis maculata) were found during 1958.

Corn Insects (C. A. Triplehorn): EUROPEAN CORN BORER (Pyrausta nubilalis) populations were slightly higher than in 1957. Larvae per 100 plants in the fall averaged 42.9 compared with 35.1 in 1957. Highest numbers occurred in southwestern counties, centering around Dayton. Estimated damage was $1,802,281, based on a yield reduction of 2 percent per borer per plant. CORN LEAF APHID (Rhopalosiphum maidis) populations were generally as high as in 1957 with severe infestations again in the northwestern and north central areas. Actual damage appeared slight, possibly because of abundant rainfall during most of the growing season. CORN EARWORM (Heliothis zea) damage to field corn, generally, was slight. Earliest sweet corn in the central area was almost free of larvae. Infestation was low to moderately high in the mid-season crop. Damage was severe to extremely late corn in many areas, particularly in the south. DUSKY SAP BEETLE (Carpophilus lugubris) was locally abundant in sweet corn in early season.

Turf Insects (J. B. Polivka): JAPANESE BEETLE (Popillia japonica) grub population was much lower than in 1957, with no extremely high populations being reported in the State. NORTHERN MASKED CHAFER (Cyclocephala borealis) was generally more numerous than usual and caused considerable damage in the Wooster-Akron-Dover area. The average population of WHITE GRUBS (Phyllophaga spp.) was about as usual but grubs were found over a wider area, with considerable damage in the Columbus-Chillicothe area. GREEN JUNE BEETLE (Cotinis nitida), CHINCH BUGS, CUTWORMS and WEBWORMS were again of little importance.

Apple Insects (C. R. Cutright): SAN JOSE SCALE (Aspidiotus perniciosus) was not serious, but traces occurred in many orchards. ROSY APPLE APHID (Anuraphis roseus) was the most severe pest of the season when controls were not applied, with damage equal to that of the severe infestation of 1948. APPLE APHID (Aphis pomi) occurred in all orchards but was serious in only a few. PLUM CURCULIO (Conotrachelus nenuphar) was light and CODLING MOTH (Carpocapsa pomonella) was not a problem. APPLE MAGGOT (Rhagoletis pomonella) was serious only in poorly sprayed or unsprayed plantings. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) was generally light with serious damage reported from only one area near Lima. EUROPEAN RED MITE (Panonychus ulmi) was severe in some orchards but TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was very light. LEAFMINERS (Callisto spp.)

were also very light. The 1958 apple crop is one of the best on record with respect to insect and mite control.

Apple Losses Due to Insects and Mites: The commercial crop for 1958 was estimated at 4,000,000 bushels. It was further estimated that 4 percent (160,000 bushels) was damaged by insects. As many insect-damaged fruits can be salvaged for various uses, this is not a total loss. Nevertheless, actual loss will approximate $1.00 per bushel. The cost of control for 1958 is estimated at 28 cents per bushel, including insecticides, labor, fuel, depreciation, etc. This amounts to over one million dollars apportioned as follows:

Codling moth	$ 500,000
Plum curculio	125,000
Apple maggot	100,000
Red-banded leaf roller	75,000
Mites	200,000
Others	100,000
Total	$1,100,000

The apple crop on unsprayed trees in 1958 was almost a total loss. If controls had been applied, these trees should have produced approximately 5,000,000 bushels of fruit.

Stone Fruit Insects (Roy W. Rings): Populations of most peach catfacing insects, including GREEN STINK BUG (Acrosternum hilare), ONE-SPOT STINK BUG (Euschistus variolarius), BROWN STINK BUG (E. servus), DUSKY STINK BUG (E. tristigmus), OAK PLANT BUGS (Neolygus omnivagus and N. quercalbae) and HICKORY PLANT BUG (N. caryae), were below normal. TARNISHED PLANT BUG (Lygus lineolarus) was as abundant or more so than usual on peaches. PLUM CURCULIO (Conotrachelus nenuphar) damaged peaches, plums, cherries, nectarines and blueberries although populations were generally below normal. ORIENTAL FRUIT MOTH (Grapholitha molesta) was more abundant on peaches and quinces than any year since 1948. Numerous reports of PEACH TREE BORER (Sanninoidea exitiosa) infestations in home-grown fruit were received but control was good in most commercial orchards. LESSER PEACH TREE BORER (Synanthedon pictipes) caused considerable trouble in many commercial peach orchards, particularly in Wayne and Ottawa Counties and EUROPEAN FRUIT LECANIUM (Lecanium corni complex) was abundant on peaches in Lorain and Sandusky Counties. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) was sufficiently abundant in the Clyde area to require emergency sprays, while some difficulty was reported in the control of APPLE MAGGOT (Rhagoletis pomonella) in Lake County. MEALY PLUM APHID (Hyalopterus arundinis) was more abundant than usual on plums, with emergency sprays required in some areas. BLACK CHERRY APHID (Myzus cerasi) was generally light throughout the northern area. TERRAPIN SCALE (Lecanium nigrofasciatum), PEAR-SLUG (Caliroa cerasi), SAN JOSE SCALE (Aspidiotus perniciosus) and SHOT-HOLE BORER (Scolytus rugulosus) were of minor importance in 1958.

Vegetable Crop Insects (J. P. Sleesman): IMPORTED CABBAGEWORM (Pieris rapae) and CABBAGE LOOPER (Trichoplusia ni) populations were generally below normal throughout the State. MEXICAN BEAN BEETLE (Epilachna varivestis) populations were below normal early in the season but increased to near normal by late summer. Infestations of TOMATO FRUITWORM (Heliothis zea) and Drosophila spp. were unusually light, especially in tomatoes grown for processing. STRIPED CUCUMBER BEETLE (Acalymma vittata), ONION THRIPS (Thrips tabaci), TWO-SPOTTED SPIDER MITE (Tetranychus telarius) and ROOT MAGGOTS were far below normal and of little importance. POTATO LEAFHOPPER (Empoasca fabae) and POTATO FLEA BEETLE (Epitrix cucumeris) were important pests of potatoes but populations were generally below normal. Potatoes in most areas were infested with POTATO APHID (Macrosiphum solanifolii) and populations in most instances were above normal.

Sugar Beet Insects (C. A. Triplehorn): SPINACH LEAF MINER (Pegomya hyoscyami) severely infested a number of sugar beet fields in the Milan area of Erie County by June 5. The second generation caused little injury following controls applied for the first generation. Home garden spinach was badly damaged in this same area.

Forest, Ornamental and Shade Tree Insects (R. B. Neiswander): Several species of spider mites were again the most troublesome pests in nurseries, with SPRUCE SPIDER MITE (Oligonychus ununguis) reported more often than any other pest by State nursery inspectors and TWO-SPOTTED SPIDER MITE (Tetranychus telarius), TIP-DWARF MITE (Eriophyes thujae) and MAPLE BLADDER-GALL MITE (Vasates quadripedes) also recorded many times. EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana), BAGWORM (Thyridopteryx ephemeraeformis), GRAPE MEALYBUG (Pseudococcus maritimus) on Taxus, JUNIPER SCALE (Diaspis carueli), EASTERN SPRUCE GALL APHID (Chermes abietis) and BIRCH LEAF MINER (Fenusa pusilla) were the most troublesome insects and are listed in order of relative importance. EASTERN TENT CATERPILLAR (Malacosoma americanum) occurred in localized areas in relatively large numbers on roadside trees and landscape plantings.

Stored-grain Insects (C. A. Triplehorn): A number of complaints were received concerning ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) infesting stored popcorn and cribbed field corn. A TENEBRIONID (Cynaeus angustus) was found infesting mats of silk and debris caused by grain-infesting Lepidoptera at Maumee, October 20. This is the first report of this species from the State and represents the easternmost record in the United States. Large numbers of a MYCETOPHAGID (Mycetophagus quadriguttatus) were found in grain residue beneath a corn crib at Apple Creek, Wayne County, October 29. This is the first record of this infrequently-encountered beetle in the State.

Structural and Household Insects (Roy W. Rings): SUBTERRANEAN TERMITE (Reticulitermes flavipes) was the most troublesome structural pest in 1958, as in 1957. Requests for control information concerning BLACK CARPENTER ANT (Camponotus herculeanus pennsylvanicus), PAVEMENT ANT (Tetramorium caespitum) and PHARAOH ANT (Monomorium pharaonis) made ants second in importance. POWDER POST BEETLES caused considerable damage to timbers in residences and farm buildings. CLOVER MITES were less numerous than in previous years. CLUSTER FLY (Pollenia rudis), MILLIPEDES and a WEEVIL (Brachyrhinus rugosostriatus) caused considerable nuisance, entering homes in large numbers in the fall. GERMAN COCKROACH (Blattella germanica) and BROWN-BANDED ROACH (Supella supellectilium) were common household pests, as were two species of WOODROACH (Parcoblatta pennsylvanica and Ischnoptera deropeltiformis), the latter less frequently. Numerous larvae and adults of DERMESTIDS were submitted for determination, most of which were BLACK CARPET BEETLE (Attagenus piceus), but included FURNITURE CARPET BEETLE (Anthrenus flavipes), VARIED CARPET BEETLE (A. verbasci) and LARDER BEETLE (Dermestes lardarius). The most abundant pest of stored foods was SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis). Other pests included DRUG-STORE BEETLE (Stegobium paniceum), INDIAN-MEAL MOTH (Plodia interpunctella) and MUSHROOM MITE (Tyrophagus lintneri). FLEAS, BROWN DOG TICK and BED BUG were generally of minor importance.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

PERUVIAN BOLL WEEVIL (Anthonomus vestitus Boheman)

Economic Importance: This curculinoid, which is similar in appearance to the boll weevil (Anthonomus grandis), is a major pest of cotton in Peru. Up to 75 percent of fallen squares often show damage by this weevil. The weevil was first discovered in 1853 on the island of Puna in the Gulf of Guayaquil, but 57 years lapsed before specimens were recovered in the Department of Piura in northern Peru.

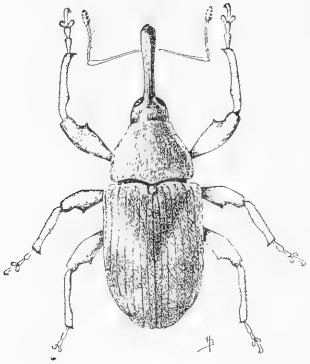
Distribution: Occurs in all coastal valleys of Peru and Ecuador and in the districts of Huallaga and Mayo Rivers in the Province of San Martin.

Hosts: Attacks cotton and other malvaceous plants including Althaea rosea, Hibiscus rosa-sinensis, Cienfuegosia heterophylla and Sida panniculata, although complete larval development has not been reported in the last mentioned host.

General Distribution of Anthonomus vestitus

Life History and Habits: The adults feed on the terminal buds and tender leaves, making small perforations unless feeding on pollen, then deep perforations are made. Deep perforations are also made by the female to lay eggs within the squares or buds. Damaged squares open their bracts, become yellowish, turn dry and generally drop to the ground, but sometimes remain on the plant. In more mature cotton, eggs may be deposited in older squares, thereby requiring emergence to take place from young bolls. Generally one egg is deposited in a square, but up to 8 may be found. Eggs hatch in 3-4 days and larvae begin feeding on pollen and ovaries of the square. After 4 molts and 3-4 weeks, pupation occurs and adults emerge in 5-12 days. The adults are long-lived, feeding up to 243 days without losing reproductive power. The life cycle from egg to adult lasts 4 to 6 weeks in good weather, but accelerates in hot, humid weather. During a year, 4 to 6 generations may be found, depending upon climate and food. In the central zone of the Peruvian coast, adults appear in October-November, egg-laying begins in December and maximum development occurs late in December and early January. December and early January is also the period of greatest losses since it is the period of most intense attack. Because of longer hours of sunlight and higher temperatures from January to March, populations decrease, but in April and May they increase again. Damage at this time is very noticeable because of the scarcity of squares. Oviposition ends in June. Diapause occurs only in areas of greatest heat and drought.

Description: The adult of A. vestitus resembles A. grandis somewhat, but it is a great deal smaller. Length of A. vestitus, 2.5 to 4 mm. Adults are oblong-ovate, convex, blackish piceous, rather closely clothed with elongate whitish scales, with indistinct oblique lighter band on each elytron, the two forming a basal triangle. When newly emerged, adult yellowish. Probosis long. Eggs oval, white. Larva white, curved, legless. Pupa white. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the United States National Museum). CEIR 9(13) 3-27-59



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—*Anthonomus vestitus*, male. (Original.)

Adult Male of Anthonomus vestitus

Figure (except map) from Pierce, W. D. 1915. United States Department of Agriculture, Office of Secretary, Rpt. 102, 16 pp.

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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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

Survey and Detection Operations
Plant Pest Control Division
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Volume 9 April 3, 1959 Number 14

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GREENBUG continues to damage small grains in areas of Oklahoma. Damage apparent in some fields in Hansford County, Texas. (p. 231). PEA APHID heavy and damaging in areas of some western states. ALFALFA WEEVIL larvae damaging in Delaware and severe in Charlotte County, Virginia. A large increase in treated acreage for adult control reported in Nevada. Activity reported elsewhere. (p. 232).

Distribution of SPOTTED ALFALFA APHID. (p. 233). This map replaces the map in CEIR 9(9):130.

SPOTTED ALFALFA APHID medium to heavy in parts of Oklahoma, Texas and New Mexico, with some injury apparent. (p. 234).

BOLL WEEVIL survival survey in Georgia. (p. 237).

A pine SAWFLY survey in Virginia. (p. 237).

Numerous TERMITE flights in New Jersey. Activity reported in Delaware, Maryland, Oklahoma and Virginia. (p. 239).

Some First Reported Records of the Season: PLUM CURCULIO adults appearing from hibernation in Georgia. Eggs of TENT CATERPILLARS numerous on fruit trees in Ogden, Utah. APPLE GRAIN APHID hatching on apple trees in Delaware. APPLE APHID hatching in Delaware, Washington and Indiana. Eggs of PEAR PSYLLA first found March 13 in Washington. PINK BOLLWORM emergence begun in Arizona.

INSECT DETECTION: Imported fire ant found for first time in Angelina County, Texas, during February. (p. 239). Raillietia auris taken from goats is a new State record for Massachusetts and a new record for the host. (p. 238).

SUMMARY OF INSECT CONDITIONS - 1958 - WISCONSIN (p. 241), PENNSYLVANIA (p. 245).

Some INTRODUCED PESTS reported since 1900. (p. 247).

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Reports in this issue are for the week ending March 27, unless otherwise indicated.

WEATHER OF THE WEEK ENDING MARCH 30

The week was unseasonably mild in the extreme northern Great Plains, rather cold in northern New York and New England and near normal elsewhere. Precipitation generally was moderate to heavy in the Pacific Northwest, the central Great Plains and middle Mississippi Valley, and south of the Great Lakes region. Elsewhere precipitation was light. More moisture is now needed in the Dakotas, southwestern Montana, Arizona, New Mexico, southwestern Oklahoma, parts of Texas and northern Virginia, but wet soil delayed fieldwork in many sections of the South. East of the Rockies, temperatures were unusually mild at the beginning of the week. Maximum temperatures ranged from 75° to 85° in Kansas on the 23rd and 24th, and Minneapolis, Minnesota, and Lansing, Michigan, reported highs of 68° and 71° respectively. The mild, sunny weather was interrupted by stormy weather as an area of low pressure on the 25th to the 27th moved northeastward from the Southwest across New Jersey. During the storm's passage heavy snow fell from the central Great Plains to New England. It was the heaviest snowstorm of the season in southeastern Wyoming, and falls ranged from 10 to 15 inches in northeastern Colorado where near blizzard conditions prevailed on the 25th. Two to 9 inches of snow fell in western and northwestern Kansas, 2 to 6 inches in northwestern Iowa where snow and ice caused heavy damage to utility and communication lines, 4 to 6 inches across central Michigan, 8 to 10 inches in parts of New York, and 2 to 7 inches in New England. In the Great Plains, heavy drifting blocked many roads. Nearly all this snowfall soon melted, and at the end of the week the ground generally was bare except in upper New England and the upper Great Lakes region. At Houghton, Michigan, where snow was 37 inches deep last week, only 8 inches were left on March 31.

The storm was followed by a cold snap which reduced temperatures to freezing in the southwestern Great Plains and to the northern portions of Mississippi, Alabama and Georgia. In extreme northern areas, Grand Marais, Michigan, recorded -6° on the 28th and Cooperstown, New York, -3° on the 29th. Ice jams caused more local flooding in the upper Mississippi Valley. In Maine, the opening of the fishing season will be the latest on record due to the persistence of thick ice on lakes. In the Pacific Northwest most precipitation fell during a frontal passage on the 27th and 28th. Several inches of new snow fell in the central Sierra Nevada and Cascade Mountains. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - TEXAS - Survey conducted March 22 in panhandle area revealed eggs developing rapidly in most sections. Light hatch expected within 7 days. (Russell). Nymphs observed on roadsides in Briscoe, Floyd, Crosby, Dickens, King, Stonewall and Jones Counties, March 18-19. (Boyd, Hawkins). NEVADA - Early types of range vegetation have developed rapidly in the southern area. It is anticipated that an early hatch of Trimerotropis spp. and other early appearing species may occur in the area. (PPC, West. Reg., Feb. Rpt.).

MORMON CRICKET (Anabrus simplex) - NEVADA - First-instar nymphs found in small numbers during the last week of February in the Rabbit Hole area of Pershing County. (PPC, West. Reg.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - KANSAS - Survey in Jefferson County indicates 34 percent survival of overwintering borers, which is higher than in 1958. (Peters). SOUTH DAKOTA - Preliminary survey of 3 east central counties March 16-21, indicates approximately 24 percent average winter mortality in the overwintering borer population. (Mast).

A BILLBUG (Calendra callosa) - GEORGIA - Feeding on volunteer corn in Colquitt County. (Johnson).

CORN FLEA BEETLES (Chaetocnema spp.) - ARIZONA - C. ectypa continued heavy on corn and required controls in some Maricopa County fields. Averaged 10-12 per plant in corn 4-6 inches high. (Ariz. Coop. Sur.). ILLINOIS - No C. pulicaria found during sod surveys conducted March 16-20, even though temperatures exceeded 60°. (White).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Winter survival ranged 2.5-60 percent in Washington and Benton Counties, with an average of 19 percent. (Ark. Ins. Sur.).

DIAMONDBACK MOTH (Plutella maculipennis) - CALIFORNIA - Medium in wheat fields infested with weeds and mustard in Cuyama, Santa Barbara County. (Cal. Coop. Rpt.).

GREENBUG (Toxoptera graminum) - OKLAHOMA - Small grain fields in Payne, Noble, Kay, Garfield, Blaine, Kingfisher and Logan Counties surveyed for damage. In the Stillwater-Tankawa-Billings area, most damage occurred in barley fields. A few wheat fields in area had some damage. Wheat fields with damage spots were abundant in Kingfisher County on highways 77 and 33. The amount of future damage will depend on weather conditions and growth of wheat. Damage will be greatly reduced with good growing conditions. Natural enemies not very abundant. (Henderson, Thompson). Averaged 135 per linear foot in Noble County and 27 in Garfield County, March 23-24. (Henderson, Wood). Heavy damage to barley and rye in Noble and Payne Counties, some damage in some wheat fields. Heavy numbers of winged forms noted. Parasite and predator numbers low. No damage observed in Pawnee County fields. (VanCleave, Drew). Some damage in small grain fields in Payne, Noble and Kay Counties. (Bieberdorf). No infestations found in Craig County small grain fields. (Campbell). Counts ranged 10-500 per linear foot in southeastern Payne County and 5-25 in Tulsa County (Stiles). Populations ranged 3-5 per linear foot in northern Kiowa County. (Hudson). TEXAS - Infestations very spotted in Hansford County and ranged from none in some fields to 600 per linear foot in other fields, with damage apparent. (Daniels).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OKLAHOMA - Populations common and ranged 10-100 per linear foot in most small grain fields in Payne, Pawnee and Noble Counties. (VanCleave, Drew).

CORN LEAF APHID (Rhopalosiphum maidis) - ARIZONA - Continued heavy in some Maricopa County barley fields. Honeydew deposits may affect fertilization of some heads. Increased in barley fields in Pinal County. (Ariz. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - DELAWARE - Alates and nymphs present on winter ryegrass in Sussex and Kent Counties. (Burbutis, Conrad). OKLAHOMA - Populations common in most small grain fields in Payne, Pawnee and Noble Counties, with 5-25 per linear foot. (VanCleave, Drew). NEW MEXICO - Light to moderate in barley in Chaves and Eddy Counties, with minor damage. (N. M. Coop. Rpt.).

A MITE- NEVADA - Damaged winter wheat in Lovelock area of Pershing County. Die-out of stands due to drought and mite damage. (Schultz).

CUTWORMS - DELAWARE - Mature larvae of Amathes c-nigrum, Feltia ducens and Lacinipolia renigera common in alfalfa and clover fields in Kent and Sussex Counties. No noticeable injury. (Burbutis, Conrad). IDAHO - Half-grown larvae, possibly Chorizagrotis auxiliaris, averaged 1-4 per square foot in alfalfa fields near Parma. (Waters). WYOMING - Survey indicated that C. auxiliaris larvae averaged less than one per linear foot of row in alfalfa, winter wheat and winter barley in Laramie, Goshen and Platte Counties. (Davison).

CLOVERWORM (Plathypena scabra) - ALABAMA - Light to moderate on clover and vetch in Wilcox County. (Grimes).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - First-instar larvae common on clover in Kent County and prevalent on alfalfa in Sussex County with injury very noticeable. (Burbutis, Conrad). MARYLAND - Activity begun on Eastern Shore, with small numbers of newly-hatched larvae noted on 2 to 3-inch alfalfa in Worcester and Talbot Counties. Few adults taken by sweeping. (U. Md., Ent. Dept.). VIRGINIA - Severe, 1-5 larvae per stem, in Charlotte County. (Barbour). SOUTH CAROLINA - Averaged 1.5 per terminal in untreated fields in Greenville County, March 19. (Nettles et al.). NEVADA - A large increase in treated acreage for adult control in 1959. Weather conditions were good March 1-20. (Coop. Rpt.). UTAH - Active in Weber County and controls being applied. (Knowlton).

CLOVER LEAF WEEVIL (Hypera punctata) - DELAWARE - Late-instar larvae common on clover and alfalfa in Sussex County and on clover in Kent County. (Burbutis, Conrad). MARYLAND - Light larval damage to red clover foliage at Easton, Talbot County. (U. Md., Ent. Dept.). VIRGINIA - Light to medium on red and ladino clovers in southern Culpeper County. (Heltzel, March 13). IDAHO - Early-instar larvae averaged 1-4 per alfalfa crown examined in southwestern part of State. (Waters).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ALABAMA - Limited numbers on crimson clover in Wilcox County. (Grimes).

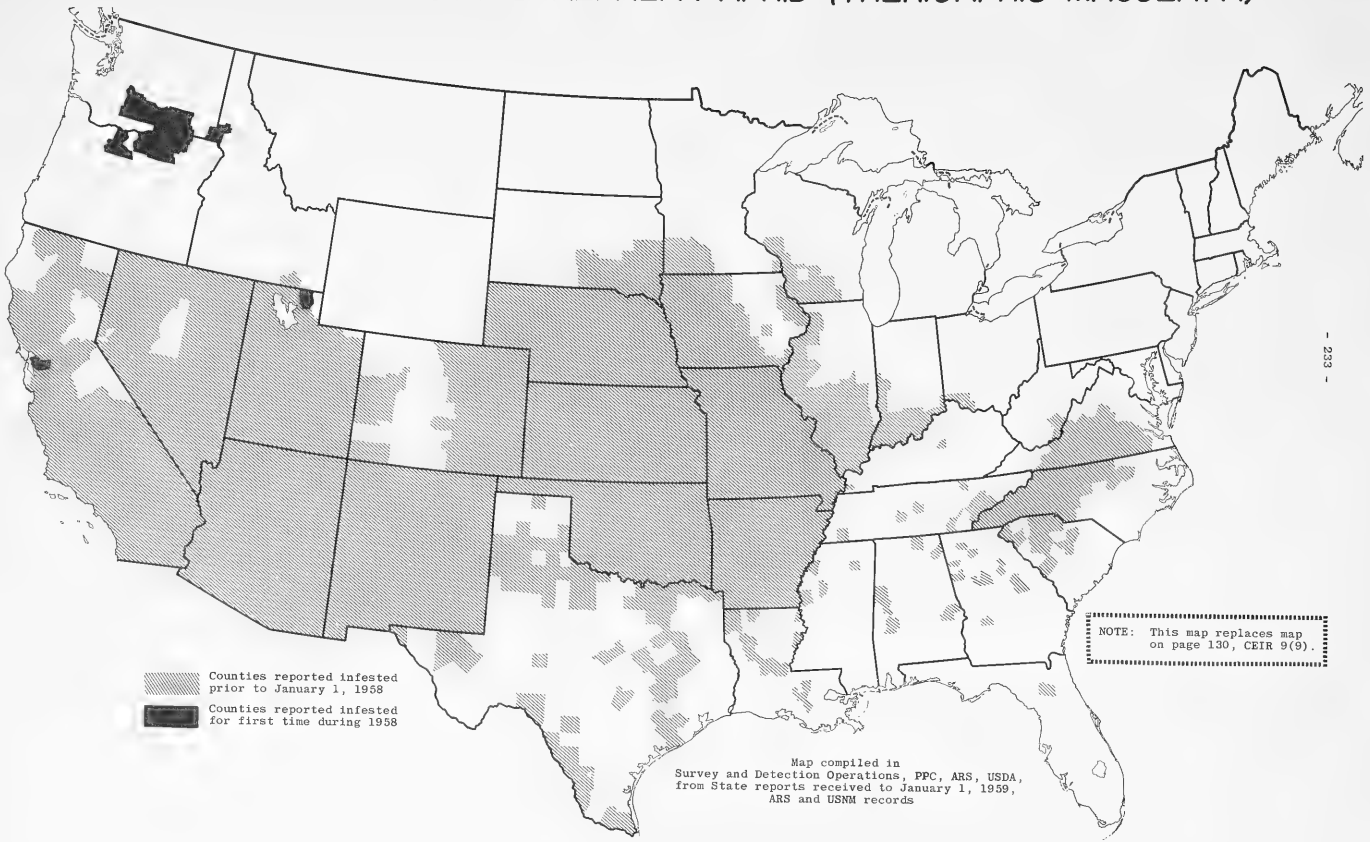
A CLOVER WEEVIL (Hypera meles) - ALABAMA - Moderate infestations on crimson clover in Talladega County are increasing. (Hays).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Averaged 1-2 per square foot in alfalfa fields in Dona Ana, Luna and Grant Counties. (N. M. Coop. Rpt.).

PEA APHID (Macrosiphum pisi) - MARYLAND - Averaged less than 5 per sweep on 2 to 3-inch alfalfa, Worcester and Talbot Counties. (U. Md., Ent. Dept.). OKLAHOMA - Common in alfalfa fields in Payne, Pawnee and Noble Counties. Counts ranged 5-50 per square foot in most fields with 300 per square foot in one Payne County field. (VanCleave, Drew). Ranged 0.5-10 per sweep in 3 Choctaw County alfalfa

(Continued on page 234)

DISTRIBUTION OF SPOTTED ALFALFA APHID *(THERIOAPHIS MACULATA)*



fields. (Goin). ARIZONA - Heavy in some Maricopa County alfalfa fields. (Ariz. Coop. Sur.). NEVADA - Damaging population developing in Douglas County. (Roberts). NEW MEXICO - Heavy and damaged alfalfa in Eddy and Chaves Counties. Being controlled in connection with spotted alfalfa aphid. (N. M. Coop. Rpt.). ALABAMA - Prevalent on vetch in Wilcox County, but has not migrated to other crops. (Grimes).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Heavy in a few scattered alfalfa fields in the Payne-Pawnee-Noble County area, with 0-300 per square foot. (VanCleave, Drew). None were found in an alfalfa field near Jenks. (Stiles). Ranged 0.1-2 per sweep in 3 Choctaw County alfalfa fields (Goin), 150-175 per square foot of crown area in a Harmon County alfalfa field (Hatfield) and increased to 579 per square foot of crown area in some Payne County alfalfa fields, 26 percent higher than previous week (Ketner, James). TEXAS - Infestations light and widespread in El Paso County alfalfa. (Hawkins). Heavy and damaging in Wilbarger County. (Texas Coop. Rpt.). Medium to heavy in all established alfalfa fields with new plantings infested heavily enough to be injurious in Brazos River bottom area of McLennan County. (Cowan, Davis). ARIZONA - Remained low over the State, with slight population decrease. (Ariz. Coop. Sur.). IDAHO - None found in 5-inch high alfalfa in fields surveyed south and east of Lewiston. (Portman). NEW MEXICO - Heavy in alfalfa fields in Chaves, Dona Ana and Eddy Counties and in the Gila-Cliff area of Grant County. (N. M. Coop. Rpt.).

COWPEA APHID (Aphis medicaginis) - NEW MEXICO - Occasional colony found in alfalfa fields in Gila-Cliff area, Grant County. (N. M. Coop. Rpt.)

TRANISHED PLANT BUG (Lygus lineolarus) - DELAWARE - Present on alfalfa and clover in Sussex County. (Burbutis, Conrad).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - DELAWARE - Adults common on alfalfa in Sussex County. (Burbutis, Conrad).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Adults still present in winter hibernation quarters (bunch grasses) in Payne County. No major winter mortality noted. (VanCleave, Drew).

THRIPS - ARIZONA - Chirothrips falsus and C. mexicanus heavy on Bermuda grass grown for seed in the Yuma Valley. (Ariz. Coop. Sur.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - VIRGINIA - Infestations have been confirmed on 12 properties, totaling 553 acres in Nansemond County as of February 28. (PPC, East. Reg.).

FRUIT INSECTS

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - Now appearing from hibernation in numbers. One commercial orchard averaged 5 adults per peach tree on border next to woods. This is considered a very heavy infestation. (Snapp).

TENT CATERPILLARS - UTAH - Egg masses numerous on fruit trees in Ogden area. (Knowlton). TEXAS - Malacosoma americanum causing concern to fruit growers in eastern area. (Texas Coop. Rpt.)

CALIFORNIA PRIONUS (Prionus californicus) - UTAH - Larvae numerous in roots of some cherry and apricot trees recently pulled up from Weber County orchards. (Knowlton).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - DELAWARE - Young nymphs hatching on apple trees in northern New Castle County. Eggs prevalent. (Kelsey).

APPLE APHID (Aphis pomi) - DELAWARE - Young nymphs hatching on apple trees in northern New Castle County. Eggs prevalent. (Kelsey). WASHINGTON - Eggs beginning to hatch on pear. (Burts). INDIANA - Began hatching March 27 and were readily found in bud tips in all orchards examined March 30. (Hamilton).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - First eggs found March 13. Becoming plentiful. Adult populations light to moderate in most orchards. (Burts).

A MELYRID (Listrus pardalis) - CALIFORNIA - Heavy infestation of adults occurred on avocado trees in Vallejo, Solano County. (Cal. Coop. Rpt.).

PERSIMMON BORER (Sannina uroceriformis) - FLORIDA - Causing severe damage to persimmon trees in Orange City area. (Fla. St. Plt. Brd., Feb. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Increasing on citrus in Maricopa County. (Ariz. Coop. Sur.).

SCALE INSECTS - FLORIDA - Ceroplastes floridensis and Lepidosaphes beckii on the increase in mature citrus groves in Orange County. Protopulvinaria pyriformis heavy on loquat trees in Daytona beach. Has been heavy on avocado and mango in the St. Lucie-Martin district and Central Dade district. (Fla. St. Plt. Brd., Feb. Rpt.). UTAH - Aspidiotus perniciosus very heavy on pears and prunes in some home orchards near Ogden. (Knowlton).

WHITEFLIES - FLORIDA - Heavy in citrus groves in the St. Lucie-Martin district. Increasing on limes in the south Dade district. (Fla. St. Plt. Brd., Feb. Rpt.).

SPIDER MITES - FLORIDA - Some increase on citrus in Ocala and Macclenny districts. Very heavy on limes in the south Dade district. Moderate to heavy in Hillsborough County. (Fla. St. Plt. Brd., Feb. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - Inspections began in Webb County on February 3. During February, 6,262 trees on 1,191 city properties were inspected at Laredo with negative results. Inspections began in area where four infestations were found in late 1955 and early 1956. (PPC, So. Reg.). MEXICO - Surveys were conducted in the chemical control zones in the states of Tamaulipas, Nuevo Leon and Sonora. A total of 77,372 citrus trees on 1,516 properties were inspected, 47 trees being infested on 7 properties. Infested properties were in Tamaulipas and Nuevo Leon. (PPC, Mex. Reg., Feb. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - ARIZONA - Trapping during February in Yuma and Tucson districts were negative. CALIFORNIA - Trapping and larval inspections in the border area were negative during February. (PPC, West. Reg.). TEXAS - Total of 2,296 trap inspections made during February with only one specimen, a male, being trapped. Traps were operated in Cameron, Dimmit, Hidalgo, Webb and Willacy Counties. (PPC, So. Reg.). MEXICO - Total of 2,058 traps operated in Baja California and Sonora. All inspections during February negative. (PPC, Mex. Reg.).

TRUCK CROP INSECTS

AN ACARID MITE (Tyrophagus dimidiatus)-CALIFORNIA - Causing slight damage to spinach plantings in Yolo County, with 2-12 per plant. (Stombler).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Early spinach plantings in Yolo County suffered heavy infestations. Now reduced to very light populations by a fungus disease. (Stombler). ARIZONA - Continues to increase slowly on lettuce. Increase reported on potatoes in Maricopa County. (Ariz. Coop. Sur.). WASHINGTON - Probably this species, attacking head lettuce near Wapato. (Landis).

POTATO APHID (Macrosiphum solanifolii) - NEW MEXICO - An occasional colony, probably this species, found on lettuce near Las Cruces, Dona Ana County. (N. M. Coop. Rpt.).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Caused minor damage to many lettuce fields in Dona Ana County. (N. M. Coop. Rpt.).

CUTWORMS - NEW MEXICO - Destroying lettuce along ditch banks in a few fields near Las Cruces, Dona Ana County. (N. M. Coop. Rpt.).

THRIPS - NEW MEXICO - Haplothrips clarisetis continues to damage lettuce plants in Dona Ana County. Frankliniella spp. averaged 2-3 on onion plants in Luna County. Appear to be building up in onion fields in Dona Ana County. Average 5-6 per plant in most heavily infested fields. (N. M. Coop. Rpt.).

SOUTHERN CABBAGEWORM (Pieris protodice) - TEXAS - Feeding heavily on turnips with lighter infestations on potatoes in Dimmit County. (Harding).

FLEA BEETLES - NEW MEXICO - Heavy infestations destroyed radish plantings near Animas, Hidalgo County. Also caused considerable damage to cabbage near Deming, Luna County. (N. M. Coop. Rpt.).

CABBAGE APHID (Brevicoryne brassicae) - ARIZONA - Increasing on cabbage in Maricopa County. Some control required. (Ariz. Coop. Sur.). GEORGIA - Moderate to heavy on cabbage in Colquitt, Thomas, Brooks and Lowndes Counties. (Johnson).

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

LEAFHOPPERS - ARIZONA - Erythroneura elegantula and E. variabilis increasing on grapes in Maricopa County. (Ariz. Coop. Sur.).

RED-NECKED CANE BORER (Agrilus ruficollis) - VIRGINIA - In red raspberries in 3 locations in the Blacksburg area. (Amos). NORTH CAROLINA - Particularly severe in Latham variety raspberries locally in Wake County. (Gast, Farrier).

STRAWBERRY WEEVIL (Anthonomus signatus) - ALABAMA - Although no weevils were found, typical damage was observed to a limited extent on wild blackberries in Wilcox County. (Grimes).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - NEW JERSEY - Laying eggs on old strawberry leaves. (Ins. Dis. Newsl.). ARIZONA - Increasing on strawberries in the Litchfield Park area of Maricopa County. (Ariz. Coop. Sur.). WASHINGTON - On round-leaf mallow at Union Gap. (Landis).

IRIS WHITEFLY (Aleyrodes spiraeoides) - WASHINGTON - On round-leaf mallow at Union Gap. Earliest time eggs of this species seen out-of-doors. (Landis).

TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light on tobacco plant beds in 4 counties. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light to moderate on tobacco plant beds in 10 counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light to moderate on tobacco plant beds in ten counties. (Johnson).

COTTON INSECTS

Boll Weevil Survival Survey in Georgia - Spring 1959

Collections of woods trash were made March 9-20. The same areas were surveyed in 1958 and 1959.

Area	Average No. Weevils Per Acre		Percent Survival	
	1959	1958	1959	1958
Northwest				
Gordon Co.	0	97	0	9
North Central				
Spalding Co.				
Butts Co.				
Pike Co.	726	1,307	33	26
Coweta Co.				
Meriwether Co.				
East Central				
Burke Co.	48	968	12	54
South				
Tift Co.	145	532	100	100
State Average	329	731	29	34

The average percent survival for the State is lower in 1959 than in 1958. Only once before during the eight-year period that records have been made, has the number of weevils and the percentage survival been lower. (Beckham, Morgan).

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Tests near Tempe show that moth emergence has begun, with the first emergence on March 19. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A PINE SAWFLY (Neodiprion sp.) - VIRGINIA - During 1958, there was considerable spread in and around areas first noted in 1957. An egg survey was completed in February and March, 1959. Total of 322 stands in a 9-county area were sampled. Medium to heavy defoliation of pines was noted throughout the surveyed area being particularly heavy east of Louisa in Louisa County, along James River in southeastern Fluvanna, northern Cumberland, Powhatan and Goochland Counties. Supplemental road surveys indicate that the sawfly has extended its range somewhat to the east, where heavy defoliation may be expected in all areas where it was noted in 1958. No extension of range has been noted to the west. Sawfly feeding will be more extensive on loblolly pine in 1959 than in 1958. Marked preference for shortleaf and Virginia pine is noted, but will attack loblolly pine and seems to prefer trees in sapling stage and smaller. The expected hatching date is between April 1 and April 15, depending on weather conditions. (Rowell, Va. Div. For., et al.).

A TUSSOCK MOTH (Halisidota ingens) - NEW MEXICO - Light on about 50,000 acres of ponderosa and pinyon pine, Douglas-fir and white fir near Ruidosa, in the Lincoln National Forest. (N. M. Coop. Rpt.).

A PINE APHID (Essigella californica) - CALIFORNIA - Heavy on Monterey pine in Hansford, King County. (Cal. Coop. Rpt.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - MARYLAND - Infesting boxwood at Myersville, Frederick County. (U. Md., Ent. Dept.).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Infesting holly at Takoma Park, Montgomery County. (U. Md., Ent. Dept.).

APHIDS - MARYLAND - Macrosiphum rosae building up on new rose foliage at Greenbelt, Prince Georges County. (U. Md., Ent. Dept.). NEW MEXICO - Cinara tujafilina populations becoming numerous on arborvitae throughout the southern part of the State. M. rosae building up on roses in same area. (N. M. Coop. Rpt.).

A PSYLLID (Calophya californica) - CALIFORNIA - Heavy and severely damaged Rhus ovata in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

SCALE INSECTS - DELAWARE - Diaspis carueli abundant on junipers in New Castle County. (Burbutis, Conrad). MARYLAND - Phenacaspis pinifoliae noted on spruce needles at Baltimore. (U. Md., Ent. Dept.). PENNSYLVANIA - P. pinifoliae very heavy on Scotch pine along turnpike in Bedford County. (Udine). OKLAHOMA - Unaspis euonymi very heavy on twigs and leaves of Euonymus sp. in a yard at Tulsa. (Apt). NORTH CAROLINA - Pseudaulacaspis pentagona severe on privet in Wake County. (Jones, Farrier). CALIFORNIA - Chrysomphalus rossi heavy on Araucaria bidwilli in Los Altos, San Mateo County. (Cal. Coop. Rpt.). IDAHO - Few reports received concerning Lepidosaphes ulmi infestations on blue ash trees and lilac bushes in Twin Falls. (Peay). UTAH - L. ulmi severe on many willows and poplars at Morgan, Morgan County. (Knowlton).

INSECTS AFFECTING MAN AND ANIMALS

A MITE (Raillietia auris) - MASSACHUSETTS - Specimens collected deep in the ears of goats at Amherst, in December, 1958, are a new record for the State and a new record for the host. Det. R. W. Strandtman. (Wheeler).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - Inspections were made during February in PENNSYLVANIA, NEW JERSEY, RHODE ISLAND, MASSACHUSETTS, CONNECTICUT, and NEW YORK. No positive determinations have been received on specimens submitted. (PPC, East. Reg.). Inspections in ALABAMA, GEORGIA, MISSISSIPPI, NORTH CAROLINA, and TENNESSEE during February were negative. (PPC, So. Reg.). Some inspection work conducted in MISSOURI and MINNESOTA during February. (PPC, Cent. Reg.). MEXICO - Seventy-six properties were inspected in the states of Baja California, Sonora, Jalisco, Durango, Coahuila, Nuevo Leon and Chihuahua with a total of 259 specimens submitted for identification. No positive determinations were received during February. (PPC, Mex. Reg., Feb. Rpt.).

CONFUSED FLOUR BEETLE (Tribolium confusum) - OKLAHOMA - Heavy in 2 and light in one of 13 bins examined in Payne-Pawnee-Noble County area. Populations per quart of infested grain averaged 8 in barley in steel bins, one in milo and 10 in oats. (VanCleave, Drew).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - OKLAHOMA - Heavy in 3 of 13 bins examined in Payne-Pawnee-Noble County area. Populations in infested bins averaged 100 per quart in barley, 75 in oats and 50 in rye. (VanCleave, Drew).

FLAT GRAIN BEETLE (Laemophloeus pusillus) - OKLAHOMA - Heavy in 3 and light in 2 of 13 bins examined in Payne-Pawnee-Noble County area. Populations per quart of infested grain averaged 3 and 50 in barley in wooden and steel bins, respectively; 15 in oats; and 0.5 and 30 in rye. (VanCleave, Drew). TEXAS - Medium to heavy in stored milo in Dickens, Garza and Lynn Counties. (Texas Coop. Rpt.).

LESSER GRAIN BORER (Rhyzopertha dominica) - TEXAS - Infestations in milo medium to heavy in Dickens, Garza and Lynn Counties. (Texas Coop. Rpt.).

CADELLE (Tenebroides mauritanicus) - OKLAHOMA - Averaged 0.4 per quart in one bin of rye out of 13 bins of small grains examined in Payne-Pawnee-Noble County area. (VanCleave, Drew).

GRAIN MITES - TEXAS - Heavy in stored oats in Gillespie County and in milo in Lynn County. (Texas Coop. Rpt.).

BENEFICIAL INSECTS

PARASITES - OKLAHOMA - Hymenopterous species heavy in 2 of 3 small grain fields checked in Payne County, with 60-85 percent of aphids parasitized. None found in a Tulsa County field. (Stiles). Generally light in small grain fields checked in Payne, Pawnee and Noble Counties, with less than 5 percent of aphids parasitized. (VanCleave).

PREDATORS - OKLAHOMA - Hippodamia convergens generally light in most alfalfa and small grain fields checked in Payne, Pawnee and Noble Counties. Larvae averaged up to 10 per linear foot in spots in one Noble County barley field, but probably not heavy enough to control aphid population present. (VanCleave). Averaged 2 per square foot of crown area in a Harmon County alfalfa field (Hatfield) and 0-0.3 per sweep in 3 Choctaw County alfalfa fields (Goin). Nabis sp. ranged 0-0.2 and Chrysopus sp. 0-0.1 per sweep in 3 Choctaw County alfalfa fields. (Goin). ARIZONA - Coccinellids, primarily Hippodamia convergens, increased in barley and alfalfa in the Salt River Valley. Averaged 10 adults and 3 larvae per 50 sweeps. (Ariz. Coop. Sur.).

MISCELLANEOUS INSECTS

ANTS - DELAWARE - Swarming adults of Lasius claviger noted in New Castle County. (Burbutis, Conrad). NEW JERSEY - Flights have been observed and reported. (Ins. Dis. Newsl.). PENNSYLVANIA - Camponotus sp. of considerable trouble in trailer home and in a house. Both in Centre County. (Adams, Gesell).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - Reported for first time in Angelina County in February. Treatments of infested lands totaled 40,812 acres during February. (PPC, So. Reg.).

TERMITES - NEW JERSEY - Numerous flights reported. (Ins. Dis. Newsl.). DELAWARE - Numerous inquiries from New Castle County. (Bray). MARYLAND - Workers, soldiers and winged forms noted in a building at Rockville, Montgomery County. (U. Md., Ent. Dept.). VIRGINIA - Swarming in an apartment house in Clifton Forge, Alleghany County, and a house in Forest, Bedford County (Rowell), and from houses in Crozet, Albermarle County, and in Harrisonburg, Rockingham County (Amos). OKLAHOMA - Have been observed swarming in Tulsa area since early March. (Price). Reticulitermes hageni damaged a home, under a dirt-filled porch, at Tulsa and R. tibialis caused extensive damage to a home at Ponca City. (Bieberdorf).

AN EARTHWORM MITE (Fuscuropoda agitans) - NORTH CAROLINA - Heavy in earthworm culture in Rowan County. (Wilkins, Farrier).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Feltia subt.
ARIZONA					
Mesa 3/18-24			11	14	
ARKANSAS					
Fayetteville 3/15-18	1	1		1	
Kelso 3/5-18		1		2	
Morrilton 3/5-18	2	10			
FLORIDA					
Gainesville 3/24					3
MISSISSIPPI					
*Stoneville 3/21-27	199	43		157	
SOUTH CAROLINA					
Charleston 3/16-29	26	11	3	2	6
Clemson 3/21-28			9	2	3

* Four traps - Stoneville.

SUMMARY OF INSECT CONDITIONS - 1958

WISCONSIN

Prepared by Wis. Ins. Survey

Weather and Insect Activity: As late as May 22 frosts occurred as far south as Janesville, but heat growth units were above normal until mid-May. The weather pattern was cool and dry throughout southern sections until late summer but northern sections had more rainfall. A mild fall followed. Drought reduced crop quality and yield more in 1958 than insects. Outdoor insect activity was noticeable for brief periods as early as the third week of February, and black-light traps indicated that nocturnal insect activity was sporadic as late as mid-June. In many instances, insect activity remained low until early July, when large volumes of armyworm moths were caught in blacklight traps. Insects were active until mid-November.

Cereal, Forage, Potato and Pea Insects: MEADOW SPITTLEBUG (Philaenus leucophthalmus) eggs hatched by May 16 in southern areas. Populations averaged 0.8 per alfalfa stem in Iowa, Grant and Lafayette Counties and represented a large increase for these counties. Populations remained high in eastern counties throughout the summer and adults were numerous in most alfalfa-growing areas of the State. EUROPEAN CORN BORER (Pyrausta nubilalis) winter survival appeared normal. Parasitism of borers collected in the fall of 1957 was determined to be 19.7 percent, Lydella grisescens being the principal parasite. Perezia pyrausta, a protozoan parasite, infected 2.3 percent of the borers. Pupation was complete in southern sections by June 20, but moths were caught as early as May 30 in Platteville and River Falls light traps. Egg masses and first-instar larvae were observed on field corn in Grant and Crawford Counties June 21. Heavy local infestations in sweet corn were noted in Green Lake County. The 1958 fall survey revealed an average of 15 borers per 100 plants, the lowest since the surveys were begun. The major CORN EARWORM (Heliothis zea) moth flight occurred during the week of August 22, and catches continued until mid-November. Prior to August 22, light catches were obtained from various trap locations. Damage to sweet corn was light, but high infestations in late field corn were observed. Widespread CUTWORM damage occurred by May 29. Injury to alfalfa, oats, corn, soybeans and truck crops was observed. Corn fields were replanted because damage was more extensive than in several years. Other soil insects, WIREWORMS, SEED-CORN MAGGOT (Hylemya cilicrura), NORTHERN CORN ROOTWORM (Diabrotica longicornis) and CORN ROOT APHID (Anuraphis maidi-radicis) were destructive in several areas. Considerable rootworm damage occurred in a Pierce County corn field, being the first observed in the northwest area. POTATO LEAFHOPPER (Empoasca fabae) was observed on May 21 in alfalfa in southern counties. Populations increased slowly and remained considerably lower than in 1957. Damaged potato vines in untreated garden plantings were common in some areas. A few alfalfa fields in Dane and Outagamie Counties showed "yellowing". PEA APHID (Macrosiphum pisi) counts were low in alfalfa fields in mid-May. The first aphids in pea fields were noticed May 21 in Dane and Lafayette Counties. Large populations on peas in Outagamie County were reported June 6 and treatment begun. Before pea harvest was complete considerable acreage was treated, especially in the northeastern growing area, and in some instances two treatments were necessary. Populations were higher than in 1957, but can be rated as moderate. Parasites were observed. High fall populations in alfalfa were noted, but were not as high as in the fall of 1956.

During the week of April 27, the first ARMYWORM (Pseudaletia unipuncta) moths were caught in Middleton and Platteville blacklight traps. Large numbers were collected in all traps during early July but larvae were not troublesome. Small larvae were observed in several late pea fields in Columbia County, but were not a problem. Fifty percent parasitism was evident in the early-hatched larvae,

principally by Apanteles militaris, Winthemia quadripustulata and two unidentified species. Moth flight did not continue in the fall as in 1957. Overwintering TARNISHED PLANT BUG (Lygus lineolaris) adults were found in most southern alfalfa fields by May 16. MEADOW PLANT BUG (Leptopterna dolabratus) nymphs were also observed. Adults of ALFALFA PLANT BUG (Adelphocoris lineolaris) and RAPID PLANT BUG (Adelphocoris rapidus) occurred in Richland County alfalfa and red clover fields by June 10. Alfalfa and tarnished plant bug populations were high in fall, with large aggregations on goldenrod prior to dispersal to overwintering habitats. Occasional first and second-instar GRASSHOPPER nymphs were found by May 23, including Melanoplus bivittatus, M. bilituratus, M. viridipes and M. borealis. Economic numbers of M. femur-rubrum began to hatch in lighter soils of the central area during the week of July 18, with up to 50 nymphs per square yard in Waushara, Waupaca, Marquette and Adams Counties. The fall survey showed the greatest concentration of adults and eggs existed in the central counties. APHID populations at the University Hill Farms were considerably higher during early summer than in the same period of 1957. However, summer and late-summer populations did not reach the 1957 level. APPLE GRAIN APHID (Rhopalosiphum fitchii) was noticed on grains the first of April, but had not completed development on the winter host locally, indicating a migration from the south. ENGLISH GRAIN APHID (Macrosiphum granarium) was observed on winter grain April 14. Heavy spring migrations to small grains occurred the week of May 29. High populations occurred in many oat fields throughout the State. CORN LEAF APHID (Rhopalosiphum maidis) was noted by May 23 on barley, where large colonies built up, and were found on corn July 25. By mid-August, most southern corn fields were 100 percent infested, but colony size was smaller than in 1957. Other species that attained high populations at the University Hill Farms were BEAN APHID (Aphis fabae), APPLE APHID (Aphis pomi), ROSE APHID (Macrosiphum rosae), GREEN PEACH APHID (Myzus persicae) and other species. The incidence of yellow dwarf virus disease of small grain at the University Hill Farms was associated with the higher populations of the vector aphid species. Recovery of POTATO ROT NEMATODE (Ditylenchus destructor) was made from 15 fields on 10 farms that were not reported as being infested in 1957.

Orchard Insects: The first CODLING MOTH (Carpocapsa pomonella) adults were trapped May 14 at Gays Mills and the peak catch occurred June 4. In Door County, the first moths were caught June 20. Light trap catches indicated that second-brood emergence began July 19 at Gays Mills and continued to early September. On July 26 in Door County, adult and larval populations were present. Occasional second-generation moths were caught the week of August 28. Codling moth continues to be one of the serious pests of apples in Door and Crawford Counties. APPLE MAGGOT (Rhagoletis pomonella) adults were trapped at Madison May 28, and catches continued until mid-August. Adults were observed July 18 in Door County. Infestations were heavy in unsprayed apples in Dane County and other portions of the State. PLUM CURCULIO (Conotrachelus nenuphar) egg laying was observed the week of June 13 in Door County. Adults, eggs and first and second-instar larvae were observed the week of June 28. This species was one of the more important problems on cherries. By mid-May APPLE GRAIN APHID (Rhopalosiphum fitchii) was numerous on apple fruit stems in the Gays Mills area. APPLE APHID (Aphis pomi) was a serious pest in Door County apple orchards. EUROPEAN RED MITE (Panonychus ulmi) eggs began hatching in Door County about May 9. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) adults emerged and began egg laying in late April in Door County. Larval development had advanced to the second instar by June 13, adult emergence began July 13 and all stages were present July 26. This species is an important problem of Door County apple orchards. In Door County, FRUIT TREE LEAF ROLLER (Archips argyrospila) was in first and second instars by May 24. Pupation was noted the week of June 28 and emergence began by July 4. Adults were observed July 26 and were present until August 11. EYE-SPOTTED BUD MOTH (Spilonota ocellana) larvae were in third and fourth instars by May 24 in Door County. Pupation started by June 28 and adults were present by July 26. The overwintering population was on cherry and apple leaves by August 28. This was

one of the important cherry pests in Door County. CHERRY FRUITWORM (Grapholitha packardi) adults and eggs were present by June 21. Second and third-instar larvae were observed the week of July 26.

Truck Crop and Small Fruit Insects: The northward migration of SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was observed from southern overwintering areas to states west of Wisconsin. Overwintering nymphs began hatching by May 13. Populations were low in southeastern areas but high in the Rhinelander area. The incidence of "aster yellows" was considerably lower than in 1957. FLEA BEETLE populations were high on tomato and cabbage transplants, radishes and potatoes early in the growing season. After high spring populations in the Racine-Kenosha area, POTATO FLEA BEETLE (Epitrix cucumeris) numbers declined then increased slowly, with high populations being reached in September. Populations were lower at Rhinelander. STRIPED FLEA BEETLE (Phyllotreta striolata) populations appeared higher than normal. CABBAGE LOOPER (Trichoplusia ni) and IMPORTED CABBAGEWORM (Pieris rapae) adults were observed by May 16. By mid-August, in the Racine-Kenosha area, there were as many as 20 lepidopterus larvae per cabbage head, with 8 imported cabbageworms to each looper. In early September the ratio was almost reversed being five to one. Diseased loopers were observed in this area. CABBAGE APHID (Brevicoryne brassicae) populations were light in the Racine-Kenosha area and parasitism was observed. Control measures were necessary in Eau Claire County. ONION MAGGOT (Hylemya antiqua) populations were high in southeastern sections and damage was heavy on untreated fields and on fields treated with chlorinated hydrocarbons. The first generation was complete by June 20 and adults appeared by July 18 in the Racine-Kenosha area. This species was more of a statewide pest than in the past. STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) was moderate in Waupaca County but ranged light to moderate in Door County. ROOT KNOT NEMATODES were observed on strawberry roots in more plantings than in 1957. BLACK-HEADED FIREWORM (Rhopobota naevana) infestations were light in cranberry marshes. Approximately 10 percent of central and northwestern acreages were infested. Eggs began to hatch May 23 and 24. Pupation had started by June 20, and second-brood larvae hatched by July 11. Pupation of this brood was complete by August 15. Chemical treatment was carried out on a large portion of the infested acreage. Populations of a TIPWORM (Dasyneura vaccinii) were light. Eggs were observed by June 20, and maggots June 27. Limited acreage was treated. CRANBERRY FRUITWORM (Acrobasis vaccinii) infestations were light.

Forest, Ornamental and Shade Tree Insects: EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) pupation in Milwaukee County was approximately 55 percent complete by June 6 and 90 percent in Manitowoc County by June 27. In southeastern counties emergence began the week of June 13 and in Sheboygan County the week of June 20. SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) emerged in late May in Dane County. Emergence continued for a longer period due to cool weather and reached its peak in the latter half of June. There were 1,832 elm trees diagnosed as having Dutch elm disease. Green, Dane and Ozaukee Counties were added to the list of infested counties. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) was numerous on many ornamental evergreens. High populations of SCALE insects infested ornamental, shade and fruit trees in southern areas and were the highest for the past decade. ROSE CHAFER (Macrodactylus subspinosus) adults appeared June 8 in Marquette County and were numerous in the light soil areas of the State. Other areas reported having high populations. A BEETLE (Strigoderma arboricola) was numerous in similar areas. MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) larvae were numerous in elm in various localities. ELM LACE BUG (Corythucha ulmi) populations were high on elm along the Mississippi River. Other hosts were hackberry, Sumac and black walnut. Only the early generation of a SAWFLY (Neodriprion virginianus complex) was noted in Buffalo County and caused slight damage to a jack pine plantation. LARCH SAWFLY (Pristiphora erichsonii) populations appeared to be increasing in the northeast area where severe defoliation was reported from all counties. Some stands containing

marked trees have been stripped of foliage for three consecutive years. Nearly all tamarack stands in northwestern counties sustained moderate to complete defoliation and heavy defoliation was reported in several central counties.

A few isolated areas sustained moderate FOREST TENT CATERPILLAR (Malacosoma disstria) defoliation in the northern part of the northwest section, while in eastern Rusk County, northern Taylor County, southern Ashland County and most of Price County, the majority of the aspen stands were completely defoliated. Severe defoliation of aspen occurred in western Vilas and Iron Counties, and an area of 25 sections was completely defoliated in Langlade County. Reports of the presence of larvae were received from as far east as Calumet County and as far south as Columbia County. Pupal parasitism was as high as 95 percent in several areas. JACK-PINE BUDWORM (Choristoneura pinus) populations were light in northwest and northeast areas. Early-instar larvae were high in some central jack pine stands, but survival was poor and defoliation was light or not evident. WHITE-PINE WEEVIL (Pissodes strobi) populations were noticeably higher in most of the northwest area. Attacks continued in Vilas, Oneida and Marinette Counties on white and jack pine plantings. Infestations of 15-20 percent on red pine were observed in Vilas County where some control work was done. Varying degrees of infestation were found in Jackson, Monroe, Waupaca and Waushara Counties. Heavy infestations of PINE ROOT COLLAR WEEVIL (Hylobius radicis) were reported in Scotch pine in Shawano and Oconto Counties with damage to Christmas tree plantings and, in some cases, to windbreaks. Weeviled red and Scotch pine were found in plantations and windbreaks in the Wisconsin River Valley around Lone Rock in Richland and Sauk Counties. Tree mortality continued to appear in central counties. Plantations in Burnett and Washburn Counties were again attacked. The weevil has become one of the most serious threats to jack pine plantations and,to a lesser extent,Norway plantations in the northwest area. High nymphal counts of SARATOGA SPITTLEBUG (Aphrophora saratogensis) indicated a need for controls on 1,271 acres of plantations scattered over 6 counties. RED-HEADED PINE SAWFLY (Neodiprion lecontei) infestations heavy in Marinette, Oconto, Vilas and Langlade Counties. Some young red and jack pine plantings required spraying to prevent serious defoliation. Windbreak trees averaging 8 feet in height were completely defoliated in two growing seasons. This pest was general throughout the northwest area on scattered open grown trees and in young jack and red pine plantations. Scattered colonies occurred in central counties where they appeared to be reduced from 1957. SADDLED PROMINENT (Heterocampa guttivitta) larvae were extremely scarce in Door County, where populations were high two seasons ago. Moderate defoliation of maple occurred in one small area in central Bayfield County. There were scattered reports of varying loss by WHITE GRUBS (Phyllophaga spp.) on untreated seedlings in northeastern and southern counties. Infestations were severe in newly planted areas of Marathon and Shawano Counties, with moderate damage occurring in untreated fields. Severe losses occurred in a few new plantations in the Wisconsin River Valley. A WEBWORM (Tetralopha asperatella) and two LEAF ROLLERS (Sparganothis acerivorana and Acleris chalybeana) were collected in a survey to determine species that might be associated with maple blight. Preliminary surveys and early fall defoliation surveys showed these pests not to be in epidemic proportions in 1958.

Insects Affecting Man and Animals: AMERICAN DOG TICK (Dermacentor variabilis) was numerous in some localities, but less abundant than in 1957. The first, large emergence of a MIDGE (Tendipes plumosus) in Lake Winnebago, began the latter half of July, considerably later than in 1957. FLIES on cattle and in barns were not as numerous as in several past summers. They were not a problem until mid-July and in many instances only where sanitation of farm premises had been neglected. MOSQUITOES were not a problem in southern areas. In the Madison area, populations slowly increased during early August. High populations of Aedes sticticus and Aedes trivittatus occurred in Rusk County. The first MAYFLY in La Crosse appeared July 12. Various blacklight traps showed population increases along the Mississippi River at approximately the same time.

Large numbers of BROWN SPIDER BEETLE (Ptinus clavipes) infested a feed warehouse in Calumet County. CLOVER MITES were a problem in homes in many sections of the State.

Beneficial Insects: HONEY BEE (Apis mellifera) came through the winter with only about a 5 percent loss compared with a normal loss of about 20 percent. Unfavorable weather during May and June delayed the building up of colonies. The absence of heavy honey flow in May or June held swarming to a minimum. Unfavorable weather in the south delayed shipments of queens and packages as long as 4-6 weeks. By July 20, most beekeepers reported no surplus of honey, but strong colonies with every indication that feeding would be necessary in order to provide winter stores. August produced the heaviest honey flow known for so late in the season, resulting in the production of over 14 million pounds, to again rank Wisconsin fourth in the United States.

Blacklight Insect Trap Report: The use of the blacklight trap continued to expand during 1958 through the cooperation of Federal, State, private organizations and individuals. While the emphasis has been on lepidopterous insects, traps have been used for homopterous and dipterous species and show promise for some species of 8 other insect orders. Their present value lies in detecting the first emergence and peak flights as related to timing of treatments, biological studies, distribution and insect collections, but their use for other purposes in the future appears possible.

SUMMARY OF INSECT CONDITIONS - 1958

PENNSYLVANIA

Compiled by E. J. Udine

Highlights: The prolonged activity of ALFALFA WEEVIL which continued heavy feeding long after the first cutting. The migration of enormous numbers of EASTERN TENT CATERPILLAR caused considerable consternation. EUROPEAN PINE SAWFLY on conifers in the eastern part of the State was much more abundant than usual. First record of CARROT WEEVIL causing extensive damage to crops.

Cereal and Forage Insects: ALFALFA WEEVIL (Hypera postica) was found in only one additional county, Fayette, in 1958. This makes a total of 36 counties now infested. Cool, wet weather during the early spring delayed weevil development; consequently larvae continued to feed heavily after the first cutting thus preventing the new growth from developing. This delayed the second cutting and caused some mortality of alfalfa. Many growers found it necessary to apply a second treatment. PEA APHID (Macrosiphum pisi) on alfalfa in some areas was abundant enough to warrant treatment. In most other areas this species was not a problem. Activity of a MEADOW SPITTLEBUG (Philaenus sp.) was masked by the lush growth of hay crops but demonstrations on yields indicated an increase of about one-half ton of dry hay on sprayed plots. POTATO LEAFHOPPER (Empoasca fabae) did not appear as early as usual and did not increase rapidly. Control measures were not necessary in most areas. ARMYWORM (Pseudaletia unipuncta) outbreaks occurred in various areas of the State, some of which warranted control measures to stop further damage. EUROPEAN CORN BORER (Pyrausta nubilalis) surveys showed about same number of overwintering borers as in 1957, but favorable growing conditions reduced damage. CORN EARWORM (Heliothis zea) and EUROPEAN CORN BORER were light and very little damage occurred on commercial plantings of sweet corn.

Truck Crop Insects: POTATO LEAFHOPPER (Empoasca fabae) did not appear on potatoes as early as usual and did not increase rapidly. Very little damage resulted. GARDEN SYMPHYLID (Scutigerella immaculata) continued to cause considerable damage to potatoes in Lehigh, Northampton and Berks Counties. CARROT WEEVIL (Listronotus oregonensis) injured celery, parsley and parsnips in southeastern areas. In some instances, three-fourths of the parsley and parsnips were lost. PEA APHID (Macrosiphum pisi) was very abundant on peas in the northern sections and a few fields required controls. VARIEGATED CUTWORM (Peridroma margaritosa) did some damage to tomato fruit. Other garden insects were about normal or below normal.

Forest, Ornamental and Shade Tree Insects: A HICKORY APHID (Longistigma caryae) was numerous on oak. NORWAY-MAPLE APHID (Periphyllus lyropictus), PINE BARK APHID (Pineus strobi) and Hamamelistes spinosus were numerous on white birch. MIMOSA WEBWORM (Homadaula albizzae) was quite common in the southern part of the State on honeylocust and mimosa. EASTERN TENT CATERPILLAR (Malacosoma americanum) was heaviest in the western section and a great many eggs were laid last fall. FOREST TENT CATERPILLAR (Malacosoma disstria) defoliated groves of sugar maple in Somerset County. PALES WEEVIL (Hylobius pales) and Pissodes approximatus continue to be a problem in Christmas tree plantations. WHITE-PINE WEEVIL (Pissodes strobi) increased on Scotch pine. EUROPEAN PINE SAWFLY (Neodiprion sertifer), RED-HEADED PINE SAWFLY (N. lecontei) and RED-PINE SAWFLY (N. nanulus) occurred in numbers on both ornamentals and Christmas trees. PINE ENGRAVER (Ips pini) was again destructive to older trees in spotted infestations in plantations. PINE TORTOISE SCALE (Toumeyella numismaticum), and possibly Toumeyella pini, were very abundant in the fall and early spring but several species of COCCINELIDS practically wiped them out.

Household Insects: EASTERN TENT CATERPILLAR, CLOVER MITES and BOXELDER BUG (Lepticoris trivittatus) were abundant in some areas and in the southern section EUROPEAN EARWIG (Forficula auricularia) became a problem. BLACK FLIES plagued the northeastern resort areas for the second successive year, being most annoying from August 10 to September 10.

SOME OF THE MORE IMPORTANT INTRODUCED INSECTS REPORTED SINCE 1900

The recently increased interest in insect detection has given rise to such questions as "Where do our introduced pests come from?" and "Where are introduced pests first found in the country?" To answer these and similar questions, a list of some of the more important species has been compiled and adapted from the Survey and Detection files and records of cooperating agencies. It is believed that an abbreviated list dating from 1900 to the present will be adequate for this purpose.

Of the 100 species included here, there are many of outstanding importance. Some of these have been eradicated. The Mediterranean fruit fly, twice found established in Florida (1929 and 1956), has been eradicated in both instances. The 1934 citrus blackfly infestation in Key West, Florida, was eliminated. The Hall scale infestation in California has apparently been eradicated also. Other species in the list that are currently involved in cooperative State-Federal plant pest control programs are citrus blackfly, European chafer, Mexican fruit fly, white-fringed beetle, imported fire ant, khapra beetle, pink bollworm and Japanese beetle.

Many additional species of prime importance have been discovered since 1900. European corn borer, found in 1917 and now known in 39 states, caused $158,000,000 loss in 1957. Alfalfa weevil and spotted alfalfa aphid are outstanding pests of alfalfa. Sweetclover weevil and vetch bruchid are principal pests of their respective hosts. Rosy apple aphid, oriental fruit moth and European red mite are among the more important fruit insects, while pepper weevil, vegetable weevil, carrot rust fly and European earwig are in the same category from the truck crop standpoint. Some important forest and shade tree insects are in the list,including spruce aphid, balsam woolly aphid, introduced pine sawfly, European pine shoot moth, smaller European elm bark beetle and European pine sawfly.

It should be noted that only 14 percent of these new discoveries have been made in the last 20 years. This is especially significant when considered against the vast increase in traffic during this period. Such accomplishment undoubtedly reflects the increased vigilance that has been maintained at United States ports of entry in recent years.

The locations of the first reported record have been plotted, by State, on the following map. It will be noted that most discoveries have been made in the States of Washington, California, Texas, Florida, Massachusetts, New Jersey and New York. Within Massachusetts and New York a high percentage of the reports have been from Boston and New York City areas. (Prepared in Survey and Detection Operations, Plant Pest Control Division, April 1959).

SOME INTRODUCED INSECT PESTS REPORTED SINCE 1900

Some of the More Important Introduced Insects Reported Since 1900

Insect	Probable Origin	First U.S. Report	Date
Acantholyda erythrocephala (pine false webworm)	Europe	Pa.	1925
Adelphocoris lineolatus (alfalfa plant bug)	Europe	Iowa	1929
Aleurocanthus woglumi (citrus blackfly)	Mexico	Fla.* Texas	1934 1955
Amphimallon majalis (European chafer)	Europe	N. Y.	1940
Anastrepha ludens (Mexican fruit fly)	Mexico	Texas	1927
Anomala orientalis (oriental beetle)	P. I.	Conn.	1920
Anthonomus eugenii (pepper weevil)	Mexico	Texas	1903
Anthophila pariana (apple and thorn skeletonizer)	?	N. Y.	1917
Anuraphis helichrysi (an aphid)	Europe	West Coast	1920
Anuraphis roseus (rosy apple aphid)	Europe	Del.	1900
Anuraphis tulipae (tulip bulb aphid)	Europe	N. Y.	1908
Aphis abietina (spruce aphid)	England via Canada	West	1915
Archips conflictana (large aspen tortrix)	Canada	Maine	1931
Argyresthia conjugella (apple fruit moth)	Europe	Wash.	1907
Aspidiotus destructor (coconut scale)	Orient	Fla.	1921
Autoserica castanea (Asiatic garden beetle)	Orient	N. J.	1921
Brachyrhinus cribricollis (a weevil)	Europe	Calif.	1929
Brachyrhinus meridionalis (a weevil)	Europe	Calif.	1931
Bruchus brachialis (vetch bruchid)	Europe	N. J.	1931
Calomycterus setarius (a weevil)	Japan	N. Y.	1929
Ceratitis capitata* (Mediterranean fruit fly)	Europe	Fla.	1929 1956
Ceutorhynchus assimilis (cabbage seedpod weevil)	Europe	Wash.	1935
Ceutorhynchus erysimi (a crucifer weevil)	Europe	N. Y.	1927
Chermes piceae (balsam woolly aphid)	Europe	Maine	1908
Cnephasia longana (omnivorous leaf tier)	Europe	Oreg.	1929
Cnidocampa flavescens (oriental moth)	Orient	Mass.	1906

* Eradicated

Insect	Probable Origin	First U.S. Report	Date
Coccus pseudomagnoliarum (citricola scale)	Japan	Calif.	1909
Coccus viridis (green scale)	?	Fla.	1942
Cryptococcus fagi (beech scale)	Europe	Mass.	1929
Cyrtepistomus castaneus (Asiatic oak weevil)	Japan	N. J.	1933
Dendrothrips ornatus (a thrips)	Europe	N. Y.	1929
Dialeurodes chittendeni (rhododendron whitefly)	Asia	Pa.	1932
Diarthronomyia hypogaea (chrysanthemum gall midge)	Europe	Mich.	1915
Dichomeris marginella (juniper webworm)	Europe	Conn.	1909
Diprion similis (introduced pine sawfly)	Europe	Conn.	1914
Eumargarodes laingi (a ground pearl)	Australia	Fla.	1951
Eumerus tuberculatus (lesser bulb fly)	Europe	N. Y.	1906
Evergestis pallidata (purple-backed cabbageworm)	?	Wisc.	1915
Forficula auricularia (European earwig)	Europe	R. I.	1911
Furcaspis biformis (a scale)	Brazil	N. J.	1914
Gasterophilus inermis (a bot fly)	Europe	Ill.	1935
Gracilaria syringella (lilac leaf miner)	Europe	Wash.	1921
Graphognathus leucoloma fecundus (a white-fringed beetle)	South America	Fla.	1936
Grapholitha molesta (oriental fruit moth)	Japan	D. C.	1913
Haematopinus quadripertusus (cattle tail louse)	Africa	Fla.	1945
Hoplocampa testudinea (European apple sawfly)	Europe	N. Y.	1942
Hypera brunneipennis (Egyptian alfalfa weevil)	Egypt or Sicily	Ariz.	1939
Hypera meles (a clover weevil)	Europe	N. Y.	1907
Hypera postica (alfalfa weevil)	Europe	Utah	1904
Lampetia equestris (narcissus bulb fly)	Europe	Calif.	1914
Laspeyresia nigricana (pea moth)	Europe	Wisc.	1906
Lecanium cerasorum (calico scale)	China?	Calif.	1912
Lecanium coryli (a scale)	Europe via Brit. Col.	Wash.	1924
Lecanium excrescens (a scale)	China?	Calif.	1920
Lepidosaphes ficus (fig scale)	Medit. Region	Calif.	1904

Insect	Probable Origin	First U.S. Report	Date
Lepidosaphes pini (a scale)	China or Japan	Md.	1952
Listroderes costirostris obliquus (vegetable weevil)	Australia	Miss.	1922
Longitarsus waterhousei (a mint flea beetle)	Europe	Mich.	1922
Miccotrogus picirostris (clover seed weevil)	Europe	Wash.	1929
Monarthropalpus buxi (boxwood leaf miner)	Europe	R. I.	1910
Neodiprion sertifer (European pine sawfly)	Europe	N. J.	1925
Nilotaspis halli* (Hall scale)	Middle East	Calif.	1934
Odonaspis ruthae (Ruth scale)	?	Fla.	1923
Ornithonyssus bursa (tropical fowl mite)	South America	N. Y.	1911
Ornithonyssus bacoti (tropical rat mite)	?	Mo.	1916
Panaphis juglandis (a walnut aphid)	Europe	Oreg.	1928
Panonychus ulmi (European red mite)	Europe	Oreg.	1911
Pealius azaleae (azalea whitefly)	Asia via Europe	S. C.	1923
Pectinophora gossypiella (pink bollworm)	Egypt or India via Mexico	Texas	1917
Physokermes piceae (spruce bud scale)	Europe	Mass.	1909
Plagiodera versicolora (imported willow leaf beetle)	Europe	N. Y.	1911
Platyedra vilella (cotton stem moth)	Eurasia	N. Y.	1952
Popillia japonica (Japanese beetle)	Japan	N. J.	1916
Pseudocneorhinus bifasciatus (a Japanese weevil)	Japan	Conn.	1923
Pseudococcus comstocki (Comstock mealybug)	Orient	D. C.	1914
Pseudococcus gahani (citrophilus mealybug)	?	Calif.	1913
Psila rosae (carrot rust fly)	Europe via Canada	N. Y.	1902
Pyrausta nubilalis (European corn borer)	Europe	Mass.	1917
Rhipicephalus sanguineus (brown dog tick)	Africa	Texas	1906
Rhizoecus falcifer (ground mealybug)	?	N. Y.	1937
Rhyacionia buoliana (European pine shoot moth)	Europe	N. Y.	1913
Saissetia nigra (a scale)	?	D. C.	1912
Scolytus multistriatus (smaller European elm bark beetle)	Europe	Mass.	1909
Selenothrips rubrocinctus (red-banded thrips)	?	Fla.	1908

* Eradicated

Insect	Probable Origin	First U.S. Report	Date
Sitona cylindricollis (sweetclover weevil)	Europe	Vt.	1931
Sitona lineata (pea leaf weevil)	?	Wash.	1940
Sogata orizicola (rice delphacid)	British Guiana	Fla.	1958
Solenopotes capillatus (a sucking louse)	?	Tex.	1910
Solenopsis saevissima richteri (imported fire ant)	South America	Ala.	1930
Stilpnotia salicis (satin moth)	Europe and Asia	Mass.	1920
Supella supellectilium (brown-banded roach)	?	Fla.	1903

Addition:

Microtheca ochroloma (yellow-margined leaf beetle)	South America	Ala.	1947

Insect	Probable Origin	First U.S. Report	Date
Taeniothrips inconsequens (pear thrips)	Europe?	Calif.	1904
Taeniothrips simplex (gladiolus thrips)	?	Ohio	1929
Therioaphis maculata (spotted alfalfa aphid)	East Medit.	N. Mex.	1954
Toxotrypana curvicauda (papaya fruit fly)	West Indies	Fla.	1905
Trachyphloeus bifoveolatus (a weevil)	Europe	N. Y.	1917
Trogoderma granarium (khapra beetle)	Asia	Calif.	1953
Xenopsylla cheopis (oriental rat flea)	Orient	Calif.	1907

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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
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Volume 9 April 10, 1959 Number 15

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

Heavy CHINCH BUG infestations on young sorghum in Texas. GREENBUG controls being applied in spotted areas in Texas and in areas of Oklahoma. Populations building up in New Mexico. First ARMYWORM moths of season reported in Missouri. Larvae noted in Louisiana and in Missouri. (p. 255). SPOTTED ALFALFA APHID very heavy in north central Texas and increasing in Payne County, Oklahoma. (p. 257).

CITRUS THRIPS may be heavy on citrus in Arizona during 1959. (p. 258).

POTATO APHID survey in New Jersey indicates that infestation potential is greater in 1959 than in 1957 and 1958. BEET LEAFHOPPER populations are below normal at Hermiston, Oregon, and low in California. No significant crop damage expected in California this season. (p. 259).

BOLL WEEVIL survival surveys in South Carolina, North Carolina and Virginia. (p. 260). Summary of these and previous 1959 survival surveys. (p. 261).

Distribution of HEMLOCK SAWFLY. (p. 262).

Major outbreak of PERIODICAL CICADA (Brood 19) expected in early May in Tennessee. (p. 264).

Some First Reported Records of the Season: RED-BANDED LEAF ROLLER moths observed March 31 in Illinois. PECAN PHYLLOXERA hatching in Louisiana. EASTERN TENT CATERPILLAR hatching in Delaware; webs noted in Alabama.

INSECT DETECTION: Olive scale reported for first time in Monterey County, California, (p. 263) and lesser grain borer found for first time in Tillamook County, Oregon. (p. 264).

SUMMARY OF INSECT CONDITIONS - 1958 - NEVADA (p. 266), MINNESOTA (p. 268).

INSECTS not known to occur in the United States. (p. 275).

CORRECTION. (p. 264).

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Reports in this issue are for the week ending April 3, unless otherwise indicated.

WEATHER BUREAU 30-DAY OUTLOOK

APRIL 1959

The Weather Bureau's 30-day outlook for April calls for temperatures to average below seasonal normals over the southeastern quarter of the Nation and also over the Pacific Northwest. Above normal temperatures are predicted for the Northern Plains, Great Lakes Region and the Far Southwest. In unspecified areas, about normal temperatures are in prospect. Rainfall is expected to exceed normal over the Southeast, the Pacific Northwest and the Central Plains. Subnormal amounts are anticipated over the southwestern quarter of the country as well as the Great Lakes Region. Elsewhere, about normal precipitation 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 APRIL 6

Last week was abnormally warm and precipitation was mostly moderate to heavy from the middle and lower Mississippi Valley eastward and in the extreme Northwest, with little or none elsewhere. Stormy weather occurred east of the Rockies April 1 to 3 as an area of low pressure, with strong storm intensity, moved northeastward from the lower Great Plains. The week was unseasonably warm in virtually the entire Nation, with weekly averages 6° to 9° above normal in California, the Rocky Mountain States and the Great Plains and slightly above normal to 3° above elsewhere. Maximum temperatures ranged in the 80's and 90's on several days in Texas, Oklahoma and the Far Southwest, and in the 70's and 80's on 3 days in Kansas; Shenandoah, Iowa, on April 2 recorded 80°, and on April 5 Salt Lake City, Utah, had 82° which was the highest on record there for so early in the season; and near record highs in the 60's and 70's were measured in Montana. Rainfall, falling on 2 or 3 days, exceeded an inch in many areas of the East and South, keeping soil moisture plentiful to excessive. Minor to locally severe floods occurred in a number of streams from Iowa and northern Missouri eastward through the southern Great Lakes region and southern New England.

Dry weather continued in the extreme upper Mississippi Valley, much of the Great Plains and Far Southwest. Fires burned many acres of grasslands and some homes in Minnesota last week, some grass fires in Kansas were blown out of control by high winds, and prairie fires were a constant threat in South Dakota. High winds whipped up dust in western Texas on April 2 and in east central and southeastern Colorado on March 31 and April 2. In northern areas east of the Rockies snow and ice melted rapidly. In New York State the only remaining snow cover is in the Adirondack Mountains, the cover is gone in Lower Michigan, and in Wisconsin the cover is limited to the northern woodlands. Ice is out of many streams in Wisconsin and the soil temperature is up to 40° to a depth of 40 inches at Ames, Iowa. On March 31, severe thunderstorms with hail up to the size of hen's eggs occurred in Payne and Creek Counties, Oklahoma, where a tornado destroyed half of Silver City, injuring 6 persons; and a tornado in southern Marshall County injured 13 persons and caused extensive damage. On April 2, tornadoes killed 23 persons and caused extensive damage in northeastern Texas. On the same date, tornadoes in the vicinities of Dade City, Orlando and Mims, Florida, were blamed for at least 1 death, numerous injuries and considerable property destruction. High winds caused some minor damage in southeastern Wyoming on April 2, and thunder squalls caused scattered damage in Georgia on April 1. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - WISCONSIN - Overwintering Pardalophora apiculata, Cortophaga viridifasciatus, Arphia sulphurea and Epitettix simplex can be found over much of the State, the latter species being rare. Of 15 A. sulphurea noted, surrounded by snow, all were in the fourth instar. (Wis. Coop. Sur.).

BILLBUGS - ALABAMA - Few specimens taken from burclover in Lee County. (Guyton). GEORGIA - Calendra callosa infesting volunteer corn in Brooks County. (Johnson).

CHINCH BUG (Blissus leucopterus) - TEXAS - Heavy infestations and damage reported on young grain sorghum in Jim Wells and Nueces Counties. (Texas Coop. Rpt.).

GREENBUG (Toxoptera graminum) - TEXAS - Infestations ranging from less than one per foot to over 200 per foot, generally in small grains in Dallas-Ft. Worth area. Parasitism by Aphidius testaceipes has been very heavy and lady beetle populations are very large. (Chada). Infestations decreased past 2 weeks in Foard and Knox Counties. Beneficial insects prevalent enough to be of real value. (Turney). Infestations very spotted in fields in Potter, Oldham, Deaf Smith, Castro and Parmer Counties. Ranged zero to 500-600 per linear foot, with some controls applied. (Daniels). Attacked oats in Brazos and Burleson Counties sufficiently to warrant controls. (Randolph). LOUISIANA - Very light on oats in Baton Rouge, Allen and St. Landry Parishes. Scarce in northern parishes at present. (Spink). OKLAHOMA - Of 367 small grain fields observed in Payne, Noble, Kay and Garfield Counties about 20 percent showed some damage, mostly light, with some medium and heavy damage present. Most damage to barley. Of 469 fields observed in Kingfisher, Blaine and Logan Counties, about 15 percent showed damage ranging from light to heavy. Controls applied to large acreage in the Kingfisher-Blaine-Logan county area. (Henderson, Thompson). Damage appearing in fields of winter oats and barley in Pawnee County, controls under way. (Garlington). Averaged 5-100 per linear foot in 4 wheat fields in Mulhall area, Logan County. Severe damage to barley and oats continued in Noble County. Damage appeared in many wheat fields. Controls widespread throughout north central area. (Stiles). Counts ranged 4-6 to 10-20 per linear foot in 2 wheat fields checked in Davidson area, Tillman County. Very few noted in wheat fields checked in Comanche County. (Hatfield). NEW MEXICO - Continued to build up. Often more than 100 per linear foot in wheat fields in Curry and Roosevelt Counties. (N. M. Coop. Rpt.). MISSOURI - Very light and widely scattered on barley and wheat over southwest area, with 0-2 per linear foot of row. (Kyd, Thomas, Munson).

ENGLISH GRAIN APHID (Macrosiphum granarium) - TEXAS - Small populations still present in north central area small grain fields. (Chada). Medium on small grain in Foard County. (Turney). MISSOURI - Light, 0.5-25 per linear foot of row, and common in most small grain fields in southwest area. (Kyd, Thomas, Munson).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Light in a Doniphan County wheat field. (Peters).

WINTER GRAIN MITE (Penthaleus major) - MISSOURI - Counts range 0-16 per linear foot in southwest area small grain fields; no damage evident. (Kyd, Thomas, Munson).

AN APHID - ARIZONA - Averaged 7 per infested head of wheat in Maricopa and Pinal Counties; 20 percent of heads infested. (Ariz. Coop. Sur.).

ARMYWORM (Pseudaletia unipuncta) - LOUISIANA - Very light on white clover and oats in Allen, St. Landry and Baton Rouge Parishes. (Spink). MISSOURI - First moths of season observed at lights, March 30, in southwest area and April 3 in central area. Few fourth and fifth-instar larvae present in grassy margins

of southwest area alfalfa fields. In most instances larvae feeding in alfalfa crowns. (Kyd, Thomas, Munson).

GREEN CLOVERWORM (Plathypena scabra) - TEXAS - Light on alfalfa in Brazos and Burleson Counties. (Randolph).

CUTWORMS - TEXAS - Peridroma margaritosa ranged none to very light on hubam clover and alfalfa in Brazos and Burleson Counties. (Randolph). NEW MEXICO - Caused some damage to alfalfa near Tucumcari, Quay County. (N. M. Coop. Rpt.). MISSOURI - Larvae averaged 0.5-2 per crown along grassy margins of alfalfa fields in Newton and Jasper Counties. Infestations practically nonexistent within the fields. (Kyd, Thomas, Munson).

ALFALFA WEEVIL (Hypera postica) - MARYLAND - No larval activity noted in central sections. One adult taken by sweeping alfalfa at Ellicott City, Howard County. (U. Md., Ent. Dept.). NORTH CAROLINA - Injury appearing in untreated fields in Lincoln County. (Jones). GEORGIA - Larvae ranged 1-3 per bud in alfalfa in Oconee County. (Johnson).

CLOVER LEAF WEEVIL (Hypera punctata) - DELAWARE - Larval feeding injury to clover noticeably increased in Sussex County. (Burbutis, Conrad). MARYLAND - Larvae light on red clover at Ellicott City, Howard County. (U. Md., Ent. Dept.). ALABAMA - Larvae plentiful on burclover in Lee County. (Guyton). KANSAS - Averaged 2 larvae per square foot of crown area in 3 alfalfa fields in Geary and Riley Counties. (Peters, Brady). MISSOURI - Small larvae averaged 2-5 per crown of alfalfa in southwest area. Evidence of a fungus disease present on 33-50 percent of larvae. (Kyd, Thomas, Munson).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - IDAHO - Adults active in Deer Flat clover-growing area south of Caldwell, Canyon County. Considerable feeding evidence observed. (Waters).

CLOVER ROOT CURCULIO (Sitona hispidula) - IDAHO - Large numbers of adults active in red clover and alfalfa fields in southwestern section during warmer days. (Waters).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - KANSAS - Adults caused some damage to Riley County sweetclover. (Lawson).

FLEA BEETLES - UTAH - Active on mustards in Box Elder County. (Knowlton).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ALABAMA - Adults plentiful in clover and pastures in Wilcox County. (Grimes, March 27).

COWPEA APHID (Aphis medicaginis) - TEXAS - Light on alfalfa and hubam clover in Brazos and Burleson Counties. (Randolph).

PEA APHID (Macrosiphum pisi) - DELAWARE - Populations on alfalfa increased slightly in Sussex County. (Burbutis, Conrad). MISSOURI - Ranged 1-15 per alfalfa crown in fields surveyed. New growth ranged 2-5 inches over southwest area. (Kyd, Thomas, Munson). KANSAS - Ranged as high as 75 nymphs and adults per sweep in alfalfa in Geary and Riley Counties, and up to 50 per 2-inch square of crown area on a roadside embankment in Geary County. (Peters, Brady). OKLAHOMA - Averaged 1-15 per sweep in 3 Choctaw County alfalfa fields. (Goin). TEXAS - Averaged 25 per foot of row and attacked alfalfa in Dallas-Ft. Worth area. (Chada). Light on alfalfa and hubam clover in Brazos and Burleson Counties. (Randolph). Light on vetch in Delta County. May build up if weather conditions permit. (Davis). ARIZONA - Heavy on alfalfa throughout Salt River Valley. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - MISSOURI - None found in southwest area. (Kyd, Thomas, Munson). KANSAS - Counts per 25 plants ranged 0-11 in 3 areas of Riley County, 0-52 in 4 areas of Cloud County and 0-62 in 5 areas of Jewell County, March 20, 21 and 22, respectively. (Simpson, Burkhardt). None found by sweeping or field examination of individual alfalfa plants in fields or roadside embankments in Geary and Riley Counties. (Peters, Brady). OKLAHOMA - Spot checks showed low numbers in western Okfuskee County, zero to two per sweep in Choctaw County and up to 5,000-7,000 per square foot near Lawton. (Hatfield, Goin, Meharg). Averaged 1,089 per square foot of crown area in some Payne County alfalfa fields, an increase of 53 percent over last week. (Ketner). TEXAS - Light to medium on alfalfa in Brazos and Burleson Counties. (Randolph). Very heavy in most fields in north central part of State and some fields severely damaged. (Chada). NEW MEXICO - Many additional heavy infestations found in alfalfa fields in Otero, Chaves and Eddy Counties. (N. M. Coop. Rpt.). ARIZONA - Remained light throughout most of the State, with a damaging infestation reported in one Graham County alfalfa field requiring control. (Ariz. Coop. Sur.). OREGON - None found in fields checked in Hermiston area, Umatilla County, March 16-20. (Goeden).

SWEETCLOVER APHID (Myzocallidium riehmi) - TEXAS - Light to medium on hubam clover in Brazos and Burleson Counties. (Randolph).

LYGUS BUGS (Lygus spp.) - MARYLAND - Three adult L. lineolaris taken in 50 sweeps of alfalfa at Ellicott City, Howard County. (U. Md., Ent. Dept.). ARIZONA - Primarily L. hesperus, beginning to reproduce rather heavily in alfalfa throughout State. Averaged 15 nymphs per 50 sweeps in 10 fields in Maricopa and Pinal Counties. (Ariz. Coop. Sur.). OREGON - Averaged 3-4 adults per square foot in cultivated fields in Hermiston area, Umatilla County, March 16-20. (Goeden). UTAH - Common on roadside mustards in central and northern areas of the State. (Knowlton).

LEAFHOPPERS - UTAH - Aceratagallia spp. active in Cache County alfalfa fields. (Knowlton).

THRIPS - UTAH - Active in Salt Lake County alfalfa fields. (Knowlton). ARIZONA - Heavy in some Salt River Valley alfalfa fields, particularly in Pinal County. (Ariz. Coop. Sur.).

GREEN JUNE BEETLE (Cotinus nitida) - NORTH CAROLINA - Large numbers of larvae in pastures in Cherokee County. (Nave, Farrier).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - No egg masses, feeding signs or deadhearts observed at 44 stations throughout sugarcane belt. One adult taken in light trap at Baton Rouge. (Spink).

FRUIT INSECTS

APHIDS - DELAWARE - A. pomi nymphs abundant on apples in Sussex County. (Kelsey). Eggs have hatched in all counties. (Late News). PENNSYLVANIA - Aphis pomi and Rhopalosiphum fitchii hatching on apple in southeast Pike County. The latter to a limited extent. (Menusan, Gesell). ILLINOIS - Hatching and on apple March 28. Overwintering egg populations higher than normal in central and in scattered southern areas. (Meyer). INDIANA - Jonathan fruit spurs are in stage 1 and aphids have begun hatching. (Marshall). OREGON - Overwintering eggs abundant on apple in Klamath County in January. (Ventrees). ARIZONA - Toxoptera aurantii increasing on some citrus in Maricopa County, especially that needing top work. (Ariz. Coop. Sur.).

PEACH TREE BORERS - UTAH - General in Utah County stone fruit orchards. (Barlow, Knowlton). NEW MEXICO - Sanninoidea sp. damaging peach trees at Tucumcari, Quay County. (N. M. Coop. Rpt.).

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - Heavy in some orchards. Averaged 10.1 and 12.8 adults per tree on March 26-27 on outside row of one commercial peach orchard. Nothing found in another orchard. This indicates lighter infestations where they were light in 1958 or where controls were applied. On March 31, 13.2 adults per tree were caught on outside row of commercial peach orchard. This emergence from hibernation was caused by a 61° F. mean temperature over a 5-day period. Egg deposition is underway by females taken from peach orchards. (Snapp).

PLANT BUGS - ILLINOIS - Active for some time and now moving to peach trees. (Meyer) UTAH - Lygus spp. common in orchards in central and northern areas. (Barlow, Knowlton).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - ILLINOIS - First moth observed on March 31. (Meyer).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Heavy on almond and apricot trees in Tracy, San Joaquin County. (Cal. Coop. Rpt.).

A TWIG PRUNER (Elaphidion sp.) - OKLAHOMA - One percent of 300 limbs infested in an untreated, improved variety pecan orchard and no infestation was noted in 150 limbs in an untreated native pecan orchard at Stillwater, Payne County. (Bieberdorf, VanCleave).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - One percent of 300 limbs infested in an untreated, pecan orchard of improved varieties and two percent of 150 limbs infested in an untreated native pecan orchard at Stillwater, Payne County. (Bieberdorf, VanCleave).

PECAN PHYLLOXERA (Phylloxera devastatrix) - LOUISIANA - Newly hatched nymphs migrating to buds in large numbers on heavily infested trees of Schley variety pecan, Caddo and Bossier Parishes. Overwintering eggs hatching on Caspiana pecan but not so numerous on this variety. (Spink).

HICKORY SHUCKWORM (Laspeyresia caryana) - Larvae and pupae heavy in Lee County. (Guyton).

SAN JOSE SCALE (Aspidiotus perniciosus) - Found on some grape plants at the Purdue experiment station. (Marshall).

THRIPS - UTAH - Active in Davis County orchards. (Barlow, Knowlton). ARIZONA - Scirtothrips citri heavy for this time of year on citrus in Salt River and Yuma Valleys. Indicate a possible damaging thrips year for citrus. (Ariz. Coop. Sur.). OREGON - Taeniothrips inconsequens peak emergence reached March 22-28. Populations low and below economic level in observed orchards. Peak emergence about same as during 1958. (Jones).

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

A MEALYBUG (Pseudococcus malacearum) - CALIFORNIA - Heavy on citrus trees in Soledad, Monterey County, and in Hayward, Alameda County. (Cal. Coop. Rpt.).

Citrus Insect Situation, Lake Alfred, Florida, Third Week in March - PURPLE SCALE activity decreased sharply this week and some further decrease is expected in the next two weeks as a result of rainy weather and passing of the peak

hatching period. There was a slight rise in FLORIDA RED SCALE activity and the present high level of activity will carry through April. CITRUS RED MITE activity decreased markedly and will generally drop through April. There was a slight decline in CITRUS RUST MITE activity and the trend will be downward until mid-April. (Simanton, Thompson, Johnson, March 27).

TRUCK CROP INSECTS

Potato Aphid Survey, New Jersey - February-March - 1959

POTATO APHID (Macrosiphum solanifolii) is a particular pest of tomato and potato crops in the State. Through survey, prediction of outbreaks is a possibility and many fields could be saved from much damage. A SWAMP ROSE (Rosa palustris) is the primary overwintering host for eggs. Most eggs again were found along Racoon Creek in Gloucester County. Counts in the Cumberland-Salem county area were about the same as previous years. Many more eggs were found in the central area than before. Eighteen locations in 7 counties were surveyed. The average per location per 100 buds or crotches was 8.78. In 1958, the average was 1.42 and in 1957, 2.86. Overwintering eggs are more numerous this spring than in 1958 or 1957, and the infestation potential for potato aphids is higher this year than in either previous year. (Coop. Sur., N. J. Dept. Agr., Rutgers Univ.).

BEET LEAFHOPPER (Circulifer tenellus) - OREGON - Early observations indicate populations in Hermiston area below normal. Overwintering host plants in surrounding desert area scarce and this may have influenced the situation. (Goeden). CALIFORNIA - By March 5, populations were heavy enough in southern end of breeding grounds to warrant treatment. By mid-March, hatching in other areas made it necessary to increase spraying activity. By end of March, 6,440 acres in Merced, Fresno, Kings and Kern Counties had been treated. Practically no rainfall was recorded during March, and if winter annuals continue to dry, a movement from breeding grounds should follow about mid-April. However, remnant populations are low and no significant amount of crop damage is expected this season. (Green, Harper).

A MAGGOT (Hylemya sp.) - CALIFORNIA - Heavy and damaging squash seedlings in Watsonville, Santa Cruz County. (Cal. Coop. Rpt.).

FLEA BEETLES - UTAH - Active on mustards in Box Elder County. (Knowlton). LOUISIANA - Phyllotreta sp. (probably bipustulata) averaged 50 per 100 sweeps on turnips at LaPlace. (Spink).

DIAMONDBACK MOTH (Plutella maculipennis) - GEORGIA - Light to moderate on cabbage in 5 southern counties. (Johnson).

CABBAGE APHID (Brevicoryne brassicae) - GEORGIA - Moderate to heavy on cabbage in Colquitt, Grady, Thomas, Brooks and Lowndes Counties. (Johnson).

BEAN LEAF BEETLE (Cerotoma trifurcata) - GEORGIA - Light on beans in Grady County. (Johnson).

TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light on tobacco beds in 4 southern counties. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light to moderate on tobacco beds in 10 southern counties and moderate to heavy on tobacco in the field in 5 of these same counties. (Johnson).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Light to moderate on tobacco beds in 10 southern counties. (Johnson).

COTTON INSECTS

CUTWORMS - TEXAS - Infestations scattered and limited throughout lower Rio Grande Valley. (Deer, March 30).

APHIDS - TEXAS - Appeared in some fields in lower Rio Grande Valley; some controls applied. (Deer, March 30).

DARKLING BEETLES - TEXAS - Damage reported from eastern Willacy and Cameron Counties and one area northwest of Edinburg. (Deer, March 30).

Boll Weevil Survival Surveys in South Carolina, North Carolina and Virginia - Spring 1959

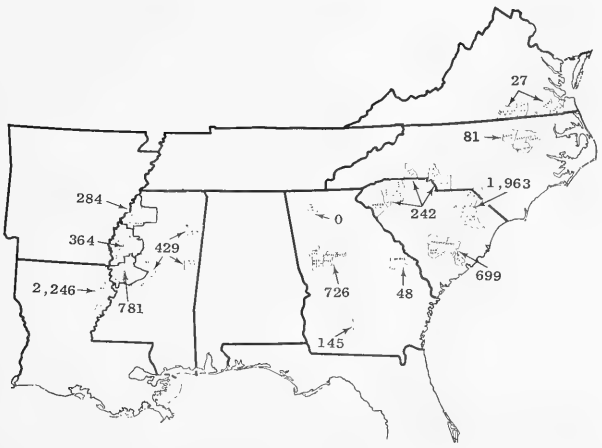
Surface woods trash examinations were made during the period March 2-25 in the same 5 representative areas of South Carolina, North Carolina and Virginia in which fall examinations were made in 1958. Virginia was the lowest in percent survival and the south central section of South Carolina was the highest of the areas sampled; however, the coastal plains of South Carolina and North Carolina had the higher average number of weevils per acre. The 1959 survival percentages are well above the 1958, and the highest in Florence County, South Carolina, since the winter of 1954-55. (Ent. Res. Div., in coop. with States and PPC). See Summary of Boll Weevil Survival Surveys - Spring 1959 for additional information.

SUMMARY OF BOLL WEEVIL SURVIVAL SURVEYS - SPRING 1959

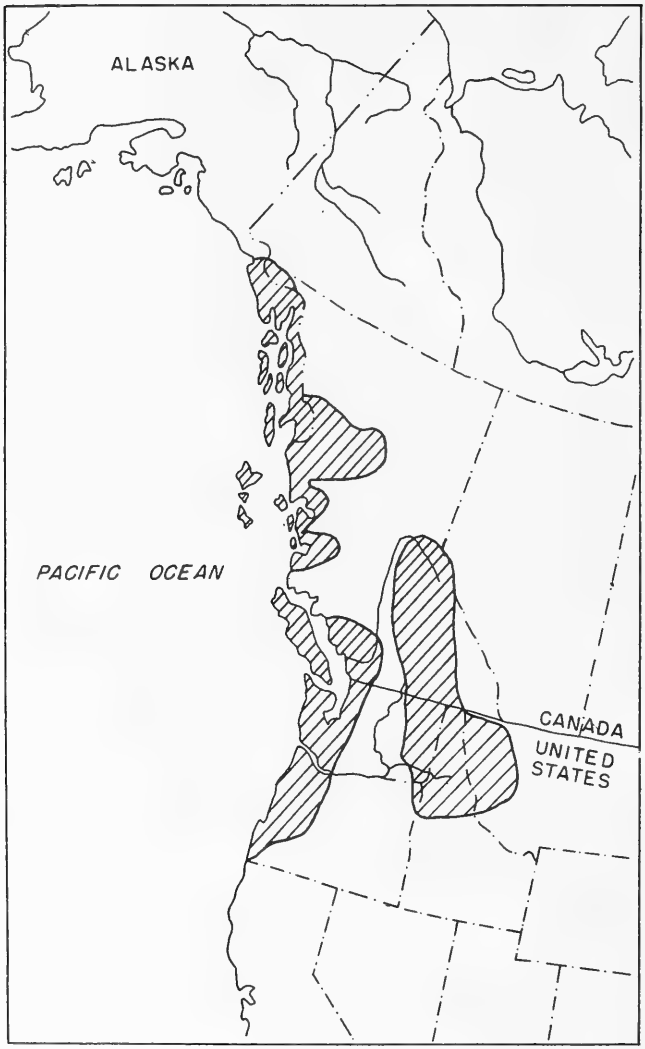
Collections of surface woods trash samples have been made to date in 6 cotton producing states during the spring of 1959 by cooperating State and Federal agencies. The data for the following states have been summarized in previous issues of Vol. 9, Cooperative Economic Insect Report as follows: Georgia - No. 14, page 237; Mississippi - No. 13, page 216; Louisiana - No. 12, page 193. Data from Virginia, North and South Carolina are summarized in this issue.

Boll Weevil Survival - Spring 1959

State	Area or District	Average No. Weevils Per Acre: 1959	1958	Percent Survival: 1959	1958
North Carolina	Area 1 - South Central South Carolina plains (N.C. & S.C.)	699	457	70.20	11.50
South Carolina	Area 2 - Coastal	1,963	403	42.40	3.50
Virginia	Area 3 - Piedmont (N.C. & S.C.)	242	296	9.20	4.40
	Area 4 - North Central North Carolina	81	53.8	9.00	2.40
	Area 5 - Southeastern Virginia	27	53.8	5.30	1.60
Georgia	Northwest	0	97	0.00	9.00
	North central	726	1,307	33.00	26.00
	East central	48	968	12.00	54.00
	South	145	532	100.00	100.00
Mississippi	Lower delta	781	418	17.68	8.51
	Central delta	364	551	7.73	9.31
	North delta	284	381	9.43	3.44
	Hill section	429	219	14.04	5.33
Louisiana	Northeast	2,246	1,480	39.00	18.00



DISTRIBUTION OF HEMLOCK SAWFLY (Neodiprion tsugae)
in Western North America



Forest Pest Leaflet 31, February 1959

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

AN ARCTIID (Halisidota argentata) - CALIFORNIA - Widespread on Douglas-fir in vicinity of Lake Pillsbury and Mill Creek, Mendocino National Forest, and on reproduction and saplings on north slopes of Elk Creek area, Glenn County. Present damage not serious but may result in serious defoliation later if natural enemies do not control infestation. (Stevens, Kulosa).

NANTUCKET PINE MOTH (Rhyacionia frustrana) - TEXAS - Medium infestation reported in Kaufman County. (Davis, March 30). OKLAHOMA - Adults becoming active in Stillwater area. (Bieberdorf).

PINE TUBE MOTH (Argyrotaenia pinatubana) - DELAWARE - No adult emergence noted to date on white pine in New Castle County. (Burbutis, Conrad).

AN EUCOSMID (Eucosma gloriola) - PENNSYLVANIA - Attacking Scotch pine terminals. Det. H. W. Capps. (Drooz).

A SAWFLY (Neodiprion pratti pratti) - NORTH CAROLINA - Many small larvae on short leaf, Virginia and loblolly pines in Granville County, March 26. Some injury to needles, an estimated 50 percent of oviposition punctures had produced larvae. Pollen of Pinus taedea had not fallen. (Green, Jones, Farrier).

TENT CATERPILLARS (Malacosoma spp.) - DELAWARE - First hatching of M. americanum noted in Sussex County on wild cherry. (Burbutis, Conrad). TENNESSEE - Appearing in wild cherries over the State. (Mullett). ALABAMA - Larvae of M. americanum observed for first time this year in Wilcox County, week ending March 27. Several webs noticed on wild cherry and other trees in southeastern part of State, week ending April 3. (Grimes).

APPLE APHID (Aphis pomi) - ALABAMA - Light to moderate and feeding on ornamental crab apple blooms in Lee County. (Guyton).

SPIREA APHID (Aphis spiraecola) - ALABAMA - Heavy infestations on new growth of spirea in Lee County. (Guyton).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Medium infestation on a rosebush in Gonzales, Monterey County, is the first record for this county. Also heavy on Modesto ash in Coalinga, Fresno County. (Cal. Coop. Rpt.).

AN ARMORED SCALE (Phenacaspis natalensis) - FLORIDA - Apparent increase in economic importance indicated by samples submitted for identification. Becoming increasingly important on various trees and ornamentals in the State. Increases in severity of infestations and in general distribution over State indicated from sample collections. (Fla. Coop. Sur.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Small numbers of adult Anopheles spp., Culiseta spp. and Aedes spp. noted in Weber County. (Fronk, Knowlton).

COMMON CATTLE GRUB (Hypoderma lineatum) - NEW MEXICO - Adults beginning to annoy cattle in Sierra, Torrance and De Baca Counties. (N. M. Coop. Rpt.).

SHEEP KED (Melophagus ovinus) - NEW MEXICO - Especially heavy on lambs in San Miguel County. Light to heavy on sheep in Guadalupe and Lincoln Counties. (N. M. Coop. Rpt.).

CATTLE LICE - NEW MEXICO - Light to heavy on many cattle herds in northern counties. (N. M. Coop. Rpt.).

AMERICAN DOG TICK (Dermacentor variabilis) - OKLAHOMA - Appearing in annoying numbers in limited areas of Payne County. (Howell, Bryan).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - CALIFORNIA - Larvae heavy in barley in old refrigerator on farm property and light in chicken feed on second property in Heber, Imperial County. (Cal. Coop. Rpt.).

LESSER GRAIN BORER (Rhyzopertha dominica) - OREGON - Found in a feed mill in Tillamook County. This constitutes a new record for this county. (Foster).

A FLOUR BEETLE (Tribolium madens) - NORTH DAKOTA - Infested stores of pollen substitute in a honey house at Dwight, October 1958. Adults were dispersed throughout the building. This is the first record of a severe infestation of this species in the State, although an occasional adult is recorded from seed houses and homes. Det. T. J. Spilman. (Post).

POTATO TUBERWORM (Gnorimoschema operculella) - UTAH - Was rare in potatoes during 1958 and also to date in the stored crop. (Jorgensen, Knowlton).

BENEFICIAL INSECTS

PARASITES AND PREDATORS - ALABAMA - Several species of cocinellids are plentiful in various crops in Lee County. (Guyton). OKLAHOMA - Hippodamia convergens numbers variable in several areas. (Hatfield, Goin). Coccinellid larvae averaged 3 per foot in Perkins area, Payne County. Numbers exceeded 2 per foot in other areas. None found in many fields. (Henderson, Thompson). Chrysopa sp. adults and larvae ranged zero to 0.2 per sweep in 3 alfalfa fields checked in Choctaw County. (Goin). ARIZONA - Trioxys utilis, Aphelinus semiflavis and Praon palitans recovered from parasitized spotted alfalfa aphids in Camp Verde area of Yavapai County. P. palitans recovered in Cottonwood area of same county at 4,500-foot elevation and for first time in Buckeye area of Maricopa County. Original colony releases were near Tempe, Litchfield Park and Florence. (Ariz. Coop. Sur.). CALIFORNIA - Ceratomegilla vittigera heavy and active in alfalfa fields in Jonesville, Lassen County. (Cal. Coop. Rpt.). UTAH - Coccinellids active at Logan. (Knowlton).

MISCELLANEOUS INSECTS

TERMITES - MARYLAND - Winged forms of Reticulitermes flavipes noted in and around homes in Baltimore and University Hills, Prince Georges County. (U. Md., Ent. Dept.). PENNSYLVANIA - Swarming in homes in Centre and Union Counties and other areas. (Gesell et al.).

PERIODICAL CICADA (Magicicada septemdecim) - TENNESSEE - Major outbreak of thirteen-year-variety (Brood 19) expected to appear early in May. (Mullett).

CORRECTION

CEIR 9(12):194 - KHAPRA BEETLE (Trogoderma granarium) - NEW MEXICO - Since report in CEIR 9(11):171, of finds in Sierra County as of March 16, one additional collection has been found in that county, one in Luna and 8 (7 infested properties) in Dona Ana Counties. The latter two counties are reported for the first time. (PPC).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Feltia subt.
ARIZONA					
Mesa 3/25-31			5	8	
FLORIDA					
Gainesville 3/25-4/1	1	3			14
Quincy 3/25					1
KANSAS					
Hays 4/1		4			
Manhattan 3/30		1			
LOUISIANA					
Baton Rouge 3/27-4/2	6	35	61		8
Franklin 3/2-4/1	9	8	3	7	18
MISSISSIPPI					
*Stoneville 3/28-4/3	738	137		62	
SOUTH CAROLINA					
Charleston 3/30-4/5	14	4		8	13
Clemson 3/28-4/3	6		17	1	1
TEXAS					
Brownsville 3/17-27	88	27	6	3	14

* Four traps - Stoneville

SUMMARY OF INSECT CONDITIONS - 1958

NEVADA

Prepared by Robert C. Bechtel*

Highlights: SMALLER EUROPEAN ELM BARK BEETLE discovered in the State for the first time. BEET LEAFHOPPER populations and incidence of curly top disease heaviest in recent years. Enormous flights of a GRASSHOPPER, Trimerotropis pallidipennis, and damage to various crops by the nymphs and adults occurred in the southern half of the State. Unusually large populations of TOBACCO FLEA BEETLE caused heavy foliage and light tuber damage to potatoes in two areas. BEET ARMYWORM was more numerous than in previous years and damaged alfalfa and seedling corn and cotton. SCREW-WORM infestations were above normal in the southern half of the State. MOSQUITOES, HORSE FLIES and DEER FLIES were present statewide in abnormally large numbers.

Cereal and Forage Crop Insects: ALFALFA WEEVIL (Hypera postica) populations and damage were above the 1957 level. Adults became active and began laying eggs early in February. Larval populations and damage were highest in mid-May, with some damage continuing later than normal. SPOTTED ALFALFA APHID (Therioaphis maculata) populations were below those of 1957 and varied greatly depending on the season and area. Generally there was an early and late season increase in southern counties and a late season increase in northern counties. Economic infestations were low, as compared with previous years. In southern counties, two introduced PARASITES (Praon palitans and Trioxys utilis) were responsible for much of this decrease. PEA APHID (Macrosiphum pisi) populations remained unusually heavy throughout most of the alfalfa-growing season and were heavier than in 1957. Early season damage was most evident in southern counties and late season damage was prevalent in northern counties. LYGUS BUGS (Lygus spp.) were heavy on abundant range plants in the spring. As these plants dried up, large numbers moved to alfalfa. Alfalfa seed fields were especially hard hit. Some seed fields were treated too late and lost the entire first bloom. GRASSHOPPER populations remained mostly noneconomic although damage to crops occurred in Lincoln County where 5,800 acres were treated for Trimerotropis pallidipennis in June. In northern counties 3,460 acres were treated for CLEAR-WINGED GRASSHOPPER (Camnula pellucida) and approximately 600 acres were treated for a complex of Melanoplus spp. A total of 37,500 acres was treated for MORMON CRICKET (Anabrus simplex), which was an increase of 14,700 treated acres over 1957. First-instar nymphs were present in Pershing County by March 14. DESERT CORN FLEA BEETLE (Chaetocnema ectypa) caused moderate damage to seedling corn in Clark County in April. ENGLISH GRAIN APHID (Macrosiphum granarium) populations increased to highest levels in late June in Churchill and Pershing Counties, with approximately 1,500 acres requiring treatment in the former county. CORN EARWORM (Heliothis zea) was the major pest of field corn in central and southern counties and is one of the important limiting factors in field corn production in Nevada. BEET ARMYWORM (Laphygma exigua) caused moderate damage to seedling corn in Clark and Nye Counties in May and in Churchill County in June. Severe damage to timothy hay fields from heavy ARMYWORM (Pseudaletia unipuncta) populations occurred in Lyon County in September. Various CUTWORMS caused moderate to severe damage to alfalfa in the central, southern and western counties. CLOVER SEED CHALCID (Bruchophagus gibbus) was light in alfalfa seed in Nye County. STINK BUGS, mostly SAY STINK BUG (Chlorochroa sayi), but also CONCHUELA (C. ligata), caused damage to alfalfa seed crops and required treatment in various areas of the State. Heavy populations of BEET ARMYWORM developed on seedling alfalfa in Nye County in May and required treatment.

* Cooperators include members of the Nevada State Department of Agriculture, other State agencies, Extension Entomologist R. W. Lauderdale, County Agents and pest control operators.

Fruit Insects: APHIDS were the most general pests on fruit trees during 1958, and included APPLE APHID (Aphis pomi), BLACK CHERRY APHID (Myzus cerasi) and Aphis helichrysi. SPIDER MITES (Tetranychus spp.) were less numerous than in 1957. CODLING MOTH (Carpocapsa pomonella) populations were at approximately the same level as in previous years, with damage of 100 percent occurring on unsprayed trees. PEAR-SLUG (Caliroa cerasi) damage to cherries and pears continued to be heavy in western and central areas with most damage occurring in late July from the second brood. Various species of CICADAS damaged smaller limbs and twigs of fruit trees by egg laying in Elko County in June.

Truck Crop Insects: BEET LEAFHOPPER (Circulifer tenellus) populations overwintered on abundant host plants in southern Nevada breeding grounds. Movement to tomato plants in Clark County occurred by April 4 and some curly top symptoms were evident at that time. By April 18, they averaged 2.5 per square foot of row. Damage to tomato seedlings from curly top was at least 10 percent in the field before shipment of the plants. The beet leafhopper did not invade the sugar beet-growing area of Churchill County until late May. At this time they averaged 6.0 per square foot of beet row but very little damage resulted. TOBACCO FLEA BEETLE (Epitrix hirtipennis) populations on potatoes reached a peak in mid-August. Severe defoliation occurred in many fields in Lyon County. Minor surface tuber damage occurred, but was not serious enough to affect the grade. Light populations of POTATO PSYLLID (Paratrizoa cockerelli) occurred on potatoes in Lyon County. ONION THRIPS (Thrips tabaci) caused an estimated 5 percent loss on dry onions. Damage was confined to this amount by insecticide application.

Cotton Insects: BEET ARMYWORM (Laphygma exigua) damaged cotton seedlings in Clark and southern Nye Counties in May. These infestations were controlled by insecticide application. Populations of a SPIDER MITE (Tetranychus sp.) were lower than in 1957, with only 184 acres requiring treatment. LEAFHOPPERS caused defoliation of lower leaves in August in Clark County. THRIPS (Frankliniella spp.) caused moderate damage to terminal buds of seedling cotton in early June in Nye County. Approximately 600 acres were treated. LYGUS BUGS (Lygus spp.) increased in many fields in July and were present in light to heavy populations for the remainder of the season. Over 2,000 acres required treatment to keep damage at a minimum. BOLLWORM (Heliothis zea) was present in small numbers and damage was light. PINK BOLLWORM (Pectinophora gossypiella) and BOLL WEEVIL (Anthonomus grandis) surveys were negative.

Forest, Ornamental and Shade Tree Insects: SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) was found in the State for the first time in Las Vegas, Clark County. This beetle is generally distributed throughout the Las Vegas area and was probably introduced in 1956 or 1957. The MOUNTAIN PINE BEETLE (Dendroctonus monticola), RED TURPENTINE BEETLE (D. valens) and WESTERN PINE BEETLE (D. brevicomis) infestation in ponderosa pine in the Crystal Bay area of Lake Tahoe was greatly reduced by the removal of 6,100 trees at a cost of $40,000. Heavy emergence of a BARK BEETLE (Pityophthorus sp.) from dead and injured pinyon pine in Douglas County resulted in damage to small limbs and twigs of healthy trees. SHOT-HOLE BORER (Scolytus rugulosus) populations were heavy in western Washoe County, with heavy damage resulting to apple, peach and related trees. ELM LEAF BEETLE (Galerucella xanthomelaena) adults became active and began laying eggs the last week of May. First-brood pupation began the second week in July. Second-brood adults began egg laying about August 1. Damage to untreated or improperly treated trees was severe. MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) damaged various trees and shrubs but particularly elms in Clark County.

Insects Affecting Man and Animals: MOSQUITOES (mostly Aedes campestris, A. dorsalis, A. melanimon, A. nigromaculis and A. vexans) were the primary pests included under this category. An abundant water supply contributed greatly to the enormous populations which were present. HORSE FLIES and DEER FLIES were very abundant over the entire State, especially in northern and southern counties. DEER FLIES were most prevalent in the southern part of the State. CATTLE GRUBS, CATTLE LICE, HORN FLY (Siphona irritans), STABLE FLY (Stomoxys calcitrans) and SHEEP KED (Melophagus ovinus) remained at about the same population levels as in previous years. SCREW-WORM (Callitroga hominivorax) populations were higher than in previous years with many more cases being reported, especially in Lincoln County. A CHLOROPID FLY (Hippelates collusor) populations were heavy in late April and May in Clark County. Usually this species does not reach such numbers until later in the season. Populations remained heavy from May through October. A TICK (Dermacentor sp.) was reported as being present in large numbers on dogs and humans in Clark County in late October and early November. HOUSE FLY (Musca domestica) populations were heavy, especially in and around dairies in Clark and Lincoln Counties. ORIENTAL COCKROACH (Blatta orientalis) was also numerous in and around dairies in southern counties. A SUBTERRANEAN TERMITE (Reticulitermes sp.) was again prevalent in western and southern areas, being most serious in Clark County. Migrations of a FALSE CHINCH BUG (Nysius sp.) into dwellings caused much concern to home owners from July through September.

Beneficial Insects: Two introduced PARASITES (Praon palitans and Trioxys utilis) of the spotted alfalfa aphid are established in the field in southern Nevada. At present, P. palitans is the more widely distributed of the two. Various aphid predators such as LADY BEETLES and SYRPHID FLIES remained at high population levels in alfalfa and assisted in holding the pea aphid and spotted alfalfa aphid in check. An ALKALI BEE (Nomia melanderi) was present in alfalfa and assisted in pollination in Churchill and Pershing Counties. Increased use of HONEY BEE (Apis mellifera) was made in seed crop production in 1958. In one area of Humboldt County, however, the use of an incorrect insecticide and improper timing destroyed several colonies of bees.

SUMMARY OF INSECT CONDITIONS - 1958

MINNESOTA

Prepared by Minnesota Division of Plant Industry

Cereal and Forage Crop Insects: EUROPEAN CORN BORER (Pyrausta nubilalis) overwintering mortality averaged 26 percent in April. A high borer population went into the winter but the reduction of 26 percent still left a substantial number of borers. Pupation began in the south May 23 and reached a peak about June 6. Moth emergence began the first of June and extended into the second week in July, with maximum numbers present about July 1. Unusually cool weather throughout June and early July resulted in slow growth of corn and very little egg laying. Low night temperatures were common in late June and restricted moth activity. It was evident in early July that first-generation populations would be low. Unusually cool weather at emergence and egg hatch apparently was responsible. Slow development of the first generation resulted in the second generation coming too late to be of any importance. Damage generally was very light. There were, however, some fields where populations caused injury. Fall density surveys showed the lowest population in many years, the State average being 16 borers per 100 plants as compared with 83 for 1957. GRASSHOPPERS - Below normal spring and early summer temperatures were responsible for late hatch of all species. Extended periods of heavy rains and cool weather over much of

the State caused heavy mortality of early instars of all species, especially Melanoplus bivittatus. Due to adverse weather, populations were very spotty and generally quite low. There were a few scattered fields with heavy to severe populations and some crop damage. M. femur-rubrum remained the dominant species in the State. M. bivittatus in the northwest district and M. differentialis in the southwest and west central districts are building up. Alfalfa is the principal habitat, but some egg deposition was found in other legumes, roadsides, ditch banks and weedy soil bank fields. Adult and egg surveys in 1958 indicate that populations have declined over much of the State. Four small areas of threatening infestations are present in the southern half of the State, the remainder classified as light or noneconomic. No large areas of severe infestations are indicated. Infestations are expected to be spotty. Local concentrations may develop under favorable weather conditions. BLISTER BEETLE (Epicauta spp.) populations were low over much of the State and very low numbers were found during the grasshopper egg survey. MEADOW SPITTLEBUG (Philaenus leucophthalmus) was quite general in Houston County on alfalfa and red clover, the first economic infestations in recent years. PEA APHID (Macrosiphum pisi) numbers in alfalfa were moderate in May and increased gradually until mid-June when relatively high populations were present in all districts. Counts increased through July, with a slight population decrease in August when predators became numerous. Pea aphid was much more numerous during 1958 than in 1957. Some alfalfa fields were treated. A LEAF SPOT (Pseudoplea) on alfalfa was quite general during 1958 and damage was erroneously attributed to pea aphid. PLANT BUGS (Adelphocoris spp. and Lygus spp.) were of concern to legume seed growers. Populations were generally lower in 1958. First POTATO LEAFHOPPER (Empoasca fabae) adults were found in the south on May 23. Cool weather in June and early July contributed to a slow increase in nymphal populations. Numbers were low this past summer. E. fabae reached a maximum abundance of 900 per 100 sweeps at St. Paul during 1957, but only 88 per 100 sweeps in the same field during 1958. SPOTTED ALFALFA APHID (Therioaphis maculata) - Not found in the State in 1958. Apparently it did not migrate from southern states and probably does not overwinter in Minnesota. SWEETCLOVER WEEVIL (Sitona cylindricollis) was not as abundant as in past years and adults were scarce late in season. Spotty infestations of SWEETCLOVER APHID (Myzocallidium riehmi) appeared to build up in June in the Ada and Beltrami areas but declined and were not economic the rest of the season.

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was low and aster yellows were not a problem. Light trap collections of ARMYWORM (Pseudaletia unipuncta) were generally small during June in western areas. Cool weather restricted moth activity. Scattered, spotty infestations occurred in the northwest and west central districts in early July. Lodged grain, especially barley, seemed to be most commonly infested. Some fields were treated. Rye was the only crop which sustained much damage. Heads were clipped in several fields. Further damage was not noted as grain crops matured and were harvested. Low numbers of ENGLISH GRAIN APHID (Macrosiphum granarium) were noted in the northwest district during early June and populations increased throughout western areas. Predators were extremely low. Cool weather continued and aphid populations built up throughout northwest, west central and central districts. Predators did not multiply enough to check the aphid buildup. There were great variations between fields but little evidence of injury. Late June brought indications of predator buildup and by the first week in July aphid populations appeared to decrease. As the grain crops began to mature and predators increased, aphid numbers declined rapidly. Most controls were in the northwest district, with approximately 14,000 acres of grain treated. An APHID (Toxoptera viridirubra), reported from wheat in Marshall County, is the first record for the State and the first record for the host plant. SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) was quite low in late May compared with extremely heavy populations present in 1957. The State did not experience heavy migrations from the south as in 1957. Some growers treated aster yellows susceptible truck crops. WHEAT MIDGE (Sitodiplosis mosellana) was reported in Marshall, Kittson and Roseau Counties on August 15, and appeared confined to late-seeded wheat fields.

Loss estimates range 1-10 percent. BEAN LEAF BEETLE (Cerotoma trifurcata) populations were high in Blue Earth County on soybeans, with up to 80 percent defoliation in many fields. PAINTED-LADY (Vanessa cardui) larvae fed on thistles and cockelbur in south central, southwest and west central districts, with some movement to soybeans in weedy fields. A CORN ROOTWORM (Diabrotica sp.) was a problem in the southern third of the State on fields in which corn had followed corn for several years. Severe lodging occurred in some fields. About 70,000 acres were treated, an increase over 1957. SEED-CORN MAGGOT (Hylemya cilicrura) was more of a problem on soybeans. Spotty infestations were reported in late June on soybeans and some cucumbers, with moderate to severe damage. CORN LEAF APHID (Rhopalosiphum maidis) was heavy on corn statewide. Predators were high in late summer but aphid populations continued at a high level. Most of the corn seed planted was treated for WIREWORMS. Approximately 20,000 acres received a soil treatment at seeding time. Wireworm problems were spotty as usual. High populations were not controlled with seed treatment. Approximately 10,000 acres were treated for CUTWORMS. Infestations were local. BEET WEBWORM (Loxostege sticticalis) infestations were higher in sugar beets than in the past several years. Heavy moth populations occurred in northwestern beet fields in early July, when treatments were begun and continued into August. The entire Red River Valley acreage was treated. Poor control was once again experienced where treatment was applied to late larval instars. In the west central district, severe damage occurred to some soybean fields.

Fruit Insects: Apple - Apple bloom occurred in the La Crescent area May 10-11. CODLING MOTH (Carpocapsa pomonella) control was excellent in commercial orchards, where applications began at petal-fall. Eggs hatched June 6-14. Second-generation control achieved with apple maggot sprays. Dry season increased MITE populations in some orchards where treatments were not applied at proper times. APPLE MAGGOT (Rhagoletis pomonella) emerged July 4 in the La Crescent area and July 8 in the Twin City area. Fly activity continued into the wealthy harvest season, September 1-10. Populations were higher than in the previous 15-20 years. Control was achieved only in commercial orchards where thorough applications of spray were made throughout July and August. EYE-SPOTTED BUD MOTH (Spilonota ocellana) occurred in one south central orchard, the first serious infestation reported in the State in recent years. APPLE CURCULIO (Tachypterellus quadrigibbus) and PLUM CURCULIO (Conotrachelus nenuphar) caused very little damage where properly recommended treatments were used in petal-fall spray. Emergence in La Crescent occurred May 10-14. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) adults and eggs were observed May 16 in the southeast. Egg hatch was nearly complete May 23. Harvest damage was known to be severe only in one orchard. OYSTERSHELL SCALE (Lepidosaphes ulmi) hatching was nearly complete May 29. Strawberries - SAWFLY control was achieved in commercial plantings. STRAWBERRY WEEVIL (Anthonomus signatus) control recommendations were made at the time the first blossoms appeared. WHITE GRUBS (Phyllophaga spp.) were troublesome throughout the growing season, particularly in new fields preceded by grass sod. CYCLAMEN MITE (Steneotarsonemus pallidus) was serious on susceptible varieties in all areas, especially in the northern half of the State and commercial plantings at Rochester and La Crescent. Some varieties which appear to be nonsusceptible when grown in the southern half of the State have been found seriously infested in the Iron Range and Duluth areas. Populations of SPIDER MITES were high in some areas due to dry weather conditions. Heavy localized infestations occurred throughout the State. LYGUS BUGS (Lygus spp.) were present in some plantings. Raspberries - RASPBERRY SAWFLY (Monophadnoides geniculatus) was severe in some unsprayed fields and RASPBERRY CANE BORER (Oberea bimaculata) was severe, especially in old fields. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) occurred in heavy localized infestations.

Forest, Ornamental and Shade Tree Insects: FOREST TENT CATERPILLAR (Malacosoma disstria) again maintained itself in St. Louis and Carlton Counties, with the area of defoliation slightly larger than in 1957. Defoliation occurred principally on aspen over a 1,260-square-mile area, being complete on 288 square miles. Parasitism of collected cocoons by Sarcophaga aldrichi was 54.2 percent and by other species, 11.6 percent. Light traps operated at 20 northeastern locations showed the largest catches to be northwest of Duluth at Alborn and Cotton, with no significant population buildup in other areas. The average number of egg masses per tree was 10.7, with 10 egg masses per tree, generally enough to cause complete defoliation. SPRUCE BUDWORM (Choristoneura fumiferana) continued to threaten the spruce-fir type of the State, with some defoliation on 1,342,000 acres of a total of 1,910,000 acres. It is believed that the infestation will increase in area and intensity. An aerial survey, covering 6,900,000 acres, was flown in July across the State. Two observers recorded the defoliation of spruce-fir type into classes of previous (obviously repeated heavy defoliation), heavy, moderate, light and none. Classes of defoliation and acreage were as follows:

Class	Acres of Defoliation
Previous	98,000
Heavy	541,000
Moderate	324,000
Light	379,000
None	568,000
Total	1,910,000

Larval and egg-mass surveys were conducted during July to check the aerial survey, to obtain general information on annual population fluctuations and provide data by which potential budworm populations may be forecast.

Early in June, approximately 12,000 acres of spruce-fir type on the Kabetogama Peninsula of Koochiching County were sprayed for spruce budworm control. The 1957 egg-mass survey showed an average of 5.5 egg masses per 15-inch branch sample, indicating a very high population for 1958 season. Pre-spray larval sampling showed 21 larvae per 15-inch branch sample, enough for complete defoliation. The post-spray larval sampling showed 6.8 larvae per 15-inch branch sample. Cold weather probably slowed the kill and mortality may have continued after sampling was completed. The 1958 egg-mass survey indicated a count of 0.7 egg masses per 15-inch branch sample in the spray area. In the sprayed area, 67 percent of the new foliage was retained, compared with 26 percent in the adjoining unsprayed area. These data indicate the spraying was a success and defoliation next summer will, at most, be only light.

Ground survey and aerial observations made in connection with other aerial surveys indicate no buildup of JACK-PINE BUDWORM (Choristoneura pinus) populations. There were a few scattered areas of very light defoliation, principally near Bemidji, Cass Lake and northern St. Louis County. No top killing or tree mortality was observed. LARCH SAWFLY (Pristiphora erichsonii) continued as a serious defoliator of tamarack. An aerial defoliation survey showed that the area of heavy defoliation had increased over that of 1957, chiefly in St. Louis County and in eastern Koochiching and Itasca Counties. Light to moderate defoliation occurred chiefly west and south of the area of heavy defoliation. INTRODUCED PINE SAWFLY (Diprion similis) again caused heavy defoliation on white pine in Crow Wing and Morrison Counties. Some spraying was done on private land. Biotic factors appear to keep this insect from larger and continued outbreaks. Trees subjected to one year of heavy defoliation appear to recover the next year. RED-HEADED PINE SAWFLY (Neodiprion lecontei) was important in jack pine plantations in Aitkin, Kanabec and Sherburne Counties. Defoliation by YELLOW-HEADED SPRUCE SAWFLY (Pikonema alaskensis) was very apparent in the southern part of St. Louis County around Independence. Some mortality will probably result in

spruce which has been defoliated repeatedly. SWAINE JACK-PINE SAWFLY (Neodiprion swainei) caused light defoliation on jack pine in Cass and Crow Wing Counties. WHITE PINE WEEVIL (Pissodes strobi) infestation occurred in many jack pine plantations throughout the State. In some areas, 3-5 percent of the trees showed typical injury. Heavy infestations of a LECANIUM SCALE were reported from several areas on elms. JACK-PINE SAWFLY (Neodiprion pratti banksianae) was occasionally light in jack pine. PINE ROOT COLLAR WEEVIL (Hylobius radicis) caused some jack pine tree mortality and was heavy on Scotch pine in Cass County. PINE SPITTLEBUG (Aphrophora parallela) was abundant in late June, with no apparent damage noted. PINE BARK APHID (Pineus strobi) was heavy in white pine plantations near Zimmerman. PINE NEEDLE SCALE (Phenacaspis pinifoliae) was heavy around Twin Cities, especially on mugho and spruce. COOLEY SPRUCE GALL APHID (Chermes cooleyi) was occasionally heavy on spruce and fir, causing tree deformities, as did EASTERN SPRUCE GALL APHID (Chermes abietis). EUROPEAN FRUIT LECANIUM (Lecanium corni complex) was unusually heavy and there were some heavy infestations of COTTONY MAPLE SCALE (Pulvinaria innumerabilis) around Twin Cities. VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) was very light this year. EASTERN TENT CATERPILLAR (Malacosoma americanum) occurred in most areas where FOREST TENT CATERPILLAR was trapped. BIRCH LEAF MINER (Fenusa pusilla) was common around Twin Cities. MAPLE BLADDER-GALL MITE (Vasates quadripedes) was common on lawn trees in the same area. PAINTED MAPLE APHID (Drepanaphis acerifolia) was heavy around Duluth.

Insects Affecting Man and Animals: MOSQUITOES - Aedes stimulans, A. punctor and A. excrucians were found in late-larval stages the first of May. Aedes cinereus, A. excrucians, Culiseta inornata and C. minnesotae were reported in various stages the second week of May, with some adult Culiseta present. Some Aedes vexans larvae were found by May 26, but peak hatches in the Twin City area did not occur until about mid-June. A large hatch occurred about July 10 following a heavy rain about a week previous. In late summer and fall A. vexans and Mansonia perturbans were generally prominent in light trap collections and were also commonly taken in biting collections during this period. Generally, populations were considerably less than the peak season of 1957. Lack of snow and early spring rains in many areas reduced the extent and number of breeding sites and consequently the numbers of early-hatching mosquitoes. In the Twin City area and also most other areas of the State, summer rainfall was below normal. CLOVER MITES were exceedingly troublesome in the Twin City area and in many locations throughout the State during the spring and early summer. AMERICAN DOG TICK (Dermacentor variabilis) was abundant in Twin City, St. Cloud and Brainerd areas in May and early June. FLEAS (Ctenocephalides felis and C. canis) were frequently reported from homes, yards and animal quarters during August and September.

Miscellaneous Insects: Several new infestations of EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) were reported in St. Paul, making a total of 9 properties (3 commercial and 6 private) known to be infested. Five of the infested private dwellings are older houses and all are within a two-block radius. The infested commercial establishments are located in a warehouse section of the Midway district in St. Paul.

Beneficial Insects: Bessa selecta was a common parasite of many sawflies. Up to 30 percent of larch sawfly and 41 percent of yellow-headed spruce sawfly populations were parasitized in some areas. Red-headed and Swaine jack-pine sawfly each received some parasitism. Sarcophaga aldrichi parasatized 54 percent of the forest tent caterpillar. A number of PARASITES are responsible for reducing jack-pine budworm to a sub-economic level.

State-Federal Cooperative Surveys: The JAPANESE BEETLE (Popillia japonica) survey was enlarged during 1958. There were 262 traps placed at points of entry such as airports, truck and rail terminals throughout the State. No Japanese beetles were found. SOYBEAN CYST NEMATODE (Heterodera glycines) surveys were conducted in 21 soybean producing counties. A total of 281 soil samples were taken, all of which were negative. The 18 counties surveyed in 1957 were also negative.

Insect Control on Croplands in Minnesota - 1958

Canning Crop Insects:		Acreage Treated
European Corn Borer		
First Generation		Trace
Second Generation		
Ground Spray	9,232	
Aerial Spray	9,882	19,114
Corn Earworm		
Ground Spray	2,168	
Aerial Spray	7,069	9,237
Pea Aphid		
Ground Spray	17	
Aerial Spray	33,224	33,241

Field Crop Insects: 1/	
Grasshopper (All crops)	7,310
European Corn Borer (Field Corn)	30,960
Cutworms (Corn)	13,625
Aphids (Barley, Oats, Wheat and Rye)	14,380
Sweetclover Weevil (Sweetclover)	1,975
Red Clover grown for seed (Plant Bugs, etc.)	2,880
Alsike Clover grown for seed (Plant Bugs, etc.)	2,000
Alfalfa grown for seed (Plant Bugs, Pea Aphid, etc.)	10,325
Northern Corn Rootworm	71,000
Wireworms (Corn) - Seed Treatment	66,510
Soil Treatment	31,105
Sugar Beets - Beet Webworm (Almost all acreage treated)	67,000
Armyworm (Small Grain)	3,599
Miscellaneous Insects	3,025

Fruit Insects: 2,000 acres commercial apple orchards - mainly in about 15 counties in southeast part of State - treated from 7 to 14 times each, with hydraulic or concentrate sprayers.

1/ Incomplete figures

Truck Crops: 1/	Acreage Treated
Potato Insects	25,627
Carrots	430
Cabbage	1,171
Onions	1,228
Forest Insects:	
Spruce Budworm	12,000
Introduced Pine Sawfly	320
Red-Headed Pine Sawfly	50
Mosquitoes:	
Metropolitan Mosquito Control District in Twin City area (Breeding site treatment only)	
Aerial	42,878
Ground	56,399
Others (Towns, villages, resorts, etc. - adult treatment)	
Aerial	12,622
Ground	10,000

1/ Incomplete figures

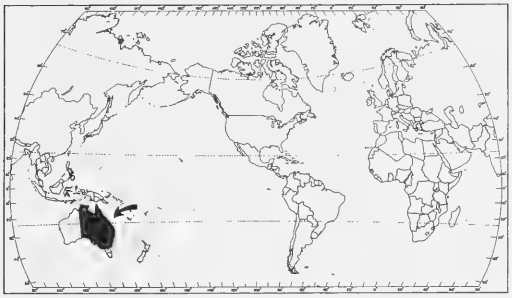
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

PUMPKIN BEETLE (Aulacophora hilaris (Boisduval))

Economic Importance: This chrysomelid is a serious pest of cucurbits over a large area of Australia. It is probably the outstanding pest of these crops wherever it occurs in the country. Considerable losses occur annually in New South Wales, particularly in early crops, but periodically a general outbreak occurs and most of the young spring crops are heavily damaged or destroyed. Replanting of the crop becomes necessary in some instances. There are several species of Aulacophora in Australia and many attack cucurbits, but A. hilaris is probably the species of the greatest importance. In New South Wales, A. hilaris is more prevalent in the inland areas of lower elevations and milder temperatures.

Distribution: Widely distributed in Australia, being recorded in Queensland, Northern Territory, South Australia, Victoria and New South Wales.

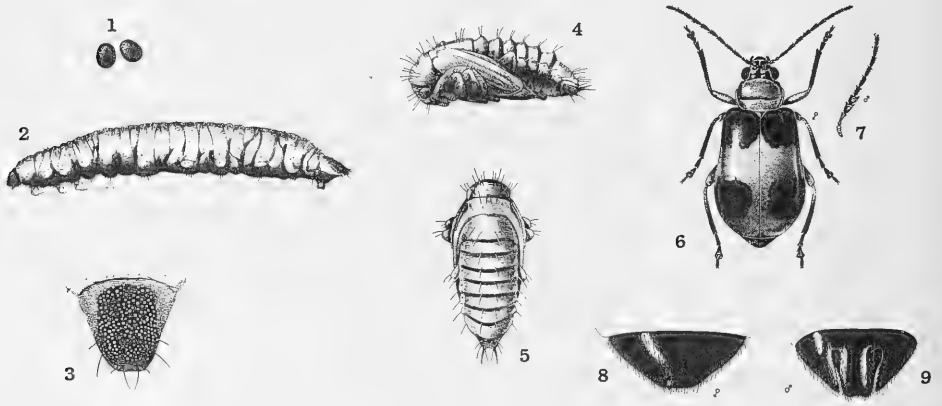
Hosts: Prefers cucurbitaceous plants, but will attack many other crops and wild plants including alfalfa, apple, beans, black nightshade, Carduus, cherry, corn, dock, Eucalyptus, fig, gooseberrygourd, grapevine, nectarine, peach, potato, pricklypear and sugarcane.



General Distribution of Aulacophora hilaris

Life History and Habits: Egg-laying after overwintering begins in September (early spring). Females lay about 490 eggs each, depositing them singly or in small batches on dead leaves or on small clods of earth under the plants. Eggs hatch in 8 to 10 days in summer, up to 23 days in cooler weather. Young larvae feed on roots or tunnel stems just above the ground, or fruits in contact with the soil. Larval and pupal development each takes approximately 18 to 20 days. Pupation occurs in the soil, 1 to 6 inches below the surface, in fragile, earthen cells. Several generations develop annually. The average period from egg to adult is 50 to 53 days. The adults attack plants in all stages of growth, but chief damage is caused to young plants, especially those just above the ground; these may be destroyed by half-a-dozen beetles in a few hours. In older crops individual plants may be destroyed, but are usually able to outgrow the infestation. The flowers and young fruits of pumpkins and squashes may be attacked, causing additional losses. The average life of the adult is 194 days for the female and 157 days for the male; however, they may live as long as one year. Normally, adults will hibernate during the winter under sheltered conditions such as bark of dead trees, hollow trees, etc. Overwintering does not occur in the larval or pupal stage.

Description: ADULT - Elongate, broader posteriorly than anteriorly; female slightly larger than male. Color, bright orange with black markings. Each elytra marked with two prominent black patches, also sometimes slightly tipped with black. Terminal abdominal segment black, adjacent segment black except for small yellow band dorsally at each lateral margin. Eyes, tibiae and tarsi and ventral surface of each thoracic segment are dark-colored. Antennae dark except basal 5 segments in male, 2 basal in female, which are yellow. Antennae 11-segmented; simple in female, but 3rd to 5th basal segments enlarged in male. Abdomen 5-segmented. Terminal abdominal segment of male and female differ as illustrated. Length 7-8 mm. EGG - Bright orange when laid, later becomes paler, then yellowish-brown before hatching. Shell delicately reticulated. LARVA - Newly-hatched larva slender, light-brown in color. Mature larva 10-13 mm. long, yellowish-white to pale yellowish-brown. Head and thorax slightly narrower than abdomen. Head brown, antennae 3-segmented. Dorsal surface of prothorax shaded brown. Legs yellowish-brown, lightly bristled, tarsi with single claw. Anal shield of abdomen brown with numerous circular white pittings; four large pairs of setae on anal shield, first and third pairs clubbed, second and fourth aciculate; dorsoanteriorly to third pair of setae, pair of small papillae. Spiracles on second thoracic segment and each abdominal segment. PUPA - Generally resembles family characteristics. At first creamy white, later darkening. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 9(15) 4-10-59.



Stages of pumpkin beetle (Aulacophora hilaris)

1. Egg. 2. Fully grown larvae. 3. Anal shield of larva, dorsal view.
4. Pupa, lateral view. 5. Pupa, dorsal view. 6. Female, dorsal view.
7. Male antenna. 8. Last abdominal segment of female, ventral view.
9. Last abdominal segment of male, ventral view.

Figures (except map) from Morgan, W. L., 1933. Agr. Gazette N. S. Wales 44(2): 811-815.

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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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Volume 9 April 17, 1959 Number 16

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

Overwintering survival of EUROPEAN CORN BORER appears high on Eastern Shore of Maryland, and is about 50 to 60 percent in Illinois. Winter mortality 73.6 percent in Van Wert County, Ohio, and 18 to 30 percent in South Dakota. GREENBUG still damaging locally, but infestations generally reduced from previous weeks. Natural enemies increasing most areas. (p. 279, 289). ARMYWORM moths reported in Illinois and in Maryland and larval infestations in Louisiana. (p. 279).

ALFALFA WEEVIL adults and/or larvae becoming active many areas. Adult controls being applied in Colorado and South Dakota and larval controls in Virginia. Serious damage to untreated fields reported in South Carolina. (p. 280). PEA APHID populations building up generally. Very heavy populations reported on alfalfa in New Mexico and Arizona. SPOTTED ALFALFA APHID damaging alfalfa in areas of New Mexico, Oklahoma and Texas, and increasing in Maricopa County, Arizona. (p. 281, 289). TARNISHED PLANT BUG is abundant in legumes in several areas. (p. 282, 289).

BEET LEAFHOPPER conditions in the Southern Great Plains and adjacent areas, 1959. (p. 283).

POTATO PSYLLID survey on overwintering host, 1959. Note: This table replaces table issued in CEIR 9 (13):216. (p. 284).

Some First Reported Records of the Season: ARMYWORM adults in Maryland and Illinois. SPOTTED CUCUMBER BEETLE and IMPORTED CABBAGEWORM adults in Delaware. TOBACCO HORNWORM adult trapped in Florida. ELM LEAF BEETLE adults emerging in Utah and Oklahoma. MEADOW SPITTLEBUG hatching in West Virginia.

INSECT DETECTION: Spotted alfalfa aphid reported for first time in Houston County, Alabama. (p. 289).

SUMMARY OF INSECT CONDITIONS - 1958 - ALABAMA. (p. 291).

CORRECTIONS. (p. 289). ADDITIONAL NOTES. (p. 289).

SURVEY METHODS - A portable Field Cage for Insects. (p. 297).

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Reports in this issue are for the week ending April 10, 1959, unless otherwise designated.

WEATHER OF THE WEEK ENDING APRIL 13

Last week was characterized by extreme temperature changes east of the Continental Divide as winter returned to most of the Nation. Unseasonably warm weather preceded cold air from the Great Plains eastward and was followed by abnormal cold over the Rocky Mountains. For the week temperatures averaged 6° or more above normal along the middle Atlantic coast and in the Central Valley of California, and 9° to 15° below normal over parts of Colorado and Wyoming. Precipitation was mostly moderate from Texas northeastward, with little or none over the Pacific States and the northern Great Plains. On the 7th and 8th an area of low pressure moved across southern Canada, with a cold front extending southwestward across the Plains. High winds and thunderstorms, some with hail, accompanied the front in the upper Mississippi Valley. During the next 2 days cold air spread southeastward to cover all the country, except the extreme Southeastern States. Record-high temperatures were reported from Colorado and South Dakota on the 6th, when Kennebec, South Dakota, reported 92°. Along the east coast 80° readings as far north as southern New York and New England were reported on the 8th and 9th. Urban Baltimore recorded 92° and Washington, D. C., 90° on the 9th, records for the date. Tatoosh Island, Washington, also had 69° on the 9th, a record for so early in the season. Wintry conditions rapidly followed the high temperatures over the Rockies and Great Plains. By the 9th freezing weather extended from northern Arizona and northern Arkansas to the central Great Lakes. Extreme cold, with many record-low temperatures, covered the central Rockies and northern Plains during the latter part of the week. Custer, South Dakota, recorded 4° on the 9th, Bemidji, Minnesota, 10°, and Cheyenne, Wyoming, -3° on the 10th.

Snow persisted over the mountains as far south as New Mexico throughout most of the week and extended across the Plains from the Oklahoma-Texas panhandles northeastward to the western Great Lakes. Heavy falls of over one foot of fresh snow were reported from the higher elevations in Colorado and Wyoming. The snow caused some traffic delays due to blocked roads. Up to 4 inches of wet snow and good rains provided from 1 to 2-1/2 inches of much-needed moisture in southwestern Oklahoma, where precipitation has been under 25 percent of normal for the last 6 months. Over 10 inches of heavy, wet snow fell locally in extreme southwestern Minnesota during the night of the 10th, and lighter amounts were received in Kansas, Nebraska and South Dakota. However, moisture remains short over much of the northern Plains. High winds and critically dry topsoil raised one of the worst duststorms since the 1930's over the Dakotas, Minnesota and Wisconsin on the 6th and 7th. In Texas general rains were reported on 5 consecutive days, beginning on Wednesday. Heaviest amounts were reported along the upper coast with only light rain in the trans-Pecos and north Texas. At the end of the week a low-pressure disturbance moved from the Gulf of Mexico northeastward across the south atlantic States, leaving moderate to heavy rains (up to 1.98 inches in a 6-hour period at Mobile, Alabama, on the 12th) from Louisiana and Alabama northeastward to southern Virginia, and 1 to 6 inches of snow over West Virginia, Maryland and Pennsylvania on the 12th. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis) - MARYLAND - Overwintering survival appears high on Eastern Shore. Averaged 100 larvae per 100 partial cornstalks left on surface of plowed field at Cambridge and 50 per 100 cornstalks at Hebron, Wicomico County. Pupation underway in Wicomico County. (U. Md., Ent. Dept.). NORTH CAROLINA - Pupation about 50 percent completed in Carteret County. (Farrier). ILLINOIS - Survival about 50 percent in western and northern areas and about 60 percent in central area. (Ill. Ins. Rpt.). OHIO - Populations reduced 73.6 percent in Van Wert County as of April 2. (Triplehorn). SOUTH DAKOTA - Winter mortality approximately 18 percent in northeast area. (Mast).

GRASSHOPPERS - NEW MEXICO - Beginning to hatch in Dona Ana, Lea, Roosevelt and Quay Counties. (N. M. Coop. Rpt.). CALIFORNIA - Chimarocephala pacifica medium in barley and wheat in Cuyama, Santa Barbara County. (Cal. Coop. Rpt.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - TEXAS - Caused some damage to young corn in Burleson County. (Hawkins). ILLINOIS - Averaged 15 per 100 sweeps in west southwest section. (Ill, Ins. Rpt.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Survey of 13 counties in south central, upper coastal and coastal bend areas showed overwintering adults to range from none to an average of 5 per young corn and grain sorghum plant. Some controls being applied. (Hawkins). KANSAS - Two found in about 1-1/2 feet of row in 2 barley fields in Harvey County. (Esau).

ARMYWORM (Pseudaletia unipuncta) - MARYLAND - First moths of season taken at Fairland, Montgomery County. (U. Md., Ent. Dept.). LOUISIANA - Very light in oats in East Feliciana, West Feliciana and East Baton Rouge Parishes. (Spink). ILLINOIS - Adults observed as far north as Champaign. (Ill. Ins. Rpt.).

GREENBUG (Toxoptera graminum) - LOUISIANA - Very light in oats in East Feliciana, West Feliciana and East Baton Rouge Parishes. Predators and parasites active. (Spink). ARKANSAS - Low in small grains in northwest part of State. Heaviest infestations averaged 8-10 per linear foot. (Ark. Ins. Sur.). OKLAHOMA - Total of 844 small grain fields observed in Payne, Noble, Kay, Garfield, Kingfisher, Logan and Blaine Counties. Damage greatly reduced due to treatments or rainfall which caused plants in many fields to "outgrow" greenbug. Natural enemies also increasing rapidly in some unsprayed fields. Little additional damage expected in these counties this spring. (Henderson, Thompson). Populations common, but fluctuating, in Wood, Alfalfa and northwestern Garfield Counties. No treatments reported. (Owens). Populations low in Woodward and Roger Mills Counties and spotty in Caddo County. (Hudson). Light in southeastern area, less than 10 per linear foot in most fields. (VanCleave, Pela, Goin). KANSAS - Counts per 1-1/2 feet of row of barley averaged 6 nymphs and 1.6 adults in Harvey County; 15.4 nymphs and 1.4 adults in Reno County; 12 nymphs in Dickinson County; 10.5 nymphs and 1 adult in Marion County; 30 nymphs and 2.3 adults in McPherson County. Counts per 1-1/2 feet of row of wheat were 3 nymphs in Dickinson County and 15 nymphs in Marion County. (Esau). Two wheat fields in Labette County had 13 and 95 per 10 sweeps. (Peters). TEXAS - Ranged light to 2,500 per linear foot on wheat in Hansford and Hutchinson Counties. Predators increasing. (Daniels) Light in Dallas County. (Texas Coop. Rpt.). Being held in check by beneficial insects in Rockwall County. (Davis). NEW MEXICO - Very light to heavy on small grains in Quay, Curry, Roosevelt, Chaves and Eddy Counties. Averaged over 1,000 per linear foot in large areas in several Curry County fields. (N. M. Coop.Rpt.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Dominant aphid species found in small grain fields in Bryan, Choctaw and McCurtain Counties. Counts ranged up to 50 per linear foot some fields, lower most fields. (VanCleave, Pela, Goin). KANSAS - Counts ranged 8-95 per 10 sweeps in 3 wheat fields in Labette and Cherokee Counties. Adults comprised 20-50 percent of population and 10-50 percent of adults winged. (Peters).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Moderately heavy in barley fields near Artesia, Eddy County. (N. M. Coop. Rpt.).

A LEAFHOPPER (Dikraneura carneola) - UTAH - Moderate on margins of winter wheat fields at Riverton, Salt Lake County, and in Cedar Valley, Utah County. (Knowlton).

BROWN WHEAT MITE (Petrobia latens) - NEW MEXICO - Light in wheat fields in Curry, Quay, Roosevelt and Chaves Counties. (N. M. Coop. Rpt.). UTAH - Light to moderate in West Jordan-Copperton-Riverton area of Salt Lake County and Cedar Valley area of Utah County. (Knowlton). CALIFORNIA - Medium on range grasses in the Avenal area of Kings County. (Cal. Coop. Rpt.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Heavy in spots in two wheat fields in Apache area, Caddo County, and causing damage in field of small grain in Bryan area, Alfalfa County. (Hudson, Owen).

FALSE WIREWORMS (Eleodes spp.) - SOUTH DAKOTA - Averaged 2 per linear foot of row in winter wheat in west central area. (Mast).

BRONZED CUTWORM (Nephelodes emmedonia) - ILLINOIS - Averaged 42 per 100 sweeps in bluegrass in west southwest area. (Ill. Ins. Rpt.).

ALFALFA WEEVIL (Hypera postica) - DELAWARE - First adults (probably overwintering forms) found on alfalfa, Sussex County. First-instar larvae on clover in New Castle County. First and second-instar larvae common on clover and alfalfa, Kent and Sussex Counties. (Burbutis, Conrad). MARYLAND - Larval activity increased on Eastern Shore and in central area. Surveys of alfalfa in Carroll, Dorchester and Worcester Counties showed 5-50 percent of plants infested with larvae. Adults common in most sections. (U. Md., Ent. Dept.). VIRGINIA - Larvae and adults light to severe, causing some damage. Controls begun in some areas. (Morris et al.). SOUTH CAROLINA - Serious damage observed on untreated alfalfa fields in Cherokee, York, Chester and Newberry Counties. Less serious damage in Anderson County. Extremely low populations noted in treated fields in above counties. (Nettles et al.). GEORGIA - Larvae averaged 25 per sweep on alfalfa in Franklin County, 22 in Oconee, 15 in Putnam, 26 in Jones, 30 in Johnson and 80 in Hancock Counties. (Johnson). IDAHO - Adults common in alfalfa fields near Whitebird, spotted near Wilder. Populations very low. (Foote, Portman). SOUTH DAKOTA - Adult controls being applied in some west central counties. (Mast). COLORADO - Adults found on warm days in Otero, Crowley, Pueblo, Larimer and Weld Counties. No larvae found. (Exp. Sta.) Spraying underway for adult control in western area, starting March 15 in Mesa County and March 23 in Delta, Montrose and Garfield Counties. Adult populations high where control not being applied. Increase in larval damage expected due to farmer negligence. (Exp. Sta.).

CLOVER LEAF WEEVIL (Hypera punctata) - DELAWARE - Larvae common on clover, Kent and Sussex Counties. Present on alfalfa in Kent County. (Burbutis, Conrad). VIRGINIA - Larvae present in alfalfa fields in southern Augusta County. (Woodside). ILLINOIS - Larvae active in southern clover and alfalfa fields; highest in southwest area. (Ill. Ins. Rpt.). UTAH - Caused spotted injury to alfalfa in several areas of Salt Lake County. (Knowlton). IDAHO - Larvae quite common in alfalfa crowns in Whitebird area. (Foote, Portman).

CLOVER ROOT CURCULIO (Sitona hispidula) - DELAWARE - First adult observed on clover, Sussex County. (Burbutis, Conrad). MARYLAND - Light on alfalfa in Calvert County. (U. Md., Ent. Dept.). VIRGINIA - Larvae damaged roots of alfalfa in a Botetourt County field and a field in Pulaski County, causing some plants to die and reducing the stand. (Rowell, Brown, McBride). IDAHO - Light, spotted adult infestations in Wilder area. (Hart, Bechtolt).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - ILLINOIS - Averaged 12 per square foot in field in southern part of State. (Ill. Ins. Rpt.).

ELONGATE FLEA BEETLE (Systena elongata) - MARYLAND - Adults averaged 1 per sweep on alfalfa at Huntington, Calvert County. (U. Md., Ent. Dept.).

PEA APHID (Macrosiphum pisi) - DELAWARE - Continues to build up on alfalfa in Sussex County. Present on clover in same general area. (Burbutis, Conrad). MARYLAND - Building up and averaged over 30 per sweep on alfalfa at Cambridge, Dorchester County. Light on alfalfa in Calvert and Worcester Counties. (U. Md., Ent. Dept.). VIRGINIA - Populations vary widely in alfalfa fields in Franklin, Pittsylvania, Halifax, Henry and Patrick Counties. (Bishop, Crockett, Woodside). ILLINOIS - Active in southern half of State. (Ill. Ins. Rpt.). ARKANSAS - Increased rapidly to average 400 per 100 sweeps in alfalfa in Conway County. (Ark. Ins. Sur.). OKLAHOMA - Building up most alfalfa and vetch fields in Bryan, Choctaw and McCurtain Counties. Parasites and predators medium to heavy most fields and should substantially decrease populations most instances. (VanCleave, Pela, Goin). Heavy one field in Stillwater area (Bieberdorf), light in Depew area (Stiles) and very light in Burlington area (Owens). KANSAS - Reported on alfalfa in Sumner County. (Gates). TEXAS - Medium on vetch in Delta, Rockwall and Kaufman Counties. Beneficial insects very numerous. (Davis). Averaged 15 per sweep on sweetclover in Karnes County, with no apparent damage. (Hawkins). NEW MEXICO - This season, to date, has been the worst recorded for this pest in many alfalfa fields in Roosevelt, Chaves and Eddy Counties. (N. M. Coop. Rpt.). COLORADO - Counts 3-5 per alfalfa crown in Baca County. None found in Prowers, Bent, Otero, Crowley and Pueblo Counties. (Exp. Sta.). ARIZONA - Continuing very heavy throughout State on alfalfa. (Ariz. Coop. Sur.). UTAH - Present in some alfalfa fields in Utah, Salt Lake and Weber Counties, and damaged same crop in St. George-Hurricane area of Washington County. (Knowlton, Hughes). IDAHO - None found in alfalfa fields in Whitebird area. (Foote, Portman). Very light in alfalfa in Wilder area. (Hart, Bechtolt).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEW MEXICO - Many untreated fields of nonresistant varieties of alfalfa being destroyed in Roosevelt, Lea and Eddy Counties. Remained high in most southern counties. Medium to heavy on alfalfa in the Villanueva Valley, San Miguel County. (N. M. Coop. Rpt.). ARIZONA - Increasing some alfalfa fields in Maricopa County. One field near Peoria averaged 7.33 aphids per trifoliate leaf. (Ariz. Coop. Sur.). UTAH - Very scarce in Washington County this spring. (Knowlton, Hughes). TEXAS - Very heavy, local infestation in Dallam County. Light to medium in Travis and Wharton Counties. (Texas Coop. Rpt.). OKLAHOMA - Populations increasing most alfalfa fields in Bryan, Choctaw and McCurtain Counties. Most fields light to moderate, few heavy. Predators common in all fields and medium to heavy in many. Many fields near cutting stage. (VanCleave, Pela, Goin). Populations up to 1000 per square foot of crown area in alfalfa field in Tillman County and 600-750 in irrigated fields in Jackson County. (Hatfield). Populations averaged 1,296 per square foot of crown area some Payne County alfalfa fields. Some plants showing extreme damage. (Ketner). Heavy some alfalfa fields in Cheyenne area. Treatments begun. (Hudson). KANSAS - Counts per 25 plants on 18 roadside embankments were up to 31 in Riley County; 47 in Jewell County; 26 in Cloud County; 3 in Geary County;1 in Marion County; 83 in Cowley County and none in Butler County. (Simpson, Burkhardt). COLORADO - Counts 3-5 per alfalfa crown at Carrizo Creek and 0-5 at Stonington in Baca County. None found in Prowers, Bent, Otero, Crowley and Pueblo Counties. (Exp. Sta.). IDAHO - None found in Lewiston area. (Foote, Portman). ILLINOIS - None found in southern half of State. (Ill. Ins. Rpt.). GEORGIA - Light on alfalfa in Johnson, Hancock, Oconee and Franklin Counties. (Johnson). VIRGINIA - Averaged 3 per 10 sweeps in one of 13 fields surveyed in 6 counties. The infested field was in Patrick County. (Crockett, Bishop).

COWPEA APHID (Aphis medicaginis) - NEW MEXICO - Large populations in alfalfa fields heavily infested with pea aphid. Winged forms very abundant. (N. M. Coop. Rpt.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - DELAWARE - First adult observed on clover, Sussex County. (Burbutis, Conrad). OKLAHOMA - Few adults present in alfalfa and vetch in southeast. (VanCleave, Pela, Goin).

VETCH BRUCHID (Bruchus brachialis) - TEXAS - Adults building up on vetch from overwintering areas in Delta, Kaufman and Rockwall Counties. (Davis).

LYGUS BUGS (Lygus spp.) - PENNSYLVANIA - L. lineolaris very abundant in south central area alfalfa. (Pepper). VIRGINIA - L. lineolaris heavy in 2 Franklin County alfalfa fields. Averaged 35 per 10 sweeps in 2 fields and few present in another field in Patrick County. (Bishop, Crockett). OKLAHOMA - L. lineolaris light but becoming common in alfalfa fields in southeast. (VanCleave, Pela, Goin). TEXAS - Large numbers in alfalfa and vetch in Kaufman, Delta and Rockwall Counties. Could be a problem in seed production. (Davis). UTAH - Present in alfalfa fields generally in Cache, Box Elder, Salt Lake, Weber and Davis Counties. (Knowlton). WYOMING - Small populations, 1 per 5 square feet, found in several alfalfa fields in Big Horn County. (Davison).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - DELAWARE - Initial field infestation, probably this species, on clover, Sussex County. Young nymphs very common. (Burbutis, Conrad). MARYLAND - First nymphs noted on plantain near Hebron, Wicomico County. (U. Md., Ent. Dept.). VIRGINIA - Damaged about 25 percent of plants in a Pittsylvania County alfalfa field and about 20 percent in a field in Patrick County. (Bishop, Crockett).

SPITTLEBUGS - PENNSYLVANIA - Beginning to hatch in hay in favorable locations in southeastern area. (Menusan). TENNESSEE - Appearing in upper eastern area in legumes. (Mullett).

LEAFHOPPERS - VIRGINIA - Heavy in a Franklin County alfalfa field, present in a Pittsylvania County field, averaged 70 per 10 sweeps in a Halifax County field and 45 in a Henry County field. (Bishop, Crockett).

ARMY CUTWORM (Chorizagrotis auxiliaris) - UTAH - Retarding alfalfa growth in Enterprise area of Washington and Iron Counties. (Knowlton, Hughes). COLORADO - Counts 5-10 per square foot in alfalfa in Larimer and Weld Counties and less than one per square foot in Prowers, Bent, Otero, Baca, Crowley and Pueblo Counties. (Exp. Sta.). WYOMING - Counts less than 1 per 5 square feet in Washakie, Big Horn and Park Counties generally. (Davison). KANSAS - Damaging fall-seeded alfalfa in Osborne County. (Gates).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - ILLINOIS - Adults numerous and larvae occasional in southern half of State. (Ill. Ins. Rpt.).

FRUIT INSECTS

APHIDS - VIRGINIA - Anuraphis roseus medium on apple buds in Hampton City and Prince Edward, Albemarle and Nelson Counties. Eggs hatching over piedmont and eastern areas. (Bobb). MARYLAND - Over 50 percent of eggs hatched on apple trees at Hancock, Washington County. (U. Md., Ent. Dept.). PENNSYLVANIA - Rhopalosiphum fitchii and Anuraphis roseus hatching on apples in the south central area, with the latter species abundant. Myzus cerasi hatching on sweet cherry in the south central area. (Pepper). INDIANA - Heavy on apple buds in the Orleans area. (Marshall). Aphis pomi continues abundant in Vincennes area. (Hamilton). NEW MEXICO - Myzus persicae heavy on peach foliage in Eddy and Chaves Counties and heavy on peach blossoms in Bent, Otero County. (N. M. Coop. Rpt.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Eggs obvious in apple trees in Vincennes area. (Hamilton). PENNSYLVANIA - Egg-laying commencing in the south central area on apple. (Pepper). MARYLAND - Adults appearing and depositing eggs on apple trees at Hancock, Washington County. (U. Md., Ent. Dept.). DELAWARE - First adult of season found in Sussex County and first egg mass found in Kent County. (MacCreary, Kelsey).

SCALE INSECTS - CALIFORNIA - Aonidiella aurantii medium on lemon tree in the Orland district of Tehama County. New County record. A. citrina heavy on citrus in Dixon, Solano County. Epidiaspis piricola light on pear trees in Cloverdale, Sonoma County. (Cal. Coop. Rpt.). GEORGIA - Pseudaulacaspis pentagona infesting scattered trees in a commercial peach orchard at Kathleen. (April 3, Snapp). NEW MEXICO - Aspidiotus perniciosus moderate to heavy in many apple orchards in Hondo Valley, Lincoln County. (N. M. Coop. Rpt.). OKLAHOMA - A. perniciosus heavy in a few apple trees in a McCurtain County orchard. (Apt.).

CATFACING INSECTS - INDIANA - In an abandoned peach orchard at Vincennes, 4 stink bugs were jarred from 5 trees. (Hamilton). UTAH - Lygus spp. common in orchards in Cache, Box Elder, Salt Lake, Weber and Davis Counties. (Knowlton). VIRGINIA - L. lineolaris emerging and light in peach orchards in Albemarle County. (Bobb).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OKLAHOMA - Common on native plum in wooded areas of McCurtain County. (VanCleave, Pela, Goin). MARYLAND - Small tents appearing in wild cherry and fruit trees in southern and central sections. (U. Md., Ent. Dept.).

PEAR THRIPS (Taeniothrips inconsequens) - UTAH - Active in apricot, peach and cherry orchards in Utah County. (Knowlton).

PLUM CURCULIO (Conotrachelus nenuphar) - INDIANA - In an abandoned peach orchard in the Vincennes area, 14 adults were jarred from 5 trees. (Hamilton). VIRGINIA - Emerging and light in peach orchards in Albemarle County. (Bobb). GEORGIA - Continue to leave hibernation in numbers and deposit eggs in peaches. Average of 13 per tree were taken from a commercial peach orchard on an outside row in the Fort Valley area. (Snapp). DELAWARE - First adult found this year on peach tree in Kent County. (MacCreary).

SPIDER MITES - CALIFORNIA - Panonychus ulmi light on pear trees in the Newcastle area of Placer County. (Cal. Coop. Rpt.). UTAH - Eriophyes pyri extremely numerous in unsprayed pear orchards at Orem, Utah County. (Knowlton).

A WEEVIL (Brachyrhinus cribricollis) - CALIFORNIA - Light on olive trees in Woodlake, Tulare County. (Cal. Coop. Rpt.).

TRUCK CROP INSECTS

Beet Leafhopper Conditions in the Southern Great Plains and Adjacent Areas, 1959

In Texas, beet leafhoppers averaged about 5 per 100 square feet in 1959, as compared with 21 per 100 square feet in 1958. The area in Texas covered by the survey was practically all the counties west of the Winter Garden area to El Paso and north through Abilene and the panhandle to Amarillo. Leafhoppers averaged 27.5 per 100 square feet in New Mexico, compared with 35 in 1958 and in southeastern Colorado the average was 12.5 per 100 square feet in 1959. Host plants were in good condition in most areas of west Texas and were found at a high percentage of the stops. Host plants in New Mexico were abundant but scattered, and in Colorado they were very scarce and scattered.

Details of the 1959 Survey: Western Texas - During the period March 2 through March 19, the survey was made in 52 counties of western Texas on wild host plants. A total of 104 stops were made, averaging about 20 miles between stops. The heavy 1958 infestation in the immediate area of El Paso was much reduced. The heaviest concentration of leafhoppers was found in the section between Dryden and Sanderson and again in the Clint-Van Horn-Valentine section. The Dryden-Sanderson area showed an increase over 1958 as did the Imperial, Grandfalls and Bakersfield sections. The main center of the 1959 breeding area is believed to be in the vast area of bladder pod, borage, pepperweed and flixweed found in the triangle represented by Monahans, Clint and Dryden. No beet leafhoppers and very few host plants were found in the Amarillo-Pampa-Perryton area. This area has experienced heavy snows along with temperatures as low as -25° F. during the past winter. Very few green plants were observed. Where sufficient rainfall had been received, hosts were abundant and in good condition. The consistent beet leafhopper finds in the Guthrie-Aspermont-Anson area carries some significance since this area is considered as being the absolute eastern boundary of beet leafhopper.

New Mexico - This portion of the survey took place during the period March 10 through March 16. Stops were made at regular intervals throughout the survey area and weed-host plants were found to be abundant, but scattered. Host plants were present at 90 percent of the stops made. The predominant host plants were pepperweed, flixweed and town mustard. Beet leafhoppers were found at 60 percent of the stops sampled, as compared with 49 percent in 1958. The largest populations were in Eddy, Lea, Roosevelt and Curry Counties in southeastern New Mexico. Beet leafhoppers were also present in Grant, Dona Ana, Otero, Lincoln and Chaves Counties.

Colorado - This portion of the survey took place during the period March 10 through March 16. Host plants were found at 40 percent of the stops made. Predominant plants were flixweed and green tansy. Beet leafhoppers were found at 20 percent of stops sampled. Leafhoppers were present in Otero County in southeastern Colorado. (PPC and Coop. States).

Potato Psyllid Survey on Overwintering Host - 1959

State	District	Average No. per 100 Sweeps 1959	1958	1957
Texas	San Angelo	29	217	184
	Big Springs	24	227	516
	Del Rio	86	134	17
	Sanderson-Marathon	130	181	129
	El Paso	42	6	158
New Mexico	Las Cruces (Southern)	54	7	158
Arizona	Phoenix-Tucson (Southern)	992	93	95
California	Blythe-Barstow (Southern)	237	96	143

Note: This table replaces Potato Psyllid Survey on Overwintering Host table in CEIR 9(13):216. Recent information concerning the San Angelo and Del Rio districts has been included. Also, names in parenthesis are 1957 and 1958 designations of same areas.

(PPC and Coop. States)

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - GEORGIA - Light on tomatoes in Colquitt and Tattnall Counties. (Johnson).

A SPIDER MITE (Tetranychus marianae) - TEXAS - In one tomato field south of Mercedes in lower Rio Grande Valley. (Deer).

FRUITWORMS (Heliothis spp.) - TEXAS - Appearing in many tomato fields in the lower Rio Grande Valley. (Deer).

APHIDS - VIRGINIA - Attacking crucifers and spinach in Accomack and Northampton Counties. Species probably mostly Brevicoryne brassicae on cabbage and Myzus persicae on spinach. (Hofmaster). MARYLAND - B. brassicae infesting asparagus in greenhouse at Dundalk. Det. L. M. Russell. New host record. (U. Md., Ent. Dept.). GEORGIA - B. brassicae light to moderate on cabbage in Colquitt, Grady, Thomas, Brooks and Lowndes Counties. (Johnson). INDIANA - Active on strawberries in the Orleans area. (Marshall). OKLAHOMA - M. persicae heavy on eggplant in a Cotton County greenhouse. (Price). NEW MEXICO - Possibly M. persicae building up on lettuce in Artesia area, Eddy County. (N. M. Coop. Rpt.). ARIZONA - Anuraphis tulipae heavy in some Maricopa County carrot fields. (Ariz. Coop. Sur.). CALIFORNIA - M. persicae medium on Romain lettuce in the Chula Vista area, San Diego County. (Cal. Coop. Rpt.).

IMPORTED CABBAGEWORM (Pieris rapae) - DELAWARE - Adults noted for first time this week. (Burbutis, Conrad).

CABBAGE MAGGOT (Hylemya brassicae) - CALIFORNIA - Light on turnips in the Watsonville area of Santa Cruz County. (Cal. Coop. Rpt.).

LYGUS BUGS (Lygus spp.) - UTAH - Common on mustards in Cache, Box Elder, Salt Lake, Weber and Davis Counties. (Knowlton).

HARLEQUIN BUG (Murgantia histrionica) - TEXAS - Severe damage to turnips, cabbage and radishes in Dimmit, Zavala and Uvalde Counties. Migrations make repeated treatments necessary. (Harding).

SQUASH BUG (Anasa tristis) - UTAH - Active at Sunset and Pleasant Grove. (Knowlton).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - TEXAS - Heavy and damaging squash, melons and cucumbers in Dimmit County. (Harding).

CUTWORMS - TEXAS - Prodenia ornithogalli, Agrotis ypsilon, Peridroma margaritosa and A. malefida attacking tomato, pepper and corn seedlings and transplants in Dimmit County. Lighter than last year. (Harding).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light on beans in Colquitt, Mitchell, Grady, Thomas, Brooks and Tattnall Counties. (Johnson).

BEAN LEAF BEETLE (Cerotoma trifurcata) - GEORGIA - Light on beans in Colquitt, Mitchell, Grady, Thomas, Brooks and Tattnall Counties. (Johnson).

CELERY LEAF TIER (Udea rubigalis) - ARIZONA - Not commonly reported in Arizona. On sweetpotato foliage last fall and reappeared in light numbers on sugar beets this spring. (Ariz. Coop. Sur.).

A SPITTLEBUG - TENNESSEE - Appearing in strawberries in upper eastern area of State. (Mullett).

ROSE SCALE (Aulacaspis rosae) - CALIFORNIA - Heavy on blackberry in Hollister, San Benito County. (Cal. Coop. Rpt.).

TOBACCO INSECTS

TOBACCO HORNWORM (Protoparce sexta) - FLORIDA - First moth for season reported from blacklight trap at Gainesville, Alachua County. (March 30, Perry).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light on tobacco in the field in Bulloch County, and moderate to heavy in Tift, Colquitt, Mitchell, Grady, Thomas, Brooks, Lowndes, Ware, Pierce, Wayne and Tattnall Counties. (Johnson).

COTTON INSECTS

Cotton Situation, Lower Rio Grande Valley, Texas:

CUTWORMS and DARKLING BEETLES still causing some damage in eastern Willacy and Cameron Counties. FLEAHOPPERS now appearing in western half of Hidalgo County and SPIDER MITES are found in small numbers in scattered fields over the valley. APHIDS increased over last week. (Deer, April 6).

THRIPS - GEORGIA - Frankliniella sp. light on cotton in Bulloch County. (Johnson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

AN ARCTIID (Halisidota argentata) - CALIFORNIA - Defoliation and partial defoliation of Douglas-fir trees continuing in Lake Pillsbury, Mill Creek and Santa Rosa areas in Mendocino National Forest. (Spharler).

A PINK TIP MOTH - ARKANSAS - Adult emergence began about March 1 in southern areas and March 20 in northern parts of the State. Weather conditions have not favored oviposition and evidence of breeding activity has not been observed. (Ark. For. Pest. Rpt., Mar. Rpt.).

BARK BEETLES - ARKANSAS - Some increase in activity of Ips spp. and Dendroctonus terebrans noted in areas near Paris, Ozark and Fordyce. Remained static elsewhere. (Ark. For. Pest Rpt., Mar. Rpt.).

DOUGLAS-FIR ENGRAVER (Scolytus unispinosus) - CALIFORNIA - Causing complete kill and top fading in timber areas over Sonoma County. Condition increasing at present time. (Spharler).

A PINE PITCH MIDGE - ARKANSAS - Heavier than usual infestations observed in Union County on a 4-year-old planting. Damage not serious. (Ark. For. Pest. Rpt., Mar. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - UTAH - Moderate to severe on Engelmann spruce at Logan. (Knowlton). KANSAS - Reported on spruce trees in Rawlins County. (Peters).

PINE BARK APHID (Pineus strobi) - WISCONSIN - Damaged white pine reproduction in Green County. Tops of small trees dying as result of suppression and this species. (Wis. Coop. Sur.).

TENT CATERPILLARS (Malacosoma spp.) - DELAWARE - Most eggs of M. americanum on wild cherry have hatched throughout the State. (Burbutis, Conrad). MARYLAND - Small tents appearing on wild cherry and fruit trees in southern and central sections. (U. Md., Ent. Dept.). VIRGINIA - Very small nests of M. americanum present in a tree in Montgomery County. (Amos). ILLINOIS - M. americanum hatching as far north as Effingham. Small nests appear more abundant than usual. (Ill. Ins. Rpt.). UTAH - Hatching in Box Elder County. Eggs numerous

on shade trees in Weber, Davis, Cache and Salt Lake Counties. Indications are that they may be as numerous as in 1958. (Knowlton).

BAGWORM (Thyridopteryx ephemeraeformis) - VIRGINIA - Very heavy on cedar trees in parts of Spotsylvania County. (Kash).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - MARYLAND - Pupation about complete in central counties, on American holly. (U. Md., Ent. Dept.).

APHIDS - NEW MEXICO - Macrosiphum rosae becoming very heavy on roses in all but cooler northern counties. Cinara tujafilina moderate to very heavy on arborvitae in all southern counties. Periphyllus negundinis heavy on boxelder trees at Carlsbad, Eddy County. (N. M. Coop. Rpt.). CALIFORNIA - Light infestations building up on roses in Orland, Glenn County, and in Sacramento, Sacramento County. Vesiculaphis carisis light on azalea plants in Altaville, Calaveras County. This is possibly a new State record. (Cal. Coop. Rpt.). ARIZONA - M. rosae increased on Graham County roses and caused deformity of buds in some cases. (Ariz. Coop. Sur.).

A THRIPS - ARIZONA - Increasing infestations in some commerical rose plantings in Pinal County requiring control measures. (Ariz. Coop. Sur.).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy on laurel trees in Benicia, Solano County. (Cal. Coop. Rpt.).

A GRASSHOPPER (Melanoplus sp., probably marginatus) - CALIFORNIA - Heavy populations on native shrubs in the Mendota area of Fresno County and the Avenal area of Kings County. (Cal. Coop. Rpt.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - UTAH - Emerged in the Salt Lake-Holladay area. Survival high in the Salt Lake City area. (Knowlton). OKLAHOMA - Leaving hibernating quarters in large numbers in Stillwater area. Adults commonly observed flying on warm days. (Bieberdorf, VanCleave). Active and causing concern in Oklahoma City. (Bower).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Conspicuously annoying at Smithfield and Logan, Cache County, and reported from Corinne and Bear River City, Box Elder County. Controls being applied in several districts. (Knowlton). NORTH CAROLINA - Many fourth-instar larvae and pupae of Aedes canadensis in Umstead State Park, Wake County. A. sollicitans adults biting at 4-5 per minute and pockets of larvae found in Carteret County. (Ashton). CALIFORNIA - Culex tarsalis populations higher in agricultural areas of central part of State than elsewhere. (Vector Control).

COMMON CATTLE GRUB (Hypoderma lineatum) - NEW MEXICO - Adults pestering cattle over most of the State. (N. M. Coop. Rpt.). COLORADO - Averaged 3.7-18 per animal in 189 animals examined in 9 counties. (Ext. Ser.).

TICKS - OKLAHOMA - Amblyomma americanum heavy on native cattle in southeastern part of State. (Goin). SOUTH DAKOTA - Dermacentor variabilis adults active in northeast area. (Mast).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - NORTH DAKOTA - Infestation reported from a home in Fargo. (N. D. Ins. Rpt.).

FLAT GRAIN BEETLE (Laemophloeus pusillus) - TEXAS - Medium to heavy in milo in Tom Green and Cochran Counties. (Texas Coop. Rpt.).

BENEFICIAL INSECTS

PARASITES AND PREDATORS - NEW MEXICO - Coccinellid larvae and adults very abundant in fields heavily infested with pea aphid and spotted alfalfa aphid. (N. M. Coop. Rpt.). VIRGINIA - Nabids, lady beetles and syrphids becoming active in alfalfa fields in several counties. (Bishop, Crockett). OKLAHOMA - Hymenopterous species heavy in a barley field near Holdenville, where 50 percent of a heavy aphid population had been "mummified." Common in fields of small grain and alfalfa. Averaged one per sweep in most alfalfa fields checked in southeastern area. (VanCleave, Pela, Goin). Less than 10 percent of aphid population "mummified" in 2 small grain fields checked in northern Payne County. (Stiles). Predator populations increased and are common in small grain and alfalfa fields throughout southeastern part of State. Populations appear heavy enough to substantially reduce existing aphid numbers. (VanCleave, Pela, Goin). Coccinellids averaged 2 adults and 4 larvae and Chrysopa sp. 2 adults per square yard in some alfalfa fields checked in Payne County. (Ketner). IDAHO - Chrysopa spp. adults active in alfalfa fields in Wilder area, but populations quite low. (Hart, Bechtolt). Adult coccinellids active and common in Lewiston, Whitebird and Moscow areas. (Foote, Portman, Manis). Adult populations light in Wilder area. (Hart, Bechtolt). ARIZONA - H. convergens becoming very abundant in alfalfa and barley statewide, with up to 50 adults and 110 larvae per 10 sweeps in a Graham County alfalfa field. (Ariz. Coop. Sur.). KANSAS - Chrysopa sp. adults as high as 6 and Nabis sp. adults as high as 4 per 10 sweeps in 2 wheat fields in Labette County. (Peters).

HONEY BEE (Apis mellifera) - WISCONSIN - Late honey flow during 1958 which was detrimental to brood rearing, plus winter conditions which prevented cleansing flights, contributed to an estimated 50 percent loss of this species. This estimated winter mortality is 45 percent higher than a year ago and about 25 percent greater than normal. As a result, shipments of package bees into the State are expected to be large. (Wis. Coop. Sur.).

A CARPENTER BEE - NORTH CAROLINA - Large numbers pollinating blueberries and other shrubs in eastern areas of State. (Jones, Stephen).

MISCELLANEOUS INSECTS

COCKROACHES - MARYLAND - Supella supellectilium heavy in a home in Baltimore. (U. Md., Ent. Dept.). NEW MEXICO - Blatta orientalis a problem in many buildings at Lovington, Lea County. (N. M. Coop. Rpt.). UTAH - B. orientalis present in homes at Provo and Pleasant Grove and numerous in a home at Murray. (Knowlton). SOUTH DAKOTA - S. supellectilium reported from a home in Grant County. (Mast).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - OKLAHOMA - Survey of 320 acres of nursery land at Durant and limited check of roadsides and pastures in Bryan, Choctaw, McCurtain, Pushmataha and Atoka Counties gave negative results. (Pela, VanCleave, Goin).

TERMITES - MARYLAND - Winged forms of Reticulitermes flavipes noted in and around homes in Anne Arundel and Prince Georges Counties and at Baltimore. (U. Md., Ent. Dept.). GEORGIA - Numerous reports of R. flavipes throughout the State. (Snapp, Johnson). UTAH - Infesting homes at Pleasant Grove, Provo and Logan. (Knowlton). NORTH CAROLINA - Flights observed in a home and a commercial

building in Wake and Johnston Counties. (Jones, Farrier). IDAHO - Winged and apterous forms of R. hesperus found in basement of a home in Twin Falls. (Gibson).

MAY BEETLES (Phyllophaga spp.) - OKLAHOMA - Adults emerging and attracted to lights in increasing numbers in southeastern part of State. First adults observed in late March. (Pela, Goin, VanCleave).

A FUNGUS GNAT (Sciara sp.) - ILLINOIS - Very abundant in many parts of the State and has caused much concern as it has been mistaken for hessian fly. As many as 50 per linear foot reported from wheat fields, but survey showed a range of 0-10 with average of 4 per linear foot. Up to 50 per foot observed close to a pile of soybean trash in one field. (Ill. Ins. Rpt.).

CORRECTIONS

CEIR 9(2):12 - SUMMARY OF INSECT CONDITIONS - 1958 - COLORADO - Under silage corn insects, unit value should read $10, and total value should read $20,094,040.

CEIR 9(15):255 - GRASSHOPPERS - WISCONSIN - Cortophaga viridifasciatus should read Chortophaga viridifasciatus and Epitettix simplex should read Eritettix simplex.

CEIR 9(15):257 - GREEN JUNE BEETLE should read (Cotinis nitida).

CEIR 9(15):267 - Under Forest, Ornamental and Shade Tree Insects, MOUNTAIN PINE BEETLE should read (Dendroctonus monticolae).

ADDITIONAL NOTES

ALABAMA - SOUTHERN CORN ROOTWORM adults plentiful on crimson clover, vetch and oats in central and southern areas. Hypera meles numerous on crimson clover in Lee County, with limited numbers on clover and vetch in southeastern section and moderate numbers in central section. PEA APHID extremely heavy on vetch and crimson clover throughout central and southern parts of the State. Light infestation of VETCH BRUCHID on vetch in Lee County. GREEN CLOVERWORM moderate on vetch and clover in Lee, Henry and Houston Counties. Limited numbers of THREE-CORNERED ALFALFA HOPPER observed on alfalfa in Lee and Houston Counties and of FULLER ROSE BEETLE on crimson clover in Lee County. GREENBUG averaged 10-15 per 10 sweeps of oats in Henry County. TARNISHED PLANT BUG heavy on crimson clover and alfalfa in Henry and Houston Counties. Limited numbers of SPOTTED ALFALFA APHID taken on alfalfa in Houston County for a new county record. Limited numbers of BROWN STINK BUG and SOUTHERN GREEN STINK BUG collected from clover and alfalfa in Houston and Lee Counties. CABBAGE APHID on cabbage and COLORADO POTATO BEETLE on potatoes both moderate in Lee County. Few HARLEQUIN BUG adults observed in garden plots in same county. HORN FLY heavy on cattle in Lee County. Large numbers of BIG-EYED BUGS observed in crimson clover, oats and rye in Houston, Henry and Lee Counties. Few GOLDEN-EYE LACEWING adults observed in crimson clover in Lee and Houston Counties. Three species of COCCINELLIDS continue to increase in numbers in central and southern parts of the State. (Grimes, Hays, Guyton, Ruffin).

SOUTH DAKOTA - Survey of two southeast counties indicates approximately 30 percent average mortality of overwintering EUROPEAN CORN BORER population. FALSE WIREWORMS averaged less than one per linear foot in winter wheat in south central area. (Mast).

WEST VIRGINIA - Large RED-BANDED LEAF ROLLER flight noted April 10 at Kearneysville. APHIDS on apple buds fewer than usual and EUROPEAN RED MITE hatching slowly on apple in Berkeley County. EASTERN TENT CATERPILLAR hatching, numerous on northern area wild cherry. MEADOW SPITTLEBUG eggs hatching on alfalfa. CATTLE GRUBS average 10.3 in untreated animals generally. (W. Va. Ins. Sur.).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Feltia subt.	Protop. sexta	Helio zea
ALABAMA							
Auburn 4/10	7	1		1			
ARIZONA							
Mesa 4/1-7			2	9			60
FLORIDA							
Gainesville 3/30		1			34	1	
Monticello 4/7							1
Quincy 4/6		4	1		4		1
ARKANSAS							
Fayetteville 3/19-4/1	27	20		13			2
Kelso 3/19-4/1	3	4		7			3
Morrilton 3/19-4/1	29	54		20			
KANSAS							
Hays 4/5		3					
Manhattan 4/4-9	1			1			
LOUISIANA							
Baton Rouge 4/3-9	27	22	3	15	10		14
Franklin 4/2-9	10	6	16	2	5		7
MISSISSIPPI							
*Stoneville 4/4-10	549	41	1	186			8
NEBRASKA							
North Platte 3/22-4/2		1					
SOUTH CAROLINA							
Charleston 4/6-12	25	14	1	2	4		1
Clemson 4/4-10	14	5	13	7			
TENNESSEE (Counties)							
Blount 3/31-4/6	19	7	2	9			
Cumberland 3/31-4/6	9	2		6			
Greene 3/31-4/6	4	1	1	1			
Madison 3/31-4/6	26	5		13			3
Maury 3/31-4/6	103	6	2	15			
Monroe 3/31-4/6	74	5	3	17			
Robertson 3/31-4/6	22	1	2	6			
TEXAS							
Waco 4/4-10	68	4		67	35		28

* Four traps - Stoneville

SUMMARY OF INSECT CONDITIONS - 1958

ALABAMA

Prepared by Walter Grimes*

Highlights: Insect infestations that occurred throughout 1958 after the extreme weather conditions that prevailed during the early part of the year were interesting to observe. BOLLWORMS were of concern much earlier than usual and infestations remained above normal throughout the year in most areas. BOLL WEEVIL was not present in damaging numbers until late July and early August in most areas; however, it still caused enough damage to be the number one pest in the State. EUROPEAN CORN BORER damage to corn was greater than in 1957 and the southward movement continued into 11 additional counties. CORN EARWORM and FALL ARMYWORM caused serious damage to early and late corn. LESSER CLOVER LEAF WEEVIL and Hypera meles caused considerable reduction in seed yields of crimson and burclover. Infestations of SCREW-WORM occurred in early September but were limited to three counties. SPIDER MITES caused serious damage to cotton in the Tennessee Valley and Sand Mountain areas.

Cereal and Forage Insects: CLOVER LEAF WEEVIL (Hypera punctata), a CLOVER WEEVIL (H. meles) and LESSER CLOVER LEAF WEEVIL (H. nigrirostris) were particularly destructive to crimson and white Dutch clovers and burclover during early spring. Damage was observed as early as mid-April and heavy populations remained in some areas until mid-June. Seed production was decreased an estimated 25-40 percent. PEA APHID (Macrosiphum pisi) appeared in limited numbers on vetch and clover during early April and became damaging during May and June. VEGETABLE WEEVIL (Listroderes costirostris obliquus) larvae caused light damage to burclover in early April in Lee and Macon Counties. GREENBUG (Toxoptera graminum) caused moderate damage to oats, wheat and vetch in central areas in early April. Infestations in most fields remained 10-20 per 10 sweeps throughout the early spring. YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) caused light damage to crimson clover and oats in Lee and Baldwin Counties in early May. Although sporadic infestations were observed on various crops throughout the summer, estimated damage was below that of 1957. A FALSE CHINCH BUG (Nysius sp.) caused light damage to vetch and burclover in Lee County in early May. Moderate damage to vetch by VETCH BRUCHID (Bruchus brachialis) occurred in central Alabama in late April and May. Various PLANT BUGS, predominately Lygus lineolaris, caused light damage to clover, vetch and other crops. STRIPED BLISTER BEETLE (Epicauta sp.) caused considerable damage to alfalfa and pasture crops throughout the State. Infestations were more prominent during July and August.

FALL ARMYWORM (Laphygma frugiperda) caused considerable damage to corn throughout 1958. Damage was first noted in southern areas in early May and increased steadily until mid-June. In some areas, damage to corn was serious. Serious reduction to total corn harvested occurred in some Shelby County fields due to ear-drop. SUGARCANE BEETLE (Euetheola rugiceps) reduced stands of early corn in central and southern sections. Replanting was necessary in several areas. CORN EARWORM (Heliothis zea) caused considerable damage to sweet and field corn statewide and moderate damage to clover, vetch and alfalfa in several areas. Overwintering EUROPEAN CORN BORER (Pyrausta nubilalis) larvae pupated on Sand Mountain in late April. By May 18, all had pupated and by June 1, emergence was 90 percent. Yield reduction of corn was estimated at 15.20 percent in several northern counties. The southward spread continued into 11 additional counties. Fall abundance surveys revealed only 75 borers per 100 stalks went into hibernation, compared with 141 in 1957; however, the 1958 survey included a much

* From data submitted by members of the Entomology Staff of Alabama Polytechnic Institute, Plant Pest Control Division, field workers of the State Department of Agriculture, county agricultural workers and others.

larger and more recently infested area than the 1957 survey. SOUTHERN CORNSTALK BORER (Diatraea crambidoides) and STALK BORER (Papaipema nebris) caused light damage to corn in northern areas during June and July. SOUTHERN GREEN STINK BUG (Nezara viridula) and BROWN STINK BUG (Euschistus servus) caused light to moderate damage to corn in southern areas during the summer. These species also caused light damage to soybeans in Baldwin, Mobile and Escambia Counties during the same period. SORGHUM WEBWORM (Celama sorghiella) was not as abundant as in 1957, but infestations on grain sorghum occurred locally. LEAF-FOOTED BUG (Leptoglossus phyllopus) was heavy on grain sorghum in early September in the central area and lighter infestations were sporadic throughout the summer. VELVETBEAN CATERPILLAR (Anticarsia gemmatalis) caused light to moderate damage to peanuts and soybeans in southeast and extreme southern sections; however, damage did not exceed that of 1957. MEXICAN BEAN BEETLE (Epilachna varivestis) appeared on soybeans late in the season and caused light damage. GREEN CLOVERWORM (Plathypena scabra) caused moderate damage to clover in central areas during June and July and damaged alfalfa in some areas. THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) caused moderate damage to alfalfa throughout central sections. SPOTTED ALFALFA APHID (Therioaphis maculata) infestations were much lower in most areas than in previous years.

SOYBEAN CYST NEMATODE (Heterodera glycines) surveys in the State during 1958 were negative. Since July 1, 1958, soil samples were taken from properties representing 6,774 acres and visual surveys were made on properties representing some 23,778 acres mostly in the southwestern commercial soybean areas. CORN LEAF APHID (Rhopalosiphum maidis) infestations increased in most areas, but little damage resulted. Peanuts in southeastern sections were severely damaged early in the season by TOBACCO THRIPS (Frankliniella fusca). Several species of GRASSHOPPERS (Schistocerca americana, Melanoplus differentialis, M. femur-rubrum) caused considerable damage to corn, legumes and pasture crops throughout the summer. M. femur-rubrum was the predominant species. There is a definite increase of grasshopper activity in the State in the last few years. WHITE-FRINGED BEETLES (Graphognathus spp.) - Since July 1, a total of 13,515 acres of new infestations were found; however, none were isolated infestations. In the State there is a total of 261,628 acres now infested, 119,863 of which are farmland. All active nursery acreage has been treated.

Fruit Insects: PECAN NUT CASEBEARER (Acrobasis caryae) caused serious reduction in pecan yield in central Alabama, with 40-50 percent of the total crop destroyed during the major fruiting period. PECAN LEAF CASEBEARER (Acrobasis juglandis) caused considerable damage to pecan foliage in Baldwin County as early as April. Lighter infestations occurred in Escambia and Covington Counties in May. HICKORY SHUCKWORM (Laspeyresia caryana) occurred in large numbers in old pecan shucks during April. Heavy infestations occurred again in late December. APHIDS caused light damage to pecan foliage during May and June. BLACK PECAN APHID (Melanocallis caryaefoliae) caused light damage in August and September in most sections. FALL WEBWORM (Hyphantria cunea) caused heavy damage to pecan trees throughout summer months and was heavier than in previous years. Larvae of a MAY BEETLE (Phyllophaga sp.) defoliated small pecan trees in some areas in May and June. PEACH TREE BORER (Sanninoidea exitiosa) caused heavy damage in peach orchards during March and April. Light infestations occurred in southern areas in November and December. Damage by LESSER PEACH TREE BORER (Synanthedon pictipes) was light to moderate. Light damage to plums by PLUM CURCULIO (Conotrachelus nenuphar) occurred in localized central areas. APPLE APHID (Aphis pomi), WOOLLY APPLE APHID (Eriosoma lanigerum) and GRAPEVINE APHID (Aphis illinoisensis) caused light damage during May in several south and central counties. SAN JOSE SCALE (Aspidiotus perniciosus) caused moderate damage to Lee County apple trees during May. WHITE PEACH SCALE (Pseudaulacaspis pentagona) caused severe damage to peach trees in southern areas in September and October. Lighter infestations were observed in other areas. GRAPE ROOTWORM (Fidia viticida) activity was reported in one area and GRAPE FLEA BEETLE (Altica chalybea) caused only light damage. ORIENTAL FRUIT MOTH (Grapholitha molesta)

damage to peach trees was light to moderate statewide. MEDITERRANEAN FRUIT FLY (Ceratitis capitata) traps were operated in Baldwin and Mobile Counties in the vicinity of fruit markets. No positive collections were made.

Truck Crop Insects: VEGETABLE WEEVIL (Listroderes costirostris obliquus) caused moderate to heavy damage to turnips during April and May, being completely destroyed in some areas. TURNIP APHID (Rhopalosiphum pseudobrassicae) completely destroyed turnips locally in Baldwin County in May. Heavy infestations of R. pseudobrassicae and POPLAR PETIOLE GALL APHID (Pemphigus populi-transversus) seriously damaged turnips in central and southern areas during September, October and November. CABBAGE APHID (Brevicoryne brassicae) appeared on cabbage in early April and increased to moderate and heavy infestations during May and June on untreated plants. BEAN LEAF BEETLE (Cerotoma trifurcata) was heavy on beans in April and May in Lee and Russell Counties and moderate throughout the central area in late June and July. MEXICAN BEAN BEETLE (Epilachna varivestis) inflicted moderate damage to beans in Baldwin County in May. Infestations were generally not as high as in 1957, but in some localized areas almost complete destruction of beans occurred. SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) caused moderate damage to beans and cucumbers in May and in October in southern areas. TARNISHED PLANT BUG (Lygus lineolaris) slightly damaged squash in southern and central areas throughout the summer. During May and June, IMPORTED CABBAGEWORM (Pieris rapae) severely damaged cabbage in Baldwin and Escambia Counties and STRIPED CUCUMBER BEETLE (Acalymma vittata) caused moderate damage to squash and watermelon plants in Chilton and Fayette Counties. IMBRICATED SNOUT BEETLE (Epicaerus imbricatus) caused severe damage to tomatoes in Blount County in April and May and ASPARAGUS BEETLE (Crioceris asparagi) moderately damaged asparagus in Lee County in early May. CABBAGE LOOPER (Trichoplusia ni) and DIAMONDBACK MOTH (Plutella maculipennis) appeared in large numbers in Lee County during May, the latter species was the heaviest in 10 years in this area. HARLEQUIN BUG (Murgantia histrionica) caused light damage in central Alabama throughout the summer. Heavy infestations of COLORADO POTATO BEETLE (Leptinotarsa decemlineata) were present throughout the State by mid-May. Complete defoliation of potatoes occurred in some areas. ONION THRIPS (Thrips tabaci) lightly damaged onions in many areas. Various species of CUTWORMS caused considerable damage to different crops during the year. FALL ARMYWORM (Laphygma frugiperda) was destructive to garden crops and TOMATO FRUITWORM (Heliothis zea) caused serious damage to tomatoes in all sections. Damage was reported from Houston County by late May. PICKLEWORM (Diaphania nitidalis) and MELONWORM (D. hyalinata) caused light damage late in the season in localized southern areas. STRAWBERRY WEEVIL (Anthonomus signatus) caused moderate to heavy damage to blackberries in Chilton and Tuscaloosa Counties in late April and May. SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) infestations in domestic sweetpotato plantings totaled 55 as of December 31 in Covington, Baldwin, Escambia, Geneva, Houston and Mobile Counties.

Forest, Ornamental and Shade Tree Insects: SOUTHERN PINE BEETLE (Dendroctonus frontalis), BLACK TURPENTINE BEETLE (D. terebrans) and IPS BEETLES (Ips. spp.) were active in pine stands during 1958; however, populations were comparatively lower and damage was less than in 1957. This may have been, in part, the result of the extreme cold weather of February, 1957, which killed much of the overwintering brood. Moderate to heavy infestations of NANTUCKET PINE MOTH (Rhyacionia frustrana) occurred in young loblolly and shortleaf pine plantations throughout the State. PINE REPRODUCTION WEEVILS (Pachylobius picivorus and Hylobius pales) caused some loss of seedlings in newly established plantations planted too soon after cutting operations. PINE WEBWORM (Tetralopha robustella) infestations were heavier in one and two-year-old pines than in 1956 and 1957. Damage was not severe, but infestations ranged up to an estimated 20 percent in some plantations. In seedling nurseries, insect damage was generally light. A heavy infestation of a SPIDER MITE (Oligonychus milleri) damaged pine seedlings

in the nursery at Auburn during November. Larger infestations of SCALE INSECTS (Toumeyella spp.) were observed in one to four-year-old pines than in 1956-57. Scattered infestations of RED-HEADED PINE SAWFLY (Neodiprion lecontei) occurred in southwest Alabama in late December and damaged young pines in Washington County in July. DEODAR WEEVIL (Pissodes nemorensis) was fairly common on pine timbers in Lee and surrounding counties during early spring. Infestations were somewhat higher than in 1957. A PINE PITCH MIDGE (Retinodiplosis sp.) was observed on pines in Lee County early in the year; up to 35 insects per functioning gall. PINE NEEDLE SCALE (Phenacaspis pinifoliae) and a PINE PITCH MIDGE (Retinodiplosis resinicola) were common on pines in late April and early May in south central areas.

Moderate infestations of FOREST TENT CATERPILLAR (Malacosoma disstria) occurred in swamp-hardwood areas of Mobile, Washington, Choctaw and Baldwin Counties in early April and May. EASTERN TENT CATERPILLAR (M. americanum) occurred on wild cherry as early as April and continued to defoliate trees for some time. More defoliation resulted from attacks of FALL WEBWORM (Hyphantria cunea) in 1958 than in 1956 and 1957. Infestations were noted as early as June 10. PHYCITIDS (Dioryctria abietella and D. amatella) damaged up to 30 percent of the cones on slash, longleaf and loblolly pines in some areas. ELM LEAF BEETLE (Galerucella xanthomelaena) caused severe damage to American elm in all sections, being especially heavy in north and central sections with almost complete defoliation of medium-sized and smaller trees. LOCUST TWIG BORER (Ecdytolopha insiticiana) and LOCUST LEAF MINER (Chalepus dorsalis) caused light to moderate damage to young locust in central areas early in the year. An OAK SCALE (Lecanium quercifex) and a KERMES SCALE (Kermes galliformis) were present in rather large numbers on young oak twigs in central and southeastern areas in early spring. Kermes infestations were scarce during late summer. CAMELLIA SCALE (Lepidosaphes camelliae)and TEA SCALE (Fiorinia theae) were rather light on camellias early in the year; however, tea scale increased considerably during late summer and early fall. COTTONY-CUSHION SCALE (Icerya purchasi) damage to ornamentals was generally light in southern areas the latter half of 1958. A WAX SCALE (Ceroplastes ceriferus) was prevalent in early spring but rather scarce during the summer. Infestations were generally equal to those of 1957. SPIREA APHID (Aphis spiraecola) was unusually heavy throughout the State early in the year. ROSE APHID (Macrosiphum rosae) caused considerable damage to several species of roses in early spring and summer. A GALL MIDGE (Itonida ocellaris) caused light to moderate damage to red maple during April, but was rather scarce during the summer. AZALEA LACE BUG (Stephanitis pyrioides) caused moderate to heavy damage to azaleas in the southern part of the State. An AZALEA CATERPILLAR (Datana major) caused moderate damage to azaleas in localized southern areas. Various species of CUTWORMS (principally Peridroma margaritosa) caused moderate damage to ornamental plants throughout the year. JAPANESE BEETLE (Popillia japonica) traps were placed at approximately 100 scattered locations over the State at points of likely introduction. No specimens were collected during 1958.

Cotton Insects: Generally, cotton insects were not as abundant as in 1957. BOLLWORMS (Heliothis spp., et al.) appeared in unusually large numbers early and infestations remained above normal throughout the season and were responsible for yield reductions in many areas. PINK BOLLWORM (Pectinophora gossypiella) inspections were made in all except 4 counties in the State. All inspections were negative. BOLL WEEVIL (Anthonomus grandis) began emerging from hibernation during mid-May in central Alabama; however, infestations generally were low until late July and early August in most areas. In localized areas where insecticides were not applied properly, yield was reduced considerably. SPIDER MITES (Tetranychus spp.) caused severe damage to cotton in the Tennessee River Valley and Sand Mountain areas. Damage was also observed in localized central areas. CABBAGE LOOPER (Trichoplusia ni) caused minor damage in central areas during July and August. COTTON APHID (Aphis gossypii) was general throughout the State, but not as abundant as in 1957. A WEBWORM caused light damage in localized central areas. THRIPS caused moderate damage to seedling cotton in most areas throughout the early season and WHITEFLIES were present in most

northern fields during July and August. COTTON LEAFWORM (Alabama argillacea) infestations were prevalent in Escambia and Monroe Counties in late September. Infestations appeared in south central portion of the State in early October. Little damage, except perhaps a small amount of staining, resulted from the attacks. BLACK CUTWORM (Agrotis ypsilon) caused moderate damage to seedling cotton in northern areas during June. SALT-MARSH CATERPILLAR (Estigmene acrea) appeared in localized areas, but caused no apparent damage. FALL WEBWORM (Hyphantria cunea) occurred in Limestone County in July, but caused no apparent damage. This is the first record of this species attacking cotton in Alabama. WHITE-FRINGED BEETLES (Graphognathus spp.) caused light to moderate damage in Monroe County early in the season, destroying seedling plants. COTTON FLEAHOPPER (Psallus seriatus) caused very little damage but TARNISHED PLANT BUG (Lygus lineolaris) was destructive in localized areas.

Livestock Insects: CATTLE BITING LOUSE (Bovicola bovis) was prevalent early in 1958 and infestations appeared again in late fall and early winter. In central sections, infestations were heavier than in 1957. HORN FLY (Siphona irritans) populations were extremely high early in the summer in most areas. DEER FLIES (Chrysops spp.) were also heavy in localized central and northern areas early in the year. HORSE FLIES (Tabanus spp.) were present in unusual numbers in June and July on cattle in central Alabama. COMMON CATTLE GRUB (Hypoderma lineatum) damage was somewhat higher in most areas late in the season than in 1957. SCREW-WORM (Callitroga hominivorax) infestations were confined to Elmore, Autauga and Montgomery Counties. The first positive case was found September 6 and only 96 cases were found throughout the year. Under the eradication program, 2,441 animals were sprayed in the infested area and 66,964,250 sterile male flies were dropped in the eradication campaign.

Stored-grain Insects: Stored-grain insects were of utmost importance throughout most of 1958. Infestations of RICE WEEVIL (Sitophilus oryza) were noted in many fields of early maturing corn in several areas. These infestations were moved from the field to storage areas and consequently heavy damage for 1958-59 was predicted. Heavy damage to corn was observed in December in the southeast and extreme south. ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) damage was severe during March and April in grain stored over winter, but infestations were low during December in grain stored in the early fall. Heavy infestations of CIGARETTE BEETLE (Lasioderma serricorne) occurred in grain in warehouses in Mobile County in October and again in December. Stored-grain pests of lesser importance were MEALWORMS (Tenebrio obscurus and T. molitor), CADELLE (Tenebroides mauritanicus), SQUARE-NECKED GRAIN BEETLE (Cathartus quadricollis), INDIAN-MEAL MOTH (Plodia interpunctella), CARPET BEETLES (Attagenus piceus and Anthrenus scrophulariae) and SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis). KHAPRA BEETLE (Trogoderma granarium) surveys during 1958 were negative.

Miscellaneous Insects: CASEMAKING CLOTHES MOTH (Tinea pellionella) was more prevalent locally than previously reported. EASTERN LUBBER GRASSHOPPER (Romalea microptera) occurred in the central area in June and infestations increased noticeably in localized areas in July and August. MINING BEES were present in several areas and were annoying in some places. SNAILS caused moderate damage to lilies in Baldwin County in May and were fairly common throughout the State. OLD-HOUSE BORER was collected in Auburn for the first time in several years. All IMPORTED FIRE ANT (Solenopsis saevissima richteri) infestations in Limestone, Morgan, Etowah, Walker, Lamar, Blount, St. Clair, Talladega, Clay, Pike and Calhoun Counties were treated during 1958. No infestations were found in Randolph, Cleburne, Cherokee, De Kalb, Marshall, Jackson, Lawrence, Winston, Marion, Franklin, Lauderdale and Coffee Counties. In the remainder of the State, an estimated 11,116,887 acres are infested or exposed to infestation and

approximately 50 percent of this acreage would have to be treated in order to eradicate the species. Since the beginning of the program, 285,667 acres have been treated in the State.

Beneficial Insects: Beneficial insects played a very important part in insect control during 1958. BRACONIDS were prevalent in most cotton areas, attacking boll weevil. Many BRACONID parasites were also taken from cotton leafworms. SYRPHID FLY larvae were present in most areas and were especially abundant on corn in some areas. A BIG-EYED BUG (Geocoris punctipes) occurred in large numbers in southern and southeastern areas in early April. As the season progressed, populations increased in other areas. CONVERGENT LADY BEETLE (Hippodamia convergens) populations were above normal early and remained so in many areas throughout the year. Two COCCINELLIDS (Coleomegilla fuscilabris and Cycloneda sanguinea) were rather scarce during early season, but increased later. GOLDEN-EYE LACEWING (Chrysopa oculata) occurred in oat, wheat and cotton fields during the spring and early summer.

SURVEY METHODS

A PORTABLE FIELD CAGE FOR INSECTS

The portable cage presented here appears to fill a gap in the cage equipment field. The units for this cage can be easily transported to the field and quickly erected over a small plant, around the stem of a tree, or in a box in the laboratory. Whereas permanent cages are often prohibitively heavy for one man to handle, the units of this one are quite light. Finally, three disassembled cages take up less space in a truck than one permanent cage.

All parts of the portable field cage are of a standard dimension, thus simplifying cutting and machining. The units are constructed of treated lumber 2 inches square and 36 inches long; any convenient size can be used, depending on immediate or anticipated problems. Framing for half of the units is machined with a 3/8-inch tongue along one face of each cornerpost; a 3/8-inch groove is machined in one face of the remaining cornerposts. After the material is machined, it is joined to form the units shown in Fig. 1.

The opening in each unit may be covered with either plastic or bronze screening; usually 20 x 20 mesh prevents the escape of most insects. The opening in the units may be modified to fit the need of various investigations: some may be covered with plywood, some may be covered with cloth, and some may even be provided with doors and windows.

Pieces of 1/16-inch steel plate, 4 inches or more wide, should be fastened to the bottom of each unit along its perimeter. This plate is easily forced into the ground and prevents insects and other organisms from burrowing into or out of the assembled cage. The steel plate also provides rigidity and helps anchor the cage in place.

After the units are fitted together to form a cage, a means of holding the posts tightly against each other is desirable. Loose pin hinges are quite handy for this purpose (fig. 2).

Additional tongues and grooves in the units adapt this simple cage to an infinite variety of multiple-unit cages of many sizes and shapes. In fact, with a little ingenuity the units could be used to construct something as large as a portable insectary. (Charles F. Speers, Forest Service, U. S. D. A., S. E. For. Exp. Sta.).

AN ADJUSTABLE PORTABLE FIELD CAGE

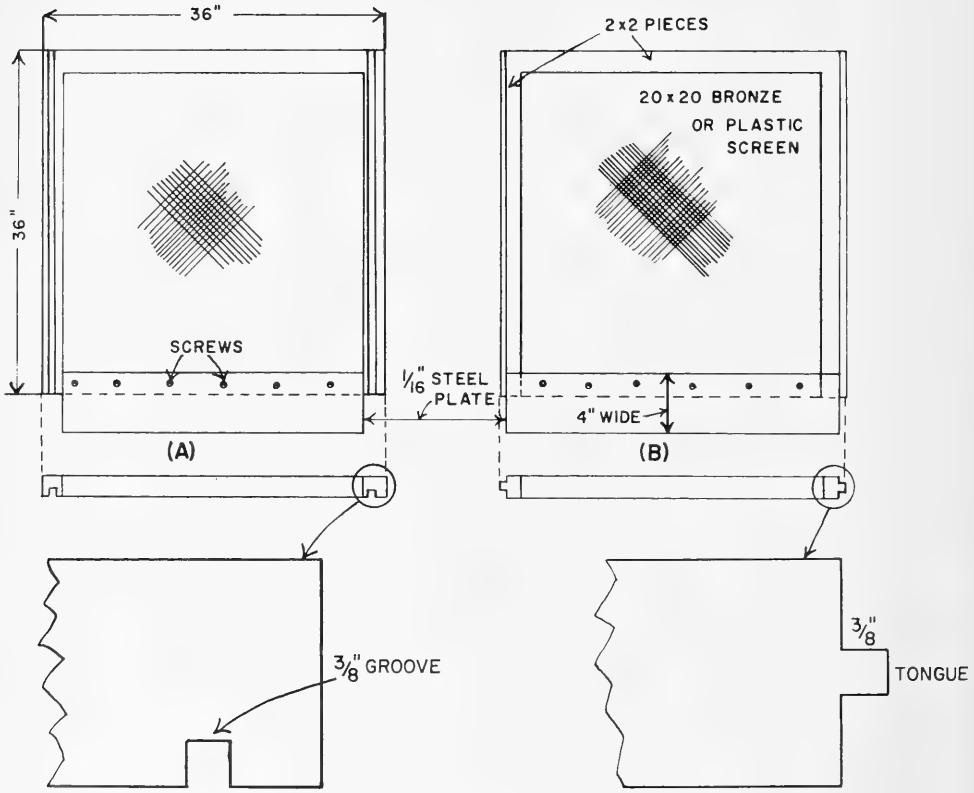

Figure 1. Units of portable field cage.

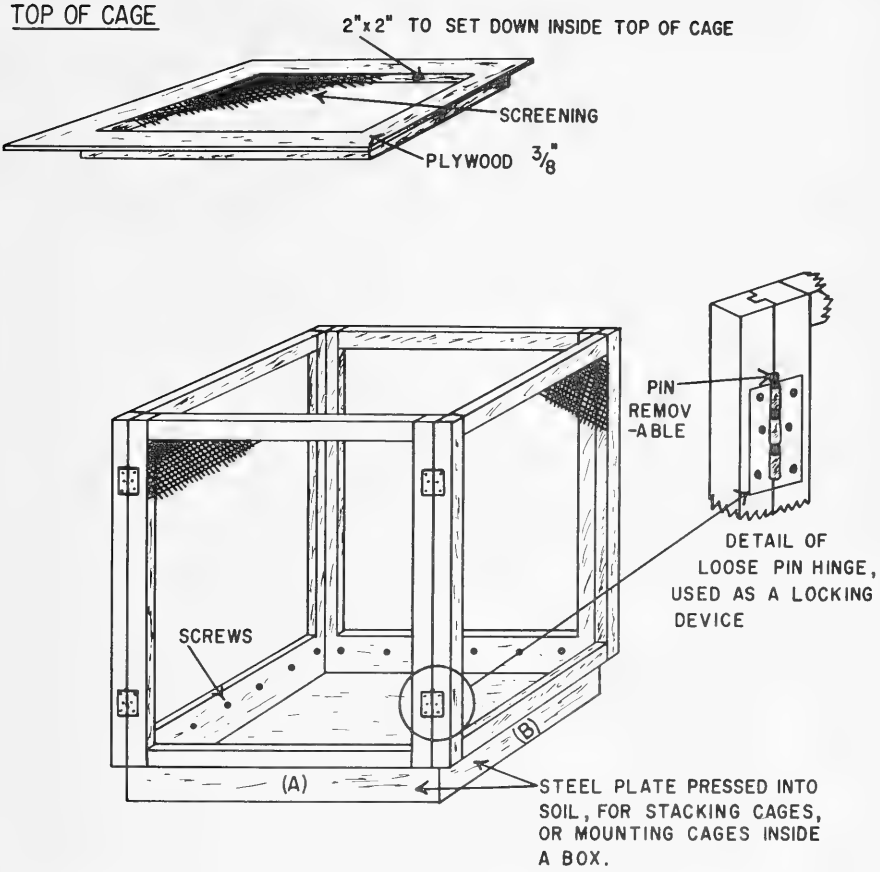

Figure 2. Cage assembly.

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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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

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

Volume 9 April 24, 1959 Number 17

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

Treatments still being applied for GREENBUG control in Texas Panhandle. Populations in Oklahoma Panhandle greater in eastern portion. Spraying decreased in Canadian and Pawnee Counties. Counts generally light in Kansas and Louisiana. (p. 303). EUROPEAN CORN BORER pupation begun in Delaware. (p. 304). ALFALFA WEEVIL damage continuing in untreated alfalfa in Virginia and South Carolina and counts high in Georgia. Adults common at Clarkston, Washington. LESSER CLOVER LEAF WEEVIL larvae very numerous in clovers in southeastern Alabama and SWEETCLOVER WEEVIL severely damaged some sweetclover fields in southern Illinois. (p. 305). PEA APHID heavy on alfalfa in Virginia and Arizona; increasing on legumes in many States. (p. 306).

MEXICAN FRUIT FLY population very low in lower Rio Grande Valley, Texas. (p. 309).

Second statement on BEET LEAFHOPPER conditions in Utah, western Colorado, southern Nevada, central Arizona and southeastern California - 1959. (p. 310).

BOLL WEEVIL survival high at Marianna, Arkansas, but low in McNairy County, Tennessee. (p. 312).

MOSQUITO populations developing on Eastern Shore of Delaware and Maryland and in Utah and Nevada. Considerable activity reported in Florida. (p. 315).

Some First Reported Records of the Season: MORMON CRICKET hatched April 7 in Tooele County, Utah. LESSER CLOVER LEAF WEEVIL emergence noted April 15 in Illinois; larvae collected same date in Ohio. EUROPEAN RED MITE hatching in Maryland and Bryobia rubrioculus hatching in Washington. PEAR PSYLLA noted first time this season on March 7 in New York. Meligethes nigrescens emerged April 3 in Oregon. CABBAGE MAGGOT observed April 13 in New Jersey and ONION MAGGOT emerged April 7 in Washington. TOBACCO FLEA BEETLE emerging in Maryland and Neodiprion pratti pratti hatching Statewide in Virginia.

INSECT DETECTION: European chafer collected for first time in Brooklyn, New York. (p. 304). Odontaleyrodes rhododendri collected for first time in Florida at Leesburg, Lake County. (p. 315).

EUROPEAN CORN BORER caused an estimated 100,699,000 bushel loss to grain corn in the major corn producing States surveyed in the fall of 1958. (p. 319).

INSECTS not known to occur in the United States. (p. 321).

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Reports in this issue are for the week ending April 17, 1959, unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-APRIL TO MID-MAY 1959

The Weather Bureau's 30-day outlook for the period mid-April to mid-May calls for temperatures to average above seasonal normals over the eastern third of the Nation. Below normal temperatures are predicted for the western half of the country except above normal over the extreme Southwest. In other areas near normal averages with large fluctuations are anticipated. Precipitation is expected to exceed normal over most of the country lying between the Continental Divide and the Appalachians. In other areas about 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 20

This week demonstrated the wide range of weather conditions typical of early spring. Alternating cold and warm temperatures, severe thunderstorms, heavy rains and snows were all experienced in various sections. Temperatures averaged above normal in the Northeast and extreme Southwest. The remainder of the Nation experienced unseasonably cold weather during parts of the week to bring temperatures below normal for the period. The large high pressure area which had moved down the Great Plains during the latter part of the preceding week was centered over Texas on the 13th. This cool, clear air mass moved slowly eastward over the Gulf States during the next 3 days, bringing freezing temperatures as far south as north central Louisiana, northern portions of Alabama and Georgia and scattered light frost to northern Florida and south central Texas as nighttime radiation permitted rapid cooling. Freezes this late in the season average only 1 in 10 to 20 years in Louisiana. Cold weather moved into the northern Rockies and Plains early in the week. On the 14th a cold front extended from eastern North Dakota southwestward to Nevada. As this front moved slowly southeastward, areas of low pressure formed over the Mountain States and moved along the front, producing light to heavy precipitation on the 14th through the 17th from south central Montana, northern Utah and Wyoming eastward to Minnesota. Heavy snow in Montana caused some damage to powerlines. Moving southward, from the 16th to the 19th, the cold air encountered warm, moist air streaming northward from the Gulf of Mexico, and scattered, heavy thunderstorms were recorded from the Texas-Louisiana area northward to Nebraska and southern Illinois. Winds in the southerly flow of warm air reached 30 to 50 m.p.h., from Texas to Nebraska on the 15th. Heavy hail caused some light damage in Kansas, Oklahoma, Texas, Arkansas and Missouri. Damaging windstorms occurred near Freeport, Illinois, on the 17th; Godley, Texas, and Mansfield, Louisiana, on the 13th.

Snow and sleet again spread out of Wyoming on the 18th through the 20th, reaching eastward to the lower Great Lakes and southern Iowa, and southward to northeastern New Mexico. Up to 9 inches of snow fell in the Black Hills of South Dakota and 5 to 7 inches covered central Iowa on the 19th. Pleasant weather (warm, clear, dry days and cool nights) prevailed over the Northeastern States until the weekend, when light to moderate precipitation and cooler temperatures covered the Middle Atlantic and New England States. General moderate to heavy rains occurred at the week's end over the Southeast. Precipitation was generally below 1/2 inch west of the Continental Divide, except in northern Utah where rain and snow on the 18th brought amounts up to normal levels for the year. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - CALIFORNIA - Heavy hatch occurring north and west of Kettleman Hills, Kings County, adjacent to several thousand acres of melons, potatoes and cotton. (Cal. Coop. Rpt.). NEW MEXICO - Nymphs present in cultivated areas of Luna, Hidalgo, Grant and Dona Ana Counties. Presently not numerous. (N. M. Coop. Rpt.).

MORMON CRICKET (Anabrus simplex) - UTAH - Hatching in Vernon-Government Creek area of Tooele County on April 7. (Thornley, Annand, Knowlton).

CUTWORMS - ALABAMA - Destroying stands of young corn in Monroe County. (Lemons). LOUISIANA - Peridroma margaritosa light, 0-4 per square foot, in mixed clover pastures in Acadia and Vermilion Parishes. (Spink). NEBRASKA - Agrotis ypsilon adults taken in light traps at North Platte and Lincoln. (Roselle, Pruess). IDAHO - Heavy, spotted infestations in alfalfa field in Idaho Falls area. Heavy infestations occurred in area several years ago. (Clark).

GREENBUG (Toxoptera graminum) - TEXAS - Infestations ranging from less than one to 2000 per linear foot in wheat in Ochiltree County. Treatments still being applied in Hansford and Ochiltree Counties. Lady beetles building up in most of panhandle. (Daniels). OKLAHOMA - Total of 1,361 small grain fields observed in 13 north central, northwestern and panhandle counties. Percent of fields showing visible damage in each county were Payne-40, Noble-19, Kay-14, Grant-2, Garfield-9, Major-3, Alfalfa-0, Woods-0, Woodward-0, Harper-1, Beaver-8, Texas-0 and Cimarron-0. Populations decreased gradually from east to west in panhandle counties. Counts, not including spots, averaged 10 per linear foot in eastern panhandle to less than 1 per linear foot in western panhandle. (VanCleave, Wilson). Spraying decreased in Canadian County. (Flora). Spraying decreasing in Pawnee County; some untreated fields show spots. (Stiles). Ranged 8-20 per linear foot in Canadian, Blaine, Dewey and Woodward Counties. (Frazier, Pela). Populations in northwestern area vary greatly from field to field. (Owens). Ranged 75-100 per linear foot in a Harmon County wheat field. (Hatfield). KANSAS - Damaging barley in Barber County. (Knutson). Ranged 0-300 per linear foot in 6 south central, 5 southwestern and 2 southeastern counties. Largest populations were in Cowley and Sumner Counties, but were generally less than 10 per linear foot. (Peters, Gates). ARKANSAS - Injury appearing in eastern Columbia County. (Warren, Apr. 11). LOUISIANA - Remain extremely light on oats and wheat statewide. (Spink). ALABAMA - Populations decreased in southeastern area. (Grimes).

HESSIAN FLY (Phytophaga destructor) - NEBRASKA - Flaxseed stage numerous in volunteer wheat in southwestern counties and in fall-seeded and volunteer wheat most central and southeastern counties. Spring infestations may be moderate to severe if climatic conditions favor development. (Roselle).

CHINCH BUG (Blissus leucopterus) - TEXAS - Continues to cause concern in coastal bend area on grain sorghum. General rains may help check infestations. (Texas Coop. Rpt.). KANSAS - Reported on field of rye in Sumner County. (Gates).

SOUTHERN GREEN STINK BUG (Nezara viridula) - LOUISIANA - Heavy on barley, East Baton Rouge Parish. (Spink).

A RICE DELPHACID (Sogata orizicola) - FLORIDA - Sweepings of rice for this vector of hoja blanca were made in Hillsborough, Pasco, Pinellas, Manatee and Sarasota Counties. No specimens were found. (PPC, So. Reg., Mar. Rpt.).

A BILLBUG (Calendra callosa) - GEORGIA - Moderate on corn in Colquitt and Mitchell Counties. (Johnson).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ILLINOIS - Populations on bluegrass in southern area varies 0-160 per 100 sweeps; average 57. In wheat and rye, average 19, with range 0-40. (Ill. Ins. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - DELAWARE - Noticeably increased over previous weeks and very abundant on maturing winter ryegrass in Sussex County. (Burbutis, Conrad). LOUISIANA - Light on barley in East Baton Rouge Parish. (Spink). ILLINOIS - Counts vary 0-310 per 100 sweeps in wheat and rye in southern area. (Ill. Ins. Rpt.). KANSAS - Ranged 1-50 per 10 sweeps in wheat, Harvey, Reno, Stafford, Hodgeman and Seward Counties. (Peters). ARIZONA - Heavy in many Salt River Valley wheat fields. Infested heads averaged 40 percent in Yuma County with high populations on many infested fields. (Ariz. Coop. Sur.).

A SAWFLY (Pachynematus sp.) - KANSAS - Counts were 2 larvae per 10 sweeps in wheat in Reno County. Damage not visible in field. (Peters).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Ranged up to 150 per linear foot in 5 of 41 small grain fields checked in panhandle area. (VanCleave, Frazier, Pela, Wilson). COLORADO - None found in Baca, Prowers and Bent Counties. (Exp. Sta.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - NEBRASKA - Light to moderate in most western counties. Severe damage to barley in Keith and Scotts Bluff Counties, counts 4-6 larvae per square foot. Damage to barley and alfalfa reported from York and Clay Counties. Few adults taken at North Platte light trap. (Pruess). KANSAS - Damaging oats in Sumner County. (Gates).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ARIZONA - Building up rapidly on Johnson grass along roadsides and field borders in Yuma Valley. (Ariz. Coop. Sur.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - Pupation begun in all counties, being slightly more advanced in eastern Kent County. (Burbutis, Conrad). NORTH DAKOTA - Overwintering mortality averages 21 percent in southeastern counties. (N. D. Ins. Rpt.).

CORN EARWORM (Heliothis zea) - ARKANSAS - First adults trapped at Kelso March 21, Fayetteville April 1. (Ark. Ins. Sur.). First larvae found were in second instar in Little River and Sevier Counties, April 4. (Whitcomb). ARIZONA - Larvae averaged 6 per 100 sweeps in alfalfa, Yuma County. (Ariz. Coop. Sur.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Overwintering survival averaged 16 percent in Washington County. (Whitcomb, April 11).

ARMYWORM (Pseudaletia unipuncta) - DELAWARE - Adults active and abundant in Kent County. (Bray). VIRGINIA - Larvae not found in fields surveyed in Nansemond, King and Queen and Essex Counties, but outbreaks expected about May 8. (Morris). At Painter, Accomack County, more moths taken in light traps on nights of April 8-9 than at any time in April during 3 preceding years. (Hofmaster). MISSOURI - No first-generation larvae observed in southern two-thirds of State. (Kyd, Thomas). NEW MEXICO - Occasional larvae found in alfalfa fields in Luna and Dona Ana Counties. (N. M. Coop. Rpt.).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Larval specimens of this species were sent to the U. S. Department of Agriculture in Washington, D. C., by a Brooklyn, New York, property owner and were identified by Dr. W. H. Anderson as Amphimallon majalis on March 27, 1959. A subsequent preliminary survey showed damaged turf and chafer infestations over an area 6 miles long and approximately 1 1/2 miles wide, starting near the entrance of the Brooklyn-Battery tunnel and extending eastward along the south shore on both sides of the Belt Parkway. A delimiting survey is continuing. (PPC, East. Reg., March Rpt.).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - DELAWARE - First larva collected on alfalfa at Belltown, Sussex County. (Burbutis, Conrad).

ALFALFA WEEVIL (Hypera postica) - NEW JERSEY - Some activity in alfalfa at present time. (Ins. Dis. Newl., April 14). PENNSYLVANIA - Few adults in southern part of Franklin County in alfalfa. No eggs found. (Pepper). DELAWARE - Adults present on alfalfa only in Sussex County. Larval injury to alfalfa moderate in Sussex and light in Kent Counties. (Burbutis, Conrad). MARYLAND - Adults averaged 3 per 10 sweeps of alfalfa at Huntingtown, Calvert County. Larvae increasing on alfalfa statewide. Stem infestations ranged from 8 percent in Montgomery to 32 percent in Dorchester Counties. (U. Md., Ent. Dept.). VIRGINIA - Heavy damage continuing in untreated alfalfa, many parts of State; however, reports of heavy damage not received from northern part of State. (Morris et al.). SOUTH CAROLINA - Infestations in untreated alfalfa fields in Oconee, Pickens and Spartanburg Counties appear about as heavy as those in counties first infested. (Nettles et al.). GEORGIA - Per sweep counts in alfalfa were 56 in Oconee County, 87 in Putnam, 60 in Johnson and 44 in Hancock Counties. (Johnson). COLORADO - Spraying for adult control completed in Mesa and near completed in Montrose Counties. (Col. Ins. Det. Comm.). WYOMING - Adults active in alfalfa on warm days in Goshen and Platte Counties. No larvae found. (Davison). IDAHO - Very few adults found in Aberdeen area on alfalfa. (Bishop). WASHINGTON - Adults common on roadside alfalfa at Clarkston. First record since larvae first discovered in State at same location in 1955. (Telford).

CLOVER LEAF WEEVIL (Hypera punctata) - NORTH CAROLINA - Larvae numerous and feeding moderately on clovers in Rowan, Stokes and Lincoln Counties. (Jones, Young, Farrier). TENNESSEE - Causing some damage to legumes across State. (Mullett). ALABAMA - Few adults in clover in Henry, Houston and Coffee Counties. (Grimes). OHIO - Larvae moderate in Wayne County. Most in second instar on April 15. Little foliage injury evident. (Treece). ILLINOIS - Approximately 4 percent of clover fields in west southwest section and about 15 percent in southwest section need treatments. None needed in east southeast and southeastern sections. (Ill. Ins. Rpt.). MISSOURI - Larvae, about half grown, averaged 0.5-4 per crown of alfalfa and red clover over central and southeast areas. Percentage showing fungus disease varies tremendously from field to field and ranges 0-35 percent. (Kyd, Thomas). OKLAHOMA - First and second instars ranged 1-2 per square foot of alfalfa crown in field in Payne County. (Bieberdorf).

A CLOVER WEEVIL (Hypera meles) - ALABAMA - Larvae very numerous and adults common on crimson clover in Henry, Houston and Coffee Counties. (Grimes).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Appearing in Yuma County alfalfa fields; averaged 1 per 25 sweeps in 4 of 11 fields sampled. (Ariz. Coop. Sur.)

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - DELAWARE - First adult collected on clover in Sussex County. (Burbutis, Conrad). VIRGINIA - Adults averaged 15 per 25 sweeps in an Essex County clover field. (Morris). OHIO - Scarce in Wayne County. First-instar larvae collected April 15. (Treece). ALABAMA - Larvae very numerous and adults common on crimson clover in Henry, Houston and Coffee Counties. (Grimes). ILLINOIS - Emergence first noted in Saline and Gallatin Counties April 15. (Ill. Ins. Rpt.).

CLOVER ROOT BORER (Hylastinus obscurus) - OREGON - Active near Woodburn. (Goeden, Apr. 10).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - IDAHO - Adults abundant on 60 acres of sweetclover in Nez Perce County. Heavy to severe injury to plants occurred. (Kambitsch). ILLINOIS - Severely damaged some sweetclover fields in southern half of State. As many as 27 adults found per square foot. (Ill. Ins. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - PENNSYLVANIA - Few adults swept from alfalfa in southern Franklin County. (Pepper).

YELLOW CLOVER APHID (Therioaphis trifolii) - ILLINOIS - Counts vary 0-250 per 100 sweeps in southwestern and southeastern sections. (Ill. Ins. Rpt.).

PEA APHID (Macrosiphum pisi) - PENNSYLVANIA - Few swept from alfalfa in southern Franklin County. (Pepper). DELAWARE - Present on alfalfa and clover in Sussex and Kent Counties and common on alfalfa in Sussex County. (Burbutis, Conrad). MARYLAND - Building up rapidly and ranged 10-200 per sweep on alfalfa in Dorchester County. Light to moderate on same crop in central and southern areas. (U. Md., Ent. Dept.). VIRGINIA - Heavy in many alfalfa fields in State. Controls applied some instances. (Morris et al.). SOUTH CAROLINA - Appear to be fairly numerous on alfalfa. (Nettles et al.). ALABAMA - Increasing on vetch and clover in central and southern areas. (Grimes). ILLINOIS - Counts vary 0-340 per 100 sweeps in southwestern and southeastern sections. (Ill. Ins. Rpt.). MISSOURI - Very light, 1-5 per sweep, on alfalfa in central and southeast areas. (Kyd, Thomas). KANSAS - Found on alfalfa in 8 south central, 6 southwestern and 2 southeastern counties. Averaged up to 100-200 per sweep in Reno and Cowley Counties, but much less than 50 per sweep over surveyed area generally. (Peters). OKLAHOMA - Populations averaged 10 per sweep in 2 alfalfa fields in Beaver County (VanCleave, Wilson), 500-1500 per square foot of alfalfa crown in a Payne County field (Bieberdorf) and 2 per sweep in 2 fields in Kingfisher County (Frazier, Pela). Some spraying in Harper County. (Owens). TEXAS - Buildup continues in north central area. (Randolph). ARIZONA - Extremely heavy on alfalfa statewide. (Ariz. Coop. Sur.). WYOMING - Averaged 0-2 per alfalfa crown in 20-acre field in Platte County; none found in Goshen County. (Davison). UTAH - Causing some damage to alfalfa in Washington County. (Knowlton). NEVADA - Controls have been applied in several alfalfa fields in Douglas County. (Roberts, April 10).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Increasing in Maricopa, Pinal, Navajo and Graham Counties. Remains very light with no increase in Yuma Valley but increasing slightly in north Gila Valley, Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Light in alfalfa near Deming, Luna County. (N. M. Coop. Rpt.). NEVADA - Increasing in areas of Clark County. (Lee, April 10). Moderate to heavy in southern Washoe County with up to 60 per stem in some fields. (Lauderdale, April 10). WASHINGTON - None found in limited surveys in Yakima Valley and Asotin County. (Telford, Klostermeyer). OREGON - None found in alfalfa fields on April 10 in Hermiston and Echo districts, Umatilla County, known to be heavily infested in 1958. (Every). KANSAS - Found on alfalfa only in Clark and Barber Counties. Counts were up to 15 per 10 sweeps. (Peters). MISSOURI - None found in central or southeast areas. (Kyd, Thomas). OKLAHOMA - Populations averaged 25 per sweep in 2 Beaver County alfalfa fields (VanCleave, Wilson), 234 per Henderson fork sample in some Payne County fields (Ketner), 100 per square feet of crown in one Payne County field and 1200-1500 in a Harmon County field. (Bieberdorf, Hatfield). GEORGIA - Per sweep counts in alfalfa were 25 in Oconee, 15 in Putnam, 28 in Hancock and 52 in Johnson Counties. (Johnson).

CLOVER APHID (Anuraphis bakeri) - NEVADA - Moderate to heavy on red clover in Douglas County. (Roberts, April 10).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ALABAMA - Common on alfalfa in southeastern area. (Grimes).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - PENNSYLVANIA - Nymphs easily found in warm places in Franklin County. Eggs numerous in grain stubble. (Pepper). MARYLAND - Small nymphs increasing on weeds in all sections. Also noted on Howard County alfalfa. (U. Md., Ent. Dept.). NORTH CAROLINA - Nymphs becoming numerous on clover in Lincoln County. (Jones, Farrier). OHIO - Nymphs

first observed in Ross County April 10, Franklin County April 11 and Wayne County April 16. (Treece). ILLINOIS - First nymphs observed in Clinton and Washington Counties April 14. (Ill. Ins. Rpt.).

SPITTLEBUGS - NEW JERSEY - Some nymphs present in clover. (Ins. Dis. Newsl., April 14).

LYGUS BUGS (Lygus spp.) - OKLAHOMA - Populations ranged 0.5-1 per square foot in alfalfa in a Payne County field and averaged 0.1 per sweep in Kingfisher County field. (Bieberdorf, Frazier, Pela). WYOMING - Adults averaged 0-2 per alfalfa crown in Platte and Goshen Counties. (Davison). COLORADO - Activity beginning in alfalfa in Mesa County. First noted on April 1, counts were 10-20 per 100 sweeps in alfalfa in peach orchards on April 7. (Colo. Ins. Det. Comm.). ILLINOIS - L. lineolaris adults vary 0-150 per 100 sweeps in clover and alfalfa in southwest and southeast sections. (Ill. Ins. Rpt.).

LEAFHOPPERS - DELAWARE - Aceratagallia sanguinolenta adults common on clover in Kent County. (Burbutis, Conrad). PENNSYLVANIA - Fairly abundant in all alfalfa hayfields in Franklin County. (Pepper). OKLAHOMA - Counts were 25-30 per linear foot in a wheat field in Harmon County and up to 5 per linear foot in small grain fields in panhandle area. (Hatfield, VanCleave, Wilson). MISSOURI - Sweeping and trapping results were negative for Empoasca fabae in the extreme southeast area. (Brown).

SPIDER MITES (Tetranychus spp.) - MISSOURI - Heavy in field of red clover in St. Charles County. New growth on 20-25 percent of plants killed. (Kyd, Thomas).

WIREWORMS - OREGON - Damage, probably by Ctenicera pruinina noxia, were more severe in Sherman and Gilliam Counties than in several years. In Sherman County, 50 percent of plants damaged in some fields, 20 percent destroyed. (Every).

FALSE WIREWORMS (Eleodes spp.) - IDAHO - General infestation, 5-10 larvae per square foot, in dryland winter wheat in Banida area. (Roberts).

SOYBEAN CYST NEMATODE (Heterodera glycines) - VIRGINIA - Eight additional properties found infested in Nansemond County during March. Since the initial infestations in this county, a total of 20 properties, involving 945 acres, have been confirmed as infested. (PPC, East. Reg.). In Mississippi County, ARKANSAS, 4 properties totaling 105 acres and in Gates County, NORTH CAROLINA, 1 property involving 15 acres found infested for first time during March. (PPC, So. Reg.).

FRUIT INSECTS

APHIDS - NEW YORK - Aphis pomi hatching in Ulster and Dutchess Counties. Rhopalosiphum fitchii hatching in Rockland County April 4. (N. Y. Wkly Rpt., April 14). PENNSYLVANIA - Anuraphis roseus abundant most orchards where hatching underway. (Pepper, April 13). A. pomi hatching on apple in Somerset County. (Udine). MARYLAND - Hatching about complete at Hancock, Washington County. Moderate infestation. (U. Md., Ent. Dept.). NORTH CAROLINA - Eriosoma lanigerum severe on apple in Burke County. (Speas, Farrier). Hatching on apple in Wilkes County on April 1. (Turnipseed). FLORIDA - Increasing on citrus in Lake County, abundant in Orange and Seminole Counties and heavy in Indian River district. A. gossypii and Toxoptera aurantii heavy on citrus in Volusia County. (Fla. St. Plt. Brd., Mar. Rpt.). MICHIGAN - A. pomi hatching in Berrien County at Coloma, Sodus and Watervliet, April 7. (Hutson). INDIANA - A. roseus abundant on apple in Vincennes area, April 7. (Hamilton). Will mature and produce young this week in Orleans area. (Marshall). NEW MEXICO - Eriosoma lanigerum moderately heavy 3 apple orchards along Mimbres River, Grant County. Myzus persicae heavy most peach trees throughout southern area. (N. M. Coop. Rpt.). IDAHO - M. persicae commenced hatching on backyard peach trees in Aberdeen area about April 1; 1-2 most terminal buds. (Manis).

SPIDER MITES - NEW YORK - Panonychus ulmi eggs rare in Rockland County, normal in Orleans County and numerous in Dutchess County. (N. Y. Wkly. Rpt., April 14). MASSACHUSETTS - Heavy overwintering population of eggs on apple and peach. (Crop Pest Cont. Mess.). MARYLAND - P. ulmi hatching on apple at Hancock, Washington County. (U. Md., Ent. Dept.). NORTH CAROLINA - P. ulmi hatching in Wilkes County on apple, April 6. (Turnipseed). FLORIDA - Plentiful on citrus nursery stock in Macclenny and Monticello districts, increasing in groves and citrus nurseries in Brevard County, some increase on citrus in north central Dade district and at low level in Seminole County. P. citri increasing in Thonotossassa and Lutz areas on citrus. (Fla. St. Plt. Brd., Mar. Rpt.). INDIANA - P. ulmi eggs abundant on apple in Vincennes area, April 13. (Hamilton). Eggs heavy on apple in Orleans area. (Marshall). UTAH - Hatching common in Box Elder and Utah County orchards. (Knowlton). WASHINGTON - Bryobia rubrioculus hatching on apple at Pullman, April 12. (Johansen). CALIFORNIA - P. citri moderate on citrus in Colusa, Colusa County. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - INDIANA - Moderate in apple near Vincennes. (Hamilton, April 7-13).

FLAT-HEADED APPLE TREE BORER (Chrysobothris femorata) - NORTH CAROLINA - Infestation in apple orchard in Rowan County. (Wilkins, Farrier).

HALL SCALE (Nilotaspis halli) - CALIFORNIA - Results of inspections in Johnson, Rath, Paradise and Bidwell Park areas during March were negative. The Johnson area survey was completed during March. Treatments of this area were completed in 1948-49 and complete survey inspections were made in 1953, 1956 and 1959, with no live Hall scale being found. The third and final reinspection of the Rath area was begun during March. (PPC, West. Reg.).

PLUM CURCULIO (Conotrachelus nenuphar) - ALABAMA - Heavy damage to plums in Lee County. (Grimes). DELAWARE - First of season jarred from a peach tree at Wyoming, April 9. (Late News).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - First noted on March 7 and first egg laying occurred about March 15 or 16 in Rockland County. An occasional adult seen in Niagara and Orleans Counties but no eggs as yet. (N. Y. Wkly. Rpt., April 14).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Continue heavy in Vincennes area orchards. (Hamilton, April 13). DELAWARE - Collected in Sussex County April 7, egg masses found April 8 in Kent County. (Late News). MARYLAND - Egg-laying continuing on apple at Hancock, Washington County. No hatching observed. (U. Md., Ent. Dept.). KANSAS - Egg mass found on apple tree in northeast Doniphan County. (Eshbaugh).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - CALIFORNIA - Light on apricot fruit in Contra Costa County and Mariposa plum in Vacaville, Solano County. (Cal. Coop. Rpt.).

A LEAF ROLLER (Archips rosana) - OREGON - Hatching began April 11. (Jones).

A THRIPS (Frankliniella occidentalis) - CALIFORNIA - Heavy in pear blossoms in Newcastle area, Placer County. (Cal. Coop. Rpt.).

CATFACING INSECTS - INDIANA - Three Lygus lineolaris jarred from 5 peach trees in an unsprayed orchard in Vincennes area. (Hamilton, April 13). Considerable in several orchards in the Orleans area. (Marshall). FLORIDA - Pentatomids active on citrus, south central Dade district. (Fla. St. Plt. Brd., Mar. Rpt.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - NORTH CAROLINA - First of season found in Wilkes County on April 8. (Turnipseed).

PEACH TREE BORERS - FLORIDA - Damaging peach in Monticello district. (Fla. St. Plt. Brd., Mar. Rpt.).

SCALE INSECTS - FLORIDA - Protopulvinaria pyriformis heavy on avocado in Dade and the Palm Beach districts. Chrysomphalus aonidum severe on orange in Broward district. (Fla. St. Plt. Brd., Mar. Rpt.). NEW MEXICO - Aspidiotus perniciosus light to heavy on apple in Grant and Luna Counties. (N. M. Coop. Rpt.). CALIFORNIA - Lecanium corni complex light on apricot in the San Jose area of Santa Clara County. Icerya purchasi moderate on citrus in Colusa, Colusa County. (Cal. Coop. Rpt.).

HICKORY SHUCKWORM (Laspeyresia caryana) - FLORIDA - First moths emerged in mass rearing cages on February 24. Peak emergence expected about the middle of April. (Fla. Coop. Sur.).

CASEBEARERS - FLORIDA - Acrobasis caryae, A. caryivorella and A. juglandis damaging new growth on pecan grafts in a commercial nursery in Monticello, Jefferson County. A. caryae larvae and pupae on bearing trees. (Fla. Coop. Sur.).

WHITEFLIES - FLORIDA - Increased on citrus in Ocala district and Lake and Brevard Counties. Abundant on citrus in Apopka area and heavy in Volusia County. (Fla. St. Plt. Brd., Mar. Rpt.).

MEALYBUGS - CALIFORNIA - Pseudococcus malacearum and Phenacoccus gossypii moderate on Myer lemon in Gonzales, Monterey County. (Cal. Coop. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Surveys during March, in the chemical control zone, were conducted in the states of Tamaulipas, Nuevo Leon and Sonora. A total of 144,146 trees were inspected on 2,366 properties and 480 trees were found infested on 63 properties. Infested properties were as follows: One in Sabinas Hidalgo, Nuevo Leon; 5 in Linares, Nuevo Leon; 56 in Allende, Nuevo Leon; 1 in V. de Hidalgo, Tamaulipas. The infestation in Sabinas Hidalgo was discovered March 26 on one lemon tree in a residence garden and is the nearest known infestation to the United States, being approximately 60 miles from the United States border. The last previous infestation found at this place was in January 1958. Inspections in Western Mexico and along the Texas-Mexico border were negative. (PPC, Mex. Reg.). TEXAS - Survey crews inspected 23,032 trees on 2,748 properties in Cameron, Hidalgo and Webb Counties. Most of the previously known infested properties were rechecked. All inspections were negative. (PPC, So. Reg., Mar. Rpt.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - The 106 fruit fly traps at New Orleans, LOUISIANA, 18 in Baldwin County, ALABAMA and 45 in Dimmit, Webb and Cameron Counties, TEXAS, were checked during March. Results were negative. In FLORIDA, 8,277 combination and 421 Mexican fruit fly wet traps were in operation, results being negative. (PPC, So. Reg., Mar. Rpt.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - Trapping operations were conducted in states of Baja California and Sonora during March. Total of 2,050 traps were operated on 931 properties and 8,821 trap inspections were made, with negative results. (PPC, Mex. Reg.). ARIZONA - Trapping continued in Yuma Valley and Yuma Mesa, Yuma County, and in Nogales and vicinities, Santa Cruz County. All trappings were negative. CALIFORNIA - Trapping activities continued, with negative results. (PPC, West. Reg., Mar. Rpt.). TEXAS - During March, 724 traps were operated. A total of 11 adults were trapped; 5 in Hidalgo County, 3 in Willacy County, 2 in Cameron County and 1 in Webb County. This is considered a very low population. Along with trapping, 134 grove inspections were made, no larval infestations found. (PPC, So. Reg.).

TRUCK CROP INSECTS

Second Statement of Beet Leafhopper Conditions in Utah, Western Colorado, Southern Nevada, Central Arizona and Southeastern California - 1959

Additional data have substantiated the information released CEIR 9(11):169 that spring dispersal of the beet leafhopper from the southern desert breeding grounds to the cultivated districts of southern Nevada and southern Utah will be light to moderate. The movements to central and northern Utah and western Colorado will be light. The population in western Nevada is expected to be light. This movement is expected to start by late April and will probably reach its peak by May 20. The shift in population to the cultivated districts of southeastern California and southern Arizona from adjacent desert areas, started in March, was light and probably will continue until mid-April. The dispersal of leafhoppers to the adjacent cultivated districts of southern Nevada and southern Utah started in mid-March; additional movements are expected in April and the population is expected to be light to moderate. The local movement from breeding grounds of western Nevada, northern and eastern Utah, and western Colorado to the adjacent sugar beet and tomato districts is expected to start in early June and to be light. Approximately 3 percent of the overwintering leafhoppers collected from southern Utah, southern Nevada, and northwestern Arizona in February were carrying the curly top virus. Additional leafhoppers of the first and second broods collected in March in southwestern Arizona, southern Nevada, and southern Utah show about 5 percent to be viruliferous. In the northern breeding grounds of Utah, approximately 2 percent are viruliferous and this is lower than that recorded for 1957. The local breeding grounds in northern and eastern Utah, western Colorado, and western Nevada include a potential acreage estimated at 75 square miles. The unit overwintering leafhopper population is 0.002 per square foot and is lower than that observed in 1958. The host plant acreage is lower than in 1958. The leafhopper contribution from the southern breeding grounds to the overwintering population is expected to be light. The beet leafhopper movements to adjacent cultivated districts are expected to be light. (Dorst, Knowlton).

Beet Leafhopper Survey in Southwestern Kansas - 1959.

A survey was carried out April 1-3. Host plants involved were pepperweed, tansy mustard, flixweed and patata which were sparse and in fair condition. Nine counties in the southwestern area were surveyed with 22 stops, 156 samples being taken. One questionable nymph and one adult were found. (PPC).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - GEORGIA - Light on tomatoes in Colquitt, Mitchell, Thomas and Tattnall Counties. (Johnson). NORTH CAROLINA - Severe on potatoes in Duplin County this year. (Reid).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - CALIFORNIA - Caused considerable damage to tomato seedlings in Woodland area, Yolo County. (M. Zobel).

POTATO PSYLLID (Paratrioza cockerelli) - UTAH - None taken in 10 sweeps in Salt Lake-Murray area. (Knowlton).

GOLDEN NEMATODE (Heterodera rostochiensis) - UTAH-NEVADA - A total of 579 soil samples from Utah and 133 from Nevada were washed and examined. The Nevada samples represented 1,233 acres of potatoes and the Utah samples represented 6,298 acres. All nematode specimens were submitted for identification. NEW MEXICO - Grader soil samples from 10 properties were examined. No golden nematodes were found. (PPC, West. Reg., Mar. Rpt.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - NORTH CAROLINA - Abundant on cucumber this spring in Duplin County. (Reid).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - GEORGIA - Moderate to heavy on cantaloups in Dooly County. (Fulford).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Light to moderate infestations on beans in Colquitt, Mitchell, Thomas, Brooks, Lowndes and Tattnall Counties. (Johnson). NORTH CAROLINA - Severe on beans in Duplin County. (Reid).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Very common on beans in Henry County. (Grimes). Light damage on beans in Lee County. (Guyton). GEORGIA - Light to moderate on beans in Colquitt, Mitchell, Thomas, Brooks, Lowndes and Tattnall Counties. (Johnson).

FLEA BEETLES - MARYLAND - Phyllotreta striolata adults common on wild mustard in Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Some damage to newly set tomatoes in truck cropping area of Accomack and Northampton Counties. (Hofmaster). Killing mustard plants on emergence from ground in gardens in Staunton. Also damaging other cruciferous plants in area. (Woodside).

A NITIDULID (Meligethes nigrescens) - OREGON - Emerged from overwintering habitats April 3. Abundant in blossoms of wild mustard and other spring blooming plants. (Crowell, Dickason).

CABBAGE MAGGOT (Hylemya brassicae) - NEW JERSEY - Observed in crucifer fields April 13, at Hammonton. (Ins. Dis. Newsl.).

CABBAGE CURCULIO (Ceutorhynchus rapae) - VIRGINIA - Some damage to cabbage in truck cropping area of Accomack and Northampton Counties. (Hofmaster).

IMPORTED CABBAGEWORM (Pieris rapae) - PENNSYLVANIA - Adults general in Franklin County. (Udine).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - NEW MEXICO - Light infestations damaging lettuce in Animas Valley, Hidalgo County. (N. M. Coop. Rpt.).

TOMATO FRUITWORM (Heliothis zea) - NEW MEXICO - Occasional eggs found in lettuce in Dona Ana County. (N. M. Coop. Rpt.).

ONION MAGGOT (Hylemya antiqua) - WASHINGTON - First of spring brood emerging at Walla Walla, April 7. (Woodworth).

SEED-CORN MAGGOT (Hylemya cilicrura) - WASHINGTON - Fall brood continued all winter at Walla Walla. First spring brood here March 10-24 and at Pasco, March 24-26. (Woodworth).

STRAWBERRY WEEVIL (Anthonomous signatus) - NORTH CAROLINA - A number of plantings injured this year in Duplin County. (Reid).

SPITTLEBUGS - NEW JERSEY - Nymphs appearing in small numbers on strawberries. (Ins. Dis. Newsl., April 14).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - KANSAS - A few strawberry leaves being rolled in northeast Doniphan County. (Eshbaugh).

SPIDER MITES - NEW JERSEY - Tetranychus telarius general on strawberry throughout south Jersey. (Ins. Dis. Newsl., April 14). DELAWARE - T. atlanticus and T. telarius in all stages in small strawberry plantings in Sussex County. (Burbutis, Conrad).

CUTWORMS - NEW JERSEY - Probably Peridroma margaritosa appearing in mulched strawberry fields. (Ins. Dis. Newsl., April 14). VIRGINIA - Feltia sp. damaging early tomato plants in Nansemond County. (Boush, Morris).

APHIDS - NEW JERSEY - Capitophorus sp. light on strawberry where heavy last fall. (Ins. Dis. Newsl., April 14). FLORIDA - Active on early tomatoes, squash and cucumbers in south central Dade district. (Fla. St. Plt. Brd., Mar. Rpt.).

ARIZONA - Anuraphis tulipae continuing heavy some Maricopa County carrot fields. (Ariz. Coop. Sur.). DELAWARE - Aphis forbesi present in small strawberry plantings in Sussex County. (Burbutis, Conrad).

THRIPS -ARIZONA - Frankliniella tritici heavy on cantaloup in Yuma Valley. (Ariz. Coop. Sur.). NEW MEXICO - Light on onions, southern Dona Ana County, and causing minor damage to young lettuce in Hidalgo County. (N. M. Coop. Rpt.). CALIFORNIA - F. occidentalis heavy locally on beans at Encanto, San Diego County. (Cal. Coop. Rpt.).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - OREGON - Less than 5 percent have pupated in Siletz and Gresham areas. (Rosenstiel, April 11).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - Four infestations were found in 3 counties during March. A total of 1,228 properties in 15 counties and parishes were released from quarantine, 1,210 properties being in LOUISIANA. This leaves only 651 active properties in LOUISIANA, indicating that the infestation at present time is very low and will probably be unusually low during coming season. (PPC, So. Reg., Mar. Rpt.).

TOBACCO INSECTS

TOBACCO BUDWORM (Heliothis sp.) - GEORGIA - Light on tobacco in 6 southern counties. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Emerging from hibernation at Aquasco, Prince Georges County, April 16. (U. Md., Ent. Dept.). VIRGINIA - Generally light to date in tobacco plant beds in Pittsylvania County. (Dominick). GEORGIA - Moderate on tobacco in the field in 13 southern counties. (Johnson).

GREEN JUNE BEETLE (Cotinis nitida) - VIRGINIA - Moderate in several tobacco plant beds in Pittsylvania County. (Dominick).

COTTON INSECTS

Boll Weevil Survival Surveys in Tennessee and Arkansas - Spring, 1959

TENNESSEE - Spring trash examinations in McNairy County showed average of 124 live weevils per acre compared with 498 in 1958 and the survival was 10 percent, compared with 21 percent in 1958. The number of weevils per acre is relatively low this spring, but enough are present to cause some damage if the weather becomes favorable for a buildup. (Locke). ARKANSAS - Trash examinations in 2 locations at Marianna showed an average of 378.5 live weevils per acre compared with 532.5 weevils per acre that entered hibernation at these locations during the fall of 1958. Winter survival was 71 percent which is very high. (Lincoln, Apr. 11).

PINK BOLLWORM (Pectinophora gossypiella) - MEXICO - In Western Mexico bloom inspection was terminated at Culiacan, Sinaloa, and begun in Guasave zone. No pink bollworm was found. In Eastern Mexico, a total of 507 live pink bollworm larvae were found from debris inspections in 91 locations representing 11,770 acres in 19 municipios in the regulated area. (PPC, Mex. Reg., Mar. Rpt.). TEXAS - Boll inspection of surface debris conducted in 57 counties. Average infestation was 11.20 percent. (PPC, So. Reg.). ARIZONA - Emergence still occurring in cage tests at the Cotton Research Center at Tempe. (Ariz. Coop.Sur.)

THRIPS (Frankliniella sp.) - GEORGIA - Light on cotton in Colquitt, Mitchell and Bulloch Counties. (Johnson).

COWPEA APHID (Aphis medicaginis) - NEW MEXICO - Occasional winged adult found on seedling cotton in southern Dona Ana County. (N. M. Coop. Rpt.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Light on seedling cotton in the Yuma Valley. (Ariz. Coop. Sur.).

Cotton Insects in Lower Rio Grande Valley, Texas:

Previous to rains, SPIDER MITES had shown a significant increase and spread. CUTWORMS and DARKLING BEETLES continue to be reported from much of the Valley area. Two fields in Willacy County had infestations of FALSE CHINCH BUGS killing seedling cotton. Recent weather has been ideal for APHID buildup. (Deer).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE TIP MOTHS - VIRGINIA - Infesting 84 percent of loblolly pines on 2-acre area in Surry County. (Va. For. Pest Sur. Rpt., March). MARYLAND - Rhyacionia frustrana emerged on pine at Harmons Corner, Anne Arundel County. (U. Md., Ent. Dept.).

A CONE MOTH (Barbara colfaxiana) - IDAHO - Adults emerged from caged Douglas-fir cones April 14 in Moscow. (Clark).

BARK BEETLES - ALABAMA - Moderate numbers of Ips spp. found in pine forests in Lee County. (Pearson). TEXAS - Controls applied to a 200-acre infested area near Fostoria, Montgomery County. Two known spots of Dendroctonus frontalis infestation in Hardin County controlled by owners. (Young). CALIFORNIA - Ips confusus causing complete killing of groups of ponderosa pine reproduction and poles in Willits area, Mendocino County. (Lowell). Ips sp. and Dendroctonus brevicomis active and killing overmature ponderosa pines prior to severe weather in forest areas of Baltic Peak and Peavine Ridge Road, El Dorado County. (V. Johnson).

PALES WEEVIL (Hylobius pales) - VIRGINIA - Damaged 50 acres loblolly and Virginia pine seedlings in Spotsylvania County. Mortality high. (Va. For. Pest Sur. Rpt., March).

PINE PITCH MIDGES (Retinodiplosis spp.) - ALABAMA - R. resinicola common on young and old pines and large numbers of Retinodiplosis sp. attacking twigs of pines in Lee County. (Guyton, Pearson).

PINE SAWFLIES - VIRGINIA - Neodiprion pratti pratti larvae hatching in all parts of State. Infestations about as expected and predicted. (Morris). See CEIR 9(14) : 237. NORTH CAROLINA - N. pratti pratti half-grown larvae on pines at Bullock, Granville County. Development less advanced from east to west across Person County. Western edge of infestation extends into Caswell County. (Green). ARKANSAS - Have made little progress to date in south central area. (Ark. Ins. Sur., April 11). TEXAS - Approximately 90 percent of overwintering cocoons in infested area of Hardin County parasitized, destroyed or removed by predators. Controls unnecessary in immediate future although some larvae feeding on loblolly needles. (Young).

ALDER FLEA BEETLE (Altica ambiens) - IDAHO - Adults becoming active in Coeur d'Alene area where this species was extremely abundant in 1958 and severe defoliation of alder and willow occurred. (Stranahan).

LOCUST TWIG BORER (Ecdytolopha insiticiana) - ALABAMA - Caused moderate to heavy damage to locust in Lee County. (Pearson).

SPRING CANKERWORM (Palecrita vernata) - NEBRASKA - Large numbers of female moths in tree bands in local eastern and central areas. (Roselle). WISCONSIN - Males being caught in light traps immediately following blossoming of silver maple in Dane County. (Wis. Coop. Sur.).

GALL INSECTS - TEXAS - Causing concern on oak trees in Travis, Gonzales and Tarrant Counties. (Texas Coop. Rpt.).

TENT CATERPILLARS (Malacosoma spp.) - PENNSYLVANIA - M. americanum hatching on wild cherry and forming tents in Somerset County. (Drooz, Udine). Tents observed in Franklin County. (Pepper). M. disstria eggs quite abundant on sugar maple in Somerset County. Some groves of smaller trees may be defoliated again this year. (Udine). MARYLAND - M. americanum general in central and

southern sections. (U. Md., Ent. Dept.). ALABAMA - M. americanum continued to increase in several sections of State and were reported defoliating roses in Monroeville, Monroe County. (Grimes). FLORIDA - M. americanum plentiful and unusually early on persimmon, pecan and wild cherry in Marianna district. (Fla. St. Plt. Brd., Mar. Rpt.). LOUISIANA - Occasional infestation of M. disstria on oaks in East Baton Rouge Parish. (Spink). UTAH - Hatching in Salt Lakt City. (Knowlton). OREGON - Overwintering eggs of M. disstria began hatching in Willamette Valley April 11. (Goeden).

SCALE INSECTS - NORTH CAROLINA - Eriococcus azaleae severe on azaleas in Richmond County. (Jones, Farrier). Lecanium quercifex averaged 6 per inch of twig on oak in Nash County. (Woodward, Farrier). ALABAMA - Toumeyella numismaticum and T. parvicorne common on young pines and on pine needles, respectively, and Phenacaspis pinifoliae moderate on young pines in Lee County. Large numbers of L. quercifex present on oaks in same county. (Pearson). FLORIDA - P. pinifoliae on pines in the De Land area, Volusia County. Pulvinaria psidii moderate to heavy on Ixora coccinea in Dade County. (Fla. St. Plt. Brd., Mar. Rpt.). IDAHO - Lepidosaphes ulmi heavy on ash trees in Twin Falls area. (Gibson).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - MARYLAND - Heavy on boxwood at Severna Park, Anne Arundel County. (U. Md., Ent. Dept.).

HOLLY LEAF MINER (Phytomyza ilicis) - OREGON - Present in Clatsop County, but heavy infestations remain within Astoria city limits. Species spreading slowly but not yet known in commercial plantings. (Foster).

A WHITEFLY (Odontaleyrodes rhododendri) - FLORIDA - Collected on azalea in Leesburg, Lake County, January 20. Det. L. M. Russell. This is the first collection of this species from Florida. (Fla. Coop. Sur.).

SPIDER MITES - VIRGINIA - Probably Tetranychus telarius building up on arborvitae in Radford, Montgomery County (Rowell), and an unidentified species is very heavy on hollies in Franklin, Southampton County (Bousch).

A CLEAR WING MOTH (Conopia albicornis) - CALIFORNIA - Heavy and damaging on willow along the Sacramento River in Sacramento County. (Cal. Coop. Rpt.).

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) - WISCONSIN - Adults leaving hibernation in Waukesha County. (Wis. Coop. Sur.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - DELAWARE - First large brood of Aedes sollicitans of season developing on eastern shore of Kent County. (Burbutis, Conrad). MARYLAND - High adult Aedes cantator population expected at North Beach, Calvert County, where larvae averaged 40 per dip in a marsh area. Pupation underway. (U. Md., Ent. Dept.). NORTH CAROLINA - Small larvae of Anopheles punctipennis and egg raft of Culex restuans collected April 1 in Wake County. (Ashton). FLORIDA - Plentiful in the Ocala, Macclenny and Marianna areas. Reported as abundant in the Forest City area of Orange County, and populations increased in Brevard County, as well as throughout Volusia County. Populations decreased in the Indian River area and numbers were low in the Palm Beach and Coral Gables areas and central Dade County, but heavy in the Hollywood-Ft. Lauderdale area and in Key Largo. Populations increased in Pinellas and Hillsborough Counties. (Fla. St. Plt. Brd., March Rpt.). UTAH - Anopheles freeborni active in Cache County for past 14 days. (Knowlton). NEVADA - Aedes dorsalis adults emerged in Soda Lake area, Churchill County. Aedes campestris pupae and Anopheles freeborni early-instar larvae present in Dayton, Lyon County. Culex erythrothorax population about 20 percent pupae in Fernley area, Lyon County, and Fallon area, Churchill County. Aedes increpitus larvae in fourth instar in mountain areas. (Chapman, April 10).

CATTLE GRUBS (Hypoderma spp.) - TEXAS - Adult activity observed in west cross timbers area April 1. (Turney, Garner, Hawkins).

HORN FLY (Siphona irritans) - SOUTH CAROLINA - First adults of season noted April 9 in Oconee County. (Nettles et al).

BLOW FLIES - WISCONSIN - Large numbers of maggots found in vicinity of Dane County mink farms indicate heavy early potential fly problem in these areas. (Wis. Coop. Sur.). NEW MEXICO - Phormia regina adults numerous around livestock corrals near Ft. Sumner, De Baca County. (N. M. Coop. Rpt.).

AMERICAN DOG TICK (Dermacentor variabilis) - DELAWARE - First specimens of season collected from a dog in New Castle County. (Burbutis, Conrad). VIRGINIA - Seed ticks, probably D. variabilis, numerous in vicinity of Holland, Nansemond County. (Boush).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - MEXICO - During March, surveys were conducted in states of Baja California, Sonora, Jalisco, Michoacan, Mexico, Chihuahua and Durango. A total of 402 inspections were made, 274 initial and 128 repeat. One positive determination was received during March of a property in Juarez, Chihuahua. The property involves 115,008 cubic feet and is the first infested property found in the state of Chihuahua and in Eastern Mexico. (PPC, Mex. Reg., Mar. Rpt.). During March, inspections were made in the Eastern Plant Pest Control Region as follows: WEST VIRGINIA - 7; PENNSYLVANIA - 19; CONNECTICUT - 1; NEW JERSEY - 214 (total figure for 1959 survey), NEW YORK - 23. (PPC, East. Reg.). One new infestation found in Maricopa County, ARIZONA. Negative inspections were made in OREGON and COLORADO. (PPC, West. Reg., Mar.Rpt.). TEXAS - Infested properties totaled 16 in El Paso County as of March 31, involving some 2 1/2 million cubic feet. Total inspections in State totaled 490 during March. Eleven properties in ALABAMA and one in MISSISSIPPI were inspected, with negative results. (PPC, So. Reg., Mar. Rpt.).

Insects in Feed Rooms, Lee County, Alabama

Hermetia illucens larvae and Pyralis farinalis both moderate in feed rooms. Larvae, pupae and adults of Tenebrio obscurus collected, few T. molitor present. (Guyton).

BENEFICIAL INSECTS

PARASITES AND PREDATORS - MARYLAND - Coccinellids and chrysopids abundant in alfalfa fields in Calvert County. (U. Md., Ent. Dept.). SOUTH CAROLINA - Coccinellid adults and larvae appear to be building up in alfalfa. Principal adults are Coleomegilla maculata. (Nettles et al). KANSAS - Hippodamia convergens counts generally low; however, larvae averaged 2-3 per foot in a barley field infested with greenbug in Sumner County. Low numbers of Chrysopa sp. and Nabis sp. adults found in a few southern area grain and alfalfa fields. (Peters). OKLAHOMA - Parasitic wasps ranged up to one per linear foot in small grain fields with 5 percent of an aphid population "mummified" in one isolated field in the panhandle area. Counts were lower in most fields. (VanCleave, Wilson). Averaged 0.5 per sweep in a Kingfisher County alfalfa field. (Frazier, Pela). Hippodamia convergens common and

active in small grain and alfalfa fields in panhandle area. (VanCleave, Wilson). Averaged 4-8 per square foot of crown area in an alfalfa field and 5-7 per linear foot in a wheat field, Harmon County. (Hatfield). Heavy in one Caddo County wheat field. (Hudson). Nabis sp. ranged up to 0.5 per linear foot in panhandle area small grain and alfalfa fields, with an occasional Chrysopa sp. adult found in same area and in alfalfa and wheat fields in Harmon County. (VanCleave, Wilson, Hatfield). UTAH - Hippodamia convergens general but not numerous in northern and central areas in orchards and alfalfa fields. (Knowlton).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ARKANSAS - Few scattered mounds continue to be found in Union County, the only known infested county in the State. Only few mounds have been found in 1957 and 1958-treated areas. Individual mounds are being treated. (Ark. Ins. Sur., April 11). Four counties found infested for the first time during March were Stewart and Terrell Counties, GEORGIA; Polk County, FLORIDA, and Dorchester County, SOUTH CAROLINA. Treatments of infested lands increased to total of 128,087 acres during March. (PPC, So. Reg., Mar. Rpt.).

POWDER POST BEETLES (Lyctus spp.) - NEBRASKA - Damage to hardwoods used in buildings more numerous than previous years. Majority of infestations in oak from out of the State. (Roselle).

A MARCH FLY (Bibio sp.) - MISSOURI - Heavy emergence occurred in south central and central areas. Adult populations numerous enough to be considered a nuisance around homes and buildings in some instances. (Kyd, Thomas, Munson).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - WYOMING - Damaged at least 2 houses, 35-40 years old, in Riverton, Fremont County. Support studdings had been placed on soil and many are completely hallowed out. (Davison). IDAHO - Winged males and females of R. hesperus emerged in Gooding area. (Koester).

EARWIGS - CALIFORNIA - Labidura riparia and Euborellia cincticollis occurred associated with decaying wood in Needles area, San Bernardino County. Both species have extended their range in past few years. In 1958, L. riparia was active in Imperial County cultivated fields, feeding on cutworms. (Cal. Coop. Rpt.). IDAHO - Forficula auricularia adults active and abundant in Twin Falls and Moscow areas. (Gibson, Manis).

A COCKROACH (Blattella vaga) - CALIFORNIA - Light populations in decaying wood in Needles area, San Bernardino County. (Cal. Coop. Rpt.).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Feltia. subt.	Protop. quinq.	Helio. zea
ALABAMA							
Auburn 4/17	9						1
ARIZONA							
Mesa 4/8-14			6	21			62
FLORIDA							
Gainesville 4/16			1		4		
Quincy 4/13		1			2		
ILLINOIS							
Urbana 4/1-16	3	1		9			
KANSAS							
Garden City 4/8		6		1			
Hays 4/14		1					
Manhattan 4/17				2			
Wathena 4/13-15	2	2					
LOUISIANA							
Baton Rouge 4/10-16	13	25	2	3	14		5
Curtis 4/15	3	4			1		4
Franklin 4/10-16	6	6	20	3	6		5
MARYLAND							
Fairland 3/31-4/13	6	2		5			
MISSISSIPPI							
*Stoneville 4/11-17	139	6	8	35			2
MISSOURI							
Columbia 4/15-17	8	3		7			
NEBRASKA							
North Platte 4/3-13		8					
NORTH CAROLINA							
Clayton 4/16	2						
Faison 4/9	1	1					
SOUTH CAROLINA							
Charleston 4/13-19	14	5		2	7		3
Clemson 4/11-17	20	15	14	3	3		1
TENNESSEE (Counties)							
Blount 4/7-13	82	16	29	83			1
Cumberland 4/7-13	9	3	3	12			
Greene 4/7-13	35	3	5	10			
Johnson 4/7-13	82	11	4	15			
Madison 4/7-13	69	15		18			
Maury 4/7-13	104	1		25			
Monroe 4/7-13	52			7		1	
Robertson 4/7-13	36	1	1	7			
TEXAS							
Brownsville 4/4-10	32	119	8	3	54		19
Waco 4/11-17	35	1	1	15	9		2
WISCONSIN							
Middleton 4/10-15				1			

*Four traps - Stoneville

Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1958

Compiled by Survey and Detection Operations, PPC, ARS

The loss of corn grown for grain from damage attributed to the European corn borer (Pyrausta nubilalis) in 1958 is estimated to be 100,699,000 bushels. This loss is approximately 2.9 percent of the total national crop estimated at 3,441,627,000 bushels.1/ The value of the crop lost, based on the December price level 2/, is $98,434,000. These loss estimates are only for the states shown in Table 1.

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 corn borer populations during the fall of 1958.3/ 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 ten years are as follows:

1958	100,699,000	bushels	$ 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, 1958 Annual Summary Crop Reporting Board, Agricultural Marketing Service, December 17, 1958.

2/ Agricultural Prices as of December 15, Crop Reporting Board, Agricultural Marketing Service, December 31, 1958.

3/ Status of the European Corn Borer in 1958. Cooperative Economic Insect Report. Vol. 9, No. 5, pp. 53-62.

Table 1. Estimates of Damage by the European Corn Borer to Corn Grown for Grain in the United States in 1958.

State	Districts Included 1/	Total State Production	Estimated Data			
			Value per Bushel	Value of Production	Loss of Crop	
	Number	1,000 Bu.	Dollars	$1,000	1,000 Bu.	$1,000
Delaware	1	8,190	1.25	10,237	706	883
Illinois	9	579,738	1.04	602,928	13,163	13,690
Indiana	12	267,687	1.05	281,071	3,481	3,655
Iowa	12	645,830	.97	626,455	41,908	40,651
Kansas	4	66,528	.97	64,532	2,350	2,282
Maryland	1	24,552	1.24	30,444	808	1,001
Michigan	3	88,102	1.04	91,626	95	99
Minnesota	6	268,408	.89	238,883	1,675	1,490
Missouri	8	171,696	1.03	176,847	5,091	5,244
Nebraska	8	274,092	.91	249,424	23,102	21,023
New Jersey	1	7,684	1.25	9,605	367	459
New York	1	11,236	1.24	13,933	19	23
North Dakota	3	9,870	.82	8,093	516	423
Ohio	5	190,020	1.03	195,720	2,483	2,557
Pennsylvania	7	66,397	1.20	79,676	1,096	1,316
South Dakota	6	91,644	.90	82,480	2,682	2,414
Vermont	1	52	1.50	78	Trace	
Virginia	2	35,298	1.27	44,828	696	884
West Virginia	1	7,150	1.33	9,509	54	72
Wisconsin	9	83,450	1.06	88,457	377	268
Total		2,897,624		2,904,826	100,699	98,434

1/ Status of the European Corn Borer in 1958. Cooperative Economic Insect Report. Vol. 9, No. 5, pp. 53-62.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

ORANGE SPINY WHITEFLY (Aleurocanthus spiniferus (Quaintance))

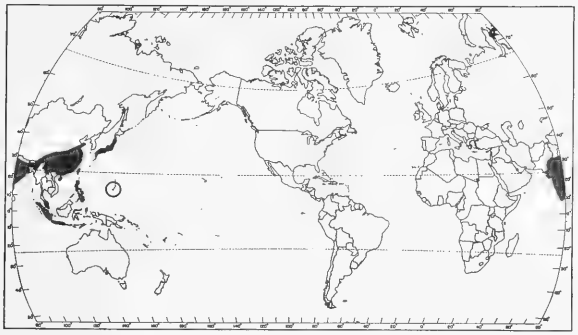
Economic Importance: This species has been called the most destructive aleyrodid attacking citrus in tropical Asia. It has been rated as the seventh most important citrus insect in Japan. An outbreak in the Kyushu area of that country was devastating until it was brought under control in the early 1920's by the parasite Prospaltella smithi. In recent years A. spiniferus became the most serious pest on the Island of Guam, but by 1953 introduced parasites had effectively controlled the outbreak. Trees heavily infested with this whitefly lose vitality and continued heavy infestation eventually leads to tree mortality. Injury occurs through feeding on the foliage and through formation of sooty mold which develops on the honeydew.

Infestation on Citrus Leaf by A. spiniferus

Hosts: Citrus, rose, persimmon, grape, pear, Akebia sp., balmtree.

Distribution: Philippine Islands, China, India, Japan, Formosa, Indonesia (Sumatra, Java), Malaya and Guam.

Life History and Habits: Eggs are laid in spirals on lower surface of leaves, usually twelve or thirteen in a mass. Eggs are pale-yellow at first, then gradually darken. Incubation varies, depending on temperature, and averages 22 days in May; 7 in July. There are four immature instars. There are four broods a year at

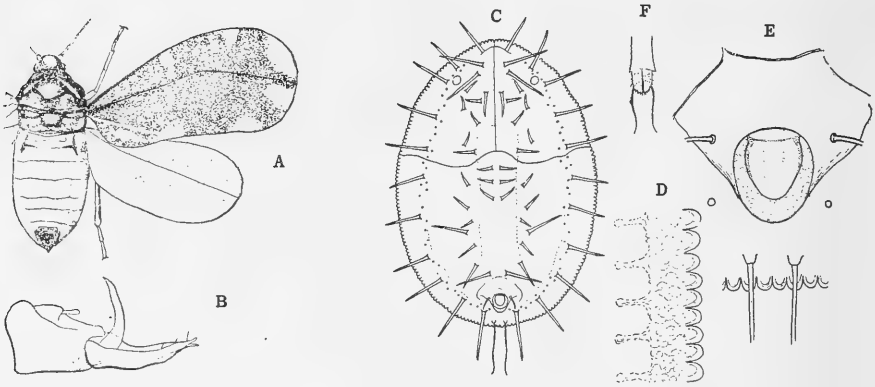


General Distribution of Aleurocanthus spiniferus

Nagasaki, Japan. The insect passes the winter in the third larval stage, reaching the pupal stage about the middle of March. Adults emerge from middle to the end of April. Adults of the second brood emerge the latter part of June, the third brood the first part of August and the fourth during the latter part of September. Adults are active on fine days but quiet during cloudy or rainy weather. They prefer new leaves and may be found on the underside of these.

Description: Female pupa is about 1.23 mm. long by 0.88 mm. wide, male pupa smaller than female. Black, convex, oval in outline, dorsum arched and median area prominent especially at the vasiform orifice. Vasiform orifice is elevated, subcordate, tending to circular and is almost entirely filled by the operculum. There is a submarginal even row of 22 spines averaging 0.22 mm. in length and extending beyond margin, a subdorsal row of shorter spines, and a submedian row of still shorter ones. Caudal margin with pair of setae and another pair is situated near cephalic margin of basiform orifice. Margin is strongly dentate. Dorsum without secretion but with a compact, short cottony fringe all around margin. Egg has short stalk holding egg upright on leaf. Exclusive of stalk egg 0.2 mm. by 0.1 mm., yellowish, curved and marked with minute polygonal areas. Larva is regularly elliptical, appearing brownish to black on leaf, with short cottony fringe of wax all around. Size, in second stage, about 0.4 by 0.3 mm. Adult is orange-yellow shaded with brownish-purple and sprinkled with white waxy powder. Female is about 1.35 mm. long.

The pupae of spiniferus differ from those of A. woglumi (citrus blackfly) in having narrower marginal teeth, and in the number, size and arrangement of the dorsal spines. The adults differ in the color pattern of the wings. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 9(17):4-24-59.



Figures of Aleurocanthus spiniferus
A - Adult female; B - Male genitalia; C - Pupa case (dorsal view); D - Margin of pupa case; E - Vasiform orifice with caudal margin; F - Lingula

Figures (except map) from Kuwana, I. 1928. II. Aleyrodidae or White Flies Attacking Citrus Plants in Japan. Japan Ministry of Agr. and Forest., Dept. Agr. Sci. Bul. 1:41-78.

VOL. 9 NO. 18 MAY 1, 1959

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.

Volume 9 May 1, 1959 Number 18

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GREENBUG populations increased rapidly in southwestern Missouri, light to very severe in Texas Panhandle, but decreasing generally in Oklahoma. Some treatments continue in northwestern and panhandle areas of Oklahoma where populations vary greatly. CORN LEAF APHID damaging small grains in Utah and New Mexico and sorghum in Arizona and Texas. (p. 325). EUROPEAN CORN BORER pupation 20-80 percent complete in Delaware and Maryland. Oviposition in North Carolina. (pp. 326,333). ARMYWORM moth catches high on Eastern Shore of Virginia. GRASSHOPPER eggs hatching in Utah and early instar nymphs present in southwestern Oklahoma, Texas Panhandle and New Mexico. (p. 326).

PEA APHID populations damaging legumes in areas of several states across the country. (pp. 327,330). SPOTTED ALFALFA APHID continues to damage alfalfa in areas of New Mexico, Arizona and Oklahoma, some damage occurring in southern Utah. (p. 329). ALFALFA WEEVIL larvae damaging alfalfa in Maryland, Virginia and Delaware and adults active in Idaho and Wyoming. (pp. 328,330). MEADOW SPITTLEBUG spray operations underway at Wooster, Ohio. (pp. 329,330).

APHIDS and SPIDER MITES becoming noticeable and causing some damage to apple trees in several areas. (p. 331). RED-BANDED LEAF ROLLER moths abundant in areas of Pennsylvania and New Jersey. Egg masses noted. (p. 331).

BEET LEAFHOPPER survey in eastern Washington. (p. 333).

ROCKY MOUNTAIN WOOD TICK extremely heavy on sheep in Idaho and SHEEP KED moderate to severe on sheep in areas of New Mexico and Utah. (p. 337).

Some First Reported Records of the Season: ALFALFA WEEVIL larvae noted in Massachusetts and New York. VETCH BRUCHID emerged from hibernation in Oregon. Xylena thoracica trapped April 12-13 at Palmer, Alaska. ROSY APPLE APHID hatched in Massachusetts and New York. EUROPEAN RED MITE hatching in several areas. ORIENTAL FRUIT MOTH eggs hatching in Illinois. STRAWBERRY LEAF ROLLER observed in New Jersey. NANTUCKET PINE MOTH emerging in Virginia.

INSECT DETECTION: Alfalfa weevil reported for first time in Forsyth County, Georgia. (p. 328). Spotted cutworm collected for first time in Florida. (p. 334). An undescribed Phytomyza reported on holly in Delaware. (p. 336).

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Reports in this issue are for the week ending April 24, unless otherwise indicated.

WEATHER OF THE WEEK ENDING APRIL 27

The week was unseasonably cold from the upper Great Lakes and northern Great Plains southeastward to the Gulf and South Atlantic States, and above-normal temperatures prevailed over the Northeast and from the Rocky Mountain States to the Pacific Coast. Precipitation was heaviest over the Eastern Gulf States and portions of the Atlantic Coastal states early in the week. Light to moderate amounts were reported over most sections from the upper Great Plains eastward to New England later in the week. West of the Rockies amounts were generally light, but widespread rains and showers spread eastward from the Pacific across the mountains to Montana, Utah and Arizona as the week ended. Cold air covered the northern two-thirds of the Nation early in the week, with freezing temperatures extending from Nevada and Colorado to the central Great Lakes on the morning of the 20th. As the cold front pushed southeastward, thundershowers with locally heavy rains and some hail broke out from Texas eastward across the Southern States. Heavy hail and strong gusty winds were reported in Alabama and South Carolina. In Florida, Lakeland reported one inch of rain in 8 minutes on the 21st. By the 22nd cooler dry air covered most of the Nation, with sunshine and agreeable temperatures the most prominent features. Subfreezing temperatures extended into the Texas Panhandle and across a relatively narrow belt from Nevada eastward to the lower Great Lakes and to New England. At midweek, temperatures from the Mississippi Valley eastward showed wide diurnal variations, with morning minima in the 30's and 40's and afternoon maxima from the mid 60's to above 70° as the clear air permitted nighttime radiational cooling followed by days of bright sunshine. The 38° reading at Jackson, Mississippi, on the 23rd was the lowest so late in the season there.

Another cold Canadian air mass moved into the northern Great Plains on the 22nd and pushed southward and eastward to northern Texas, Missouri, the lower Great Lakes and Middle Atlantic States by Sunday, the 26th. This cold air was accompanied by showers and thunderstorms as it moved southeastward. Moderate to heavy rain fell over the Midwest and Ohio Valley on the 26th and 27th, with some amounts of over 2 inches. Warm dry air covered the southern Great Plains early and late in the week. Childress and Presidio, Texas, reached 102° and Altus, Oklahoma, 100° on the 25th. Lubbock, Texas, recorded 96° on the same day, the warmest so early in the season there. Warm temperatures prevailed throughout the week in the far Southwest. A low-pressure area entered the Pacific States on the 25th, and brought general light to locally heavy rains over parts of California, and light showers and strong winds over the Mountain States during the weekend. Snow flurries and showers persisted throughout the week in the northern Rockies but amounts were generally below 1/2 inch. Soil moisture remains short over most of the Southwest from western Texas through most of New Mexico, southwestern Colorado, Utah, Idaho and Arizona. Ranges are drying up in Nevada and Arizona. Conditions are serious in parts of southern and central California and prospects for irrigation water are poor in Nevada. In the upper Mississippi Valley and Northern Great Plains, many dry spots also remain from northwestern Wisconsin, northwestern Iowa, into areas of northern Nebraska and northeastern Montana. Topsoil moisture has improved locally in the Dakotas, but is still short in many places. General rains are still needed throughout the entire area for good grass and grain development. (Summary Supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Populations in small grain in southern Ellis, Roger Mills, Beckham, Harmon, Tillman, Jackson, Kiowa, Washita and southern Custer Counties less than one per linear foot. Treated fields in eastern Tillman County recovered from damage encountered during late February and early March. (VanCleave, Robinson, Hudson). Populations vary greatly in northwestern and panhandle areas. Counts up to 100 per linear foot. Some spraying being done. (Owens). COLORADO - Present in Baca County. (Ext. Serv.). ARKANSAS - Infestations generally very low. (Ark. Ins. Rpt., Apr. 18). TEXAS - Infestations light to 3000-4000 per linear foot in Hansford, Sherman, Ochiltree, Lipscomb and Deaf Smith Counties. Predators building up. (Daniels). KANSAS - Winged forms collected in traps in Finney County, April 16. (DePew). MISSOURI - Populations increased rapidly in southwest area. Counts 2-150 per linear foot in wheat and 20-300 in barley. Damage not evident due to stage of growth. Heavy infestations in scattered orchardgrass fields in Lawrence and Greene Counties; some portions of stands killed. Controls underway in orchardgrass in more heavily infested counties. Parasite and predator counts very low to nonexistant most fields in southwest area. (Kyd, Thomas, Munson). Winged adults average 1 per sweep in wheat in central area. (Peters).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Common most small grain fields in southwestern and west central areas. Populations up to 150 per linear foot some fields, 10-50 in most fields. (VanCleave, Robinson, Hudson). COLORADO - Present in Baca County. (Ext. Serv.). UTAH - Abundant in barley, Santa Clara, Washington County. (Knowlton).

DATE MITE (Oligonychus pratensis) - KANSAS - Reported in several wheat fields in Finney County. (DePew, Apr. 16).

A RICE DELPHACID (Sogata orizicola) - TEXAS - Surveys on rice seedlings in Brazoria and Matagorda Counties for this vector of hoja blanca were negative. Inspections will continue. (Hawkins).

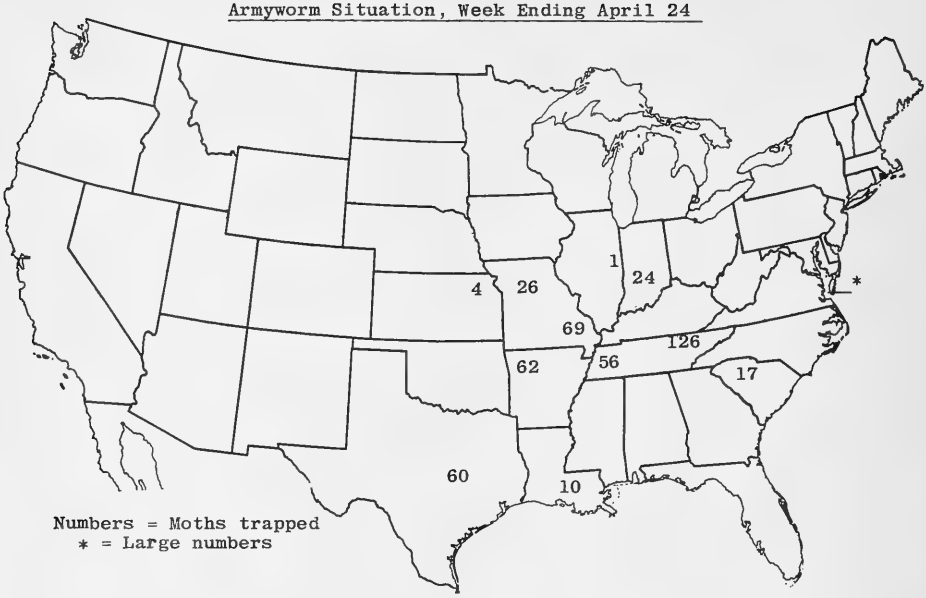
FALSE WIREWORMS (Eleodes spp.)- SOUTH DAKOTA - Larvae averaged less than 1 per linear foot in winter wheat in 3 Hamlin County fields. (Mast, Apr. 18).

LEAFHOPPERS - OKLAHOMA - Aceratagallia sp., probably uhleri, common most alfalfa and small grain fields in southwestern area. Counts 0.7-5 per linear foot in small grains and 0.5-10 in alfalfa. (VanCleave, Robinson, Hudson). UTAH - A. sanguinolenta moderate at Delta and Milford. Dikraneura carneola common on roadside grasses and margins of winter wheat fields in Tooele, Millard and Beaver Counties. (Knowlton). MASSACHUSETTS - Overwintering adults of A. sanguinolenta active April 2 in Hampshire County. (Lavigne, Shaw). TEXAS - Numerous on rice seedlings in Brazoria and Matagorda Counties. (Hawkins).

FLEA BEETLES - OKLAHOMA - Common southwestern area. Counts 0.2-1 per linear foot in small grains and 1-5 in alfalfa fields. (VanCleave, Robinson, Hudson). UTAH - Damaging corn in southern areas of Washington County. (Knowlton). TEXAS - Ranged 0-1 per 5 corn plants in Austin, Robertson and Falls Counties. (Hawkins). ARIZONA - Medium infestations of Chaetocnema ectypa on some young corn in Maricopa County. (Ariz. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - UTAH - Damaging some barley fields and numerous in some wheat fields in Washington County. (Knowlton). TEXAS - Heavy infestations on grain sorghum in Brazoria County. (Hawkins). NEW MEXICO - [illegible] counties. (N. M. Coop. Rpt.). Moderate to heavy infestations on barley in Chaves [illegible] Maricopa County. (Ariz. Coop. Sur.).

Armyworm Situation, Week Ending April 24



EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - Pupation greatly accelerated. Approximately 70 percent in Sussex County, 40 percent in Kent County and 20 percent in New Castle County. (Burbutis, Conrad). MARYLAND - Pupation about 80 percent complete in northern Wicomico County. (U. Md., Ent. Dept.).

CORN EARWORM (Heliothis zea) - ARKANSAS - Eggs found in all areas. (Ark. Ins. Sur., Apr. 18).

CHINCH BUG (Blissus leucopterus) - TEXAS - Adults 0-6 per plant in corn and sorghum in 12 central, south central and upper coastal counties. Recent rains checked infestations some. (Hawkins). Some damage to sorghum continues in Jim Wells County with control not effective some instances. (Tex. Coop. Rpt.).

A BILLBUG (Calendra sp.) - GEORGIA - Light infestations on corn in Lee County, moderate to heavy in Lowndes and Dodge Counties. (Johnson, Martin).

GRASSHOPPERS - OKLAHOMA - Early instars in southwest area as far north as northern Beckham County. Heaviest populations averaged one per square yard, most averaged less than 0.1 per square yard. (VanCleave, Robinson, Hudson). Complex composed of Aeoloplides turnbulli, Melanoplus differentialis, M. bivittatus, M. bilituratus, Phlibostroma quadrimaculatum, Brachystola magna and Aulocara elliotti averaged 0.5-1 egg pod per square foot in Ellis, Harper and Roger Mills Counties. Development clear to segmented. Light to threatening infestations may develop (Knowlton, Pala). UTAH - Hatching in Beaver, Washington and Kane Counties. (Knowlton, Pala). In Baca, Las Animas Counties, between Pritchett and Kim, egg pods average 0.5 per square foot. In Kiowa County, number of egg pods not of economic importance. (Ext. Serv.).

TEXAS - First-instar nymphs noted on rangeland and along field margins in Parmer, Roberts and Ochiltree Counties. (Russell, PPC, Apr. 18). NEW MEXICO - Infestations in alfalfa fields light in Bernalillo and Socorro Counties; about 2 per 10 sweeps near Albuquerque and Isleta and 3-4 per 10 sweeps near Socorro. Light hatches in rangeland areas in Lea, Roosevelt and Curry Counties. (N. M. Coop. Rpt.).

A WEBWORM (Crambus sp.) - OREGON - Adults flying over lawns in Benton County. (Lattin).

NORTHERN MASKED CHAFER (Cyclocephala borealis) - MARYLAND - Grubs injuring turf at State nursery, Harmons Corner, Anne Arundel County. (U. Md., Ent. Dept., Apr. 17).

WHITE GRUBS - UTAH - Damaging some lawns in Millard and Beaver Counties. (Knowlton). NEW MEXICO - Damaging lawns at Truth or Consequences, Sierra County. (N. M. Coop. Rpt.). ARIZONA - Fifteen per square yard some Bermuda grass fields in Yuma County. (Ariz. Coop. Sur.).

SUGARCANE APHID (Sipha flava) - FLORIDA - Adults, averaging hundreds per plant, infesting 10-acre pangola grass pasture at Inverness, Citrus County. (Quentin, Medlin, Apr. 17).

THRIPS - UTAH - Extremely numerous in alfalfa fields in lower areas of Washington County. (Knowlton). ARIZONA - Heavy infestation in barley field near Buckeye. (Ariz. Coop. Sur.).

PEA APHID (Macrosiphum pisi) - CALIFORNIA - Heavy infestations on vetch in Bowman area of Placer County and in Tulelake area of Siskiyou County. (Cal. Coop. Rpt.). ARIZONA - Heavy on alfalfa statewide. (Ariz. Coop. Sur.). NEW MEXICO - Generally light in San Juan, Rio Arriba, Sandoval, Bernalillo and Socorro Counties. Populations declining somewhat in eastern counties. (N. M. Coop. Rpt.). UTAH - Light to moderate in Delta, Tooele and Ogden areas. Fifty percent winged at Delta. Moderate and causing some damage to alfalfa in Washington County. (Knowlton). WYOMING - Averaged 20-25 per sweep in alfalfa field in Goshen County. Other fields in area averaged 1-2 per 25 sweeps. (Davison). OKLAHOMA - Common most legume fields in southwest and west central areas. Counts few fields up to 2 per sweep. (VanCleave, Robinson, Hudson). Heavy in alfalfa in western Okfuskee County; no damage apparent. (Meharg). Counts from 8-30 per sweep 2 alfalfa fields in Choctaw County. (Goin). Populations down considerably in alfalfa fields in Payne County. (Bieberdorf). KANSAS - Damaging alfalfa in Montgomery County. (Knutson). Several damaged alfalfa fields in Riley County observed; populations over 500 per sweep found one field. Several fields with "frosted" appearance. (Knutson, Painter, Peters). MISSOURI - Buildup rapid on red clover and alfalfa in southwest area, 20-300 per sweep on red clover and 5-200 on alfalfa. Counts in central and northern sections remain low, averaging 0-5 per sweep. Some light damage evident on red clover in southwest area. (Kyd, Thomas, Munson). TEXAS - Averaged 3 per 10 sweeps in alfalfa in Robertson and Burleson Counties, 2 per 10 sweeps in vetch in Falls County and 12 per 10 sweeps in vetch in Robertson County with predator count high. (Hawkins). ARKANSAS - Large numbers present on alfalfa all areas. Counts approximately 100-1000 per 10 sweeps. (Ark. Ins. Sur., Apr. 18). ILLINOIS - Averaged 26 per 100 sweeps in clover in White County. (Ill. Ins. Rpt.). VIRGINIA - Populations vary from very light to medium in alfalfa fields in Louisa, Orange, Culpeper, Fairfax, Loudoun, Clarke, Frederick, Warren and Page and parts of Spotsylvania and Rockingham Counties. (Morris). Populations severe on alfalfa and red clover in Pittsylvania County (Blair) and up to 40 per 10 sweeps in Steeles Tavern area of Augusta and Rockbridge Counties (Woodside). DELAWARE - Common on alfalfa throughout State. (Burbutis, Conrad). MARYLAND - Generally light on alfalfa in central and western sections. (U. Md., Ent. Dept.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Increasing gradually some alfalfa fields in central area. Infestations 6 per trifoliate leaf common many fields. (Ariz. Coop. Sur.). NEW MEXICO - Heavy infestations damaging alfalfa in Guadaulupe County. Infestations in eastern counties lighter. (N. M. Coop. Rpt.). TEXAS - Infestations 0-1 per sweep in alfalfa in 10 central, south central and upper coastal areas. Predators abundant. (Hawkins). OKLAHOMA - Heavy, 300 per sweep, and killing plants in alfalfa field in Hollis area. Populations ranged 1-65 per sweep other fields in southwestern area. (VanCleave, Robinson). Heavy some fields in Roger Mills County. (Burns). Killing plants in alfalfa field in Shattuck area. (Smith). Light in field in western Okfuskee County. (Meharg). Counts ranged 8-30 per sweep in 2 fields in Choctaw County. (Goin). Populations averaged 133 per Henderson fork sample some Payne County fields; reduction of over 50 percent from previous week (Ketner). Populations varied from light to heavy in alfalfa fields in Payne County. (Bieberdorf). UTAH - Moderate in Washington and Kane Counties; some alfalfa injury occurring. (Knowlton). KANSAS - Roadside counts per 25 plants in Jewell County were 0, 13, 2, 11 and 123 on April 19 and in Geary County counts were 1, 2 and 78 on April 17. (Simpson, Burkhardt). MISSOURI - None found in southwest area. (Kyd, Thomas, Munson).

ALFALFA WEEVIL (Hypera postica) - MASSACHUSETTS - Larvae collected on alfalfa in Amherst. (Lavigne, Shaw). NEW YORK - First adult activity noted on April 1 in Orange County. (N. Y. Wkly. Rpt.). DELAWARE - Light injury noticeable to alfalfa in New Castle County. Infestations in Kent and Sussex Counties vary (3-5 larvae per plant) with feeding injury varying accordingly. (Burbutis, Contrad). MARYLAND - Larvae increasing generally; 2 per sweep in Queen Annes County, 1 per sweep in Cecil County and 0.1-0.25 per sweep in Montgomery and Howard Counties. (U. Md., Ent. Dept.). VIRGINIA - Populations generally high and damage medium to severe in untreated fields in central and northern part of State. (Morris et al.). GEORGIA - Counts 75 per sweep in Oconee County and 80 in Putnam County. (Johnson). Forsyth County infested for first time. (Rucker). IDAHO - Adults active in Henley Basin. Feeding damage noted. No adults found in Owyhee, Camas and Lincoln Counties, but eggs found in Lincoln County. (Portman, Foote, Apr. 17). WYOMING - Adults found in alfalfa fields in Laramie, Goshen and Platte Counties; no larvae found. (Davison).

CLOVER LEAF WEEVIL (Hypera punctata) - IDAHO - Occasional larva found in alfalfa in Washington, Gem, Canyon, Owyhee, Gooding and Lincoln Counties. Feeding damage slight. (Portman, Foote, Apr. 17). DELAWARE - Larvae on alfalfa and clover most areas of State. Populations heaviest in Kent County; feeding injury not serious. (Burbutis, Conrad). ILLINOIS - Larval counts per square foot were 0.8 in Knox County, 7 in Cumberland, 4 in Edwards and 6.4 in White County. (Ill. Ins. Rpt.). KANSAS - Few larvae found in alfalfa fields in Riley County. (Knutson, Painter, Peters).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - DELAWARE - Adults present on clover in areas of Kent County. (Burbutis, Conrad). ILLINOIS - Averaged 0.5 per square foot in clover in Cumberland County. (Ill. Ins. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - IDAHO - Adults fairly common in alfalfa crowns most fields in southwestern counties. Averaged 3-4 per crown in Henley Basin. (Portman, Foote, Apr. 17). ILLINOIS - Averages 27 per 100 sweeps in red clover in White County. (Ill. Ins. Rpt.).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - IDAHO - Adults abundant on seedling sweetclover in eastern Camas County and in alfalfa fields containing sweetclover near Dietrich. Considerable feeding noted both areas. (Portman, Foote, Apr. 17).

VETCH BRUCHID (Bruchus brachialis) - OREGON - Emerged from hibernation. Observed on April 18. (Every). TEXAS - Few observed on vetch in Robertson and Falls Counties. (Hawkins).

CUTWORMS - UTAH - Chorizagrotis auxiliaris severely retarded some alfalfa fields at Minersville. Infestations light at Delta and Milford. Larvae maturing in most Kane, Washington, Iron and Millard County alfalfa fields. Small larvae rare. (Knowlton). SOUTH DAKOTA - None found in 3 Hamlin County fields surveyed. (Mast). IDAHO - Agrotis orthogonia larvae fairly common in alfalfa near Parma. Considerable feeding damage noted. (Portman, Foote, Scott, Waters; April 17). WYOMING - C. auxiliaris averaged less than 1-2 per square foot in alfalfa fields in Goshen County. (Pfadt). ALASKA - Xylena thoracica collected April 12-13 in light trap at Palmer. This species most numerous in the 1958 collections. (Washburn). ILLINOIS - Average 0.5 per square foot in clover in Edwards and 0.8 in White Counties. (Ill. Ins. Rpt.).

SPOTTED CUTWORM (Amathes c-nigrum) - FLORIDA - Taken in light trap at Gainesville, Alachua County, May 13, 1958. Det. C. P. Kimball and J. Franclemont. This is a new State record for this species. (Denmark).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - ARKANSAS - Moths fairly numerous in alfalfa in southwestern area, larvae occasional. (Ark. Ins. Sur., Apr. 18). DELAWARE - Present on alfalfa in Kent and Sussex Counties. (Burbutis, Conrad).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Averaged 2 per 10 sweeps in alfalfa in Robertson and Burleson Counties. (Hawkins).

GREEN CLOVERWORM (Plathypena scabra) - ARKANSAS - Larvae 1-8 per 10 sweeps in alfalfa. (Ark. Ins. Sur., Apr. 18).

A LEAF ROLLER (Platynota stultana) - CALIFORNIA - Light infestations on alfalfa in Blythe area, Riverside County. (Cal. Coop. Rpt.).

A NYMPHALID - MISSOURI - Larvae, 1-3 per crown, widely scattered in red clover fields in east central area. Considerable damage occurring. (Kyd, Thomas, Munson).

FALSE CHINCH BUG (Nysius ericae) - UTAH - Moderate in alfalfa fields at Milford, Minersville and Delta. (Knowlton).

LYGUS BUGS (Lygus spp.) - OKLAHOMA - Lygus lineolaris light in alfalfa in Payne and Choctaw Counties. (Goin, Bieberdorf). COLORADO - Active on alfalfa in Mesa County; 1-8 per 100 sweeps where controls applied, 70-80 per 100 sweeps where no control applied. In Delta, Montrose and Garfield Counties little or no insect activity due to cold weather. (Exp. Sta.). UTAH - Numerous in alfalfa fields at Minersville, 75 percent L. elisus and 25 percent L. hesperus. (Knowlton). WYOMING - Counts less than 2 per 25 sweeps in Goshen and Platte Counties. (Davison). TEXAS - Averaged 5 per sweep in alfalfa in Robertson and Burleson Counties in the Brazos River bottom. (Hawkins). ARKANSAS - L. lineolaris counts 3-8 per 10 sweeps in alfalfa. (Ark. Ins. Sur., Apr. 18). MASSACHUSETTS - L. lineolaris activity observed for several weeks in Hampshire County. (Lavigne, Shaw).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - TEXAS - Very light infestations in alfalfa fields in Brazos River bottom. (Hawkins).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - DELAWARE - Young nymphs common on alfalfa and clover in Kent County. (Burbutis, Conrad). MARYLAND - Spittle masses generally light to moderate on red clover in central and southern sections. (U. Md., Ent. Dept.). ILLINOIS - Nymphs average 6.5 per 100 stems in clover

fields in Cumberland County and 5 per 100 stems in White County. First emergence at Urbana observed April 22. (Ill. Ins. Rpt.). OHIO - Hatch complete at Wooster and spray operations underway. Populations lower than in 1957 and 1958. (Treece).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - OKLAHOMA - Light in alfalfa checked in Payne and Choctaw Counties. (Goin, Bieberdorf).

WIREWORMS - IDAHO - Adults common in alfalfa in Henley Basin. Larvae common along border of alfalfa field southeast of Fairfield. (Portman, Foote, Apr. 17).

SOYBEAN CYST NEMATODE (Heterodera glycines) - MISSOURI - Second infestation found in Dunklin County. KENTUCKY - Additional infestation found in Fulton County. First since November 1958. SOUTH DAKOTA - Collections from seven eastern counties all negative. (PPC, Cent. Reg., Mar. Rpt.).

ADDITIONAL NOTES

NEW YORK - EUROPEAN RED MITE hatched April 24 at Poughkeepsie and April 22 in Rockland County. APPLE GRAIN APHID and APPLE APHID quite plentiful on unsprayed trees and TENT CATERPILLAR nests are more plentiful than in past 2 years in Rockland County. RED-BANDED LEAF ROLLER adults noted at Claverack April 22 and egg masses were common in a LaGrangeville orchard on April 24. All alfalfa fields checked in Dutchess, Orange and Ulster Counties showed some larval feeding by CLOVER LEAF WEEVIL and one alfalfa field in Orange County showed some ALFALFA WEEVIL larval damage. SPITTLEBUG nymphs found feeding on alfalfa in Orange County April 23. (N. Y. Wkly. Rpt.).

PENNSYLVANIA - Small ALFALFA WEEVIL larvae feeding in most alfalfa fields in south central area. One field with all larval stages and serious injury. Beginning to cause injury in fields with southeast exposure in southeastern area of State. Adults active. CLOVER ROOT CURCULIO active in alfalfa in southeastern area. PEA APHID present but not numerous in south central area alfalfa. GRASS SAWFLY adults early in hay in southeastern area. MEADOW SPITTLEBUG eggs 50-60 percent hatched in legume hay in south central area. Egg masses easily seen. (Pepper, Menusan).

FRUIT INSECTS

APHIDS - MASSACHUSETTS - Aphis pomi and Anuraphis roseus hatched in all orchards where 3 or more leaves turned back from fruit buds. (Crop Pest Cont. Mess.). NEW YORK - First instar A. roseus found at Poughkeepsie April 16. Appeared on buds in Rockland County April 14 and in Dutchess and Orange Counties April 15. Hatching in Ulster County April 15. A. pomi abundant in Rockland County, and found in Orange County April 6. Found in Monroe County April 17. Rhopalosiphum fitchii found in Orange County April 3, hatching in large numbers in Niagara County April 16-17 and in Wayne County hatching complete and beginning to work on buds. Myzus cerasi observed April 16 in Orange County. (N. Y. Wkly. Rpt.). DELAWARE - A. roseus light on apples in Georgetown area. A. pomi and R. fitchii winged forms present on apples in Sussex County. Infestations generally light in treated orchards. (Kelsey). MARYLAND - A. roseus curling apple leaves at Hancock, Washington County. (U. Md., Ent. Dept.). VIRGINIA - A.roseus populations about normal or below in northern apple orchards. R. fitchii populations below normal but present in northern apple orchards. (Hough). INDIANA - A. pomi and A. roseus heavy on apple in the Orleans area. (Marshall). ILLINOIS - A. pomi continue to increase in the Carbondale area. (Meyer). UTAH - Infesting plums at Hurricane. A. roseus curling apple leaves and Eriosoma lanigerum infesting injured areas in some Santa Clara orchards. (Knowlton). IDAHO - A. pomi nymphs abundant on apple buds in unmaintained apple orchard near Plymouth, Payette County. M. cerasi light on cherry near New Plymouth. (Portman, Foote, Madsen). WASHINGTON - A. pomi hatching on apple at Pullman, April 15. (Johansen). NEW MEXICO - Myzus persicae light to heavy on peach trees in San Juan, Bernalillo, Rio Arriba and Sandoval Counties. (N. M. Coop. Rpt.).

SPIDER MITES - PENNSYLVANIA - Eggs of Panonychus ulmi hatching on apples in south central area. Nymphs present on new leaves. (Pepper). MARYLAND - P.ulmi becoming noticeable on leaves some apple orchards in Hancock area. (U. Md., Ent. Dept.). VIRGINIA - Probably P. ulmi, hatching in northern apple orchards. Tetranychus schoenei emerging from hibernation and active in northern apple orchards. (Hough). FLORIDA - Eotetranychus sexmaculatus heavy in a few citrus groves. (Fla. Coop. Sur.). ILLINOIS - Probably Tetranychus canadensis ovipositing on apple and P. ulmi about half grown in Carbondale area. (Meyer). INDIANA - P. ulmi eggs still hatching in Vincennes area, about 25 percent on April 20. (Hamilton). P. ulmi hatching begun in Orleans area, eggs numerous. (Marshall). OHIO - P. ulmi hatched April 18, 20 percent completed by April 24. Eggs numerous in northeast area. Bryobia rubrioculus hatching almost complete on April 24. (Cutright). Tetranychus telarius overwintering females abundant on dock plants beneath peach trees. Eggs deposited began hatch at Wooster April 20. (Rings). NEW MEXICO - B. rubrioculus hatching in San Juan, Rio Arriba, Taos, Sandoval, Bernalillo and Valencia Counties. Nymphs found on apple in Sandoval, Rio Arriba, Bernalillo and Valencia Counties. (N. M. Coop. Rpt.). UTAH - B. rubrioculus numerous some apple and peach orchards in Santa Clara-St. George area, Washington County. (Knowlton). IDAHO - P. ulmi eggs and nymphs heavy on apple and cherry trees in an unmaintained orchard near New Plymouth, Payette County. (Portman, Foote, Madsen). OREGON - P. ulmi hatched April 17 in Hood River Valley and April 15 in Medford area. (Ellertson, Gentner). CALIFORNIA - P. citri medium on navel orange in Carmichael, Sacramento County. (Cal. Coop. Rpt.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - ILLINOIS - Hatching steadily. Survey of 150 egg masses showed 58 percent hatched with some oviposition continuing in Carbondale area. (Meyer). INDIANA - Hatch in Vincennes area April 20. (Hamilton). MARYLAND - Oviposition continues in Hancock area, no hatching observed. (U. Md., Ent. Dept.). NEW JERSEY - Adults and egg masses abundant on apples in Burlington County, up to 32 egg masses per tree. (Ins. Dis. Newsl.). VIRGINIA - Now hatching in northern apple orchards. (Hough, Hill). PENNSYLVANIA - Adults remain plentiful on apple in the south central part of the State. Egg laying in progress, but none have hatched as yet. (Pepper).

CODLING MOTH (Carpocapsa pomonella) - NEW YORK - First pupae found under tree bands at Middle Hope and New Paltz on April 17. (N. Y. Wkly. Rpt.). INDIANA - Pupation started April 9 in the Vincennes area. About 7 percent pupated by April 13 and 26 percent by April 20. (Hamilton). VIRGINIA - Population below average last fall. Spring emergence of adults expected about last of April or early May. (Hough).

TENT CATERPILLARS (Malacosoma spp.) - PENNSYLVANIA - Many tents of M. americanum appearing in southwestern apple orchards. Abundant on wild and ornamental cherries in Indiana County. (Udine). MARYLAND - M. americanum tents appearing on apples in Washington, Montgomery and Howard Counties. (U. Md., Ent. Dept.). SOUTH CAROLINA - M. americanum on cherry near Clemson, Oconee County, April 14. Numerous larvae spread from cherry trees in woods to peach trees in Spartanburg County. (Nettles et al.). CALIFORNIA - Malacosoma sp. heavy locally on almond in Vacaville, Solano County. (Cal. Coop.Rpt.).

CATFACING INSECTS - ILLINOIS - Lygus lineolaris and stink bugs still present on peaches in the Carbondale area. (Meyer). INDIANA - L. lineolaris and stink bugs still active and building up on peaches in Vincennes area. (Hamilton). Temperatures too low in Orleans area for heavy feeding on peach by Lygus sp., mostly L. lineolaris. (Marshall). COLORADO - Lygus sp. range 0 to 5 per 25 samples on fruit trees in Mesa County. (Exp. Sta.).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Abundant in Wayne County April 17 and adults and eggs abundant in Orange County April 8. Eggs found in Niagara County April 15 and adults found in Monroe County April 14.(N. Y. Wkly. Rpt.). OREGON - Began egg deposition March 16 and first nymphs detected April 10 in the Hood River Valley pear orchards. (Ellertson).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Caused above normal damage to peach and apricot trees this spring in Santa Clara-Hurricane area of Washington County. (Knowlton).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - ILLINOIS - Adults still present and eggs hatching in Carbondale area. (Meyer).

PLUM CURCULIO (Conotrachelus nenuphar) - INDIANA - Emergence developed rapidly, 70 adults jarred from 5 unsprayed trees on April 20 in the Vincennes area. (Hamilton). GEORGIA - Mature larvae found in peach drops April 20. Few began to enter soil April 22. Drops heavily infested some orchards. (Snapp).

SCALE INSECTS - IDAHO - Probably Lecanium corni, light on apple near New Plymouth, Payette County. (Portman, Foote, Madsen). CALIFORNIA - Coccus hesperidum heavy in dooryard citrus in Suisun, Solano County. Aonidiella aurantii medium on navel orange in Oroville, Butte County. (Cal. Coop. Rpt.). NEW MEXICO - Aspidiotus perniciosus present most orchards in northern areas, several very heavy infestations in apple trees. (N. M. Coop. Rpt.).

THRIPS - OREGON - Emergence of Taeniothrips inconsequens very light in sweet cherry surrounding The Dalles. (Ellertson). UTAH - Unusually numerous on foliage of apple, pear, plum and peach in Washington County. (Knowlton). CALIFORNIA - Scirtothrips sp. heavy on nectarine blossoms in Banning area and heavy on tangerines in Thermal and light on grapefruit in Indio. (Cal. Coop. Rpt.). ARIZONA - Scirtothrips citri heavy in some citrus groves for this time of year. (Ariz. Coop. Sur.).

A MITE (Epilohmannia sp. prob. cylindrica) - CALIFORNIA - Heavy on grape in Fresno, Fresno County. (Cal. Coop.Rpt.).

A PEEL MINER (Mamara sp.) - ARIZONA - Heavy in grapefruit grove east of Mesa, Maricopa County. (N. M. Coop. Rpt.).

Citrus Insect Situation, Lake Alfred, Florida, Second Week in April -

PURPLE SCALE activity increased considerably, but is expected to level off in May and then increase further. FLORIDA RED SCALE activity has risen further, but little additional increase will occur during the next two weeks. High population level will continue in most districts. CITRUS RED MITE had little change in activity. This status will prevail until early May when an upward trend is expected. Infestations presently below average. CITRUS RUST MITE activity unchanged and little change expected until May. Infestations generally low. (Siminton, Thompson, Johnson).

TRUCK CROP INSECTS

FLEA BEETLES (Epitrix spp.) - VIRGINIA - E. cucumeris moving into tomato fields, control measures necessary in southeastern area. (Hofmaster). MARYLAND - E. hirtipennis averaged 3 per potato plant at Bushwood, St. Marys County. (U. Md., Ent. Dept.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - GEORGIA - Light on tomatoes in Barrien, Lowndes, Brooks, Thomas and Grady Counties. (Johnson).

POTATO TUBERWORM (Gnorimoschema operculella) - CALIFORNIA - Heavy and damaging eggplant in Thermal, Riverside County. (Cal. Coop. Rpt.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NORTH CAROLINA - Eggs being laid on potatoes, dock and milkweed in Hyde County and the first two hosts in Tyrrell County. (Kulash).

Beet Leafhopper Survey, Eastern Washington - Spring 1959
A survey took place from March 31 to April 3. Total of 38 samples were taken at stations located generally within an area bounded by Goldendale and Walulla in the south and by Trinidad and Ephrata in the north. Estimations were obtained by means of the square foot sampling cage and by hand and knee counts over a 10-foot line. Overwintered females were found in only 5 stations located near Othello, Walulla and Moses Lake, giving an overall mean population of 0.02 per square foot. Sample means varied from none to 0.5 per square foot. Overwintering host plants, tumble mustard, filaree and flixweed were very scant. (Dailey).

LYGUS BUGS (Lygus spp.) - UTAH - Control underway in sugar beet seed fields in the St. George-Washington area of Washington County. (Knowlton).

BEET LEAFHOPPER (Circulifer tenellus) - UTAH - Present in sugar beet seed fields in St. George-Washington area, Washington County. Eleven per 25 sweeps taken on Russian thistle between sugar beet fields. (Knowlton).

APHIDS - CALIFORNIA - Including Macrosiphum solanifolii, heavy on sugar beets in Fresno County. (Cal. Coop. Rpt.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - GEORGIA - Moderate on beans in Lowndes, Brooks, Thomas and Grady Counties. (Johnson).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Moderate on beans in Lowndes, Brooks, Thomas and Grady Counties. (Johnson).

PEA APHID (Macrosiphum pisi) - ARIZONA - Heavy on papago peas in Maricopa County. (Ariz. Coop. Sur.).

CABBAGE APHID (Brevicoryne brassicae) - VIRGINIA - Cabbage is generally infested in southeastern area. (Hofmaster).

SALT-MARSH CATERPILLAR (Estigmene acrea) - TEXAS - Heavy on turnips in Winter Garden area. (Harding).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Adults appearing in Nassau County. (N. Y. Wkly. Rpt.).

NOCTUIDS - DELAWARE - Egg masses, probably of cutworms or armyworms, found present on spinach at two large commercial plantings in New Castle County. (Burbutis, Conrad).

GREEN PEACH APHID (Myzus persicae) - VIRGINIA - Spinach and lettuce infested in southeastern area. (Hofmaster). PENNSYLVANIA - Abundant on greenhouse radishes and tomatoes in Lancaster County (Pepper) and have been a control problem on greenhouse tomatoes in Mifflin County for some time (Udine).

TOMATO FRUITWORM (Heliothis zea) - CALIFORNIA - Medium on lettuce in Carlsbad, San Diego County. (Cal. Coop. Rpt.).

CARROT WEEVIL (Listronotus oregonensis) - PENNSYLVANIA - Emerging from hibernation in Bucks County. (Menusan).

THRIPS - UTAH - Generally abundant on strawberries, Washington County. (Knowlton). NEW MEXICO - Moderate and doing minor damage to lettuce at Artesia, Eddy County. (N. M. Coop. Rpt.)

SQUASH BUG (Anasa tristis) - UTAH - Numerous in southern half of Washington County. (Knowlton).

SPIDER MITES - TEXAS - Tetranychus marianae infesting tomatoes along river in lower Rio Grande Valley. (Deer). NEW JERSEY - T. telarius reaching damaging proportions in untreated strawberries. (Ins. Dis. Newsl.). ARIZONA - T. cinnabarinus heavy in many central sugar beet seed fields. (Ariz. Coop. Sur.). CALIFORNIA - Aplonobia myops heavy on asparagus in Rio Linda, Sacramento County. (Cal. Coop. Rpt.).

ASPARAGUS BEETLE (Crioceris asparagi) - DELAWARE - Actively feeding on asparagus throughout State. Injury heavy around Middletown. Eggs noted all areas. (Burbutis, Conrad).

A DARKLING BEETLE (Blapstinus sp.) - CALIFORNIA - Heavy and damaging carrot plantings in Holtville area of Imperial County. (Cal. Coop. Rpt.).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - IDAHO - Common in hops near Parma. Up to 10 larvae found in a few crowns. (Portman, Foote, Scott, Waters).

ROSE STEM GIRDLER (Agrilus rubicola) - UTAH - Pupation 25 percent in Salt Lake County raspberry canes. (Knowlton).

CUTWORMS - NEW JERSEY - Damage to strawberries spotty, may warrant attention in mulched fields. (Ins. Dis. Newsl.). MARYLAND - Moderate damage from undetermined species noted at Parsonsburg, Wicomico County. (U. Md., Ent. Dept.).

A NYMPHALID - MISSOURI - Averaged 1-3 larvae per square foot of strawberry bed in east central area, causing considerable damage. (Kyd, Munson).

OMNIVEROUS LEAF TIER (Cnephasia longana) - CALIFORNIA - Heavy on strawberries in Watsonville area of Santa Cruz County. (Cal. Coop. Rpt.).

SPOTTED CUTWORM (Amathes c-nigrum) - DELAWARE - On small strawberry plantings in southwest Sussex County. Feeding heavy on newly set plants. (Burbutis, Conrad).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - NEW JERSEY - First of season observed in Cumberland County April 17. (Ins. Dis. Newsl.).

STRAWBERRY WEEVIL (Anthonomus signatus) - MARYLAND - Heavy bud damage in strawberry beds at Pittsville, Wicomico County. (U. Md., Ent. Dept.). NEW JERSEY - Becoming active in strawberries in Hammonton April 17. (Ins. Dis. Newsl.).

SPITTLEBUGS - INDIANA - Philaenus leucophthalmus up to 12 per strawberry plant in Orleans area. (Marshall). NEW JERSEY - Increasing in strawberries but not abundant enough to warrant control. (Ins. Dis. Newsl.).

COLLEMBOLA - VIRGINIA - Extensive damage in greenhouse plant beds in eastern area. (Hofmaster).

TOBACCO INSECTS

GRASSHOPPERS - GEORGIA - Heavy on tobacco in Brooks County. (Johnson).

A BUDWORM (Heliothis sp.) - GEORGIA - Light to moderate on tobacco in Berrien, Lowndes, Brooks, Thomas and Grady Counties. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Generally light on tobacco in beds in St. Marys County. (U. Md., Ent. Dept.).

COTTON INSECTS

A WHITEFLY (Trialeurodes abutilonea) - ARIZONA - Medium some Maricopa County fields. (Ariz. Coop. Sur.).

A DARKLING BEETLE (Blapstinus sp.) - ARIZONA - Injuring cotton in Yuma County where cotton followed a cover crop. (Ariz. Coop. Sur.).

COTTON APHID (Aphis gossypii) - ARIZONA - Light throughout State on cotton. (Ariz. Coop. Sur.).

BOLLWORM (Heliothis zea) - CALIFORNIA - In cotton plantings in Calipatria area of Imperial County. (Cal. Coop. Rpt.).

Cotton Insects in Lower Rio Grande Valley, Texas:
FLEAHOPPER activity increased over valley, with heaviest populations reported west of Weslaco. Some found in Brownsville area. Some spread in APHID infestations but few fields required treatment. BOLL WEEVIL found in few fields south of San Juan and Alamo where cotton is beginning to square. CUTWORMS still causing some damage in eastern part of valley. FALSE CHINCH BUGS damaged cotton in small areas of Willacy County. BOLLWORMS caused some terminal damage. (Deer).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE MOTH (Rhyacionia frustrana) - VIRGINIA - Moths emerging in State. (Morris).

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) - NEW MEXICO - Moderate on about 200 acres of Douglas-fir on Oso Ridge south of Grants, Valencia County, and on about 500 acres on San Mateo Mountains south of Magdalena, Socorro County. (N. M. Coop. Rpt.).

PINE NEEDLE MINER (Exoteleia pinifoliella) - DELAWARE - Probably this species, heavy on Virginia pine in New Castle County and present on same host in Kent County. (Burbutis, Conrad).

PINE SAWFLIES - DELAWARE - Newly hatched larvae on Virginia pines in New Castle County. (Burbutis, Conrad). NORTH CAROLINA - Larvae of Neodiprion pratti pratti about two-thirds to three-quarters grown in Granville County. (Nagel, Green, Jones). VIRGINIA - Larvae of N. pratti pratti feeding on pine needles around home in James City County (Bryant), medium on pines in area of Halifax County (Dinwiddie) and light on pines in spotted areas of Amelia County (Boozer).

PINE SPITTLEBUG (Aphrophora parallela) - DELAWARE - Young nymphs common on Virginia pine statewide. Also on loblolly pine in Kent County. (Burbutis, Conrad).

PINE BARK APHID (Pineus strobi) - MARYLAND - Light to moderate on large planting of white pine at College Park. (U. Md., Ent. Dept.).

A SEED CHALCID (Megastigmus rafni) - CALIFORNIA - Medium infestation of white fir seed in the Siskiyou National Forest. (Cal. Coop. Rpt.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - SOUTH CAROLINA - Unusually numerous in a large planting in Spartanburg County. (Nettles et al.). MARYLAND - Infesting American boxwood at Centreville, Queen Annes County. All specimens observed were pupae. (U. Md., Ent. Dept.). VIRGINIA - Medium on some boxwoods in Staunton, Augusta County. All have pupated. (Woodside).

A HOLLY LEAF MINER (Phytomyza sp.) - DELAWARE - Pupation about complete. Most leaf mining injury observed to date throughout the State apparently done by this undescribed species. The long, linear mines reported as typical of P. ilicicola are very scarce and no larvae or pupae have been found in this type of mine. Adult emergence in these mines must have occurred in the 1958 season. Parasitism of the new species appears very high, based on newly reared material. (Burbutis, Conrad). This is the same species reported as P. ilicicola in CEIR 9(13):218. (PPC).

A LEAF ROLLER (Platynota stultana) - FLORIDA - Larvae on carnations in Bradenton area, Manatee County. (Kelsheimer). These larvae have been reported as being a serious pest of carnations. (Fla. Coop. Sur.).

APHIDS - PENNSYLVANIA - Euceraphis betulae averaged about 2 per leaf on ornamental white birch, Blair County. (Udine). MARYLAND - Macrosiphum rosae building up on roses at Glenridge, Prince Georges County. (U. Md., Ent. Dept.). WISCONSIN - Appeared on willows in Jefferson County. Anuraphis viburniphila eggs hatching in Dane County. (Wis. Coop. Sur.). NEW MEXICO - Problem on tulips at Gallup, McKinley County. (N. M. Coop. Rpt.). ARIZONA - Heavy on ornamentals in Phoenix area, Maricopa County. (Ariz. Coop. Sur.). CALIFORNIA - Procipihilus venafuscus heavy on ash trees in Redding area of Shasta County. (Cal. Coop. Rpt.).

SCALE INSECTS - NORTH CAROLINA - Fiorinia theae severe on camellia leaves, Carteret County. (Jones, Farrier). ARIZONA - Toumeyella mirabilis heavy on ornamental mesquite in residential areas of Tucson, Pima County. (Ariz. Coop. Sur.). CALIFORNIA - Aspidiotus hederae heavy on Modesto ash in Oakland, Alameda County. Chionaspis quercus and Mycetococcus ehrhorni heavy on live oak in Santa Barbara, Parlatoria pittospori medium on Monterey pine in San Diego, Epidiaspis pyricola heavy on Sambucus sp., walnut and toyon in areas of Santa Clara County and Stomacoccus platani medium on sycamore in Shasta County. (Cal. Coop. Rpt.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - GEORGIA - Infesting wild cherry in numerous parts of State. (Johnson). NEW YORK - Occurring in Rockland County. Hatching in Orange County April 8. (N. Y. Wkly. Rpt.). NORTH CAROLINA - Heavy in Richmond County and especially in city of Rockingham. Have overgrazed their available food and are migrating to ornamentals. (Ashton).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Eggs hatching in Franklin County. (Thompson). MISSOURI - Egg hatch largely complete. Small larvae common on American elm in central area of State. (Kyd, Thomas, Munson).

A BARK BEETLE (Xyleborus saxeseni) - CALIFORNIA - Medium on Juglans sp. in Anderson, Shasta County. (Cal. Coop. Rpt.).

A LEAFHOPPER - IDAHO - Adults abundant on willows at Hot Creek Falls south of Bruneau. (Portman, April 17).

INSECTS AFFECTING MAN AND ANIMALS

BLACK FLIES (Prosimulium hirtipes complex) - DELAWARE - Adults abundant in one area of New Castle County. (Sutherland).

COMMON CATTLE GRUB (Hypoderma lineatum) - NEW MEXICO - Adults pestering cattle in rangeland areas throughout the State. (N. M. Coop. Rpt.).

HORN FLY (Siphona irritans) - NEW MEXICO - Annoying cattle in rangeland areas throughout the State. (N. M. Coop. Rpt.).

SCREW-WORM (Callitroga hominivorax) - NEW MEXICO - Feeding in wounds on cattle in Lake Valley area, Sierra County. (N. M. Coop. Rpt.).

SHEEP KED (Melophagus ovinus) - UTAH - Moderate to severe on some 55,000 sheep sheared in Beaver County, with controls applied to most. Very numerous in home flocks in same area. Moderate and sometimes severe in Tooele County. (Knowlton). NEW MEXICO - Heavy on several flocks of sheep shorn in Socorro and Taos Counties. (N. M. Coop. Rpt.).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - IDAHO - Extremely heavy on bands of sheep grazing on rangeland southwest of Marsing. Herdsmen claim infestation is heaviest they can remember. Averaged 200 per head on sheep north of Homedale. Heavy on sheep in Mountain Home area, with approximately 15 on one 2-week-old lamb. (Foote et al., April 17).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - OKLAHOMA - One Oklahoma County and 3 Muskogee County grain establishments inspected, with negative results. (PPC).

A DERMESTID (Trogoderma parabile) - WYOMING - Serious in livestock concentrate feed in dealers storage in Worland, Washakie County. Feed purchased outside of State. Det. P. J. Spangler. (Davison).

BENEFICIAL INSECTS

PARASITES AND PREDATORS - NEW YORK - Syrphid eggs averaged at least one per fruit bud in one planting at Poughkeepsie, April 16, where apple grain aphid was abundant. Coccinellids were also numerous. Syrphid eggs were also observed in Orange County and were numerous in Ulster County. (N. Y. Wkly. Rpt., Apr. 20). PENNSYLVANIA - Aphid-lions, coccinellids and syrphid flies fairly abundant in fields and orchards in south central part of State. (Pepper). Syrphid fly eggs numerous on leaves in orchards in Mifflin County. (Udine). ARKANSAS - Coccinellids and chrysopids rather numerous in western, southwestern, south central and southeastern areas checked. Small numbers of Geocoris spp. present, while very large numbers of hymenopterous parasites were found in all areas checked. (Ark. Ins. Sur., Apr. 18). OKLAHOMA - Hippodamia convergens ranged 0.2-1 per linear foot in small grain fields and 1 per sweep in most alfalfa fields surveyed in southwestern area. Common in most northwestern and panhandle area small grains, light in 2 of 3 Choctaw County alfalfa fields and moderate in an alfalfa field in Okfuskee County. Nabis spp. common in many small grain and

alfalfa fields in southwestern area and light in 2 of 3 alfalfa fields checked in Choctaw County. Chrysopa sp. present in a few southwestern alfalfa fields checked and in 2 of 3 alfalfa fields in Choctaw County. Syrphid fly larvae ranged 1-7 per sweep in Payne County alfalfa fields checked. (VanCleave et al.). Parasitic wasp populations continue to build up in small grain fields in northwestern and panhandle areas. (Owens). NORTH CAROLINA - Large numbers of unidentified ichneumonids parasitizing pupae of Neodiprion pratti pratti in Granville County. (Nagel, Green, Jones). IDAHO - Adults of Geocoris spp. and Nabis spp. common in alfalfa east of Dietrich. Chrysopids active and abundant at Hot Creek Falls south of Bruneau. Coccinellid adults abundant on apple and cherry trees in neglected orchard near New Plymouth and many egg masses present. (Foote, Portman, Madsen, Apr. 17). UTAH - Syrphid adults and Geocoris spp. numerous in alfalfa fields infested by pea aphid at Delta and Ogden. (Knowlton). ILLINOIS - Seventy percent of pea aphids dissected from a field south of Urbana are parasitized by wasps. Adults of small parasitic wasps appear to be much more numerous than usual in clover and alfalfa fields this year. (Ill. Ins. Rpt.).

HONEY BEE (Apis mellifera) - TEXAS - Because of adverse weather over much of the State April 8-19, bees were unable to fly and gather nectar. Stored honey in hives was rapidly consumed and hundreds of colonies died of starvation. (Burgin).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - IOWA - Forty-eight acres treated in and near Fort Madison during March. MISSOURI - Humboldt Avenue-Hall Street infested area of 115 acres in St. Louis treated during March. ILLINOIS - Total of 13,065 acres treated in State during March and early April; 10m865 acres in Blue Island area of South Chicago and 2,200 acres in East St. Louis. (PPC).

CARPET BEETLES - SOUTH DAKOTA - Infestation of Attagenus piceus reported in a McPherson County home. (Mast). NORTH DAKOTA - Home infestations of Anthrenus scrophulariae reported from McHenry and McKenzie Counties. (N. D. Ins. Rpt.).

RED HARVEST ANT (Pogonomyrmex barbatus) - UTAH - A problem about some Washington County farms. (Knowlton).

A COLLEMBOLA (Achorutes armatus) - NORTH CAROLINA - Eating food in earthworm beds to such an extent that earthworms are unthrifty. (Scott, Wray).

A MITE - GEORGIA - Infesting earthworm beds used for fish bait in Twiggs County. (Harrell).

CORRECTIONS

CEIR 9(8):108 - Under Forest, Ornamental and Shade Trees, A FIR ENGRAVER should read A BARK BEETLE.

CEIR 9(16):285 - APHIDS - MARYLAND - Should read B. brassicae infesting asparagus outside greenhouse at Dundalk.

CEIR 9(16):286 - A PINK TIP MOTH should read A PINE TIP MOTH.

CEIR 9(17):315 - TENT CATERPILLARS (Malacosoma spp.) - FLORIDA - Report of this species on persimmon and pecan is probably in error. Report for wild cherry could be correct, although no specimens were seen, but reports for persimmon and pecan probably refer to fall webworm, which is often confused with eastern tent caterpillar by field inspectors. (Hetrick).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Feltia. subt.	Helio. zea
ARKANSAS						
Fayetteville 4/9-15	62	52		2		
Morrilton 4/9-15	2	11		3		3
Kelso 4/9-15	3	2		3		
Hope 4/1-15		2				
FLORIDA						
Monticello 4/15,21					6	
ILLINOIS						
Urbana 4/17-23	1			3		
INDIANA (County)						
Tippecanoe 4/16-23	24			3		
KANSAS						
Garden City 4/5-6,15-17		1		4		
Manhattan 4/19,24				6		
Wathena 4/16-23	4			2		
LOUISIANA						
Baton Rouge 4/17-21	10	7	4	1	6	2
Franklin 4/17-23		4	4		1	
MARYLAND						
Fairland 4/14-23		1	1	12		
MISSISSIPPI						
*Stoneville 4/18-24	48	7	3	14		1
MISSOURI						
Columbia 4/18-24	26	2		16		
Sikeston 4/17-24	69	2		18		
NEBRASKA						
North Platte 4/14-20		5		5		
SOUTH CAROLINA						
Charleston 4/20-26	7	3		1	4	
Clemson 4/18-24	17	5	1	6	3	
TENNESSEE (Counties)						
Blount 4/14-20	56	10	1	54		
Cumberland 4/14-20	7	7	1	15		
Greene 4/14-20	11	3	2	9		
Johnson 4/14-20			1	5		
Madison 4/14-20	59	2		9		1
Maury 4/14-20	36			10		
Monroe 4/14-20	126	13		38		
Robertson 4/14-20	23	5	2	19		
TEXAS						
Brownsville 4/11-17	6	26	9	10		5
Waco 4/18-24	60	1	8	60	19	17

ADDITIONAL COLLECTIONS - VIRGINIA - Pseudaletia unipuncta and Peridroma margaritosa moths being taken in large numbers, with some Agrotis ypsilon, Prodenia ornithogalli and Anagrapha falcifera also being taken. All collections on Eastern Shore.

* Four traps - Stoneville

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Revised May 1, 1959

STATUS OF SOME IMPORTANT INSECTS IN THE UNITED STATES

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea (Klug))

Economic Importance: This tenthredinid is widely distributed over Europe where in many parts it is the most important apple pest. This pest was found in the United States for the first time in western Suffolk County, Long Island, New York, in June 1942, in small apples prematurely dropped. The larvae attack young fruit as soon as it begins to form. Secondary injury is caused by surface feeding which results in characteristic ribbonlike scars.

Distribution: Europe, including British Isles, but more common in the North. Also occurs in southwestern Canada. In the United States, recorded in Connecticut, Massachusetts, New Jersey and New York. (See map).

Hosts: Apple, plum and pear.

Life History and Habits: Adults appear as soon as apple trees come into bloom. The adults are active only in bright sunlight. They fly swiftly and seem to prefer blossoms on the upper branches. The egg is inserted from the outside of the calyx just below a sepal, pushed through to the base of the filaments near the style. Eggs hatch in about 13 days. Some larvae remain within the calyx after hatching, others leave and feed on the exterior. Larvae have an offensive odor similar to that of pentatomids. There are five larval instars. In June mature larvae drop to the ground, enter the soil four to eight inches to form a cocoon. Pupation takes place the following spring. The diapause lasts 9 months where the development is annual and 21 months where it is biennial. European apple sawfly injury is quite different from that of codling moth. A large cavity is eaten in the center of the apple and there is always an opening to the exterior. The larva does not always complete its growth within a single fruit and will continue from fruit to fruit until it does. The cavities are full of dark frass which often exudes from the hole at the side.

DISTRIBUTION OF EUROPEAN APPLE SAWFLY *(HOPLOCAMPA TESTUDINEA)*

Description: Adults black dorsally except head which is orange-yellow with a black patch between the eyes. Eyes black, antennae yellow with dusky mark at base of segments 3, 4 and 5 on upper side. Tip of abdomen is yellow. Abdomen (ventrally) and legs orange-yellow. Wings transparent, somewhat iridescent, with dark veins and costal margin; stigma dark and apical end yellow. Female about 6 mm. long, male slightly smaller. Egg white, glistening, about 0.8 mm. long and slightly curved. As is characteristic of many sawfly eggs, it increases slightly in size after it is laid. Larva is creamy-white with a dark brown head and black or dusky chitinous plate on upper surface of anal segment. When mature, about 12 mm. long. There are 6 abdominal and one anal pair of prolegs. Cocoon is compact, oval, brown and 7 to 8 mm. long and 3 to 4 mm. wide. Pupae are constant in form; color differences become more pronounced as development proceeds. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U.S. National Museum). CEIR 9(17):4-24-59.

A

B

C

Figures of Hoplocampa testudinea
A - Adult female; B - Adult male; C - Larvae

Figures (except map) from Miles, H. W. 1932. Ann. Appl. Biol. 19(3):420-431.

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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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

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

Volume 9 May 8, 1959 Number 19

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

Some GREENBUG treatments continuing in Oklahoma and increasing in southwestern Kansas. Populations remain high in southwest Missouri. CORN LEAF APHID damaging to barley in New Mexico and sorghum in Arizona. DATE MITE severe on wheatgrass in Modoc County, California, and damaging wheat in Kansas. (p. 345). ARMYWORM larvae infesting small grains in several southern states. (p. 346). EUROPEAN CORN BORER damage outlook in New Jersey has increased. Adult emergence underway on Eastern Shore of Maryland and Virginia. (pp. 347,363). CORN FLEA BEETLE damaging corn in Texas and Oklahoma. (p. 347).

PEA APHID continues to damage alfalfa and other legumes in many areas of the country. High populations reported as far north as Idaho, Indiana and Illinois. Predators and disease building up in more southern areas. (p. 348). MEADOW SPITTLEBUG heavy in untreated alfalfa in southwestern Virginia and southeast of Indianapolis, Indiana. Hatching well underway many eastern and midwestern areas. (p. 349). ALFALFA WEEVIL damage continues in several eastern states. (p. 350).

EUROPEAN RED MITE heavy most south central orchards in Pennsylvania and heavy infestations are indicated at Vincennes, Indiana. Also numerous on unsprayed apple trees in Delaware. (p. 352). APHIDS heavy on citrus in south Texas and in Riverside County, California. (pp. 352,353).

COLORADO POTATO BEETLE and GREEN PEACH APHID causing considerable damage to potatoes and spinach respectively on Eastern Shore of Virginia. (p. 354). HARLEQUIN BUG adults killing crucifers in Oklahoma, also causing considerable damage to various ornamentals in Oklahoma and in Texas. (pp. 355,360). STRAWBERRY WEEVIL unusually heavy on Eastern Shore of Virginia. (p. 356).

BARK BEETLES becoming severe and damaging ponderosa pines in central and northern California. (p. 358). WHITE-PINE WEEVIL heavy in Butler County Pennsylvania and active in Virginia and Wisconsin. Neodiprion pratti pratti larvae heavy and continue to defoliate pines in areas of Virginia and North Carolina. EASTERN TENT CATERPILLAR severe on untreated apple trees in Virginia and West Virginia and very destructive to roses in Alabama. (p. 359).

Some First Reported Records of the Season: CORN FLEA BEETLE adults appearing in Delaware. SOUTHWESTERN CORN BORER moths emerging in Arizona. First CORN EARWORM adult trapped in south central Missouri. RED-BANDED LEAF ROLLER eggs hatching in Pennsylvania and larvae present in Missouri, Indiana and Illinois. CODLING MOTH pupation underway in southeast Missouri and first adult taken April 21 in North Carolina. ORIENTAL FRUIT MOTH trapped in southeast Missouri. Bryobia rubrioculus hatched April 24 in Cache County, Utah. COLORADO POTATO BEETLE adults noted in Delaware and first-brood larvae in South Carolina. TOBACCO and POTATO FLEA BEETLES observed in Maryland and Delaware. MEXICAN BEAN BEETLE active in Georgia,South Carolina and North Carolina.

INSECT DETECTION: A wheat sawfly found for first time in Los Angeles County, California. (p. 345). Alfalfa weevil new to Washington County, Virginia. (p. 350). Smaller European elm bark beetle reported in South Dakota for first time and forest tent caterpillar in Lee County, Alabama. (pp. 358,359).

(Highlights continued on page 344)

(continued from page 343)

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Reports in this issue are for the week ending May 1, 1959, unless otherwise designated.

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WEATHER BUREAU 30-DAY OUTLOOK

MAY 1959

The Weather Bureau's 30-day outlook for May calls for temperatures to average above normal over the eastern half of the Nation, except for near normal from the Great Lakes region eastward to New England. Greatest departures are indicated in the Ohio and Tennessee Valley regions. Below normal temperatures are expected to prevail over the western half of the country except for above normal in the southwestern border states. Coolest weather is anticipated for the Northern Rocky Mountain States. Precipitation is expected to exceed normal over the Pacific Northwest and intermountain areas as well as in a broad belt extending from the lower Missouri Valley eastward through the Great Lakes and New England. Subnormal rainfall is predicted for the Northern Plains and also in a zone extending from the Southern Plains through the Ohio Valley. 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 MAY 4

Last week was unseasonably warm in most of the Nation, with temperatures reaching record or near-record levels for so early in the season at many points from the Appalachians to the Rockies at the end of the week. Temperatures averaged 9° or more above normal over most of the Great Plains from Oklahoma northward. Maxima reached 102° in South Dakota on May 1, with middle to high 90° readings from Kentucky to North Dakota on the same day. The Northeastern States experienced below-seasonal temperatures, with cloudy, cool and rainy weather prevailing over New England through Friday. Below-normal temperatures were recorded over the Pacific States from central interior California to western Montana, as cool air from the Pacific covered the area west of the Rockies late in the week. Earlier, Yuma, Arizona, recorded 106° on April 29. Precipitation continued throughout the week in the Pacific Northwest, with excessive amounts at midweek over northwestern

(Weather continued on page 357)

CEREAL AND FORAGE INSECTS

GREENBUG (Toxoptera graminum) - OKLAHOMA - Damage to oats and barley continues in northwestern Garfield and southeastern Alfalfa Counties. Some treatments continuing in small grain fields in areas of Garfield, Alfalfa and Kay Counties. (Owens, Ritter). Populations 25 and 200 per linear foot in Cleveland and Oklahoma Counties and 50-100 per linear foot in Kingfisher-Hennessey and Blackwell areas. (Pela, Wood). Parasitism common in all areas. (VanCleave et al.). LOUISIANA - Heavy on seedling rice at St. Gabriel. (Spink). ARKANSAS - None found in southeast counties or in Conway County. (Ark. Ins. Sur.). MISSOURI - Populations high in scattered orchardgrass fields in southwest. Counts 500 to over 1,000 per square foot. Warm weather slowed severity of damage, large proportion of aphids developing wings. Counts in small grains 15-250 per linear foot, heaviest in barley. (Kyd, Thomas). KANSAS - Found in small grain fields in Riley, Pottawatomie, Wabaunsee, Geary, Dickinson, Saline, Ottawa, Comanche, Cloud, Mitchell and increasing in all southwestern counties. Counts per foot of row were 100-300 in Ottawa County and 25-300 in Riley, Pottawatomie, Wabaunsee, Geary, Comanche, Dickinson and Saline Counties. Over 80 percent were nymphs. Severe damage not evident. (Peters et al.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - OKLAHOMA - Light in scattered small grain fields in central area. (VanCleave). Populations 3 per linear foot in barley in Oklahoma County and 55 per linear foot in oats in Cleveland County. (Pela). ARKANSAS - Infestations general, 200-400 per 100 sweeps, in southeastern area. (Ark. Ins. Sur.). MISSOURI - Counts 10-45 per linear foot of row in small grains in southwestern area. (Kyd, Thomas). KANSAS - Found in few small grain fields. (Peters). DELAWARE - Common on cereals throughout most of State. (Burbutis, Conrad).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - MISSOURI - Counts 10-45 per linear foot in small grains in southwest area. (Kyd, Thomas). KANSAS - Found in most small grain fields. Counts up to 100 per foot of row. (Peters).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light, 20 per linear foot, in barley in eastern Blaine County. (VanCleave). NEW MEXICO - Light to extremely heavy in barley, Dona Ana and Sierra Counties. (N.M. Coop. Rpt.). UTAH - This species, with lesser numbers of other aphid species, has necessitated some spraying of small grain fields in Washington County. (Knowlton). ARIZONA - Heavy in young sorghum in Maricopa and Pinal Counties. Light on corn some Pinal County fields, averaging 5 per plant. (Ariz. Coop. Sur.). KANSAS - Found on barley in Labette County. (Painter).

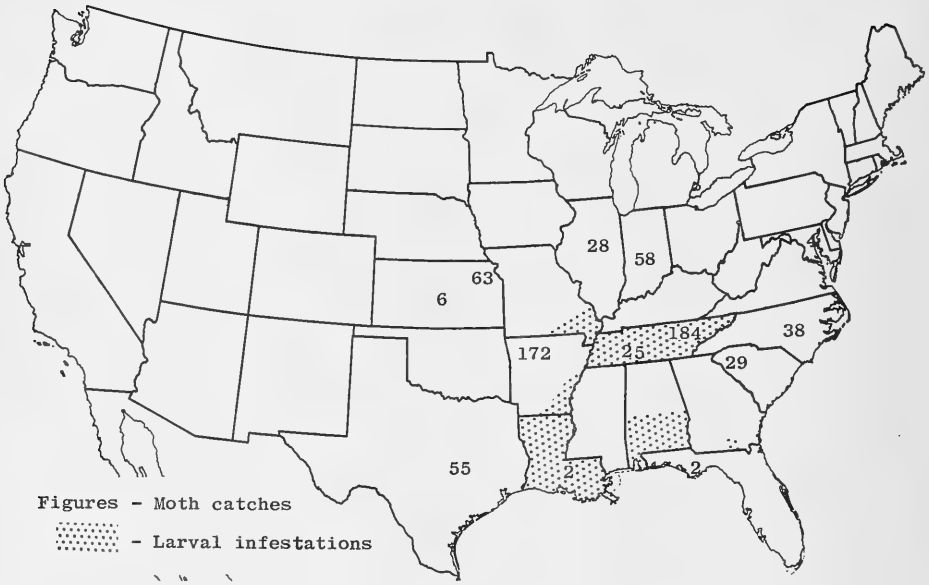
BROWN WHEAT MITE (Petrobia latens) - KANSAS - Light in several fields in Seward and Meade Counties. Control required one field in Finney County. (DePew).

DATE MITE (Oligonychus pratensis) - CALIFORNIA - Severe damage occurring in large areas of crested and pubescent wheatgrass in Alturas and Cedarville area of Modoc County. Lack of rain plus infestations may cause total loss of crop. (Cal. Coop. Rpt.). KANSAS - Increasing and causing damage to wheat in Meade, Seward and Gray Counties. (DePew).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Wheat streak mosaic becoming quite noticeable many fields (Gates); damage reported in Comanche County. (Gates).

A WHEAT SAWFLY (Pachynematus sp., prob. sporax) - CALIFORNIA - Light to heavy larval populations on wheat, barley and Sitanion jubatum in local area of Los Angeles County; a new county record. Other known infestation in Cuyama Valley, Santa Barbara and Ventura Counties, is receiving eradication treatment. (Cal. Coop. Rpt.).

Armyworm Situation, Week Ending May 1



ARMYWORM (Pseudaletia unipuncta) - ALABAMA - Larvae light on small grains in southern area. (Eden, Apr. 24). LOUISIANA - Larvae light on oats throughout State. (Spink, Apr. 24). Averaged 15 per 100 sweeps in oats in Vermilion Parish. One field estimated over 50 percent destroyed. Larval complex, including Peridroma margaritosa, Heliothis zea and P. unipuncta heavily infesting seed clover near Simmesport. Larvae average 20-40 per square foot. Controls being applied. (Spink). TENNESSEE - Few small larvae found in small grains across State. (Mullett). ARKANSAS - Infestations in small grain general but light in southeast. Larvae, first to third instar, averaged 33.8 per 100 sweeps. (Ark. Ins. Sur.). MISSOURI - Moth flights moderate to heavy in central area. Very small larvae, 3-15 per foot of row, in barley in southeast. Hatch just beginning in southwest area. (Kyd, Thomas). NEBRASKA - First moths of season taken at Lincoln, May 2. (Roselle). GEORGIA - Larvae heavy on oats and rye in Lowndes County. (Johnson).

GREAT BASIN WIREWORM (Ctenicera pruinina noxia) - OREGON - Reported in CEIR 9(17): 307 as probably this species, has been positively determined as this species by M. C. Lane. Remained active and damage to grain continued in Sherman and Gilliam Counties during week of April 17. (Every).

WIREWORMS - UTAH - Injuring winter wheat in several fields in Cache County. (Knowlton).

RICE STINK BUG (Oebalus pugnax) - LOUISIANA - Averaged 11 per 100 sweeps in oats in Webster and Claiborne Parishes. (Spink, Apr. 24). Averaged 6 per 100 sweeps in oats in Vermilion Parish. Ranged 10-50 per 100 sweeps in wild grass in Tangipahoa Parish. (Spink). ARKANSAS - Very general in small grain in southeast area. Counts 15 per 100 sweeps, heaviest on barley in Jefferson County. (Ark. Ins. Sur.).

YELLOW SUGARCANE APHID (Sipha flava) - FLORIDA - Nymphs and adults heavy and damaging large areas of pangolagrass grown for hay at Gainesville, Alachua County. Control being planned. (Buckley, Apr. 26). LOUISIANA - Light infestation on seedling rice at St. Gabriel. (Spink).

A GRASS STEM MINER (Phytomyza nigra) - OREGON - Small numbers on fescue seed fields, Marion County. (Larson).

FALSE CHINCH BUGS (Nysius spp.) - UTAH - Common on range and about farms in Beaver, Millard, Iron and Washington Counties. (Knowlton).

BRONZE CUTWORM (Nephelodes emmedonia) - ILLINOIS - Averaged 14.3 per 100 sweeps in bluegrass in central area. (Ill. Ins. Rpt.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW JERSEY - Eighty-nine fields in 12 counties inspected for overwintering borers during spring of 1959. Percentage mortality 32.4 percent. Populations higher than in 1958 generally and outlook for damage has increased. Outlook for infestation this spring in potatoes and corn second highest in 5 years. Parasite activity held steady and showed slight increase from spring of 1958. (Ins. Dis. Newsl.). MARYLAND - Emergence underway on Eastern Shore. Pupation 80 percent at Easton, Talbot County; 60 percent at Snow Hill, Worcester County. (U. Md., Ent. Dept.). DELAWARE - Pupation slightly increased, approximately 80 percent in Sussex County, 58 percent in Kent County and 30 percent in New Castle County. (Burbutis, Conrad). INDIANA - Winter mortality 25 percent in Posey County and 36 percent in Shelby County. (Everly). ALABAMA - Pupation 10 percent by April 16 on Sand Mountain. (Eden). ARKANSAS - In Desha County field, pupation 60 percent on April 28. (Ark. Ins. Sur.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - TEXAS - Averaged 3 per plant in corn in Navarro and Rockwall Counties; some damage apparent in Rockwall County. (Randolph, Hawkins). OKLAHOMA - Common in corn in Garvin, McClain and Cleveland Counties. Populations up to 8 per stalk some fields and causing moderate damage. (VanCleave). Damaging scattered corn fields in Noble, Payne, Logan, Lincoln and Pottawatomie Counties. (Howell). Counts 1-10 per plant in Cushing area, Payne County, 8-10 per plant in Sand Springs area, Tulsa County, and 0-5 in Bixby area. Ten percent of plants show damage in Cushing area. (Arbuthnot). INDIANA - Flea beetles, probably this species, damaging newly emerged sweet corn in Vincennes area. (Matthew, Dobson). DELAWARE - First adults of season present on rye in Kent County. (Burbutis, Conrad).

A BILLBUG (Calendra callosa) - GEORGIA - Heavy on corn in Colquitt, Lowndes, Lanier, Wayne, Tattnall and Bulloch Counties. Replanting of corn necessary many instances. (Johnson).

CHINCH BUG (Blissus leucopterus) - TEXAS - Range 2-4 per corn plant in Navarro County and 2-5 per plant in Rockwall County. (Randolph, Hawkins). Observed on corn in Fannin County. (Turney). OKLAHOMA - Populations 1.5 per stalk in small corn at Durant. (Robinson). Damaging scattered corn fields in Noble, Payne, Logan, Lincoln and Pottawatomie Counties. Adults common at base of stalks. (Howell). KANSAS - Light in wheat in Saline County. (Peters).

SORGHUM WEBWORM (Celama sorghiella) - INDIANA - Many dead larvae found under basal leaves of old sorghum plants heavily infested in 1958. No live larvae found. (Everly).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARIZONA - Heavy moth emergence occurring. (Ariz. Coop. Sur.).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Egg masses averaged 30 per acre and recent-feeding-signs averaged 1 percent. (Apr. 24). Egg masses averaged 6 per acre and 4.5 percent of plants showed feeding signs. (Apr. 30). Figures represent surveys made in 70 fields in sugarcane belt. (Spink).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - LOUISIANA - Some damage to corn in Livingston Parish, April 24. Heavy infestations many corn fields in Tangipahoa Parish. (Spink). OKLAHOMA - Light in alfalfa in central area and in Choctaw County. (VanCleave, Goin).

PEA APHID (Macrosiphum pisi) - DELAWARE - Highest populations on alfalfa in central and western Sussex County, 50-75 per sweep. Common to prevalent in southern New Castle and Kent Counties. Present on clover most of State. (Burbutis, Conrad). NEW JERSEY - Populations low in alfalfa, (Ins. Dis.Newsl.). MARYLAND - Generally light on alfalfa in central and western sections; averaged over 250 per sweep at Snow Hill, Worcester County. Some diseased aphids noted. (U. Md., Ent. Dept.). VIRGINIA - Generally light, but medium in few Wythe, Smyth, Washington and Scott County fields. (Morris). Populations 20-50 per sweep in alfalfa in Steels Tavern area of Rockbridge and Augusta Counties (Woodside) and severe in fields in Goochland County, some treatments being applied (Truett). Predators and parasites plentiful in southwestern area. (Morris). ALABAMA - Extremely heavy on alfalfa and crimson clover throughout northern area. Populations 50 per sweep several Madison County fields. (Grimes). ARKANSAS - Infestations declined in alfalfa in southeast area. (Ark. Ins. Sur.). MISSOURI - Increasing in southern area, counts 30 to over 300 per sweep in south central and southwest areas and 8-50 per sweep in west central and central areas. Very little damage evident. Fungus disease, parasites and predators active and increasing. (Kyd, Thomas). INDIANA - Abundant in alfalfa in Dubois and Orange Counties. Counts from 5-80 per sweep. (Dobson, Matthew). Counts in southwest 50-100 per sweep; highest in Knox County. (Wilson). ILLINOIS - Average 461 per 100 sweeps in clover and alfalfa in central area, with as many as 3200 per 100 sweeps some alfalfa fields. Although parasites numerous, populations still increasing rapidly. (Ill. Ins. Rpt.). WISCONSIN - No evidence of hatching in two southern tiers of counties. (Wis. Ins. Sur.). NEBRASKA - Averaged 10 per 10 sweeps most alfalfa fields in southeast. (Roselle). KANSAS - Heavy many alfalfa fields in southwest. Damaged first cutting. (DePew). Present, 50-1500 per sweep, in alfalfa in Riley, Pottawatomie, Geary, Wabaunsee, Dickinson and Saline Counties. (Peters, Gates). Present in Comanche County (Gates) and throughout eastern and southeastern areas (Painter). Disease caused 25-80 percent reduction in live aphids most fields. (Peters). OKLAHOMA - Common in alfalfa, central area. Heaviest in Cleveland, Canadian, Kingfisher, Blaine and Logan Counties. Counts 20-75 per sweep most fields. (VanCleave). Heavy in Murray and Pontotoc Counties. (Meharg). TEXAS - Averaged 25 per sweep in vetch in Kaufman County and 8 per sweep in Navarro County. (Randolph, Hawkins). NEW MEXICO - Generally light throughout Dona Ana and Sierra Counties. (N. M. Coop. Rpt.). UTAH - Appearing generally in State. Some spraying for control in central Washington County. (Knowlton). ARIZONA - Continuing very heavy in alfalfa most of State. Infestations some fields reduced by predators. (Ariz. Coop. Sur.). NEVADA - Heavy on alfalfa at Hiko, Lincoln County. (Christensen, Apr. 24). IDAHO - Severe, 1,000-2,000 per crown in alfalfa field south of Murtaugh. (Gibson). Averaged 300 per four-inch stem in 500-600 acres of seedling alfalfa across Canyon and Owyhee Counties. (Waters, Apr. 23). Heavy on alfalfa in Cassia County. (Bodily). Extremely heavy in alfalfa field near Jerome. Up to 1,000 per sweep. (Gibson).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Populations declining in Clark County due to predators and introduced parasites. Some fields reached economic levels, 40-60 per stem, before this decrease. Trace infestations in Fallon area, Churchill County. General decline in southern Washoe County. Light to moderate at Elgin, Lincoln County. (Bechtel et al., Apr. 24). NEW MEXICO - Building up in southern and light in northern Dona Ana County. Appears to be building up and spreading in higher elevations in Villanueva Valley, San Miguel County. (N. M. Coop. Rpt.). TEXAS - Damaging alfalfa in Rockwall County. Controls and predators checked infestations. (Randolph, Hawkins). Light and widespread in Maverick County. (Prucia). OKLAHOMA - Common in alfalfa in central area. Heaviest in Cleveland, Grady, McClain and Garvin Counties. Counts 10-75 per sweep most fields, approximately 50 percent winged forms. Continue to

decline in Payne County alfalfa. (VanCleave, Ketner). Counts 50-75 per linear foot in Caddo County (Hudson), 800-900 per square foot of crown area in the Hollis area (Hatfield), light in Murray and Pontotoc Counties (Meharg) and 2-15 per sweep in Choctaw County (Goin). KANSAS - Found in Wilson and Labette Counties. Highest count about 10 per 6 inches of row of alfalfa. (Painter). MISSOURI - First of season taken in alfalfa in south central and southwestern areas, counts 0-2 per sweep. About 40 percent winged forms in southwest. (Kyd, Thomas). INDIANA - None observed in alfalfa fields examined in Martin, Dubois, Orange and Lawrence Counties. (Matthew, Dobson). GEORGIA - Light on alfalfa in Habersham, Cherokee, Polk, Floyd, Forsyth and Oconee Counties. (Johnson).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - VIRGINIA - Generally heavy in all untreated alfalfa and clover fields surveyed in Wythe, Smyth, Washington and Scott Counties. Severe in red clover fields in Henry County. (Morris, Pollard). WEST VIRGINIA - First and second-instars present on alfalfa and clover statewide. (W. Va. Ins. Sur.). MARYLAND - Generally light on alfalfa in central and western sections; moderate on red clover at Easton, Talbot County. (U. Md., Ent. Dept.). DELAWARE - Nymphs common to prevalent on alfalfa most areas. (Burbutis, Conrad). PENNSYLVANIA - Hatching well underway most areas. (Pepper). INDIANA - First hatch observed in Knox, Posey, Vanderburgh and Decatur Counties April 5. Nymphs developing rapidly in southern half of State. Nymphs very heavy, 3-4 per stem, in new meadows southeast of Indianapolis and range from 0.5-2.5 per stem in Indiana, Marion to Tippecanoe Counties. Development between Lafayette and South Bend slow; no hatching to April 23. (Wilson). Infestations found nearly all alfalfa and clover examined in Tippecanoe, Montgomery, Putnam, Owen, Greene, Martin, Dubois, Orange, Lawrence, Monroe and Morgan Counties. Counts ranged to high of 1.9 nymphs per stem. (Matthew, Dobson). WISCONSIN - No evidence of hatching in alfalfa in two tiers of southern counties. (Wis. Ins. Sur.). ILLINOIS - Hatch just getting well started in central area. (Ill. Ins. Rpt.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - VIRGINIA - Light in several alfalfa fields in Wythe, Smyth, Washington and Scott Counties. (Morris). NEW MEXICO - Averaged about 3-6 per 10 sweeps in alfalfa in southern counties. (N. M. Coop. Rpt.). UTAH - Numerous on alfalfa in orchards in Santa Clara, Washington County. (Knowlton).

TARNISHED PLANT BUG (Lygus lineolaris) - VIRGINIA - Heavy in alfalfa fields surveyed in Wythe, Smyth, Washington and Scott Counties, but not considered of economic importance. (Morris). DELAWARE - First nymphs of season on alfalfa in Kent County. Adults present throughout State. (Burbutis, Conrad). INDIANA - Adults and nymphs common in all alfalfa and red clover fields in Owen, Greene, Martin, Dubois, Orange, Lawrence, Monroe and Morgan Counties. Counts about 30 per 100 sweeps. (Matthew, Dobson). ILLINOIS - Adults average 30 per 100 sweeps in clover and alfalfa, as many as 140 per 100 sweeps some fields. (Ill. Ins. Rpt.). NEBRASKA - Light in southeast counties. Largest numbers 6 per 10 sweeps. (Roselle). ALABAMA - Limited numbers in alfalfa and clover in northeastern area. Infestations heavy in southeast area previous week. (Grimes).

RAPID PLANT BUG (Adelphocoris rapidus) - ILLINOIS - Nymphs vary 0-10 per 100 sweeps in clover and alfalfa in central area. (Ill, Ins. Rpt.). DELAWARE - First nymphs of season found on alfalfa in Kent County. (Burbutis, Conrad).

LYGUS BUGS (Lygus spp.) - OKLAHOMA - Common in alfalfa in central area, 1-4 per sweep (VanCleave) and 0-1 per sweep in Choctaw County (Goin). KANSAS - Found in several alfalfa fields. (Peters).

POTATO LEAFHOPPER (Empoasca fabae) - NORTH CAROLINA - Survey on clover, vetch, alfalfa and sweetclover in Mecklenburg and Gaston Counties on April 28 negative. (Young). INDIANA - None found in alfalfa and clover fields surveyed in Tippecanoe, Montgomery, Putnam, Owen, Greene, Martin, Dubois, Orange, Lawrence, Monroe and Morgan Counties. (Matthew, Dobson).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - UTAH - Moderately numerous at New Castle and Beryl in Iron County. (Knowlton).

CLOVER MITE (Bryobia praetiosa) - NEVADA - Heavily damaged alfalfa in dry and sandy areas of fields in Fallon area, Churchill County. Infestations declining. (York, Apr. 24). WYOMING - Damaging lawns in Worland. (Lowry).

SWEETCLOVER APHID (Myzocallidium riehmi) - ILLINOIS - Averages 4 per 100 sweeps in central area. (Ill. Ins. Rpt.).

YELLOW CLOVER APHID (Therioaphis trifolii) - INDIANA - Found on red clover in Lawrence and Martin Counties. Counts 2-6 per sweep. No winged adults found. (Wilson, Dobson, Matthew). ILLINOIS - Averages 19 per 100 sweeps in central area. (Ill. Ins. Rpt.).

ALFALFA WEEVIL (Hypera postica) - NEW JERSEY - Larvae observed in Camden County alfalfa fields April 27. (Ins. Dis. Newsl.). DELAWARE - Larval counts 2-3 per sweep in southern New Castle County, 5-75 per sweep in central Kent County. Highest populations in western Sussex County and in central Kent County. (Burbutis, Conrad). MARYLAND - Infestations variable on alfalfa in central and western sections; larvae ranged 0-6 per sweep. Damage noticeable some fields. (U. Md., Ent. Dept.). VIRGINIA - Damage continues in untreated alfalfa fields in practically all parts of State. Found in Washington County for first time. (Morris). WEST VIRGINIA - Light to moderate in untreated alfalfa in eastern panhandle counties. (W. Va. Ins. Sur.). NORTH CAROLINA - Severe on alfalfa in Alleghany County. Adults found in Hertford County. (Black, Ballentine). Newly emerged adults numerous in Mecklenburg and Gaston Counties. (Farrier). SOUTH CAROLINA - Small larvae numerous in Aiken County and considerable pupation in Pickens County. (Nettles et al.). GEORGIA - Light on alfalfa in Habersham, Cherokee, Polk and Floyd Counties. Moderate to heavy in Forsyth County. Fifty larvae per sweep in Oconee County. (Robertson, Johnson). IDAHO - Adults depositing eggs most alfalfa fields in Bonneville County. (Kohl). UTAH - Larvae, up to half-grown in St. George-Hurricane area of Washington County. (Knowlton).

CLOVER LEAF WEEVIL (Hypera punctata) - INDIANA - Infestations and damage appear unusually low. (Wilson) ILLINOIS - Larvae average 714 per square foot in central area. This species, in combination with Sitona cylindricollis, causing damage to few mixed clover fields in central area. (Ill. Ins. Rpt.). KANSAS - Few larvae found in some alfalfa fields. (Peters).

A CLOVER WEEVIL (Hypera meles) - ALABAMA - Damage continues several areas of State. Heavy in crimson and white clover in Autauga, Montgomery, Talladega and Randolph Counties. Numbers limited in De Kalb, Marshall and Madison Counties. (Grimes, S. Hays, Apr. 24).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis)- CALIFORNIA - Light on alfalfa in Chino area of San Bernardino County. (Cal. Coop. Rpt.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - MARYLAND - Moderate larval injury to red clover in Harford and Talbot Counties. Few adults taken. (U. Md., Ent. Dept.). ILLINOIS - Larvae infesting 2.3 percent of clover and alfalfa stems in central area. (Ill. Ins. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - DELAWARE - Adults present on clover in Kent County. (Burbutis, Conrad).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NEBRASKA - Averaged 2 per 10 sweeps in alfalfa in southeast. (Roselle). UTAH - Damage appeared on sweetclover in Davis and Weber Counties. (Knowlton).

VETCH BRUCHID (Bruchus brachialis) - TEXAS - Averaged 1-5 per sweep in vetch in Kaufman County. Building up in surrounding counties. (Randolph, Hawkins). OKLAHOMA - Light in scattered alfalfa fields in central area. (VanCleave).

GRASSHOPPERS - IDAHO - Egg pods locally abundant near Lake Waha, south of Lewiston. Up to 30-45 pods per square yard found in sod pasture. (Barr, Apr. 23). UTAH - Hatching in alfalfa fields and along highways in warmer areas of Garfield, Beaver, Millard, Washington and Kane Counties. (Knowlton).

CORN EARWORM (Heliothis zea) - TEXAS - Very light in vetch in Kaufman and Navarro Counties. (Randolph, Hawkins). Infesting about 35 percent of sweet corn tassels in Frio and Dimmit Counties. (Harding). LOUISIANA - Light to medium in oats mixed with clover in Vermilion Parish. (Spink). ARKANSAS - Larvae, first to third instar, averaged 6.7 per 20 sweeps in legumes, those in crimson clover highest. (Ark. Ins. Sur.). MISSOURI - First adult moth taken at Columbia on April 26. First larvae of season taken in alfalfa in south central area. (Kyd, Thomas).

ARMY CUTWORM (Chorizagrotis auxiliaris) - UTAH - Infesting about 20 percent of alfalfa in Beryl-Enterprise area of Washington County, several fields on Milford Flats of Beaver County and scattered alfalfa and range areas of Kane and Piute Counties. Alfalfa moderately damaged at Escalante in Garfield County. (Knowlton). NEBRASKA - Infestations in wheat average 6-8 per foot in Keith County. Larvae extremely variable in size. (Pruess).

FORAGE LOOPER (Caenurgina erechtea) - ILLINOIS - Occasional larvae found in clover and alfalfa fields in central area; adults frequently observed. (Ill. Ins. Rpt.).

THRIPS - UTAH - Infestation in southern Washington County alfalfa fields highest ever observed in so far ahead of bloom. Moderate on barley in Hurricane and Washington areas of Washington County. (Knowlton). TEXAS - Light on young peanut plants, some damage evident. (Harding).

RED-NECKED PEANUTWORM (Stegasta basqueella) - TEXAS - First-generation larvae on peanuts, infesting 7 percent of terminals. (Harding).

BEAN LEAF BEETLE (Cerotoma trifurcata) - INDIANA - Swept from alfalfa and red clover fields in Martin, Dubois and Orange Counties, south central area. Averaged 1 per 50 sweeps. (Matthew, Dobson).

FRUIT INSECTS

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MASSACHUSETTS - Eggs being found, extent of infestation unknown. (Crop Pest Cont. Mess.). PENNSYLVANIA - Eggs hatching and adults still depositing eggs on apple in south central area. (Pepper). NEW JERSEY - No hatching on April 27. (Ins. Dis. Newsl.) NORTH CAROLINA - First adults of season appeared on April 10 in Wilkes County. (Turnipseed). MICHIGAN - Egg masses first observed at Baroda and Hinchman April 23-24, also found at Paw Paw April 25. (Hutson). OHIO - Eggs being deposited. (Cutright). INDIANA - All egg masses examined April 27 in Vincennes area hatched. Masses numerous. (Cleveland). ILLINOIS - Rolled leaves and leaf damage easily seen toward center of trees at Carbondale. Many larvae 1/4 to 1/3 grown. Most egg masses hatched. (Meyer). MISSOURI - Active from St. Joseph to Cape Girardeau and from Columbia to Kansas City. Larvae about 1/4 grown at Columbia. (Wkly. Rpt. Fr. Grs.).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - CALIFORNIA - Heavy on pear trees in Finley area of Lake County and moderate on apple in Watsonville area, Santa Cruz County. (Cal. Coop. Rpt.).

CODLING MOTH (Carpocapsa pomonella) - MISSOURI - Pupation underway in southeast area. (Wkly. Rpt. Fr. Grs.). NORTH CAROLINA - First adult of season taken April 21 in Wilkes County. (Turnipseed).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Damage unusually severe this spring in Santa Clara, Hurricane, LaVerkin and Toquerville orchards and in Moab area of Grand County. (Knowlton).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MISSOURI - Caught in traps for several days in southeast area. (Wkly. Rpt. Fr. Grs.).

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Started hatching. (Crop Pest Cont. Mess.). NEW JERSEY - Most eggs in Burlington and Camden Counties hatched by April 27. (Ins. Dis. Newsl.). PENNSYLVANIA - Heavy in most south central apple orchards, with many overwintering eggs yet to hatch. (Pepper). DELAWARE - Numerous on unsprayed apple trees. (MacCreary). NORTH CAROLINA - Completed one generation by beginning of petal fall in Wilkes County. (Turnipseed). OHIO - Hatch of winter eggs advanced but not complete. (Cutright). MICHIGAN - No hatching observed. (Hutson). INDIANA - Heavy infestations indicated in Vincennes area this season. Range up to about 300 nymphs per 100 leaves with about 75 percent of eggs hatched. (Cleveland). Most eggs hatched in Orleans area. (Marshall). ILLINOIS - Began oviposition at Carbondale April 27. Adults mostly on under side of leaves. (Meyer). CALIFORNIA - Appearing in peach orchards in Marysville area of Yuba County and Yuba City area of Sutter County. (V. Stombler).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Appearing in peach orchards in Marysville area of Yuba County and Yuba City area of Sutter County. (V. Stombler). PENNSYLVANIA - Adults on apple in south central area. (Pepper).

SPIDER MITES (Tetranychus spp.)- NEW MEXICO - Leaving soil and feeding on weeds and lower twigs of apple trees in orchards near Las Cruces, Dona Ana County. (N. M. Coop. Rpt.).

AN ORCHARD MITE (Bryobia rubrioculus) - CALIFORNIA - Building up on peaches in Marysville-Wheatland areas of Yuba County and Yuba City area of Sutter County. (Cal. Coop. Rpt.). UTAH - Hatching in Cache County orchards by April 24. Hatching 7-10 days earlier in parts of Salt Lake, Utah and Box Elder Counties. (Davis, Knowlton).

PEACH SILVER MITE (Vasates cornutus) - CALIFORNIA - Heavy in Yuba City-Marysville areas of Sutter and Yuba Counties. (V. Stombler).

APPLE APHID (Aphis pomi) - INDIANA - Continue to develop on apple in Orleans area. (Marshall). MASSACHUSETTS - Abundant on terminals, watersprout growth and young apple trees. (Crop Pest Cont. Mess.).

ROSY APPLE APHID (Anuraphis roseus) - INDIANA - Continue to develop on apple in Orleans area. (Marshall). MASSACHUSETTS - Some can be found in fruit buds. (Crop Pest Cont. Mess.). MISSOURI - Severe in southwest area and in Marshall area. Discovered hatching in southeast area and controlled. (Wkly. Rpt. Fr.Grs.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Moderate to heavy on apple trees in northern Dona Ana County. (N. M. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Continues to be a problem on peaches, especially on trees around homes. (N. M. Coop. Rpt.). UTAH - Moderate in peach orchards in Moab area. (Knowlton).

BLACK CHERRY APHID (Myzus cerasi) - UTAH - Stem mothers numerous in Cache County orchards. (Davis).

APHIDS - ILLINOIS - Curled leaves in Carbondale area and will be more difficult to control. (Meyer). MISSOURI - Severe in southwest area and in Marshall area. (Wkly. Rpt. Fr. Grs.). TEXAS - Heavy, widespread on citrus trees in Laredo and Webb Counties. (Stephens). UTAH - Causing some leaf curl on plum and peach in Hurricane-Rockville-Santa Clara areas. (Knowlton).

FORBES SCALE (Aspidiotus forbesi) - MARYLAND - Heavy on plum tree at Leonardtown, St. Marys County, April 15. (U. Md., Ent. Dept.).

CALIFORNIA PEAR-SLUG (Pristiphora californica) - OREGON - Adults abundant and laying eggs in Medford area, April 15. (Goeden).

PEAR PSYLLA (Psylla pyricola) - OREGON - First adult of season in Medford area, April 28. Numerous last instars on unsprayed trees. (Gentner).

PLUM CURCULIO (Conotrachelus nenuphar) - ILLINOIS - Twenty jarred from 5 apple trees at Carbondale, April 27. (Chandler, Meyer). INDIANA - Seventy adults jarred from 5 unsprayed trees on April 20, and 87 from 5 trees, April 27, in Vincennes area. (Cleveland). MISSOURI - Well along in seasonal development in southeast area. (Wkly. Rpt. Fr. Grs.). ALABAMA - Damage increasing in central and southern areas. Limited feeding in Madison County. (Grimes, Apr. 27). LOUISIANA - Very heavy in native plum in Claiborne and Webster Parishes. (Spink). GEORGIA - Peak emergence of larvae from peach drops occurred April 25, 9 days earlier than in 1958. Total of 3,252 larvae emerged to April 29 from bushel of peach drops collected April 20 in commercial orchard at Fort Valley and emergence from this bushel not yet complete. Larvae have emerged from over 1/2 of 6,000 drops collected. (Snapp).

CATFACING INSECTS - INDIANA - Lygus lineolaris activity has dropped sharply, while stink bugs continued to increase in Vincennes area. (Cleveland). SOUTH CAROLINA - Stink bugs noted on peach in Lexington County. (Nettles et al.). MASSACHUSETTS - L. lineolaris active on peaches, pears and apples on warm days. (Crop Pest Cont. Mess.).

THRIPS - UTAH - Heavy in Santa Clara and Hurricane orchards of Washington County. Taeniothrips inconsequens moderate in some cherry orchards in Utah and Salt Lake Counties. (Knowlton). NEW MEXICO - Damaging cherry foliage at Artesia, Eddy County. (N. M. Coop. Rpt.). TEXAS - Frankliniella occidentalis averaged 5-9 per grape blossom cluster and fruit bunch in Maverick County. (Harding).

AN APHID (Myzocallis coryli) - OREGON - Infestations heavier on filberts in Yamhill County than at same time last year. Honeydew showing on leaves. (Larson).

WATERLILY APHID (Rhopalosiphum nymphaeae) - CALIFORNIA - Heavy on almond trees in Oroville, Butte County. (Cal. Coop. Rpt.).

A SAWFLY (Isodyctium sp.) - TEXAS - Damaging pecan leaves in Parker County. (Tex. Coop. Rpt.).

A CASEBEARER - GEORGIA - Defoliating pecan trees in Ware County. Some 80-90 percent defoliated. Light to moderate in Pierce, Wayne, Tattnall, Bulloch and Emanuel Counties. (Johnson).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Eight orchards inspected in Gonzales and Guadalupe Counties. Fewer found than at same time, 1958. Larvae pupating. (Garner).

ORANGE TORTRIX (Argyrotaenia citrana) - CALIFORNIA - Light on lemon trees in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

SIX-SPOTTED MITE (Eotetranychus sexmaculatus) - FLORIDA - Has reached injurious levels in a number of groves. (Simanton, Thompson, Johnson).

SPIREA APHID (Aphis spiraecola) - CALIFORNIA - Heavy on citrus in Riverside, Riverside County. (Cal. Coop. Rpt.).

WHITEFLIES - TEXAS - Heavy, widespread on citrus trees in Laredo and Webb Counties. (Stephens).

SALT-MARSH CATERPILLAR (Estigmene acrea) - CALIFORNIA - Light on Thompson seedless grapes in Fresno, Fresno County. (Cal. Coop. Rpt.).

GRAPE FLEA BEETLE (Altica chalybea) - MISSOURI - Very heavy on wild grapes around Columbia, some noted in vineyards around Rosati earlier. (Wkly. Rpt. Fr. Grs.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - SOUTH CAROLINA - First-brood larvae hatching, infestations under control in potato plantings examined in Charleston County. (Cuthbert). GEORGIA - Light on tomatoes in Colquitt, Lowndes and Tattnall Counties. (Johnson). VIRGINIA - Have caused considerable damage to potatoes and tomatoes on Eastern Shore. (Hofmaster). Two to 3 per newly set tomato plant in a 15-acre planting in Westmoreland County. (Ptucha). DELAWARE - First adults of season found on potatoes in Kent and Sussex Counties. First eggs found on early tomato in Sussex County. (Burbutis, Conrad).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Noted on potatoes in Somerset County. (U. Md., Ent. Dept.). DELAWARE - First adults of season on potato in Sussex County. (Burbutis, Conrad).

POTATO FLEA BEETLE (Epitrix cucumeris) - MARYLAND - Noted on potatoes in Somerset County. (U. Md., Ent. Dept.). DELAWARE - First adults of season present on potato in Kent County. Feeding injury light and confined to plants of field borders. (Burbutis, Conrad).

FLEA BEETLES - UTAH - Damaging young tomato sets at Leeds, Washington County. (Knowlton). PENNSYLVANIA - Abundant on early cabbage in seed beds in Indiana County. (Udine). VIRGINIA - Have caused considerable damage to potatoes and tomatoes and present on young greens on Eastern Shore (Hofmaster). Severe on tomato plants in Westmoreland County. (Ptucha).

SOUTHERN POTATO WIREWORM (Conoderus falli) - SOUTH CAROLINA - Recent surveys indicate light populations survived the winter. Injury should be minor in most treated potato plantings in Charleston County. (Cuthbert).

IMBRICATED SNOUT BEETLE (Epicaerus imbricatus) - DELAWARE - Adults very abundant in potato field in Kent County. (Burbutis, Conrad).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - LOUISIANA - Killing potato terminals in Tangipahoa Parish. Up to 10 per terminal. (Spink).

APHIDS - UTAH - Numerous on transplanted tomatoes at Leeds, Washington County. (Knowlton). MARYLAND - Light on potatoes on lower shore. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - SOUTH CAROLINA - Light but general on potato in Charleston County. (Cuthbert). LOUISIANA - Infesting peppers in Tangipahoa Parish. (Spink). VIRGINIA - Very abundant on spinach on Eastern Shore and processors had to reject quite a few growers. (Hofmaster).

POTATO APHID (Macrosiphum solanifolii) - SOUTH CAROLINA - Light but general on potato in Charleston County.(Cuthbert). LOUISIANA - Infesting squash and tomatoes in Tangipahoa Parish. (Spink). DELAWARE - First of season found on spinach in New Castle County. (Burbutis, Conrad).

SUCKFLY (Cyrtopeltis minimus) - TEXAS - Heavy on tomato leaves in Zavala and Nueces Counties. (Harding, Nolan).

THRIPS - SOUTH CAROLINA - Heavier than usual on onions, and moderate injury to young watermelon and cantaloup in Charleston County. (Cuthbert). UTAH - Numerous on strawberry plants in Washington County. Thrips tabaci numerous on garden

onions in Washington County. (Knowlton). NEW MEXICO - Generally light on lettuce in Mesilla Valley. Caused considerable damage to lettuce field in Eddy County. (N. M. Coop. Rpt.)

ONION MAGGOT (Hylemya antiqua) - CALIFORNIA - Moderate in two fields of green market onions in West Sacramento area of Yolo County. (M. Zobel). NEW JERSEY - Now active. (Ins. Dis. Newsl.).

CUTWORMS - NEW JERSEY - Active in tomato in some areas. (Ins. Dis. Newsl.). DELAWARE - Moderately heavy on young cabbage in southern Sussex County. (Burbutis, Conrad). SOUTH CAROLINA - Agrotis ypsilon generally more abundant than usual, causing slight injury to cabbage and potatoes in Charleston County. (Cuthbert).

CABBAGE APHID (Brevicoryne brassicae) - DELAWARE - Common on cabbage plants in Sussex County. (Burbutis, Conrad).

TURNIP APHID (Rhopalosiphum pseudobrassicae) - LOUISIANA - Severely damaging mustard greens in St. Helena Parish. (Spink).

IMPORTED CABBAGEWORM (Pieris rapae) - SOUTH CAROLINA - Slight to moderate injury in unprotected cabbage in Charleston County. (Cuthbert). MARYLAND - Adults numerous in Bealsville area. (U. Md., Ent. Dept.). DELAWARE - First larvae and eggs of season found on cabbage in Sussex County. (Burbutis, Conrad).

SOUTHERN CABBAGEWORM (Pieris protodice) - LOUISIANA - Heavy infestation found on turnips at Shongaloo, Webster Parish. (Spink).

CABBAGE LOOPER (Trichoplusia ni) - SOUTH CAROLINA - Populations generally lower than usual for time of year in Charleston County. (Cuthbert). NEW MEXICO - Causing minor damage to lettuce in Mesilla Valley. (N. M. Coop. Rpt.). ARIZONA - Light on lettuce in Cochise and Graham Counties and in the Aguila area of Maricopa County. (Ariz. Coop. Sur.).

DIAMONDBACK MOTH (Plutella maculipennis) - SOUTH CAROLINA - Moderate in most cabbage before controls in Charleston County. (Cuthbert).

HARLEQUIN BUG (Murgantia histrionica) - OKLAHOMA - Adults killing radishes, turnips, cabbage and spinach in gardens in Pottawatomie County. (Beckham). Heavy in gardens in Pauls Valley area. (Perry).

YELLOW-MARGINED LEAF BEETLE (Microtheca ochroloma) - LOUISIANA - Severely damaging mustard greens in St. Helena Parish. (Spink).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - LOUISIANA - Heavy on mustard greens in St. Helena Parish and peppers in St. James and Tangipahoa Parishes. (Spink).

TOMATO FRUITWORM (Heliothis zea) - CALIFORNIA - Light on lettuce in the Chula Vista area of San Diego County and moderate on strawberry in the Watsonville area of Santa Cruz County. (Cal. Coop. Rpt.). NEW MEXICO - Problem in lettuce fields in southern counties where control was inadequate. (N. M. Coop. Rpt.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - ARIZONA - Damaging seedling tomatoes, watermelon and cantaloup in Greenlee County. Averaged 10 adults per hill on watermelon and canteloup. (Ariz. Coop. Sur.).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - SOUTH CAROLINA - Moderate on squash and cucumber in Charleston County. (Cuthbert). ARIZONA - Damaging seedling tomatoes, watermelons and cantaloup in Greenlee County. Average 10 adults per hill on watermelon and cantaloup. (Ariz. Coop. Sur.).

A SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata tenella) - UTAH - Damaging cucumber and squash plants in Santa Clara-Springdale areas of Washington County. (Knowlton).

MELON APHID (Aphis gossypii) - SOUTH CAROLINA - Light on squash and cucumber in Charleston County. (Cuthbert). TEXAS - Damaging watermelon and canteloup in Frio and Dimmitt Counties. (Harding).

LYGUS BUGS (Lygus spp.) - UTAH - Moderate to heavy in sugar beet fields in Washington County. (Knowlton).

COLLEMBOLA - CALIFORNIA - Onychiurus armatus and O. fimetarius heavy on sugar beet seedlings in San Luis Obispo, San Luis Obispo County. (Cal. Coop. Rpt.). Entomobrya unostrigata, E. atrocincta and Lepidocyrtus sp. necessitated replanting of seedling tomatoes in the Clarksburg area in Yolo County. (Cal. Coop. Rpt., Apr. 17). Continue heavy and severely damaging seedling tomatoes in the Clarksburg area of Yolo County. (E.R. Little). VIRGINIA - Have been pests in greenhouses on Eastern Shore and now are attacking crops in field. (Hofmaster).

MEXICAN BEAN BEETLE (Epilachna varivestis) - SOUTH CAROLINA - Eggs and adults moderately abundant, first-brood larvae hatching in Charleston County. (Cuthbert). NORTH CAROLINA - First adults of season seen on beans in Granville County. (Chamberlin). GEORGIA - Moderate on beans in Colquitt, Brooks, Lowndes and Tattnall Counties. (Johnson).

BEAN APHID (Aphis fabae) - SOUTH CAROLINA - Moderate to heavy on young lima beans, some plants severely injured, Charleston County. (Cuthbert).

PEA APHID (Macrosiphum pisi) - SOUTH CAROLINA - Moderate on garden peas in Charleston County. (Cuthbert). MARYLAND - Averaged 2 per sweep on peas at Snow Hill, Worcester County. (U. Md., Ent. Dept.). VIRGINIA - Generally distributed in peas on Eastern Shore. (Hofmaster). DELAWARE - First of season found on peas in eastern Sussex County. (Burbutis, Conrad).

RHUBARB CURCULIO (Lixus concavus) - PENNSYLVANIA - Present in most rhubarb patches, northwest area. (Adams).

FALSE CHINCH BUGS (Nysius spp.) - TEXAS - Numerous on garden crops in Dimmitt County. (Harding).

ASPARAGUS BEETLES (Crioceris spp.) - VIRGINIA - C. asparagi very severe on all asparagus plantings in Westmoreland County. (Ptucha). MARYLAND - C. duodecimpunctata adults numerous on asparagus at Bealsville, Montgomery County. (U. Md., Ent. Dept.).

A SPIDER MITE (Aplonobia myops) - CALIFORNIA - Heavy on asparagus in the Rio Linda area. (Cal. Coop. Rpt.).

ROSE STEM GIRDLER (Agrilus rubicola) - UTAH - Now 90 percent pupated in raspberry canes in Draper-Granite areas of Salt Lake County. No adult emergence as yet. (Davis).

LEAF ROLLERS - NEW JERSEY - Present in large numbers in some strawberry plantings. (Ins. Dis. Newsl.). MISSOURI - On strawberries in St. Joseph and Kansas City. (Wkly. Rpt. Fr. Grs.).

STRAWBERRY WEEVIL (Anthonomus signatus) - NEW JERSEY - Is now active. (Ins. Dis. Newsl.). MARYLAND - Present in Wicomico County. (U. Md., Ent. Dept.). VIRGINIA - Unusual amount of damage this year on the Eastern Shore. Appeared about two weeks behind schedule. (Hofmaster). Damaged strawberry plants in a Franklin County garden. (Amos, Tucker).

SPIDER MITES - NEW JERSEY - Tetranychus telarius large numbers in some strawberry fields. (Ins. Dis. Newsl.). MARYLAND - Spotted heavy infestations on strawberries

at Salisbury, Wicomico County. (U. Md., Ent. Dept.). UTAH - Numerous on strawberry plants in Washington County. (Knowlton). LOUISIANA - T. desertorum and T. lobosus heavy in strawberries in many fields in Tangipahoa Parish. (Spink).

A SAP BEETLE (Lobiopa insularis) - LOUISIANA - Heavy in some strawberry fields near Ponchatoula. (Spink).

SPITTLEBUGS - INDIANA - Continue to increase on strawberry in Orleans area. (Marshall). MARYLAND - Philaenus leucophthalmus present on strawberry plants in Montgomery County. (U. Md., Ent. Dept.).

TOBACCO INSECTS

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - VIRGINIA - Larvae light in several tobacco plant beds locally in Pittsylvania County. (Dominick).

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light on tobacco in Tift, Colquitt, Brooks, Cook, Lowndes, Ware, Wayne, Tattnall and Bulloch Counties. (Johnson).

TOBACCO BUDWORMS (Heliothis spp.) - GEORGIA - Light to moderate on tobacco in Tift, Colquitt, Brooks, Cook, Lowndes, Ware, Wayne, Tattnall and Bulloch Counties. (Johnson).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - NORTH CAROLINA - Adults active on newly set tobacco plants in Columbus County. (Guthrie).

TOBACCO WIREWORM (Conoderus vespertinus) - NORTH CAROLINA - Up to 25 percent of newly set plants injured in untreated Columbus County fields. (Guthrie).

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(Weather continued from page 344)

Washington causing some flooding. General precipitation occurred early in the week over a belt from southwestern Iowa along the lower Great Lakes to western New York as a low pressure area moved from the southern Great Plains northeastward. Two-inch falls were general and amounts over 3 inches were reported from several localized areas in Iowa, Illinois, Indiana and Ohio. Frequent rain showers and thunderstorms were scattered over the Eastern Seaboard from New England to Georgia and Alabama. Totals were generally light to moderate, with some locally heavy amounts; severe hail and wind damage occurred in the Southeastern States.

Excessive rains fell on May 2 and 3 in the Sabine River basin of northeastern Texas. Henderson recorded 10.12 inches, Longview 8.16 inches and unofficial measurements of 11 inches were made at Overton. Flash flooding caused some damage to roads, bridges and rural property and one death by drowning. Throughout the Great Plains and upper Mississippi Valley, scattered severe thunderstorms occurred on several days. These storms reached violent proportions in local areas, with hail and winds of 50 m.p.h., or higher, reported from many localities and tornadoes in Texas, Kansas, Nebraska and Wisconsin. The high winds and warm temperatures resulted in further depletion of soil moisture from the upper Great Plains southward and westward to the Far Southwest. Dust storms and severe soil erosion were reported on April 28, 29 and May 1 in northwestern Wisconsin, northwestern Iowa, southern Minnesota and the Dakotas, Some dust also occurred in western Kansas, eastern Colorado, New Mexico, Utah and Nevada. All these states, Oklahoma, Wyoming and Montana reported declines in soil moisture supplies. General showers, with some locally heavy amounts, were falling from west Texas northward to Minnesota and the Dakotas on May 4 and 5, but it is still too early to determine the benefit to the dry areas in the Great Plains. Moisture is generally adequate to excessive in the rest of the Nation, but some local areas in Louisiana, Arkansas, Georgia and South Carolina need rain. (Summary supplied by U. S. Weather Bureau).

COTTON INSECTS

THRIPS - ARIZONA - Increasing in Maricopa and Pinal Counties. Some fields in 4-leaf stage had 90 percent of stalks infested with average of 4 per plant. (Ariz. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Detection operations began in Imperial County the week of April 30. Blossom inspection of 14,878 blooms on 3,564 acres of cotton were inspected with negative results. (Cal. Coop. Rpt.). ARIZONA - Heavy moth emergence continuing to occur in cage tests at Tempe. (Ariz. Coop. Sur.).

A FLEAHOPPER (Spanogonicus albofasciatus) - ARIZONA - Becoming numerous in cotton fields in central area. (Ariz. Coop. Sur.).

COWPEA APHID (Aphis medicaginis) - NEW MEXICO - Widely scattered minor infestations on seedling cotton throughout Dona Ana County. (N. M. Coop. Rpt.).

BOLLWORM (Heliothis zea) - CALIFORNIA - Light on cotton in Calipatria area, Imperial County. (Cal. Coop. Rpt.).

Cotton Insects in Lower Rio Grande Valley, Texas - Heavy FLEAHOPPER populations over entire Valley area, mainly adults. Brownsville area reports lower populations of adults on wild hosts for more favorable outlook. Heaviest infestations in Willacy and western Hidalgo Counties. APHIDS severe with considerable damage in eastern Willacy County. Light and scattered in most Valley areas. BOLL WEEVIL in widely scattered fields. SPIDER MITES light and scattered and BOLLWORM continues to cause some terminal damage, mainly in Willacy County. (Deer).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

AN ARCTIID (Halisidota argentata) - CALIFORNIA - Reported active on Douglas-fir in Trinity County. This species is more active this year and definitely increasing. (Denny).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - MICHIGAN - Population reduced many southern areas by severe winter, particularly where snow-cover did not protect infested trees. (Hutson).

PINE TUBE MOTH (Argyrotaenia pinatubana) - DELAWARE - Adult emergence complete on white pine in Kent County. (Burbutis, Conrad).

SPRUCE NEEDLE MINER (Taniva albolineana) - CALIFORNIA - Eradication treatment completed on 309 ornamental spruce trees on 136 properties in Alturas area, Modoc County. No live specimens found. (Cal. Coop. Rpt.).

SMALLER EUR. ELM BARK BEETLE (Scolytus multistriatus) - VIRGINIA - Adults collected on an infested tree in Lynchburg, Campbell County, April 26. (Amos). WISCONSIN - Pupae noted on April 29 in Walworth County. (Wis. Coop. Sur.). SOUTH DAKOTA - Several specimens were collected from window sills in a house about 8 years old at Dell Rapids, Minnehaha County, during March. This appears to be the first documented record of the collection of this species in the State. (Spawn).

BARK BEETLES - MARYLAND - Ips. sp. injuring white pines at Forest Hill, Hartford County. (U. Md., Ent. Dept.). NORTH CAROLINA - Dendroctonus sp. infesting ornamental pines in Scotland County. (Green). CALIFORNIA - Ips confusus causing severe damage to small groups of ponderosa pines in 200-acre stand by top-killing and complete kill of individual trees in Siskiyou County. (Bengard, Rippleye).

Potential severe damage to ponderosa pines by Dendroctonus brevicomis and I. confusus beginning in Sierra National Forest, Fresno, Madera and Mariposa Counties. This area had heavy snow and wind breakage during past winter. Control will probably be necessary to protect this high value timber and recreational area. (Wycoff, Cotter). Both species also heavy in saw timber on 160-acre stand in Brady Creek area of Shasta County, killing groups of 10-15 trees. (Van Dusen). D. brevicomis killing many large mature ponderosa pines along Watson Ridge in inaccessible section in Feather Falls area. (Wagener).

A PINE REPRODUCTION WEEVIL (Cylindrocopturus eatoni) - CALIFORNIA - Infestation beginning in the 5-corner Plantation, El Dorado National Forest. (Cotter).

PALES WEEVIL (Hylobius pales) - PENNSYLVANIA - Heavy infestation of adults depositing eggs on pine and fir stumps from 1958 cuttings, Franklin and Adams Counties. Feeding damage serious on Christmas trees. (Pepper).

A PINE WEEVIL (Pissodes approximatus) - PENNSYLVANIA - Adults abundant on pine and fir in Franklin and Adams Counties and feeding on Scotch pine seedlings just planted. (Pepper).

WHITE-PINE WEEVIL (Pissodes strobi) - PENNSYLVANIA - Heavy and feeding on white pine and fir in Butler County. (Adams). VIRGINIA - Adults emerged from hibernation about April 27 in Patrick County. Now feeding and laying eggs in pine plantations. (Morris, Reed). WISCONSIN - Adult activity first observed in Jackson County April 21 and in Clark and Eau Claire Counties on April 22 and 24. (Wis. Coop. Sur.).

A PINE SAWFLY (Neodiprion pratti pratti) - VIRGINIA - Larvae heavy on pines along highways and roadways in Cumberland County, medium to heavy in Fluvanna County and light in spots in Orange County. (Rowell). Larvae severe on pines in forests as well as in home yards in Hanover County. (Sanders). NORTH CAROLINA - Larvae defoliating some pines in Pittsboro area, Chatham County. (Snipes, Farrier). Some defoliation across Warren into Northampton and south into Halifax, Edgecombe, Nash, Franklin, Wake, Durham and Orange Counties. (Green).

PINE BARK APHID (Pineus strobi) - VIRGINIA - Probably this species, light on new growth of pines on a Wythe County lawn. (Morris, Gillespie). INDIANA - Attacking 6 to 8-year-old white pines at Huntingburg and concentrated on terminal twigs and trunks. (Schuder, Apr. 20).

EASTERN SPRUCE GALL APHID (Chermes abietis) - MARYLAND - Infesting Norway spruce at Woodstock. Eggs hatching. (U. Md., Ent. Dept.).

TENT CATERPILLARS (Malacosoma spp.) - PENNSYLVANIA - M. disstria began hatching on sugar maple in Somerset County, April 30. Survey indicates less abundance than in 1958. (Udine). MARYLAND - M. americanum was severe on wild cherry statewide. (U. Md., Ent. Dept.). VIRGINIA - M. americanum severe on wild cherry and unsprayed apple trees in Augusta County, most wild cherry will probably be defoliated. (Woodside). M. americanum severe on wild cherry in all parts of Warren County (Weddle). WEST VIRGINIA - Heavy on cherry and apple statewide, heaviest in northwest and north central counties. (W. Va. Ins. Sur.). NORTH CAROLINA - M. americanum larvae about mature and feeding on cherry and other ornamentals in Wake County. (Scott, Farrier). ALABAMA - M. disstria appearing in Mobile County and collected in Macon and Lee Counties. This is first infestation recorded in Lee County. (Pearson, Grimes). M. americanum observed in isolated northern areas of State. Extremely heavy infestations in certain areas are the heaviest in past several years. Has been very destructive to roses. (Guyton, Grimes). NEVADA - Malacosoma sp. causing light to heavy damage to Fremont cottonwood in Virgin Valley, Clark County. (Bechtel, Bunker, Lauderdale, Apr. 24). UTAH - Probably M. fragilis extremely numerous on cottonwoods at Moab. (Thornley).

ELM CALLIGRAPHA (Calligrapha scalaris) - OKLAHOMA - Causing light damage to American elms in Watonga area (VanCleave) and heavy on some American elms in Oklahoma City (Thomas).

ELM LEAF BEETLE (Galerucella xanthomelaena) - TENNESSEE - Adults appearing on Chinese elms across the State. (Mullett). ALABAMA - Collected in Lee County April 21 for first appearance in this area for 1958. (Pearson). OKLAHOMA - Adults damaging American elm in Stillwater area, Payne County. Heavy egg laying noted and hatching underway with early-instar larvae feeding on foliage. (Howell, Bieberdorf, Drew).

MAY BEETLES (Phyllophaga spp.) - SOUTH CAROLINA - Noted on oaks at Clemson, Oconee County, damaged two years ago. (Nettles et al.).

BIRCH LEAF MINER (Fenusa pusilla) - NEW JERSEY - Adults observed in central part of State, April 25, laying eggs. (Ins. Dis. Newsl.).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - MARYLAND - Causing large galls on maples at Hyattsville, Prince Georges County. (U. Md., Ent. Dept.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Damaging ornamentals in Riley County. (Gates, Peters). DELAWARE - Half-grown larvae prevalent on elms in southern Sussex County, with moderate feeding injury. (Burbutis, Conrad).

NITIDULIDS - NEW MEXICO - Causing considerable damage to rose buds in Las Cruces, Dona Ana County. (U. M. Coop. Rpt.).

HARLEQUIN BUG (Murgantia histrionica) - OKLAHOMA - Overwintering adults heavy on lilac bushes at Mountain Park, Kiowa County (April 11), and appreciable damage resulting with yellowing and spotting of the leaves quite apparent. (Howell, Price, Apr. 18). Populations ranged 1-2 per square foot of crown area in a Payne County alfalfa field and infested many ornamental plants around homes in same area. (Bieberdorf, Howell, Apr. 18). Heavy on lilac bushes in Stillwater area. (Stiles, Apr. 25). Heavy populations continue to be reported from areas throughout the State on lilacs and honey suckle. (Howell). TEXAS - Attacking ornamentals and causing some damage in Young, Wood and Somervell Counties. (Texas Coop. Rpt.).

LACE BUGS - MARYLAND - Infesting pyracantha at University Park and azaleas at College Park, Prince Georges County. (U. Md., Ent. Dept.).

APHIDS - MARYLAND - Macrosiphoniella sanborni heavy on chrysanthemums at University Park, Prince Georges County. (U. Md., Ent. Dept.). SOUTH CAROLINA - Curling leaves of oaks in Fairfield County. (Nettles et al.). ALABAMA - Heavy on roses (Blake) and light on pittsoporum in Lee County (Grimes). IDAHO - Macrosiphum rosae built up on roses in Twin Falls in early April. Populations continued to increase during month. Overwintering eggs of Periphyllus lyropictus completed hatching at Moscow April 17. Nymphs up to one-third grown. Feeding activity confined to terminal twigs although blossom buds are open and exposed. (Gibson, Manis, Apr. 23). NEVADA - An unidentified species heavy on Fremont cottonwood in Moapa and Virgin Valleys, Clark County. (Bechtel, Lauderdale, Apr. 24). UTAH - Numerous on hollyhock, roses and iris in southern areas of Washington and Kane Counties. (Knowlton). ARIZONA - Macrosiphum solanifolii heavy on petunias in Willcox area, Cochise County. (Ariz. Coop. Sur.).

WHITEFLIES - ALABAMA - Heavy infestation of nymphs observed on ligustrum and wild cherry in Lee County. (Guyton, April 3). NORTH CAROLINA - Tetraleurodes mori killing portions of convex holly bushes in home planting, Stanley County. (Liner, Farrier).

A MEALYBUG (Geococcus coffeae) - FLORIDA - All stages collected on ovalleaf peperomia at Ovierdo, Seminole County, April 20. (Youtsey, Holley). This is the second report of this species in the State and a new county record. First reported from Apopka, Orange County, September 9, 1958. (Fla. Coop. Sur.). See CEIR 8(45) : 931.

EUROPEAN FRUIT LECANIUM (Lecanium corni complex) - OKLAHOMA - Heavy on pyracantha at Stillwater, Payne County. (Apt).

JUNIPER SCALE (Diaspis carueli) - PENNSYLVANIA - Heavy on arborvitae in Butler County. (Adams).

SCALE INSECTS - OKLAHOMA - Collections of Aspidiotus spinosus from Ilex sp. in a nursery in Tulsa and Chrysomphalus albopictus from magnolia leaves in a retail store in Oklahoma City, both constitute new State records for these species. (Apt). DELAWARE - Toumeyella liriodendri very heavy on tuliptrees in several locations in New Castle County. (Bray). INDIANA - Chrysomphalus obscurus infesting various species of oak at Evansville and Lafayette. (Schuder). NORTH CAROLINA - Lecanium quercifex killing live oak and willow oak in Wilson, Lincoln and Gaston Counties. (Carlton, Yoder, Farrier).

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) - TEXAS - Heavy infestation noted on cyress and other shade trees near Santa Maria, Cameron County. (Deer).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - NEBRASKA - First and second-instar larvae of Culex spp. collected in 6 central counties and fourth-instar larvae in southwest counties. (Rapp). NEVADA - Many pupae of Aedes communis, A. fitchii, A. hexodontus and A. increpitus in Lake Tahoe area, with latter 2 species more prevalent. A. dorsalis adults numerous in entire Fallon area, Churchill County. A. melanimon fourth-instar larvae also present in this area and the Reno area, Washoe County. (Chapman, Apr. 24). Culex tarsalis and Culiseta inornata larvae and pupae numerous in marshy and swampy areas of Overton and Bunkerville, Clark County, and Alamo, Lincoln County. Early-instar Anopheles freeborni larvae present at Alamo and Aedes dorsalis larvae abundant in Virgin Valley, Clark County. (Bechtel, Bunker, Lauderdale, Apr. 24). UTAH - Annoying in Santa Clara-Washington area of Washington County. (Knowlton).

MIDGES - WISCONSIN - Heavy swarms observed in various locations in southern and western areas. (Wis. Coop. Sur.).

DEER FLIES - LOUISIANA - Present in large numbers in Tangipahoa Parish and particularly annoying to field workers. (Spink).

HORN FLY (Siphona irritans) - OKLAHOMA - Populations averaged 75-80 per head on steers and 300 per head on bulls in Payne, Logan and Lincoln Counties. (Howell). Also active in Caddo and Choctaw Counties. (Hudson, Goin). INDIANA - Common on unsprayed beef and dairy cattle in Dubois and Lawrence Counties and ranged 0-100 per animal. (Dobson, Matthew).

STABLE FLY (Stomoxys calcitrans) - INDIANA - Observed around beef and dairy barns in Dubois and Lawrence Counties. (Dobson, Matthew).

SHEEP KED (Melophagus ovinus) - UTAH - Very numerous in most herds sheared in Iron County. (Knowlton).

TICKS - WISCONSIN - Dermacentor variabilis troublesome in wooded areas of Grant County. (Wis. Coop. Sur.). NEBRASKA - One adult of D. andersoni collected April 9 in Perkins County. D. variabilis collected in Merrick, Hall, Nance and Cass Counties. (Rapp). UTAH - D. andersoni numerous in some range areas around

Vernon, Tooele County, and Joseph, Sevier County, and infesting persons and livestock. (Knowlton). OKLAHOMA - Amblyomma americanum and D. variabilis heavier in 1959 than during past 3 years in widely scattered localities over the State. (VanCleave). IDAHO- D. andersoni abundant on cattle feeding in lower canyon pastures near Nez Perce. In one herd of 40 animals, 4 apparently paralyzed by feeding of ticks. No deaths were reported. (Dailey, Apr. 23).

BENEFICIAL INSECTS

PARASITES AND PREDATORS - MARYLAND - Carabid beetles abundant in tobacco beds at La Plata, Charles County. (U. Md., Ent. Dept.). ILLINOIS - Coccinellid adults average 5.7 in bluegrass and 11 in alfalfa and clover, per 100 sweeps, in central area. First larvae of season in this area found April 28. (Ill. Ins. Rpt.). KANSAS - Hippodamia convergens and Coleomegilla fuscilabris adults light in most alfalfa fields checked for pea aphid and few adults of Chrysopa sp. and Nabis sp. also present in most fields checked. (Peters). OKLAHOMA - Nabis sp. in alfalfa averaged 1-1.5 per sweep in central area and 0-1.25 in fields checked in Choctaw County. Chrysopa sp. building up in central area alfalfa fields and ranged 0-1.5 per sweep. Counts ranged 0-0.25 per sweep in alfalfa fields checked in Choctaw County. Syrphid larvae ranged 0-0.5 per sweep in central area alfalfa fields and 0-0.25 in Choctaw County alfalfa fields checked. Orius insidiosus in alfalfa fields ranged 0.2-1 per sweep in central area and 0-0.25 in Choctaw County. (VanCleave, Goin). UTAH - Coccinellids, Geocoris spp., syrphid flies and Chrysopa spp. numerous in Millard County alfalfa fields where pea aphid is moderate to scarce. (Knowlton). NEVADA - Praon palitans and Trioxys utilis have contributed greatly to reduction of spotted alfalfa aphid in Clark County, T. utilis being the more numerous. P. palitans has spread to the Pahranagat Valley, Lincoln County, but no T. utilis have been found there. P. palitans has been recovered in Reno area of Washoe County. (Bechtel, Lauderdale, Apr. 24). CALIFORNIA - Anagrus giraulti of general occurrence in medium populations on beet leafhopper eggs in El Centro area, Imperial County. (Dr. R. A. Flock).

MISCELLANEOUS INSECTS

TERMITES (Reticulitermes spp.) - WEST VIRGINIA - Numerous reports of R. flavipes infesting dwellings in Monongalia County. (W. Va. Ins. Sur.). IDAHO - Two infestations of R. hesperus discovered in dwellings in city of Twin Falls. Populations almost entirely winged adults in both cases. (Gibson). OREGON - Winged R. hesperus appearing in central and eastern part of State during period mid-April to first of May. (Every).

SOUTHERN LYCTUS BEETLE (Lyctus planicollis) - CALIFORNIA - Medium infestation in ash hardwood flooring in Vallejo, Solano County, and in hardwood flooring in Springville, Tulare County. (Cal. Coop. Rpt.).

CORRECTIONS

CEIR 9(18) : 327 - SUGARCANE APHID should read YELLOW SUGARCANE APHID.

CEIR 9(18) : 336 - SCALE INSECTS - CALIFORNIA - Epidiaspis pyricola should read Epidiaspis piricola.

CEIR 9(18) : 342 - Reference following description should read CEIR 9(18):5-1-59.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Feltia. subt.	Protoparce quinq.	sexta	Heliothis zea	vires.
ALABAMA									
Auburn 5/1	2	1							
ARIZONA									
Mesa 4/15-28			11	48				155	
ARKANSAS									
Fayetteville 4/16-29	172	180		1				66	
Kelso 4/16-29	8	4		4				16	
Morrilton 4/16-29	24	38		8				23	
FLORIDA									
Gainesville 4/27					6		1		
Monticello 4/27					3				
Quincy 4/27	2		1		4		1	1	
ILLINOIS									
Urbana 4/24-30	28	4		4					
INDIANA (County)									
Tippecanoe 4/24-30	58	1		2					
KANSAS									
Garden City 4/22-28	2	1		27					
Hays 4/28-30				4					
Manhattan 4/26-5/1	6	2		19					
Wathena 4/26,29	63	4		68					
LOUISIANA									
Baton Rouge 4/24-30	2	3	13	2	7			1	
Curtis 4/28	1	6						15	
MARYLAND									
Fairland 4/24-30	4	2		6					
MISSISSIPPI									
*Stoneville 4/25-5/1	89	74	35	25	3			33	
NEBRASKA									
North Platte 4/21-27		3		12					
NORTH CAROLINA									
Clayton 4/30	38	23	3		1			15	1
Faison 4/30	9								
SOUTH CAROLINA									
Charleston 4/27-5/3	5	6	2		3	1	3	8	1
Clemson 4/25-5/1	29	8	2	1	3			6	
TENNESSEE (Counties)									
Blount 4/21-27	25	7		12					
Cumberland 4/21-27	10	7	1	10					
Greene 4/21-27	25	2							
Johnson 4/21-27	184	82							
Madison 4/21-27	8	3						2	
Maury 4/21-27	12	1		3					
Monroe 4/21-27	94	4		8					
Robertson 4/21-27	2	1		3					
TEXAS									
Brownsville 4/18-24	8	27	4	1				4	
Waco 4/25-5/1	55	11	9	37	31			107	

ADDITIONAL COLLECTION - VIRGINIA - First Pyrausta nubilalis adults of season taken in light trap on Eastern Shore April 26, and a heavy take on April 27. (Hofmaster).

*Three traps - Stoneville

SUMMARY OF INSECT CONDITIONS - 1958

FLORIDA

Prepared by R. E. Woodruff

Cereal and Forage Insects: A CHINCH BUG (Blissus leucopterus insularis) was again a problem on St. Augustine grass in coastal and central areas of the State. Damage and controls on St. Augustine grass lawns amounted to $23,500,000, the same as in 1957. ARMYWORMS (Prodenia spp.) damaged lawns in several areas of the State. Averaged one per square inch on one heavily infested Zoysia grass lawn in July and increased on grasses in citrus groves in St. Lucie and Martin Counties in September. Also reported as light in pastures in Seminole County. SOD WEBWORMS occurred on grasses and weeds in Brevard County and heavily infested Zoysia and Bermuda grasses in Dade County in July. CORN EARWORM (Heliothis zea) loss is based on a damage estimate of 10 percent of the crop value and is probably not far wrong, since untreated areas reported 40-100 percent of ears infested. The loss is estimated at $1,312,500 and the cost of control at $192,000. WHITE-FRINGED BEETLES (Graphognathus spp.) have not been found in the Florida Peninsula. Soil treatments have assisted in the present control program and only minor extensions of range were noted in 1958.

Fruit Insects: MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - A total of 14,430 acres treated with bait sprays during January. On February 25, Manatee County was released from aerial spray and fumigation requirements to close out those phases of the program. Aggregate acres treated with bait sprays since the beginning of the program totaled 6,806,163. As of December 31, 12,731 traps were being operated in the State. FLORIDA RED SCALE (Chrysomphalus aonidum) and PURPLE SCALE (Lepidosaphes beckii) caused a 2 percent loss in value to the citrus crop, estimated at $5,300,000. Controls were estimated at $4,500,000. Florida red scale was the more important of the two. CITRUS RUST MITE (Phyllocoptruta oleivora) damage to the citrus crop was estimated to be $4,000,000 and the cost of control at $3,750,000. SPIDER MITES caused an estimated one percent damage to the citrus crop, most of which was caused by CITRUS RED MITE (Panonychus citri), TEXAS CITRUS MITE (Eutetranychus banksi) and SIX-SPOTTED SPIDER MITE (Eotetranychus sexmaculatus). The estimated loss of the crop and cost of control totaled $4,170,000. WHITE PEACH SCALE (Pseudaulacaspis pentagona) was serious on several varieties of fruit trees and on some ornamentals in northern and central parts of the State from June through December. COTTONY-CUSHION SCALE (Icerya purchasi) was widespread over the State and was more of a problem in some areas (particularly Polk County) than in past years. It was abundant on young citrus trees and nursery stock and increased on citrus and pittosporum in September in the Monticello area. SOFT SCALE (Coccus hesperidum) was widely distributed. Populations occasionally built up and caused damage to citrus trees in nurseries. Infestations were heavy in Polk and Pasco Counties, but light in Manatee County in June. Controls were apparently not completely satisfactory in many areas. SAN JOSE SCALE (Aspidiotus perniciosus) was abundant on pears and persimmons during October, November and December in the Macclenny and Sanford areas, and reported as light at Auburndale. EASTERN TENT CATERPILLAR (Malacosoma americanum) was lighter on pecan and persimmon in June than in previous years. Larvae of PECAN LEAF CASEBEARER (Acrobasis juglandis) caused considerable damage to young nuts in the pecan-growing regions during July. PECAN CIGAR CASEBEARER (Coleophora caryaefoliella) damaged pecan foliage in the Marianna district during the same period and FALL WEBWORM (Hyphantria cunea) was heavy on pecan and persimmons at Macclenny during August.

Truck Crop Insects: SOUTHERN ARMYWORM (Prodenia eridania) infested tomatoes, potatoes, tobacco and various other crops, with an estimated loss of $750,000. FALL ARMYWORM (Laphygma frugiperda) was an important pest in 1958 and caused an estimated loss of $350,000. A SERPENTINE LEAF MINER (Liriomyza sp.) was a pest of several important crops in the State, including potatoes, tomatoes, cucumbers, watermelons, okra, celery and beans. Damage was estimated at $3,000,000 and controls at $2,000,000. Several species of WIREWORMS caused an estimated $500,000 damage to potatoes, Conoderus falli seemingly the most abundant species. About 50 percent of damage done to potatoes can be attributed to wireworms. SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) in 1958 was at a low population level due to control measures and severe freezes followed by a wet spring which eliminated large numbers of volunteer and wild host plants. Damage in six southeastern states was less than in any year since 1950. There was a decrease in new infestations as well as an increase in the number of farms freed from this pest.

Tobacco Insects: The total monetary loss to shade-grown tobacco in 1958 was estimated at $1,056,279. Losses were caused by the following species: TOBACCO BUDWORM (Heliothis virescens), $675,640; CABBAGE LOOPER (Trichoplusia ni), $152,019; HORNWORMS (Protoparce sexta and P. quinquemaculata), $59,119; CUTWORMS (predominantly Agrotis ypsilon), $50,673; SOUTHERN POTATO WIREWORM (Conoderus falli), $42,228; several species of GRASSHOPPERS (Melanoplus femur-rubrum propinquus and M. biluratus being most numerous), $33,782; VEGETABLE WEEVIL (Listroderes costirostris obliquus), GRAY GARDEN SLUG (Deroceras reticulatum) and PILLBUGS, $16,891; SOUTHERN MOLE CRICKET (Scapteriscus acletus), $16,891; STINK BUGS (Nezara viridula and Euschistus servus) $8,445; and GREEN PEACH APHID (Myzus persicae), $591. The most important pests of flue-cured tobacco were TOBACCO HORNWORM (P. sexta), TOBACCO BUDWORM, GREEN PEACH APHID, CUTWORMS, WIREWORMS and MOLE CRICKETS.

Forest, Ornamental and Shade Tree Insects: PINE SAWFLY damage was most extensive (100,000 acres) in Taylor and Dixie Counties and was caused primarily by Neodiprion exitans. Also present in the area, but in lesser numbers, were N. lecontei, N. abbotti and N. compar. TEA SCALE (Fiorinia theae) was reported wherever camellias were grown, but populations were moderately reduced where plants were defoliated as a result of cold weather. CAMELLIA SCALE (Lepidosaphes camelliae) was equally widespread but not as abundant. Larvae of an AMATID MOTH (Lymire edwardsii) attacked Ficus trees in south Dade and Monroe Counties and hundreds of trees in Palm Beach County were also defoliated in July and August. MIMOSA WEBWORM (Homadaula albizziae) was reported for the first time from the State in 1958, larvae being collected on mimosa at Milton, Santa Rosa County, on August 19. A second infestation was reported on 7 ornamental mimosa trees at Fort Walton Beach, Okaloosa County, September 30, and damage symptoms were noted on mimosa trees in Pensacola, Escambia County. A MEALYBUG (Geococcus coffeae) was collected on Philodendron selloum and Dieffenbachia sp. at Apopka, Orange County, on September 4. Det. H. Morrison. These are new United States records. During the spring of 1958, larvae of a NOCTUID (Melipotis acontioides) became serious on royal poincianas in the Florida Keys. This species has apparently occurred in this area for several years but had never been a serious problem. The population was extremely heavy in Key West and damage was reported as far north as Marathon on Key Vaca. During mid-June, approximately one-third of the royal poincianas in Key West were completely defoliated. The population apparently reached a peak during the early spring and decreased by mid-June. A few larvae were found under stones at the bases of the trees in November. ASIATIC RED SCALE (Aonidiella taxus) was first collected in Florida on May 3, 1955, near Miami on Podocarpus macrophylla. Eradication measures were taken shortly after the initial discovery, but were abandoned in September, 1955, when a survey revealed 29 infested properties in Palm Beach, Broward and Dade Counties. During 1958, quarantines were continued on Podocarpus in nurseries found to be infested and an eradication program was continued in individual nurseries.

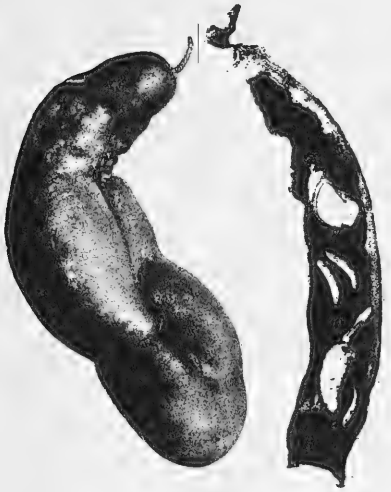
STELLATE SCALE (Vinsonia stellifera) was first found in Florida in 1953 at Miami on orchid leaves. An eradication program was immediately effected and the plants were isolated and sprayed. This scale had been intercepted over 50 times since 1919 at Florida ports; however, it had apparently never become established in the State. The species was thought to be eradicated in Florida following treatment and inspection of the above infestation. However, an infestation was discovered on July 28, 1958, near Ft. Pierce, St. Lucie County. Apparently only one orchid plant was infested and this was immediately isolated. All plants in this nursery were then sprayed. Subsequent inspections have not revealed the presence of any live scales.

Miscellaneous Insects: IMPORTED FIRE ANT (Solenopsis saevissima ritcheri) - As of December 31, 52,744 acres have been treated for control of this pest. It is estimated that there are 1,167,127 acres which remain to be treated in the State.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

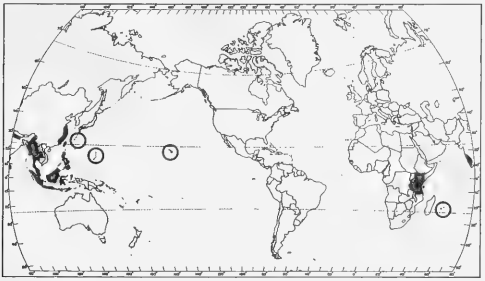
MELON FLY (Dacus cucurbitae (Coq.))

Economic Importance: This tephritid is considered the most important cucurbit pest of the Indo-Malayan region. Production of melons, cucumbers and tomatoes had been seriously curtailed in Hawaii, where the pest was introduced prior to 1900. Severe damage to beans and cowpeas has also been reported. By 1915, in that area, entire fields of watermelons were being killed before the plants were 6 to 8 inches tall. Infestation in flowers of hosts ran to 100 percent and more than 90 percent of the pumpkin crop was ruined annually. Serious loss on cucurbits also occurs in Formosa, southern China and Pakistan. Melon fly larvae feed in tender plant tissues such as terminals, fruits, flowers, young stems and roots, causing rapid destruction. This species has been intercepted at U. S. ports of entry on many occasions. One specimen of D. cucurbitae was taken in a bait trap in Los Angeles, California, in July 1956. Intensive surveys failed to reveal additional specimens, however.



Damaged Cucumber and Bean

Distribution: Africa (Kenya, Tanganyika), Mauritius, Burma, Ceylon, China, Formosa, Philippines, Malaya, Indonesia, Guam, Saipan, Tinian, Hawaii, Ryukyu Islands, Thailand, Sarawak, Timor, northern Australia (?), India.

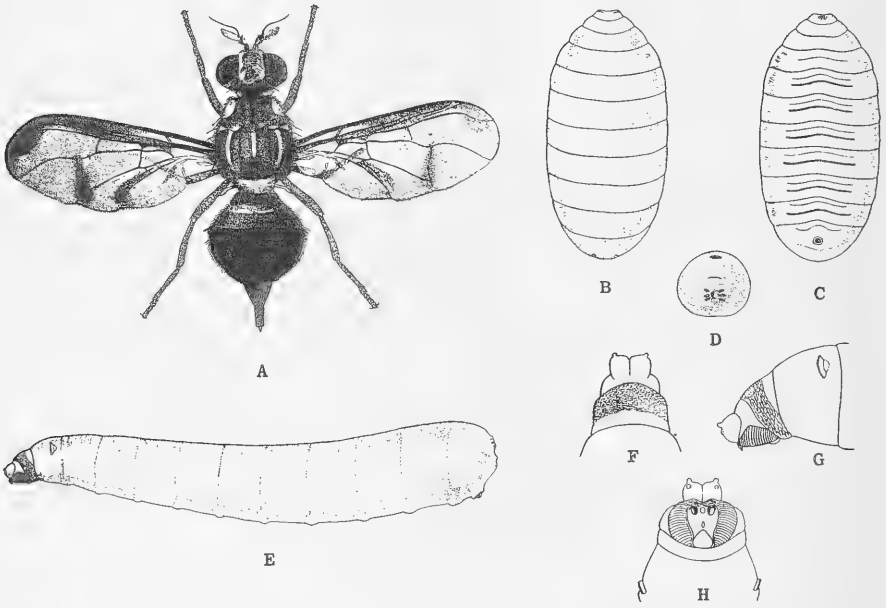


General Distribution of Melon Fly

Hosts: Preferred hosts include cucumber, cantaloup, watermelon, squash and other cucurbits as well as tomato, beans and cowpeas. May also be found in eggplant, fig, orange, papaya, mango and peach. More than 80 species of plants are attacked.

Life History and Habits: Adults feed on juices of host plants, nectar and honeydew of other insects. They are more numerous in crops and oviposition is greater in early morning and late afternoon. The eggs are deposited in groups of 1 to 30 in fruits, flowers, roots, stems or other tender tissue of hosts. On cucurbits the oviposition punctures exude a resinous material. Hatching occurs in about 26 hours. The young maggots feed and burrow in the tissues, causing rapid decomposition. Infested fruit has dead spots around punctures, and if growth continues the fruit becomes distorted. At the end of the third instar the larvae bore out of the fruit to pupate in the surface of the soil. Larvae at this stage have a peculiar habit of jumping after leaving the host. Pupation requires about 9 days in the summer. There are 8 to 11 generations per year in Hawaii. The females live for months, depositing eggs at frequent intervals.

Description: ADULTS - 6 to 8 mm. long, reddish-yellow. Head yellowish with black spots. Thorax and abdomen with yellow markings. Wings shiny, transparent, marked with brown spots. EGGS - White, slender, 2 mm. long. LARVAE - White, of typical maggot appearance. Full grown, 10 mm. long. PUPAE - 5 to 6 mm. long, elliptical, whitish to yellowish-brown. (see illustrations). (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 9(19): 5-8-59.



Stages of melon fly (Dacus cucurbitae): A - Adult female, greatly enlarged. B - Puparium, dorsal view. C - Puparium, ventral view. D - Puparium, showing posterior spiracles, oval depression and dark line marking on posterior portion. E - Third-instar larva, lateral view. F - Third-instar larva, dorsal view of anterior end. G - Third-instar larva, lateral view of anterior end. H - Third-instar larva, ventral view of anterior end.

Figures (except map) from Back, E. A. and Pemberton, C. E., 1917. U. S. Dept. Agr. Bul. 491, 64 pp.

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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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

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

Volume 9 May 15, 1959 Number 20

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS hatching in areas of Colorado, Oklahoma, Missouri and Illinois. Serious outbreak reported in Utah. (p. 371). ARMYWORMS reported in Virginia and Illinois; extremely heavy in two southern Alabama counties. (p. 372). SOUTHERN GREEN STINK BUG extremely heavy on oats in Mobile County, Alabama. EUROPEAN CORN BORER pupation 85 percent in Missouri, 50 percent at Carbondale, Illinois, and first noted April 30 at Poughkeepsie, New York. Overwintering mortality 47 and 17 percent in Minnesota. (p. 373). FLEA BEETLES and BILLBUGS are damaging young corn in several states. (p. 374).

PEA APHID continues to damage legumes over a wide area. Predators, parasites and diseases building up generally in infested areas. (pp. 374-375). CLOVER APHID generally heavy on red clover in southeastern Idaho. (p. 375). MEADOW SPITTLEBUG nymphs present in Illinois and Wisconsin; populations moderate in several states. (p. 376). Damage by SWEETCLOVER WEEVIL conspicuous in Utah and severe locally in Idaho. (p. 377).

EUROPEAN RED MITE eggs abundant in several areas. Tetranychus mcdanieli earlier and heavier than usual in Washington and Bryobia rubrioculus causing considerable damage in New Mexico. (p. 379). APPLE APHIDS particularly severe in southwestern Missouri. BLACK CHERRY APHID may cause above normal injury to cherries in Utah. (p. 380). Myzocallis coryli populations heavier than 1958 on filberts in Oregon. (p. 382).

MEXICAN BEAN BEETLE heavy on beans in Alabama and Georgia. BEAN LEAF BEETLE damaging beans in several states. (p. 383). FLEA BEETLES heavy and damaging truck crops in several states. POTATO PSYLLID comparatively low throughout survey area in Utah, Colorado and Wyoming. (p. 384).

AMERICAN DOG TICK abundant in Oklahoma and several Eastern states. ROCKY MOUNTAIN WOOD TICK severe on cattle in Idaho. (p. 392).

Some First Reported Records of the Season: CORN EARWORM larvae collected in Virginia. SEED-CORN MAGGOT emerging in Idaho. POTATO LEAFHOPPER appeared May 5 in Illinois. SIX-SPOTTED LEAFHOPPER collected in Minnesota and Wisconsin. BEAN LEAF BEETLE adults collected in Delaware. CODLING MOTH emerging and second-generation EUROPEAN RED MITE hatching in Indiana and Illinois. ORIENTAL FRUIT MOTH trapped April 27 in Oregon and May 5 in Illinois. ONION MAGGOT emerging in Massachusetts. TOBACCO and TOMATO HORNWORM mothscollected in light trap at Clemson, South Carolina. BIRCH LEAF MINER emerging in New Jersey and Oregon.

INSECT DETECTION: Alfalfa weevil reported for first time in Marion, Taylor, Nicholas, Braxton and Barbor Counties, West Virginia. (p. 376). Harlequin bug collected for first time in Minnesota. (p. 384). Laspeyresia fletcherana was collected for first time in the United States in the Kootenai National Forest of Montana. (p. 388).

CORRECTIONS. (p. 394).

INSECTS not known to occur in the United States. (p. 397).

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Reports in this issue are for the week ending May 8, unless otherwise designated.

WEATHER OF THE WEEK ENDING MAY 11

Turbulent spring weather erupted this week in the Great Plains, upper Mississippi Valley and Great Lakes regions. Warm, moist air from the Gulf of Mexico swept across the eastern half of the country and cool air covered most of the Far West throughout the week. Along the boundary between these contrasting air masses numerous severe frontal and squall-line thunderstorms developed, bringing large hail, high winds and a large number of tornadoes from Texas northward to Minnesota and Michigan. Scattered heavy crop and property damage resulted from these violent local storms. Temperatures averaged above normal from the Gulf coast northward and eastward to the Great Lakes and New England, with record-breaking heat over the Ohio Valley, the Great Lakes and parts of the Southern and Atlantic Coastal States. Louisville, Kentucky, Cleveland, Ohio, Buffalo, New York, and many other cities in this area reported record high temperatures for so early in the season. Cooler air moved across the Great Lakes, and the Northern and Middle Atlantic States later in the week and brought frost and freezing temperatures to northern Michigan, New York, central New England and the mountains of Pennsylvania. Below-normal temperatures covered the western sections of the country from the Great Plains to coastal California as a result of two cool, polar air outbreaks during the week. Temperatures dropped below freezing as far south as the northern sections of New Mexico and Arizona, and scattered, light frost was reported from the agricultural areas of northern California, Oregon, Utah, and Washington.

Precipitation was generally light along the Atlantic seaboard, in the Gulf States and the lower Mississippi and Ohio Valleys with widely scattered, light to moderate showers and thundershowers over the entire area. Heaviest amounts were reported in the Carolinas and Florida. Moisture is becoming short in the Atlantic and Gulf Coastal States and extremely dry conditions are developing over southern Illinois and Indiana, Kentucky, Tennessee and the eastern parts of Missouri and Arkansas. Several places in Kentucky and Indiana have received less than 1/2 inch of rain in the past 5 weeks. Heaviest precipitation in the Nation was scattered from the west Gulf coast northward across the Great Plains to the western Great Lakes. Local amounts of over 6 inches were recorded in Oklahoma, 3 to 5 inches in sections of Texas, Kansas, South Dakota and Iowa and smaller, but substantial amounts over the remainder of the area. Drought conditions were alleviated over much of the upper Mississippi Valley and Great Plains by these fairly general rains. In many areas of Minnesota as much or more rain fell this week than had been measured during the previous 4 months. Some late-season snow covered parts of Wyoming and Nebraska on Thursday with up to 4 inches at Rawlins, Wyoming. Snow flurries were scattered across the northern tier of states from Minnesota to the central Rocky Mountains. West of the Continental Divide rainfall was generally light and temperatures were extremely cool in most areas. Heaviest rainfall was reported in the coastal areas of Washington and Oregon, and most stations elsewhere reported less than 1/2 inch or none at all. Lack of moisture continues to cause steady range and crop deterioration in dryland areas of the Southwest. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - TEXAS - Nymphs observed many rice fields in Waller, Ft. Bend, Matagorda and Wharton Counties. Damage very light. (McLung, Cason, Hawkins). NEW MEXICO - Nymphs very abundant along fence rows and ditch banks of cultivated areas in Curry County. (N. M. Coop. Rpt.). OKLAHOMA - Survey in northwestern and western counties indicates hatching well underway, but not complete. Second to third-instar nymphs found. Populations generally light, heaviest counts in croplands, 8 and 20 per square yard, in Roger Mills and Beckham Counties respectively. Roadside counts generally less than 5 per square yard. Indications are for generally light populations throughout western and northwestern areas, with only isolated areas with damaging populations. (Frazier). Populations on rangeland and pastures ranged 1-2 per square yard in Garvin and Stephens Counties. Melanoplus spp. ranged 2-4 per square yard in alfalfa field in Marlow area, Stephens County. (Pela). COLORADO - Melanoplus bilituratus and a slant-face species emerging in southeastern counties. Counts per square yard were 25 in Baca County, 18 in Prowers, 10 in Bent, 10 in Otero, 1 in Crowley and 1 in Pueblo County. (Exp. Sta., May 5). UTAH - Serious 500-acre outbreak developed in Marysvale area of Piute County, largely in alfalfa fields. (Thornley, Knowlton). MISSOURI - Egg hatch of Melanoplus spp. underway in extreme southeast. (Kyd, Thomas, Munson). OREGON - Very little grasshopper activity from Pendleton to Madras, Warm Springs and Tygh Valley. (Stewart, May 2). WYOMING - Small numbers of first-instar nymphs found on Casper Mountain, Natrona County, May 1. (Stanford). NORTH DAKOTA - Egg pods in Bowman area in clear stage of development. (N. D. Inst. Rpt.). MINNESOTA - Eggs in clear to segmented stage of development in Grant, Wilkin, Traverse, Swift and Yellow Medicine Counties. Melanoplus bivittatus showed greatest development with M. femur-rubrum the least. (Minn. Inst. Rpt.). WISCONSIN - Eggs examined in clear stage, except very few in milky stage. Most eggs examined believed to be Melanoplus femur-rubrum. Only nymphs found were tentatively identified as Melanoplus confusus in Marquette County. (Wis. Coop. Sur.). ILLINOIS - First hatch noted. (Ill. Ins. Rpt.).

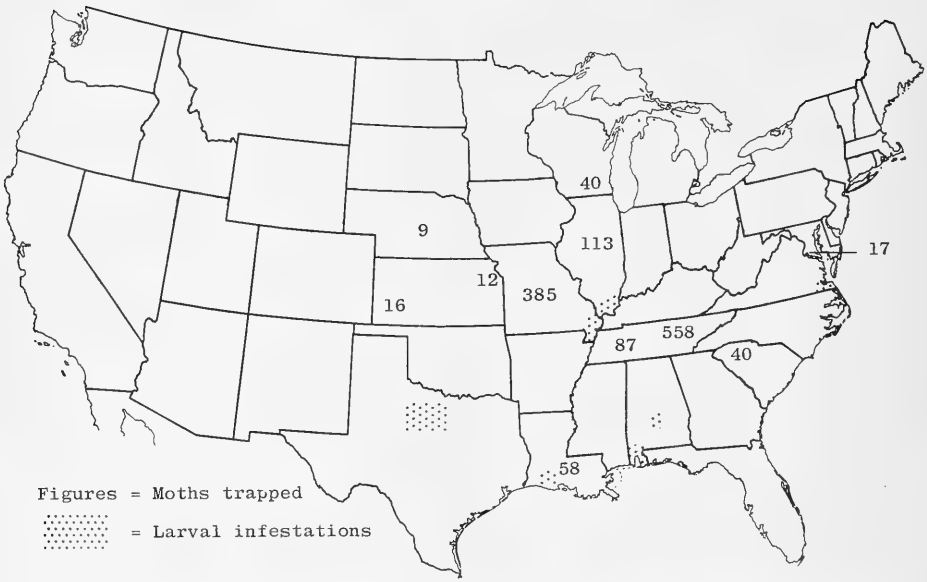
MORMON CRICKET (Anabrus simplex) - WYOMING - Small numbers of first-instar nymphs found on Casper Mountain, Natrona County, May 1. (Stanford).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Since initial find in Brooklyn (CEIR 9(17):304) in March, inspectors have scouted area to determine outer limits of infestation. All five boroughs in New York City have been checked and surveys are continuing. No infestations beyond those reported have been found. During period May 4-15, it is intended that the areas along parkways in the infested area will be treated. (Page, Apr. 30).

GREENBUG (Toxoptera graminum) - ALABAMA - Moderate infestation observed on oats in Escambia County. Counts 20-30 per 10 sweeps common. (Grimes, May 1). MISSOURI - Decreased considerably on small grains and orchardgrass in southwest. Both crops outgrew damage. (Kyd, Thomas, Munson). KANSAS - Counts 600-800 per linear foot several wheat fields in Riley County on May 4; reduced about 50 percent due to heavy rainfall on May 7. (Burkhardt). Found in all small grain fields in Lyon, Osage, Coffey, Anderson, Linn, Bourbon, Allen and Woodson Counties. Counts from less than 25 to about 150 per foot of row. (Peters). OKLAHOMA - Heavy, 20-2,000 per linear foot, in small grains in northern Alfalfa and Grant Counties (Owens); 5-10 in Pawnee County (Stiles); occasional in Logan, Payne, Pawnee and Noble Counties (VanCleave, Drew); and 10-15 in Custer County (Hudson). COLORADO - Found in spots in Baca County. (Ext. Serv., May 5).

ENGLISH GRAIN APHID (Macrosiphum granarium) -MARYLAND - Light on wheat at Preston, Caroline County. (U. Md., Ent. Dept.). ILLINOIS - Present on oats and wheat in southern and southwestern areas. Populations 0-2,000 per sweep. Populations primarily M. granarium, occasionally Toxoptera graminum present. (Ill. Ins. Rpt.). MISSOURI - Counts 15-100 per linear foot on small grains in extreme southeast. Few wheat fields show buildup on heads with heavier infestations around margin of fields. (Kyd, Thomas, Munson). ARIZONA - Population decreasing on wheat over

*Armyworm Situation, Week Ending May 8



most of State. Fields in Aguila area of Maricopa County still with 90 percent of heads infested, averaging 8 per head. (Ariz. Coop. Sur.). OREGON - Aphids, probably this species, prevalent on grass seed fields in Willamette Valley. (Dickason).

APPLE GRAIN APHID (Rhopalosiphum graminum) - KANSAS - Counts up to about 25 per foot of row in few small grain fields in east central and southeastern areas. (Peters).

* ARMYWORM (Pseudaletia unipuncta) - ALABAMA - Extremely heavy larval infestations in small grains in Baldwin and Mobile Counties. Plants in several fields completely defoliated and total destruction reported one 100-acre field. (Grimes, Shotts, Seibels; May 1). Light on wheat in Montgomery County. (Grimes). VIRGINIA - Younger instars present in oats in Princess Anne County (Greenwood, Allen, Morris) and present in wheat in Norfolk County (Wood). Infestations expected in scattered areas over State. (Morris). LOUISIANA - Heavily infested field of oats in Acadia Parish. (Spink). MISSOURI - Populations vary tremendously in small grains over extreme southeast. Most fields of rank and dense barley have populations from 8-30 or more per square foot. Some controls being applied. (Kyd, Thomas, Munson).

ARMYWORMS and CUTWORMS - TEXAS - Infestations remain light and widespread in 5 north central vetch producing counties. (Davis). Few Prodenia ornithogalli on corn in Waller County. (McLung, Hawkins). ILLINOIS - Population of armyworms in southwestern grain fields 0-0.5 per linear foot. In grassy legume fields, 0-20 per 100 sweeps. Larvae very small, hatch just started. (Ill. Ins. Rpt.).

ARMY CUTWORM (Chorizagrotis auxiliaris) - SOUTH DAKOTA - Attacking winter wheat in Bennett County. (Mast, Co. Agt., May 2). COLORADO - Averaged 1 per linear foot of row in wheat in Weld, Morgan and Larimer Counties and one larva per

square yard in alfalfa in Weld, Morgan and Larimer Counties. (Exp. Sta., Apr.28). Counts, one larva per 3 linear feet of drill row in wheat in Logan, Sedgwick, Phillips, Washington, Yuma, Kit Carson, Cheyenne, Prowers and Baca Counties. (Exp. Sta., May 5).

BRONZED CUTWORM (Nemphelodes emmedonia) - OHIO - Two outbreaks, 15 miles apart, in pastures in Tuscarawas County. Populations 20-30 per square foot. Grasses devastated but legumes untouched. Larvae full-grown; many preparing to pupate. (Holdsworth).

BROWN WHEAT MITE (Petrobia latens) - COLORADO - Counts per wheat plant on April 28 were 2-5 in Weld County, 1-4 in Morgan County and 0-2 in Larimer County. Contributing to loss of wheat caused primarily by drought in Baca and Huerfano Counties. Most of damage scattered in fields. (Exp. Sta., Ext. Serv., May 5). NEW MEXICO - Caused some damage to dryland wheat in Curry and Roosevelt Counties. (N. M Coop. Rpt.).

DATE MITE (Oligonychus pratensis) - CALIFORNIA - Heavy infestations continue in large acreages on crested and pubescent wheatgrasses in the Alturus and Cedarville areas of Modoc County. (Cal. Coop. Rpt.).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Abundant in wheat field in Stafford County; wheat stunted by mosaic. (Maxwell).

MITES - NEVADA - Extremely numerous and causing extensive damage to grain south of Lovelock, Pershing County. (Lauderdale, Snyder).

HESSIAN FLY (Phytophaga destructor) - NORTH CAROLINA - Less than 5 percent on stalks infested in wheat planted about 10 days prior to fly-free date in Rowan County. (Jones).

A GALL MIDGE (Lasioptera n. sp.) - CALIFORNIA - Heavy infestations on knotgrass, causing galls on stems in Fresno area of Fresno County. (Cal. Coop. Rpt.).

RICE STINK BUG (Oebalus pugnax) - LOUISIANA - Counts 20 per 100 sweeps on oats in East Baton Rouge Parish. (Spink). ALABAMA - Heavy on oats in Mobile County. (Grimes, Seibels, May 1). Moderate on wheat in Montgomery County. (Grimes).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Extremely heavy infestations on oats in Mobile County. Counts 25-30 adults per 10 sweeps. Heaviest infestation ever observed. (Grimes, Seibels, May 1).

BROWN STINK BUG (Euschistus servus) - ALABAMA - Limited number present in oats and wheat in Baldwin and Mobile Counties. (Grimes, Seibels, May 1).

SEED-CORN MAGGOT (Hylemya cilicrura) - IDAHO - Heavy adult emergence from barley field near Parma. Stand in field poor, 40-70 percent of normal stand. (Scott, May 1).

WHITE GRUBS - NORTH CAROLINA - Heavy infestation in pasture in Gates County. (Newsom, Jones).

EUROPEAN CORN BORER (Pyrausta nubilalis) - MISSOURI - Pupation about 85 percent in sandy field in Dunklin County; no emergence noted. (Kyd, Thomas, Munson). MINNESOTA - Mortality of overwintering borers 47 percent in southeast and 17 percent in southwest; State average 27 percent compared with 18 percent in 1957 and 23 percent in 1956. (Minn. Ins. Rpt.). ILLINOIS - Fifty percent pupation at Carbondale, 4 percent at Urbana. (Ill. Ins. Rpt.). OHIO - Overwintering mortality about 30 percent in emergence cage at Wooster. (Guthrie). NEW YORK - Pupation noted April 30 at Poughkeepsie. Larvae readily found in sweet corn stalks at Hurley in Ulster County and at Poughkeepsie in Dutchess County; averaging 10-20 per 100 stalks. (N. Y. Wkly. Rpt., May 4). ALABAMA - Pupation 30 percent in Tennessee Valley and 20 percent on Sand Mountain. (Eden).

CORN EARWORM (Heliothis zea) - VIRGINIA - Early instars observed in oat field in Princess Anne County. (Morris). ALABAMA - Eggs being deposited on untasseled sweet corn in southwestern area. (Eden). TEXAS - Averaged 1 per 5 whorls of grain sorghum in Ft. Bend County. (Cason, Hawkins). ARIZONA - Heavy infestations as budworms in corn in Yuma County. Field corn just prior to tassel is 100 percent infested with 1-5 larvae per stalk. Twenty percent of stalks infested some Maricopa County fields. (Ariz. Coop. Sur.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Overwintering larvae averaged 9.8 and 22 percent pupation in 2 Payne County corn fields. (Arbuthnot).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Averaged 9 egg masses per acre and 7 percent of sugarcane showed recent feeding signs. (Spink).

CORN FLEA BEETLE (Chaetocnema pulicaria) - TEXAS - Medium, widespread on seedling corn in Hunt County. (Davis). OKLAHOMA - Ranged 0-3 per corn plant in Logan, Payne, Noble and Pawnee Counties; limited plants show moderate to heavy damage. (VanCleave, Drew). Light, 3 fields in Garvin and Stephens Counties. (Pela). MISSOURI - Seedling corn damaged by 2-6 adults per plant in southwestern corner of State. (Kyd, Thomas, Munson).

FLEA BEETLES - VIRGINIA - Heavily damaged newly emerged corn in Holland area of Nansemond County. (Boush). MARYLAND - Chaetocnema sp. noted on sprouting corn at Preston, Caroline County. (U. Md., Ent. Dept.).

BILLBUGS (Calendra spp.) - GEORGIA - Calendra callosa light to heavy in corn in Irwin, Coffee, Atkinson, Pierce, Lowndes, Colquitt and Webster Counties. (Johnson). OKLAHOMA - Adults killing some corn plants in field in Garvin County. (Perry). MISSOURI - Few small corn fields along Missouri River bottoms in central area have 85-95 percent of stand killed. (Kyd, Thomas, Munson).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ILLINOIS - Very few adults in legume fields as far as Rock Island. (Ill. Ins. Rpt.). OKLAHOMA - Light in alfalfa in Stephens County (Pela), in Choctaw County (Goin) and in Payne, Pawnee and Noble Counties (VanCleave). ALABAMA - Heavy infestations in Fayette and Houston Counties, several acres of corn replanted. (Ruffin, Ledbetter).

SPRINGTAILS - MARYLAND - Injuring young corn at Preston, Caroline County. (U. Md., Ent. Dept.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Spotted, heavy infestations on grain sorghum in Ft. Bend County. (Cason, Hawkins). ARIZONA - Heavy on young sorghum in Maricopa, Pinal and Yuma Counties. Attacking Bermuda grass lawns in Tucson area of Pima County. (Ariz. Coop. Sur.). NEW MEXICO - Moderately heavy on barley in Chaves and Eddy Counties. (N. M. Coop. Rpt.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Overwintered adults still present on corn and grain sorghum in Waller, Austin, Washington and Wharton Counties. Infestation ranges from 2-4 per stalk. (McLung, Cason, Hawkins). Adults on seedling corn plants in Hunt County. (Davis). KANSAS - In wheat field in Riley County. (Peters). OKLAHOMA - Light infestations in corn fields in Logan, Payne, Noble and Pawnee Counties. (VanCleave, Drew). Heavy in 2 corn fields and averaged 5 per sweep in alfalfa in Garvin County. (Pela, Pennington). NORTH CAROLINA - Infestation widespread in Hyde County on corn, generally uniform in fields. Estimated 20 percent of plants infested; 2-5 percent of plants with buds killed. (Kulash).

PEA APHID (Macrosiphum pisi) - CALIFORNIA - Medium on alfalfa in Independence-Big Pine area and light in Olanchia area, Inyo County. (Cal. Coop.Rpt.). NEW MEXICO - Light to heavy on alfalfa throughout most of State. Populations much lighter than a month ago most areas. (N. M. Coop. Rpt.). TEXAS - Build up

in vetch in north central area with control measures being applied. (Davis, Randolph). OKLAHOMA - Populations 30-40 per sweep in alfalfa in Payne, Noble and Pawnee Counties (VanCleave); 0-40 per sweep in Choctaw County (Goin); 5-50 per sweep in Ellis, Woodward and Beaver Counties (Frazier); and 2 per sweep in Stephens County (Pela). KANSAS - From 50-75 percent of alfalfa foliage in field severely damaged in Saline County. (Maxwell). Found in all alfalfa fields observed in Lyon, Osage, Coffey, Anderson, Linn, Bourbon, Allen and Woodson Counties. Counts ranged from 25 to about 150 per sweep. (Peters). COLORADO - Counts in alfalfa in Baca County 40 per 10 sweeps, 10 in Prowers County, 25 in Bent County, 25 in Otero County, 10 in Crowley and Pueblo Counties and 20 in Logan County. (Exp. Sta., May 5). IDAHO - Numbers in excess of 1,000 per 6-inch alfalfa stem common. Some fields being treated for second time in Owyhee County. Spotted infestations in Payette County, damage relatively minor. (Waters, Matsen, May 1). Outbreak becoming more widespread in southwestern area. (Waters). None found in dryland alfalfa fields in Moscow, Troy, Deary and Genesee areas. (Portman, Futter, Foote, Homan). SOUTH DAKOTA - Counts in alfalfa 5 per 10 sweeps in Yankton County, 4 in Union County and 3 in Clay County. (Mast, May 2). MISSOURI - Increasing on legumes in southeast and south central areas. Predators and parasites very numerous throughout southeast area. (Kyd, Thomas, Munson). MINNESOTA - Counts 2-30 per 100 sweeps on alfalfa at Rosemount; predators present. (Minn. Ins. Rpt.). WISCONSIN - Counts ranged up to 30 per sweep in alfalfa in Rock, Green, Lafayette, Grant, Crawford and Vernon Counties. (Wis. Coop. Sur.). ILLINOIS - Range 100-36,000 per 100 sweeps. Parasites, predators and diseases depleting populations. (Ill. Ins. Rpt.). INDIANA - Present in red clover and alfalfa fields in 8 northwest counties; counts 2-8 per sweep. (Matthew). OHIO - Scarce on forage in northern area. (Treece). RHODE ISLAND - Building up in Kingston area. Many aphids parasitized. (Hansen). DELAWARE - Noticeably increased on alfalfa throughout most of State; highest populations in Kent and Sussex Counties. (Burbutis, Conrad). MARYLAND - Generally light to moderate on alfalfa in central and southern sections. Parasites and predators active. (U.Md., Ent. Dept.). VIRGINIA - Populations 20-50 per sweep in alfalfa in Steeles Tavern area of Rockbridge and Augusta Counties. More predators and parasites observed. (Woodside). Light to medium in alfalfa in Giles and Charlotte Counties, disease and parasites evident. (Morris, Starnes, Morton). ALABAMA - Continues to cause serious damage on legumes throughout State. (Guyton, Grimes, May 1).

SPOTTED ALFALFA APHID (Therioaphis maculata) - CALIFORNIA - Light in Olanchia area and fairly heavy in Independence-Big Pine area of Inyo County. (Cal. Coop. Rpt.). COLORADO - Counts in alfalfa 10-30 per 10 sweeps in Baca County and 4 per 100 sweeps in Pueblo County. None found in Prowers, Bent, Otero and Crowley Counties. (Exp. Sta., May 5). NEW MEXICO - Spotted heavy infestations damaging alfalfa in Curry, Roosevelt, Lea and Eddy Counties. Occasional heavy infestation damaged alfalfa in Quay County. (N. M. Coop. Rpt.). OKLAHOMA - Populations 10-20 per sweep in alfalfa in Payne, Pawnee and Noble Counties (VanCleave); 50-100 in Ellis, Woodward and Beaver Counties (Frazier); 0-8 in Choctaw County (Goin); and 12 per sweep in Garvin County (Pennington). Heavy damage reported in Driftwood area and in some new fields in Washita and Custer Counties. (Owens, Hudson). MISSOURI - None observed in extreme southeast; few reported in extreme southwest. (Kyd, Thomas, Munson).

YELLOW CLOVER APHID (Therioaphis trifolii) - INDIANA - Found nearly all red clover fields in 8 northwestern counties; counts 5-40 per 25 sweeps. No winged adults observed. (Matthew). MISSOURI - Ranges 0-225 per sweep on red clover in extreme southeast. Considerable honeydew visible on lower leaves. (Kyd, Thomas, Munson).

CLOVER APHID (Anuraphis bakeri) - IDAHO - Range 50-200 per stem in red clover in Payette County. (Waters, May 1). Generally heavy in southeastern area; range 20-2,000 per 6-inch stem. Some fields 5-10 percent of stems dead or dying. (Waters). DELAWARE - Very light infestations, first of season, on clover in Kent County. (Burbutis, Conrad).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - DELAWARE - Nymphs on alfalfa and clover approximately two-thirds grown and common to prevalent throughout State. (Burbutis, Conrad). MARYLAND - Injury moderate on red clover at White House, Baltimore County; light on red clover in St. Marys County. (U. Md., Ent. Dept.). VIRGINIA - Moderately heavy in 5-acre red clover field in Pittsylvania County. (Dominick, May 1). WEST VIRGINIA - Light to moderate generally in alfalfa and clover. (W. Va. Ins. Sur.). OHIO - Nymphs more abundant in northwestern area than in Wayne County, contrary to expectations. Most in second instar. (Treece). INDIANA - Development continues slow north of Lafayette. Hatch probably completed, most nymphs in first instar. (Wilson). Nymphs found in all red clover fields in 8 northwest counties. Counts range 0.1-0.9 per stem. (Matthew). ILLINOIS - Nymphs present in northeastern area. Populations up to 100 per 100 stems. Hatching well advanced northwestern area, with 400 per 100 stems. (Ill. Ins. Rpt.). WISCONSIN - First-instar nymphs present on 10-30 percent of alfalfa stems in Lafayette County. (Wis. Coop.Sur.).

ALFALFA WEEVIL (Hypera postica) - IDAHO - Very difficult to locate in most alfalfa fields; some first-instar larvae appearing. (Waters, May 1). Adults 1 per 2 sweeps in alfalfa in Idaho County. (Barr, Cook). COLORADO - Adult feeding damage as high as 30 percent some alfalfa fields in Weld, Morgan and Larimer Counties, alfalfa growing rapidly. (Exp. Sta., Apr. 28). Adult feeding damage found in Logan, Sedgwick and Yuma Counties. Larvae found in Otero County, 1-10 per 10 sweeps, and in Pueblo County, 20 per 10 sweeps. (Exp. Sta., May 5). RHODE ISLAND - Early-instar larvae appearing at Kingston. (Hansen). PENNSYLVANIA - Eggs numerous in Snyder and Union Counties on alfalfa. (Gesell, Apr. 30). All stages present, damage beginning in Bedford County. (Udine, May 2). Very little larval damage in southeast. (Menusan). MARYLAND - Injury to unsprayed alfalfa increasing all sections. Heavy damage noted in Baltimore and Howard Counties. (U. Md., Ent. Dept.). DELAWARE - Heaviest injury in untreated alfalfa fields in Kent and Sussex Counties. (Burbutis, Conrad). VIRGINIA - Damage varied light to heavy in Giles County, all fields surveyed needed treatments. (Morris, Starnes). Infestations medium to severe some fields in Smyth County and seem present over eastern half of county (Eller), medium to severe in Crockett and Patterson areas of Wythe County (Gillespie). Damage severe in unsprayed fields in Clarke County. (Gerken). WEST VIRGINIA - Light to heavy in alfalfa in eastern panhandle. Found for first time in Marion, Taylor, Nicholas, Braxton and Barbour Counties. (W.Va. Ins. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - IDAHO - Infestations very light; larvae pupating. (Waters, May 1). KANSAS - Larvae found in several alfalfa fields in east central and southeastern areas. Counts up to 1 per sweep. (Peters). ILLINOIS - Decreasing rapidly with fungus disease. Pupation started in southern area. (Ill. Ins. Rpt.). OHIO - Larvae more abundant in western area than at Wooster. (Treece).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ALABAMA - Adults and larvae scarce on crimson clover in Lee County. No adults found in Mobile and Escambia Counties, larvae fairly plentiful. (Guyton, Grimes, May 1). DELAWARE - Adults present to common on clover in Sussex and Kent Counties. (Burbutis, Conrad). MARYLAND - Light on red clover at White House, Baltimore County. (U. Md., Ent. Dept.). OHIO - Larvae much more abundant in western area than at Wooster. (Treece). INDIANA - Adults found one red clover field in White County; counts 1 per 25 sweeps. (Matthew). ILLINOIS - Larvae infesting 70-100 percent of clover stems in southern area. (Ill. Ins. Rpt.). IDAHO - Adults feeding on 90 percent of red clover leaves in 14-acre field in southern Payette County; first-instar larvae present. (Waters, May 1). Adults feeding generally in red clover fields in Canyon and Owyhee Counties. First and second-instar larvae fairly common in leaf axils. (Waters). NEVADA - Larvae numerous, causing heavy damage to red clover in Smith Valley, Lyon County. (Batchelder, May 1).

A CLOVER WEEVIL (Hypera meles) - ALABAMA - Larvae plentiful on crimson clover in central and southern areas. (Guyton, Grimes, May 1).

CLOVER ROOT CURCULIO (Sitona hispidula) - IDAHO - Averaged 1 per sweep in alfalfa near Deary; some adult feeding injury occurred. (Foote, Homan). Adult feeding damage noted all alfalfa fields south and east of Moscow. (Portman, Futter). DELAWARE - Adults present on clover and alfalfa throughout State. (Burbutis, Conrad).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - IDAHO - Severe infestation on 60 acres of second-year sweetclover in Power County. (Bishop, Schow). Adults found all sweetclover fields east and south of Moscow. (Portman, Futter). OHIO - Feeding injury observed in Wood County on sweetclover. (Treece). UTAH - Injury conspicuous locally in parts of Utah, Salt Lake, Davis and Box Elder Counties. (Knowlton). NORTH DAKOTA - Minor activity noted in eastern area. (N. D. Ins. Rpt.).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Counts per 10 sweeps in alfalfa fields were 5 in Lincoln County, 2 in Turner County, 3 in Union County and 1 in Yankton County. (Mast, May 2).

PEA LEAF WEEVIL (Sitona lineata) - OREGON - General throughout legume fields in valley portion of Benton County. (Dickason). WASHINGTON - None found in survey in legumes in Columbia Basin. (Prescott).

VETCH BRUCHID (Bruchus brachialis) - ALABAMA - Heavy infestation on vetch in Lee County. (Guyton, May 1). TEXAS - Infestation continues of concern in north central area. (Davis, Randolph). OKLAHOMA - Light in Payne, Pawnee and Noble Counties. (VanCleave).

VARIEGATED CUTWORM (Peridroma margaritosa) - LOUISIANA - Very heavy infestations in clover in Acadia and Avoyelles Parishes. Some Heliothis zea and Pseudaletia unipuncta present. (Spink). ILLINOIS - Counts 0-32 per sweep in legumes. Still very small. (Ill. Ins. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Light in 4 alfalfa fields in Choctaw County. (Goin). None found in Payne, Pawnee and Noble Counties. (VanCleave).

A CLOVER BUD CATERPILLAR (Grapholitha conversana) -IDAHO - Adults common in weedy margins of alfalfa fields east of Moscow. (Portman, Foote, Homan). Adults up to 1 per sweep in clover and alfalfa in Harpster and Clearwater areas of Idaho County. (Barr, Cook).

BEET WEBWORM (Loxostege sticticalis) - NEW MEXICO - Adults numerous in alfalfa and grain fields in southern areas. (N. M. Coop. Rpt.).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - IDAHO - Adults more numerous than for 2 previous years in southwestern area. (Waters, May 1).

TARNISHED PLANT BUG (Lygus lineolaris) - SOUTH DAKOTA - Found in southeast area. (Mast, May 2). KANSAS - Found most alfalfa fields checked in east central and southeastern areas; counts up to 15 per 10 sweeps. (Peters). ILLINOIS - Adults 0-200 per 100 sweeps; nymphs appearing southern area. (Ill. Ins. Rpt.). WISCONSIN - Adults light, 25 per 100 sweeps, in alfalfa in Lafayette County. (Wis. Coop. Sur.). OKLAHOMA - Counts 0-3 per sweep in Choctaw County (Goin); 1-3 in Payne, Pawnee and Noble Counties (VanCleave); and 0-10 in Ellis, Woodward and Beaver Counties (Frazier). MISSOURI - Counts 1-4 nymphs and adults per sweep in legumes in extreme southeast area. (Kyd, Thomas, Munson). DELAWARE - Nymphs present on alfalfa most areas throughout State and in clover in Sussex County. (Burbutis, Conrad).

LYGUS BUGS (Lygus spp.) - IDAHO - First-instar nymphs appearing in legume fields in southwestern area. (Waters, May 1). TEXAS - Medium to heavy on vetch in Rockwall County. (Davis). ARIZONA - Averaged 7 per 10 sweeps in alfalfa fields in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Adults and nymphs becoming abundant in alfalfa fields. (N. M. Coop. Rpt.). MINNESOTA - Counts 1-9 per 100 sweeps at Rosemount. (Minn. Ins. Rpt.).

RAPID PLANT BUG (Adelphocoris rapidus) - MARYLAND - Nymphs and adults averaged over 5 per sweep on red clover at Bushwood, St. Marys County. (U. Md., Ent. Dept.). DELAWARE - Nymphs common on legumes most fields. (Burbutis, Conrad). ILLINOIS - Occasional adults appearing southern area. Nymphs present throughout State. (Ill. Ins. Rpt.).

POTATO LEAFHOPPER (Empoasca fabae) - ILLINOIS - Appeared in numbers May 5. Populations 1-20 per 100 sweeps throughout most of State, lightest in extreme south. (Ill. Ins. Rpt.). MISSOURI - Average 1-3 adults per 10 sweeps, most extreme southeast alfalfa fields. (Kyd, Thomas, Munson).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Counts at Rosemount 4 per 100 sweeps on spring wheat, 12 per 100 sweeps on winter wheat. Collected in light trap April 26 at St. Paul, unusually early in comparison with 1958 and 1957 dates. (Minn. Ins. Rpt.). WISCONSIN - Large mass of migrating adults appeared about as suddenly as has ever been noted. (Wis. Coop. Sur.).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - DELAWARE - Common to prevalent on alfalfa and clover in Kent and Sussex Counties. Also very common on alfalfa in New Castle County. (Burbutis, Conrad).

HARLEQUIN BUG (Murgantia histrionica) - OKLAHOMA - Overwintering populations averaged 0.5 per sweep in alfalfa in Stephens County (Pela) and 0-0.3 in alfalfa in Pawnee, Payne and Noble Counties (VanCleave).

SAWFLIES - KANSAS - Larvae found in alfalfa field in Anderson County. (Peters). ILLINOIS - Maximum of 300 Dolerus neocollaris per 100 sweeps in alfalfa-bromegrass field at Carlinville. Low other fields. Wheat had 30-40 per sweep near Carlinville, lower elsewhere. (Ill. Ins. Rpt.).

WIREWORMS - IDAHO - Adults fairly common in weedy alfalfa fields in Latah County. (Portman, Futter).

THRIPS (Frankliniella spp.) - ALABAMA - F. fusca causing moderate damage to peanuts in Houston, Geneva, Coffee, Dale and Henry Counties. (Grimes, Dunn). CALIFORNIA - Heavy on alfalfa in San Joaquin area. (Cal.Coop.Rpt.).

BEAN LEAF BEETLE (Ceratoma trifurcata) - DELAWARE - First adults of season found on legumes. (Burbutis, Conrad). MISSOURI - Adults average from 2-6 per linear foot in scattered fields of seedling soybeans in extreme southeast. (Kyd, Thomas, Munson). MARYLAND - Adults abundant on volunteer soybeans at Bushwood, St. Marys County. (U. Md., Ent. Dept.).

FRUIT INSECTS

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MISSOURI - Active from St. Joseph to Cape Girardeau and from Columbia to Kansas City. Larvae about one-fourth grown in Columbia. Rolled leaves reported from all parts of State. (Wkly. Rpt. Fr. Grs.). INDIANA - Hatched in Vincennes area. (Hamilton). NEW JERSEY - About one-third eggs laid, hatched early May 5. (Ins. Dis. Newsl.). NEW YORK - Eggs found April 24-30, several counties. (N. Y. Wkly. Rpt.). MARYLAND - Hatch about 50 percent complete at Hancock, Washington County. (U. Md., Ent. Dept.). PENNSYLVANIA - Moths numerous and about 3 egg masses per apple tree in Erie County. (Adam).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - MISSOURI - First brood underway in central area. (Wkly. Rpt. Fr. Grs.). DELAWARE - Light leaf mining injury around Bridgeville area. (MacCreary).

CODLING MOTH (Carpocapsa pomonella) - MISSOURI - Pupation underway in southeast area. Larvae may be present by May 1 in southern areas. (Wkly. Rpt. Fr. Grs.). INDIANA - Emerged in Vincennes area May 3. About 2.5 percent complete in emergence cages. Egg laying should start about May 5 and hatch about May 12-14. (Hamilton). ILLINOIS - Emergence started May 1,at Carbondale and is progressing rapidly. (Meyer). OHIO - No emergence to May 8. (Cutright).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MISSOURI - Adults trapped in southeast area. (Wkly. Rpt. Fr. Grs.). INDIANA - Hatching expected soon in Orleans area. (Marshall). ILLINOIS - First found May 5, in Carbondale area. Larvae causing peach twigs to wilt. (Meyer). OREGON - First of season trapped April 27, near Salem. (Larson). CALIFORNIA - General and medium in north Modesto area of Stanislaus County on peach. (Cal. Coop. Rpt.).

TENT CATERPILLARS - NEW YORK - Heaviest in 3 or 4 years in Rockland County. (N. Y. Wkly Rpt.). PENNSYLVANIA - Malacosoma americanum heavy on wild cherry and fruit trees all parts of State. Extremely heavy in southwest area, but much less than 2 years ago in northeast area. (Udine, Gesell, Sleesman). WEST VIRGINIA - M. americanum caused complete defoliation most apple and black cherry trees in all northern counties. Medium infestation in southern counties. (W. Va. Ins. Rpt.).

FALL WEBWORM (Hyphantria cunea) - OREGON - Adults began emergence in Salem May 6. (Larson).

BUD MOTHS - UTAH - Larvae damaged apical foliage of sweet and sour cherry in Brigham-Willard area of Box Elder County. (Knowlton).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Range 0-7 per apple leaf in Orleans area. (Marshall). First-brood eggs hatching in Vincennes area. Unsprayed trees in experimental plots had 225 adults, 85 nymphs and 925 eggs per 100 leaves on May 4, compared with two treated orchards which had 3 adults, 3 nymphs and 2 eggs per 100 leaves. (Hamilton). Probably this species, found some apple orchards in LaPorte County area. (Matthew). ILLINOIS - Eggs numerous in Carbondale area. Many leaves with 6-8 eggs per every adult. Second generation began hatching May 4. (Meyer). NEW YORK - Common in Rockland County, hatching abundantly in Dutchess County and still hatching in Ulster County. (N. Y. Wkly. Rpt., May 5). MARYLAND - Heavy on apple in unsprayed orchards at Hancock, Washington County. (U. Md., Ent. Dept.). OHIO - Hatching of overwintering eggs completed. (Cutright). DELAWARE - Summer eggs noted on apple in Sussex County. (MacCreary).

TETRANYCHID MITES (Tetranychus spp.) - NEW YORK - T. telarius observed laying eggs April 22 in Dutchess County. (N. Y. Wkly. Rpt.). OHIO - T. telarius first-generation adults by May 6, most still immature. (Rings). INDIANA - Light in Orleans area apple orchards. (Marshall). WASHINGTON - T. mcdanieli earlier and heavier than usual. Heavy oviposition in apple and pear orchards in north central area. More pronounced on apple. (Hoyt, Burts).

SPIDER MITES - NEW JERSEY - Occurring in untreated apple trees. (Ins. Dis.Newsl.). NEW MEXICO - Feeding and reproducing on foliage of apple trees at Ft. Sumner, De Baca County. (N.M. Coop. Rpt.).

A BRYOBIA MITE (Bryobia rubrioculus) - NEW MEXICO - Adults and larvae causing considerable damage to apple, peach and plum trees in High Rolls-Mountain Park area in Otero County. (N. M. Coop. Rpt.). COLORADO - Hatching some Delta County apple orchards. (Ext. Ser., Exp. Sta.). UTAH - Numerous in home orchards in Box Elder, Weber and Salt Lake Counties and moderate in some commercial orchards. (Knowlton).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - UTAH - Damage conspicuous in unsprayed peach orchards in Weber and Utah Counties. Some sprayed orchards damaged. (Knowlton).

ROSY APPLE APHID (Anuraphis roseus) - MISSOURI - This and other species have been particularly severe in southwest section and in Marshall area. (Wkly. Rpt. Fr. Grs.). INDIANA - Hard to find in Orleans area. (Marshall). ILLINOIS - Forming colonies where numerous in Carbondale area. (Meyer). ALABAMA - Scarce for this time of year in Lee County. (Guyton, May 1). NEW YORK - Light to scarce in Rockland, Dutchess, Essex, Niagara, Monroe and Onondaga Counties. (N. Y. Wkly. Rpt., May 5). MARYLAND - Appears less on apple in Hancock area than in 1958. (U. Md., Ent.Dept.). OHIO - Stem mothers reproducing. Light to date. (Cutright).

APPLE APHID (Aphis pomi) - INDIANA - Continues to increase on water sprout growth in Orleans area. Not threatening. (Marshall). ILLINOIS - Numerous some orchards in Carbondale area. (Meyer). NEW YORK - Numerous April 27 in Peru area and light in Onondaga County. (N. Y. Wkly. Rpt.). COLORADO - Colonies appearing in Delta County orchards, range from 10 to 50 percent infestations some orchards. (Ext. Ser., Exp. Sta., May 5). UTAH - Numerous some Orem and Ogden apple orchards. (Knowlton).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Light, 0-2 colonies per tree, on peach trees in Mesa County. (Ext. Ser., Exp. Sta., Apr. 28). NEW MEXICO - Light to heavy on peach trees in southeastern counties. (N. M. Coop. Rpt.). IDAHO - General on peach and apricot in upper Snake River Valley. Numbers higher than same time past two years. Stem mothers producing young. (Bishop).

BLACK CHERRY APHID (Myzus cerasi) - COLORADO - Colonies appearing on sweet cherry trees. (Ext. Ser., Exp. Sta., Apr. 28). UTAH - Curling cherry foliage in commercial and home orchards in Box Elder, Weber, Davis and Salt Lake Counties. Indication is for above normal injury. (Knowlton).

A PLUM APHID (prob. Anuraphis helichrysi) - IDAHO - Infesting prune trees near Parma. Sixty to 80 percent of leaves infested, 2-10 per leaf. (Scott).

APHIDS - WASHINGTON - Less abundant than usual on pome fruits. (Hoyt, Burts). ALABAMA - Heavy on grapes. (Guyton).

PEACH TREE BORER (Sanninoidea exitiosa) - ALABAMA - Range from one-fourth to three-fourths of an inch long in present moderate numbers on peach trees in Lee County. (Guyton, May 1). OKLAHOMA - Larvae damaging peach trees in Altus area, Jackson County. (Hatfield).

LESSER PEACH TREE BORER (Synanthedon pictipes) - VIRGINIA - Serious in 20-acre peach orchard in Nansemond County. About one-half in larval stage. (Boush).

PEACH TWIG BORER (Anarsia lineatella) - NEW MEXICO - Causing minor damage to peach twigs at Ft. Sumner, De Baca County. (N. M. Coop. Rpt.). UTAH - Damaging at Tremonton. (Knowlton).

PLUM CURCULIO (Conotrachelus nenuphar) - OKLAHOMA - Immature apricot fruit dropping in Stillwater area, Payne County. (Bieberdorf). MISSOURI - Development well advanced in southeast area, little evidence elsewhere. (Wkly. Rpt. Fr. Grs.). ILLINOIS - Activity probably at peak in Carbondale area. (Meyer). INDIANA - Cutting started May 1. Egg punctures plentiful in unsprayed orchards in Vincennes area, 160 adults jarred from 5 unsprayed trees May 4, compared with 87 the previous week. (Hamilton). OHIO - First adults jarred from plum trees May 2. (Rings). ALABAMA - Continues to damage small fruit in Lee County. Egg punctures on plums numerous. Increase continues in south. (Guyton, May 1). GEORGIA - Emergence of first-generation adults expected to start last of May in Ft. Valley. (Snapp).

CURCULIONIDS - SOUTH CAROLINA - Tunnels in peaches appear to be much more numerous than during past years. More evidence of damage in Ridge and Coastal orchards. (Ferree).

SHOT-HOLE BORER (Scolytus rugulosus) - ALABAMA - Plentiful on declining limbs of apple trees. (Guyton, May 1). SOUTH CAROLINA - Severe damage to healthy trees, 2-3 acres affected in Orangeburg County. (Ferree).

BUFFALO TREEHOPPER (Stictocephala bubalus) - NORTH CAROLINA - Local injury to twigs of apple in Avery County. (Clayton, Smith).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Nymphs first observed April 30 in western area. (N. Y. Wkly. Rpt.). CALIFORNIA - Medium on pear trees in Newcastle area, Placer County. (Cal. Coop. Rpt.). WASHINGTON - First generation common but not abundant in Winatchee area. (Burts).

EUROPEAN FRUIT LECANIUM (Lecanium corni complex) - OHIO - Spreading in Clyde area. Nymphs rapidly approaching maturity. (Rings).

CALIFORNIA PEAR-SLUG (Pristiphora californica) - CALIFORNIA - Light on pear trees in Smith Flat area, El Dorado County. (Cal. Coop. Rpt.).

CATFACING INSECTS - INDIANA - Lygus lineolaris activity in peach orchards complete and stink bugs still active in Vincennes area. (Hamilton). Stink bug populations high in Orleans area peach orchards. Mostly Acrosternum hilare, Euschistus servus and E. tristigmus. (Marshall). ILLINOIS - Stink bugs still active on peaches in Carbondale area. (Meyer). COLORADO - L. lineolaris light in peach orchards, ranged 10-30 per 100 sweeps on cover crops. (Ext. Ser.,Exp. Sta., Apr. 28). MISSOURI - L. lineolaris damaged peaches in Rocheport area along with other Lygus spp. (Wkly. Rpt. Fr. Grs.). OHIO - A. hilare, E. variolarius, E. tristigmus and E. servus entering orchards in small numbers. (Rings). SOUTH CAROLINA - Stink bugs numerous in several Coastal Plain counties. (Ferree).

WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - CALIFORNIA - First foliage cover spray of season applied in Humboldt County eradication area. (Cal. Coop. Rpt.).

FLEA BEETLES - NEW YORK - Severe in several vineyards in Monroe County. (N. Y. Wkly. Rpt.). MISSOURI - Altica chalybea heavy on wild grapes around Columbia and some noted feeding in vineyards around Rosati. (Wkly. Rpt. Fr. Grs.).

GRAPEVINE APHID (Aphis illinoisensis) - ALABAMA - Plentiful on cuppernong grape in Lee County. (Guyton, May 1).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - FLORIDA - Heavily infesting Mahan pecans in Jefferson County. (Fla. Coop. Sur.). ALABAMA - Heavy on pecan foliage in Baldwin County (Eden, Bouler, Marable) and limited damage in Montgomery County. (Grimes).

CIGAR CASEBEARER (Coleophora occidentis) - ALABAMA - Moderate on pecan foliage in Mobile County. (Grimes, Seibels, May 1).

PECAN NUT CASEBEARER (Acrobasis caryae) - FLORIDA - Unusually heavy damage by overwintered larvae to pecan trees in Jefferson County. Estimated 25-50 percent of twigs of some varieties infested. First moths emerged May 1. (Fla.Coop. Sur.).

A SPITTLEBUG (Clastoptera achatina) - FLORIDA - Light to moderate on pecans in Monticello area. (Fla. Coop. Sur.).

MAY BEETLES - GEORGIA - Defoliating pecan trees in Spalding and Lamar Counties. Some trees completely defoliated. (Tippins, Roberts).

PLANT BUGS - ALABAMA - Immature forms heavy on pecan trees in Montgomery, Dallas and Pike Counties. (Grimes).

AN APHID (Myzocallis coryli) - OREGON - Abundant in most filbert orchards. Populations heavier than during 1958. Nearly 100 percent of leaves infested some orchards. (Every).

CITRUS WHITEFLY (Dialeurodes citri) - CALIFORNIA - Two pupae found on a citrus tree in infested area of Sacramento. Respray of hosts in three-block area surrounding host completed. (Cal. Coop. Rpt.).

A TORTRICID (Amorbia cuneana) - CALIFORNIA - Larva reared from navel orange in Piedmont, Alameda County. This is first known record of species attacking orange. (Cal. Coop. Rpt.).

MELON APHID (Aphis gossypii) - CALIFORNIA - Medium on orange in Fallbrook, San Diego County. (Cal. Coop. Rpt.).

GRAPE MEALYBUG (Pseudococcus maritimus) - CALIFORNIA - Light on grapefruit trees in Corona, Riverside County. (Cal. Coop. Rpt.).

A FULGORID - TEXAS - Nymphs feeding on citrus in Hidalgo County, infestation light and spotted. (Plyler).

A SCALE (Coccus sp.) - TEXAS - Heavy local infestations observed on citrus near Brownsville in Cameron County. (Day).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Heavy in citrus in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

Citrus Insect Situation, Lake Alfred,Florida, Fourth Week in April - PURPLE SCALE activity had a marked drop this week. It will remain very low for several weeks. Infestations are lowest in nine years of record. FLORIDA RED SCALE activity decreased slightly and some further decline from present high level is expected during the next two weeks. CITRUS RED MITE activity experienced a slight drop. This will change to a rising trend by mid-May. CITRUS RUST MITE activity increased and will generally rise slightly during May. (Simanton, Thompson, Johnson).

TRUCK CROP INSECTS

ASPARAGUS BEETLES - MARYLAND - Crioceris asparagi and C. duodecimpunctata abundant on commercial asparagus in Cecil County and injuring asparagus several localities in Montgomery County. (U. Md., Ent. Dept.). DELAWARE - C. asparagi present most fields but generally under good control, with only light feeding injury. (Burbutis, Conrad).

RHUBARB CURCULIO (Lixus concavus) - MARYLAND - Adults injuring rhubarb at Waldorf, Charles County. (U. Md., Ent. Dept.).

CARROT WEEVIL (Listronotus oregonensis) - NEW JERSEY - Observed in overwintered parsley near Vineland. Eggs numerous but no larvae observed. (Ins. Dis. Newsl.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - NORTH CAROLINA - Up to 25 adults per plant in a field in Sampson, with part severely injured. (Gurkin, Farrier).

MELON APHID (Aphis gossypii) - SOUTH CAROLINA - Light on squash and cucumber in Charleston County. (Cuthbert).

CUCUMBER BEETLES - SOUTH CAROLINA - Acalymma vittata moderate on squash and cucumber in Charleston County. (Cuthbert). ALABAMA - Diabrotica undecimpunctata howardi light on cucumbers in Escambia County. (Grimes, May 1). VIRGINIA - D. undecimpunctata howardi emerging from hibernation in Nansemond County about April 25, present in approximately normal numbers. (Boush).

A CORIZID (Liorhyssus hyalinus) - ARIZONA - Medium on lettuce grown for seed in Maricopa and Yuma Counties. (Ariz. Coop. Sur.).

APHIDS - NEW MEXICO - Moderately heavy on lettuce several fields in Artesia area, Eddy County. (N. M. Coop.Rpt.).

THRIPS - ARIZONA - Average 3.2 per plant on young onions in Yuma County. (Ariz. Coop. Sur.). NEW MEXICO - Heavy, damaging lettuce at Artesia, Eddy County. Heavy, damaging onions at Lovington, Lea County. (N. M. Coop.Rpt.). CALIFORNIA - Frankliniella sp. light on lettuce in Brawley area, Imperial County, and in Watsonville area, Santa Cruz County. Medium in Patterson area, Stanislaus County. (Cal. Coop. Rpt.). SOUTH CAROLINA - Heavier than usual on onions, also causing moderate injury to watermelon and cantaloup in Charleston County. (Cuthbert).

ONION MAGGOT (Hylemya antiqua) - MASSACHUSETTS - First adults of season emerging in Connecticut Valley area. (Crop Pest Cont. Mess.). IDAHO - Adults in southwestern area in second year seed-to-seed onions ranging 1-10 per square yard. Have been present in onion fields for 2-4 weeks but much lower numbers than in 1958. No eggs or larvae found. (Scott, May 4).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Some damage and adult beetles observed on beans in Covington County. (Grimes, May 1). Heavy on beans in parts of Baldwin County. (Guyton). GEORGIA - Moderate to heavy on beans in Brooks, Thomas, Grady and Mitchell Counties. (Johnson). SOUTH CAROLINA - Eggs and adults moderately abundant, first-brood larvae hatching in Charleston County. (Cuthbert).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Light on cucumbers in Escambia County. (Grimes, May 1). Continue to cause damage in central and southern areas. (Guyton, Grimes). VIRGINIA - Numerous on seedling beans in home gardens in Pittsylvania County. (Dominick). MISSOURI - Damage to garden beans is generally heavy over entire State. (Kyd, Thomas, Munson). OKLAHOMA - Heavy damage to small bean plants in gardens in Stillwater, Payne County. Ranged 1 to 3 per plant. (Bieberdorf).

PEA APHID (Macrosiphum pisi) - SOUTH CAROLINA - Moderate on peas in Charleston County. (Cuthbert). DELAWARE - Slight increase on commercial plantings of peas in Kent and Sussex Counties. (Burbutis, Conrad).

BEAN APHID (Aphis fabae) - SOUTH CAROLINA - Moderate to heavy on beans, some plants severely injured in Charleston County. (Cuthbert).

TOMATO HORNWORM (Protoparce quinquemaculata) - ARIZONA - Light on tomatoes in Yuma County. (Ariz. Coop. Sur.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW JERSEY - Numerous in central section of State and in Salem and Cumberland Counties. (Ins. Dis. Newsl.). NORTH CAROLINA - Peak adult emergence in Carteret County May 5. Eggs hatching and larvae boring into potato stems. (Kulash).

CUTWORMS - SOUTH CAROLINA - Agrotis ypsilon generally more abundant than usual in Charleston County, causing slight injury to cabbage and potatoes. Another species, probably Peridroma margaritosa, unusually abundant on cabbage and tomatoes on farm in Charleston County. (Cuthbert).

SEED-CORN MAGGOT (Hylemya cilicrura) - COLORADO - Bait traps in Larimer and Weld Counties collecting 5-14 adults per trap the past week. (Ext. Ser.,Exp. Sta., Apr. 28). Averaged 85 adults per bait trap in Weld County last week. (Ext. Ser., Exp. Sta.). NORTH CAROLINA - Adults flying in Iredell County. (Jones, Farrier). NEW YORK - Active in Nassau County for several weeks. (N. Y. Wkly. Rpt., May 5).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Adults and eggs common on potato locally near Bushwood, St. Marys County. (U. Md., Ent. Dept.). LOUISIANA - Light on potatoes in Tangipahoa Parish. (Spink). VIRGINIA - Out of hibernation and on host plants in Nansemond County. (Boush). GEORGIA - Light on tomatoes in Thomas and Mitchell Counties. (Johnson). SOUTH CAROLINA - First-brood larvae hatching in Charleston County. (Cuthbert). DELAWARE - Adults present on potatoes most areas, with only light feeding noticeable. Eggs found on potatoes in Kent County. (Burbutis, Conrad).

THREE-LINED POTATO BEETLE (Lema trilineata) - MARYLAND - Adults on potatoes at Bushwood, St. Marys County. (U. Md., Ent. Dept.). DELAWARE - Found for first time this season on potatoes in Sussex County. (Burbutis, Conrad).

FLEA BEETLES - VIRGINIA - Caused rather heavy damage some potato and tomato fields in Northampton County. (Hofmaster). Severe on corn, greens and beans in gardens in Roanoke County. (Allen). NEW MEXICO - Very destructive to truck crops in Chaves County. Caused severe damage to cabbage near Lovington, Lea County. (N. M. Coop. Rpt.). DELAWARE - Epitrix cucumeris common on potatoes in all counties, with feeding injury noticeably increased over last week but still light to moderate. Also present on some tomatoes. Phyllotreta cruciferae on radishes in Sussex County and common on mustard in Kent County. An adult flea beetle common on potatoes in New Castle County and present in Sussex County. (Burbutis, Conrad). MARYLAND - E. hirtipennis adults injuring tomatoes at Preston, Caroline County, and potatoes at various localities in St. Marys County. (U. Md., Ent. Dept.). ALABAMA - Plentiful on potatoes in Lee County. (Guyton).

HARLEQUIN BUG (Murgantia histrionica) - TEXAS - Heavy, widespread infestations on cabbage in Zavala County. (Prucia). OKLAHOMA - Heavy and killing radish plants in a garden in the Weatherford area. (Frazier). MINNESOTA - First record for Minnesota. Reported during the week of May 8, from Slayton. Apparently was carried in on strong winds from the south. (Minn. Ins. Rpt.).

WIREWORMS - CALIFORNIA - Severely damaged young tomato transplants in Clarksburg-Lisbon Island area of Yolo County. (Zobel). SOUTH CAROLINA - Generally light survival of Conoderus falli this past winter. Injury should be minor in most treated plantings in Charleston County. (Cuthbert).

CABBAGEWORMS - VIRGINIA - Trichoplusia ni present on cabbage in Princess Anne County. (Greenwood). NEW MEXICO - T. ni light and damaging cabbage near Lovington, Lea County. (N. M. Coop. Rpt.). SOUTH CAROLINA - T. ni generally lower, Pieris rapae causing slight to moderate injury and Plutella maculipennis moderate in crucifers in Charleston County. (Cuthbert).

Potato Psyllid Survey - A survey of Paratrioza cockerelli, conducted May 4-8, showed comparatively low populations throughout the survey area. Except in Utah and western Colorado, lycium was mostly dormant. Weather was good except in Utah and Arkansas Valley area of Colorado. Populations east of the mountains averaged less than 1 per 100 sweeps in eastern Wyoming, 0 in Greely district of northern Colorado and 9.5 in Arkansas Valley in southern Colorado. Populations at Salida averaged 1.4, 0 in Grand Junction, Colorado, western Wyoming, and Utah. Snow or cold rains have intermittently hit entire eastern half of Wyoming and Colorado throughout the spring, probably accounting for low psyllid populations. (PPC).

POTATO PSYLLID (Paratioza cockerelli) - COLORADO - Adults on lycium, 5-8 per 10 sweeps, eggs abundant in Otero County. (Ext. Ser., Exp. Sta., May 5).

POTATO APHIDS - SOUTH CAROLINA - Macrosiphum solanifolii and Myzus persicae light, but general on potato in Charleston County. (Cuthbert). DELAWARE - M. persicae first of season found on potatoes in Kent County, very light. (Burbutis, Conrad).

COLLEMBOLA - MARYLAND - Abundant and injuring potatoes in home gardens at Bushwood, St. Marys County. (U. Md., Ent. Dept.).

CABBAGE MAGGOT (Hylemya brassicae) - MASSACHUSETTS - Eggs found in East Taunton May 4, and now in all areas. (Crop Pest Cont. Mess.).

CABBAGE APHID (Brevicoryne brassicae) - VIRGINIA - Serious on cabbage in Nansemond County. (Boush). ARIZONA - Infestation results of a test at Yuma in which some host crops were allowed to mature: Turnips, very heavy, with plants killed back; rutabaga, very heavy, plant injury less serious than with turnips; cauliflower, average 25 per leaf, no visible plant injury; broccoli, average 20.5 per leaf, no visible plant injury. (Ariz. Coop. Sur.).

IMBRICATED SNOUT BEETLE (Epicaerus imbricatus) - DELAWARE - Adults in strawberry field in New Castle County. (Burbutis, Conrad).

FOXGLOVE APHID (Myzus solani) - OREGON - Heavy in strawberry field near Gresham April 10-20, 25-100 per plant but no injury found. (Rosenstiel). CALIFORNIA - Probably this species, light on bell peppers in Spring Valley, San Diego County. (Cal. Coop. Rpt.).

STRAWBERRY APHID (Pentatrichopus fragaefolii) - OREGON - Normal or below in abundance in Willamette Valley. (Rosenstiel).

STRAWBERRY WEEVIL (Anthonomus signatus) - NEW JERSEY - Still causing some damage to untreated strawberry fields around Hammonton. (Ins. Dis. Newsl.).

STRAWBERRY WHITEFLY (Trialeurodes packardi) - INDIANA - Already presenting a serious problem on strawberries in Orleans area. (Marshall).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - INDIANA - First generation matured and pupating in Orleans area. (Marshall). IDAHO - Spring generation moths active in Moscow May 6. (Portman). UTAH - Abundant in strawberry patches in Ogden-Riverton area, Weber County. (Knowlton).

LEAF ROLLERS - MISSOURI - Attacking strawberries in St. Joseph and Kansas City. (Wkly. Rpt. Fr. Grs.). NEW JERSEY - Laying eggs on strawberry at a moderate rate with few newly hatched larvae in Hammonton area. (Ins. Dis. Newsl.).

SPIDER MITES - INDIANA - Tetranychus spp. already presenting a serious problem in strawberries in Orleans area. (Marshall). VIRGINIA - Heavy on some cabbage in Churchland area of Norfolk County. (Greenwood). Strawberry fields in Northampton County are generally infested. (Hofmaster). NEW JERSEY - T. telarius heavy some southern strawberry plantings. (Ins. Dis. Newsl.).

SPITTLEBUGS - NORTH CAROLINA - Nymphs on strawberries in Alamance County. (Dodson, Farrier). INDIANA - Philaenus leucophthalmus continues about same level in Orleans area, but may dwindle if hot, dry weather persists. (Marshall).

RASPBERRY CANE BORER (Oberea bimaculata) - UTAH - Infesting 5 percent of canes on one raspberry patch in north Farmington. (Knowlton).

TOBACCO INSECTS

A GRASSHOPPER - GEORGIA - Moderate on tobacco in Brooks and Thomas Counties. (Johnson).

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Light on tobacco in Brooks, Thomas, Grady and Mitchell Counties. (Johnson).

TOBACCO BUDWORMS (Heliothis spp.) - GEORGIA - Light to moderate on tobacco in Cook, Lowndes, Brooks, Thomas, Grady and Mitchell Counties. (Johnson).

A WIREWORM (Conoderus prob. vespertinus) - NORTH CAROLINA - Estimated 75 percent of plants infested in a replanted tobacco field in Bladen County. (Guthrie).

COLLEMBOLA - MARYLAND - Light damage to tobacco in beds noted at Bushwood, St. Marys County. (U. Md., Ent. Dept.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Light to moderate on tobacco in beds in Prince Georges, Calvert and St. Marys Counties. (U. Md., Ent. Dept.).

COTTON INSECTS

CUTWORMS - TEXAS - Light in Dewitt County and causing damage in San Patricio and Refugio Counties. (Smith, Greer). ALABAMA - Caused considerable damage to seedling cotton many central areas. (Rawson, Grimes).

BEET ARMYWORM (Laphygma exigua) - CALIFORNIA - Light to medium on cotton in Blythe area of Riverside County. (Cal. Coop.Rpt.).

COLLEMBOLA - CALIFORNIA - Causing some damage in western part of Fresno County on young seedling cotton. (Leigh).

FALSE CHINCH BUGS - TEXAS - Light in Webb County. (Stephens). Causing some local damage in McLennan and Falls Counties. (Parencia et al.). CALIFORNIA - Nysius ericae extremely heavy on mustard and related plants in cotton fields in west Fresno County. Some damage to cotton where weed hosts have been weeded or dried. Most severe damage occurred in skip-row fields where weeds not controlled early. (Leigh).

THRIPS - TEXAS - Light in San Patricio, Refugio, Kleberg, Nueces, Starr and Webb Counties. (Greer, Plyler, Womack). Medium in 3 fields, light in 9 fields and none found in 18 fields checked in McLennan and Falls Counties. (Parencia et al.). ARIZONA - Average 5 per plant some Maricopa and Pinal County cotton fields. Average 1 per plant in Graham County. (Ariz. Coop. Sur.). LOUISIANA - Present most fields in Madison Parish. Especially early planted fields where damage apparent. Averaged 1.62 per plant. (Smith et al). GEORGIA - Franklinella sp. light on cotton in Brooks, Thomas, Grady, Mitchell, Terrell and Sumter Counties. (Johnson).

APHIDS - TEXAS - Light to moderate in San Patricio and Refugio Counties and light in Kleberg, Nueces and Webb Counties. (Greer, Stephens). Aphis gossypii light in 19 of 30 fields checked in McLennan and Falls Counties. (Parencia et al.). LOUISIANA - In all fields examined in Madison Parish. Some heavy infestations present. (Smith et al.).

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Light in Webb County. (Stephens). In McLennan and Falls Counties averaged 4 per acre in 30 fields inspected. Compares with 38 per acre in 9 fields during the corresponding week of 1958. (Parencia et al.). LOUISIANA - Two found in 11 fields in Madison Parish, fairly heavy in

ground trash. Percentage of survival in hibernation cages adjacent to a cotton field in Tallulah area for the week ending May 8, was 0.36 as compared with 1.36 in 1958. (Smith et al).

SPIDER MITES - TEXAS - Causing damage in San Patricio and Refugio Counties; heavy in Ft. Bend County; light to medium in Kleberg and Nueces Counties and light in Webb County. (Stephens, Cason, Greer).

GARDEN WEBWORM (Loxostege similalis) - TEXAS - Doing damage in San Patricio and Refugio Counties. (Greer).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - LOUISIANA - Moderate to heavy in seedling cotton in Acadia Parish. (Spink). TEXAS - Light in 13 fields checked in McLennan and Falls Counties. (Parencia et al.).

FLEAHOPPERS - TEXAS - Light in San Patricio and Refugio Counties; light to medium in Starr, Kleberg and Nueces Counties; and light to heavy in some Webb County fields, up to 100 percent. (Greer, Plyler, Womack, Stephens). Psallus seriatus light in 3 fields checked in McLennan and Falls Counties.(Parencia et al.).

Cotton Insects in Lower Rio Grande Valley, Texas: FLEAHOPPERS now spread across entire valley. Heavy from mid-valley west and in Willacy County. APHIDS continue to cause some damage in eastern half, with scattered damaging infestations found from Weslaco west. Adult BOLL WEEVILS are being found in greater numbers in scattered fields across the valley. SPIDER MITES present in scattered fields and a few fields near Weslaco, damage becoming visible. BOLLWORMS causing some terminal damage in eastern Willacy County. (Deer, May 4).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

AN ARCTIID (Halisidota sp.) - NEVADA - Light to moderate populations on fir at Zephyr Cove, Douglas County. (Bechtel).

AN OLETHREUTID (Laspeyresia fletcherana) - MONTANA - Infesting bark of Douglas-fir in the Rexford District of the Kootenai National Forest in fall of 1958. Det. J. F. G. Clarke. This is the first record of this species in the United States. Also known from Ottawa, Canada. (Div. For. Ins. Res., For. Ser.).

LARCH CASEBEARER (Coleophora laricella) - WISCONSIN - Larvae active in newly emerged needles of larches. (Wis. Coop. Sur.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - PENNSYLVANIA - Larvae about mature, fairly abundant and causing terminals of red and Scotch pines to wilt. About 10 percent affected with bacterial disease. (Udine).

NANTUCKET PINE MOTH (Rhyacionia frustrana) - NORTH CAROLINA - Caused severe injury to a planting of pine in southern Scotland County. (Alford).

SPRUCE NEEDLE MINER (Taniva albolineana) - IDAHO - Reported from Idaho Falls on May 7. (Kohl).

BARK BEETLES - ALABAMA - Ips calligraphus, I. avulsus and I. grandicollis plentiful in cut-over pulpwood areas in Lee County, and Dendroctonus terebrans plentiful in stumps in same areas. (Guyton). OKLAHOMA - D. terebrans averaged 2 per stump and Ips sp. larvae 0.5 per fallen top in pine forests in Brokenbow area. (Goin, Vincent). CALIFORNIA - Ips confusus, D. brevicomis and D. valens causing top and complete kill of young ponderosa pines in groups of 5-6 in two 10-acre stands in the Shasta-Trinity National Forest. (USFS).

DEODAR WEEVIL (Pissodes nemorensis) - ALABAMA - Larvae present in cut-over pulpwood areas of Lee County, but no adults found. (Guyton).

WHITE-PINE WEEVIL (Pissodes strobi) - PENNSYLVANIA - Depositing eggs on white pine in Blair County and averaged 7-8 per terminal on Scotch pine in Fulton County, causing resin to exude. (Udine).

PALES WEEVIL (Hylobius pales) - PENNSYLVANIA - Abundant on pine in a plantation in Lycoming County. (Gesell). OKLAHOMA - Light populations, 0.25 per tree, in pine forests in Brokenbow area. (Goin, Vincent).

PINE GALL WEEVIL (Podapion gallicola) - ALABAMA - Damage reported on two-year-old pines in Tuscaloosa County. (Brogdon).

PINE BARK APHID (Pineus strobi) - VIRGINIA - Light on pines in some stands in Mecklenburg, Brunswick, Greensville, Southampton and Dinwiddie Counties. Light on white pines at a home in Roanoke. (Morris). CALIFORNIA - A widespread infestation, probably this species, on Douglas-fir in the east gulch area of Moffett Creek, Siskiyou County. (Dirckson).

WHITE-PINE APHID (Cinara strobi) - WISCONSIN - Eggs hatched by May 3 in Dane-Rock County area and nymphs were feeding in white pine plantings. (Wis. Coop. Sur.).

PINE SAWFLIES (Neodiprion spp.)- PENNSYLVANIA - Heavy on several varieties of pine in Bucks County and in the southeast part of the State. (Strohecker).

PINE SPITTLEBUG (Aphrophora parallela) - PENNSYLVANIA - Populations light and in second instar on pine in Monroe County and averaging about 3 masses per tree on Scotch pines in some plantations in southwest part of State. (Udine). VIRGINIA - Infestations, probably this species, present but apparently light on

pines in Mecklenburg, Brunswick, Greensville, Southampton, Dinwiddie and Nottoway Counties. (Morris).

A PINE SAWFLY (Neodiprion pratti pratti) - MARYLAND - Injurying Virginia pine in several localities in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.). VIRGINIA - Defoliating pines in Goochland, Amelia and Nottoway Counties (Truett, Holmes, Cassell), and severe on pines in Stafford County (Beck) and in southern Albemarle County (Smith). Medium on pines in southern Culpeper County (Heltzel) and in Dinwiddie County, where there is considerable damage (Bedwell). Light on pines in one area of Rappahannock County. (Lyne, Vernam). Larvae present in Fairfax County. (Morris, Beard). Infestations appear to be at their peak in Amelia County where many pines look dead. (Holmes). Pupation expected to begin soon in southern part of State. Small and large larvae observed in Mecklenburg County. (Morris). NORTH CAROLINA - Feeding nearly completed in Granville County. (Green).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - INDIANA - Reported attacking Scotch pine in Dubois County. This is the most southern penetration of this species in the State. (Schuder). PENNSYLVANIA - Eggs hatching on pines in Luzerne County. (Drooz).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - CALIFORNIA - Heavy larval population damaging elms in Ojai area, Ventura County. (Cal. Coop. Rpt.).

CANKERWORMS - MINNESOTA - Alsophila pometaria hatching on elms around Twin Cities. (Minn. Ins. Rpt.). KANSAS - Paleacrita vernata active in southern area. (Calkins). OKLAHOMA - P. vernata moderate on elm in Noble County where some defoliation was noted. (Drew, VanCleave).

TENT CATERPILLARS (Malacosoma spp.) - NEW YORK - M. americanum hatched on black cherry at Poughkeepsie April 16. Larvae only one-half inch long by May 1. (N. Y. Wkly. Rpt.). RHODE ISLAND - M. americanum hatching and first-instar larvae first observed in Johnston and Smithfield April 17. (Mathewson). ALABAMA - M. disstria infestations continue to increase in several sections of the State. Extensive damage observed in hardwoods in swamp areas of Baldwin County. (Guyton, Seibels, Lockhart, May 1). WISCONSIN - Tents have appeared in fair numbers in one Rock County location. (Wis. Coop. Sur.).

APPLE TWIG BORER (Amphicerus bicaudatus) - COLORADO - Infesting limbs of ash trees in Otero County. (Exp. Sta., May 3).

FLATHEADED BORERS (Agrilus spp.) - DELAWARE - A. anxius infestations in several localities in New Castle County. (Touhey). WEST VIRGINIA - Agrilus sp. noticeable on beech in Monongalia County. (W. Va. Ins. Sur.).

LOCUST LEAF MINER (Chalepus dorsalis) - DELAWARE - Adults beginning to feed on black locust in New Castle County. (Burbutis, Conrad).

A LEAF GALL MIDGE (Cecidomyia ocellaris) - ALABAMA - Light infestations of galls on maple in Lee County. (Pearson, May 1).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - VIRGINIA - Caused characteristic galls on leaves of a maple tree in Westmoreland County (Ptucha), and observed on maple mixed with pine in stands along U. S. highway 58 in Mecklenburg, Greensville and Brunswick Counties (Morris).

AN AMBROSIA BEETLE (Monarthrum mali) - MARYLAND - Adults taken from oak logs in Kent County, April 22. Det. W. H. Anderson. (U. Md., Ent. Dept.).

MAY BEETLES (Phyllophaga spp.) - KANSAS - Adults moderate to heavy around lights in Riley County. (Thompson, May 8). OKLAHOMA - Heavy population averaging 2.5

per leaf causing serious defoliation of oaks in Rattan area. (Goin, Vincent). TEXAS - Some oak and pecan trees defoliated in Red River County. (Tex. Coop. Rpt.).

BIRCH LEAF MINER (Fenusa pusilla) - MASSACHUSETTS - Adults have been laying eggs since early May. (Crop Pest Cont. Mess.). NEW YORK - Adults first observed near Poughkeepsie April 18. Cool weather retarded leaf development and by May 2 leaves of the gray birch were only dime-size and catkins were not all shed. Egg scars readily found in these small leaves. (N. Y. Wkly. Rpt.). NEW JERSEY - Now emerging. (Ins. Dis. Newsl.). OREGON - Emerged May 7 on small birch trees in Gresham nursery. (Foster).

ELM BARK BEETLES - DELAWARE - Spring adult emergence of Hylurgopinus rufipes and Scolytus multistriatus noted in New Castle County. (Bray, Touhey).

ELM LEAF BEETLE (Galerucella xanthomelaena) - ALABAMA - Damage to elms continues in Lee County. (Guyton, May 1).

A WILLOW LEAF BEETLE (Chrysomela interrupta) - OKLAHOMA - Heavy on willow and poplar in Payne and Noble Counties. (Drew, VanCleave).

ELM LEAF APHID (Myzocallis ulmifolii) - INDIANA - Appearing on trees in the Lafayette area, Tippecanoe County. (Matthew).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - ALABAMA - Heavy on wild cherry in Lee County. (Pearson, May 1). Undersides of leaves and ground beneath trees white with scale. (Guyton).

EUROPEAN ELM SCALE (Gossyparia spuria) - KANSAS - Active in western area. (Calkins).

EUROPEAN FRUIT LECANIUM (Lecanium corni complex) - OKLAHOMA - Very heavy on willow oak at Ponca City (Washum), moderate on chinese elm, southern hackberry and ash in Noble County (Drew, VanCleave) and moderate on pin oak at Stillwater (Apt).

A CYNIPID (Dryocosmus palustris) - PENNSYLVANIA - Larvae infesting pin oak in Dauphin County. Det. L. H. Weld. (Drooz).

LACE BUGS - MARYLAND - Adults ovipositing on new pyracantha growth at University Park, Prince Georges County. (U. Md., Ent. Dept.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - NORTH CAROLINA - Infesting boxwood in Forsyth County. (Wright). WEST VIRGINIA - Heavy on boxwood in Kanawha County. (W. Va. Ins. Sur.).

DOGWOOD CLUB-GALL MIDGE (Mycodiplosis alternata) - PENNSYLVANIA - Present on dogwood in Greene County, but not abundant. (Udine).

BOXWOOD PSYLLID (Psylla buxi) - PENNSYLVANIA - Common on boxwood in Delaware and Chester Counties. (Menusan). MARYLAND - Noticeable on boxwood at Bealsville, Montgomery County. (U. Md., Ent. Dept.). OREGON - First infestation of year noted in Salem area week of April 26. (Larson).

AZALEA LEAF MINER (Gracilaria azaleela) - DELAWARE - Adults numerous in Sussex County and mines especially common in Delaware Valley White variety. (Bray).

AZALEA WHITEFLY (Pealius azaleae) - MARYLAND - Abundant on susceptible azalea varieties at College Park, Prince Georges County. (U. Md., Ent. Dept.).

ROSE-SLUG (Endelomyia aethiops) - MARYLAND - Injuring rose foliage at Takoma Park, Montgomery County. (U. Md., Ent. Dept.).

APHIDS - MARYLAND - Macrosiphum rosae heavy on rose at Glenridge, underdetermined species infesting azalea at University Park and Longistigma caryae infesting willow oak and red oak at Bladensburg. All in Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - M. rosae heavy on rose terminals in Nansemond County. (Boush) ALA. - M. rosae heavy on roses throughout central and southern areas. (Grimes, Guyton; May 1). INDIANA - Building up on American elm trees at Lafayette and foliage shiny with honeydew. (Schuder). SOUTH DAKOTA - Unidentified species in large numbers in southeast corner of Union County on willow. (Mast, May 2). NEW MEXICO - Periphyllus negundinus heavy on boxelder trees at Tucumcari, Quay County. (N. M. Coop. Rpt.). NEVADA - P. negundinus heavy on boxelder in Reno area, Washoe County. (Rebuffo, May 1). CALIFORNIA - Thoracaphis umbellulariae heavy on California laurel in Watsonville area, Santa Cruz County. (Cal. Coop. Rpt.).

SCALE INSECTS - NORTH DAKOTA - Several heavy infestations of Lepidosaphes ulmi observed on cotoneaster in Fargo area. (N. D. Ins. Rpt.). WASHINGTON - Outbreak of Lecanium sp. on ornamentals in the Bellingham area, Whatcom County. (Freimann).

MITES - MARYLAND - Building up on maple at Glenridge, Prince Georges County. (U. Md., Ent. Dept.). WEST VIRGINIA - Moderate on hemlock in Kanawha County. (W. Va. Ins. Sur.). UTAH - Moderate on Pfitzer juniper at Riverside, Provo, Orem and Spanish Fork and damaging red cedars moderately at Provo. Damaging ponderosa pines at Riverside, Box Elder County. (Knowlton). NEW MEXICO - Extremely heavy and damaging junipers around homes in Curry and Chaves Counties. (N. M. Coop. Rpt.). CALIFORNIA - Oligonychus ununguis heavy on cypress in Montecito area, Santa Barbara County. (Cal. Coop. Rpt.).

A WILLOW GALL MIDGE (Rhabdophaga strobiloides) - SOUTH DAKOTA - Galls numerous in willows in southern Union County. (Mast, May 2).

A WILLOW GALL FLY (Phytophaga rigidae) - SOUTH DAKOTA -Galls numerous on willows in southern Union County. (Mast, May 2).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - DELAWARE - Aedes sollicitans adults numerous and annoying in eastern Kent County. (Burbutis, Conrad). VIRGINIA - Various species beginning to emerge and becoming annoying in parts of Nansemond County. (Boush). NORTH CAROLINA - Large numbers of adult A. sollicitans emerging in eastern Carteret County, April 27. (Ashton).

A BLACK FLY (Simulium jenningsi) - MARYLAND - Adults becoming troublesome in Great Falls area, Montgomery County. (U. Md., Ent. Dept.).

A BITING MIDGE (Culicoides sp.) - OHIO - Numbers sufficient to disrupt ditching operations at a marshy seepage area near Fredericksburg, Wayne County, on May 7 by attacking workmen. As many as 25 per person were biting simultaneously. (Neiswander, Triplehorn).

AN EYE GNAT (Hippelates collusor) - ARIZONA - Heavy populations occurring in Yuma County. (Ariz. Coop. Rpt.).

DEER FLIES (Chrysops spp.) - VIRGINIA - Heavy in some Princess Anne County wooded areas. (Boush). ALABAMA - Limited numbers observed in Lee County. (Hays).

COMMON CATTLE GRUB (Hypoderma lineatum) - OKLAHOMA - Adults stampeding cattle to water as in previous years at the same date. (Goin).

HORN FLY (Siphona irritans) - INDIANA - Counts ranged 0-12 per animal on beef and dairy cattle in Porter, La Porte, Starke and Pulaski Counties. (Matthew). ALABAMA - Continues to increase throughout central and southern parts of the State. (Grimes). OKLAHOMA - Counts ranged 40-55 per cow and 1000 per bull on range cattle in Latimer and Pushmataha Counties (Goin) and 75-150 per head on range cows in Logan, Payne and Pawnee Counties (VanCleave).

CHIGGERS (Eutrombicula spp.) - VIRGINIA - Light to moderate in wooded areas of Nansemond County. (Boush).

AMERICAN DOG TICK (Dermacentor variabilis) - RHODE ISLAND - Abundant in Narragansett area, infesting dogs and children, beginning in late April. (Hansen). PENNSYLVANIA - Prevalent on dogs and in homes in the Philadelphia area. (Menusan). DELAWARE - Rather abundant this season. (Burbutis, Conrad). VIRGINIA - Averaged 3-6 per person after 30-minute exposure in wooded areas of Nansemond County. (Boush). OKLAHOMA - Populations heaviest noted in many years, with spraying of beef cattle necessary in Payne County. (Howell).

ROCKY MOUNTAIN WOOD TICK (Dermacentor andersoni) - IDAHO - Severe infestation found on cattle feeding on rangelands and pastures in vicinities of Grangeville, Riggins and Kooskia. (Cook). WASHINGTON - Several reports of this species being found in homes in Pullman area. These records are extremely unusual, as no contact with wildland was involved. (Johansen).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Averaged 110 per head on range cows in Pushmataha County and continued to increase in McCurtain, southern Le Flore and Latimer Counties (Goin).

TICKS - WISCONSIN - Reported in southern sections of the State. (Wis. Coop. Sur.).

STORRED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - OKLAHOMA - Inspections of 18 seed dealer properties in 10 counties were negative. (Burke, Wilson, Robinson).

A MITE (Glycyphagus domesticus) - OREGON - Infesting stored Merion bluegrass seed at Woodburn. (Krantz).

BENEFICIAL INSECTS

A KLAMATHWEED BEETLE (Chrysolina gemellata) - IDAHO - Small numbers of adults appearing in the Clearwater River Canyon. (Barr, Cook).

LADY BEETLES - ALABAMA - Populations decreased steadily during past 2-3 weeks in all central and southern areas, particularly in crimson clover. (Grimes, Guyton; May 1). KANSAS - Adults and larvae found most fields in east central and southeastern areas; Hippodamia convergens predominates. Counts as high as 10 adults and larvae per sweep. (Peters). IDAHO - Becoming abundant, 2-20 per square foot, in fields with heavy pea aphid populations in Canyon, Owyhee and Payette Counties, May 1. Populations very spotted in southwest area with less than one to over 100 per square foot in some fields heavily infested with pea aphid. (Waters). DELAWARE - Coleomegilla maculata adults abundant on alfalfa and clover throughout the State. (Burbutis, Conrad). OKLAHOMA - H. convergens larval and adult populations variable in alfalfa fields in several counties. (Van Cleave et al).

BIG-EYED BUGS - ALABAMA - Numerous Geocoris punctipes observed on crimson clover most central and southern areas. (Grimes, May 1). OKLAHOMA - Orius insidiosus ranged 0.5-3 per sweep in alfalfa fields in Payne, Pawnee and Noble Counties (VanCleave) and 0-3 in 4 alfalfa fields in Choctaw County (Goin).

LACEWINGS (Chrysopa spp.) - ALABAMA - Eggs of Chrysopa oculata observed on pecan trees in Montgomery and Crenshaw Counties. Adults scarce in crimson clover in Lee County. (Guyton, May 1). KANSAS - Adults and larvae found several alfalfa fields in east central and southeastern areas; counts as high as 5 adults and larvae per sweep. (Peters). OKLAHOMA - Common and increasning in alfalfa fields in Payne, Pawnee and Noble Counties (VanCleave) and ranged 0-4 per sweep in 4 alfalfa fields in Ellis, Woodward and Beaver Counties (Frazier).

NABIDS (Nabis spp.) - KANSAS - Adults found several alfalfa fields in east central and southeast areas; counts up to 5 per sweep. (Peters). OKLAHOMA - Populations ranged 0.3-5 per sweep in alfalfa fields in 7 counties. (VanCleave, Frazier, Goin).

SYRPHIDS - KANSAS - Few larvae in wheat fields in Riley County. (Burkhardt, Peters). NEW YORK - Adults flying in a number of Wayne County orchards April 28 with many eggs and first-instar larvae observed April 30. (N. Y. Wkly. Rpt.).

HONEY BEE (Apis mellifera) - RHODE ISLAND - Inspection of 59 colonies in Chepachet May 5 showed 2 infected with American foul brood. (Hansen). First swarm of season observed May 6 in Warwick. (Mathewson).

HYMENOPTEROUS PARASITES - IDAHO - Webworm larvae in red clover south of Caldwell 100 percent parasitized by ichneumonid wasps April 10. (Waters). Praon palitans recovered in the field in Fallon area of Churchill County. (Lauderdale). Aphelinus semiflavus present in fields in Las Vegas, Moapa and Virgin Valleys, Clark County. (Bechtel, Bunker, Lauderdale).

MISCELLANEOUS INSECTS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - OKLAHOMA - Inspections of 3 railroad marshalling yards in Muskogee and Sequoyah Counties were negative (Wilson), of a meadow in Atoka County showed ant present not to be this species. (Vincent, Goin).

ANTS (Solenopsis geminata, Pogonomyrmex barbatus) - TEXAS - Numerous colonies on edge of rice fields and in pastures in Matagorda County. (Cason, Hawkins).

PERIODICAL CICADA (Magicicada septemdecim) - SOUTH CAROLINA - Thirteen-year-variety reported from McCormick County May 4 and wide spread. (Nettles et al.).

A LYCTID BEETLE (Lyctoxylon japonum) - ALABAMA - Adults found boring in bamboo venetian blinds imported from Japan in Montgomery County. This species not known to be established in the United States and is considered to be unlikely to cause any trouble in this country. Det. T. J. Spilman. (Owen).

WHARF BORER (Nacerdes melanura) - OHIO - Severe infestation in greenhouse benches at Bowling Green, April 29. Larvae and adults present in large numbers. (Triplehorn).

TERMITES (Reticulitermes spp.). - RHODE ISLAND - Periodic swarming of R. flavipes occurred throughout State from March to present date. (Mathewson, Hansen). IDAHO - Winged adults, probably R. hesperus, invading homes in Lewiston. More reports of activity this year than in any previous year from Lewiston to Lapwai. Little damage observed. (Kambitsch).

A MARCH FLY (Bibio sp. prob. albipennis) - CALIFORNIA - Heavy flights on apple trees in Fort Jones area of Siskiyou County. (Cal. Coop. Rpt.)

CORRECTIONS

CEIR 9(6) : 77 - Summary of Insect Conditions in Tunisia - Truck Crop Insects - Delete statement on COLORADO POTATO BEETLE.

CEIR 9(19) : 347 - BRONZE CUTWORM should read BRONZED CUTWORM.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Protoparce quinq.	sexta	Helio. zea
ALABAMA							
Auburn 5/5,8	4	3			2		27
ARIZONA							
Mesa 4/29-5/5			17	38			75
FLORIDA							
Gainesville 5/5						1	2
Quincy 5/4	1					1	2
ILLINOIS							
Urbana 5/1-7	113	11		15			
KANSAS							
Garden City 4/29, 5/1-3	16	4		8			16
Hays 5/2,5	4						2
Manhattan 5/2,3,8	6			3			5
Wathena 5/1	12	1		11			
LOUISIANA							
Baton Rouge 5/1-7	58	9	70	13			19
Curtis 5/4		1				1	31
Franklin 4/30,5/5		1	1	1			
MARYLAND							
Fairland 5/1-7	17	5					
MISSISSIPPI							
*Stoneville 5/2-8	46	68	42	15		4	82
MISSOURI							
Columbia 4/25-5/6	385	69	5	73	1		53
Sikeston 4/24-5/7	69	9		20			13
NEBRASKA							
Kearney 4/26-28		4		1			
Lincoln 4/15-30		6		11			
North Platte 4/28-5/4	9	11		71			17
Scotts Bluff 4/24-30		2		4			
NORTH CAROLINA							
Clayton 5/7	2	1	1				7
Faison 5/7	2	6					2
SOUTH CAROLINA							
Clemson 5/2-8	40	18	3	3	1	1	56
TENNESSEE (Counties)							
Blount 4/28-5/4	87	12	6	6			22
Cumberland 4/28-5/4	4	3	1	4			3
Greene 4/28-5/4	54	1		7		1	
Johnson 4/28-5/4	558	122		16			4
Madison 4/28-5/4	14	2	1	3			62
Maury 4/28-5/4	37			5			1
Monroe 4/28-5/4	54	2		2			1
Robertson 4/28-5/4	12			1			2
TEXAS							
Brownsville 4/25-30	1	9	3	1			
Waco 5/2-8	22	3	30	54			216
WISCONSIN							
Middleton 5/1-7	40	2					
Stevens Point 5/1-4	10	2					

*Three traps - Stoneville

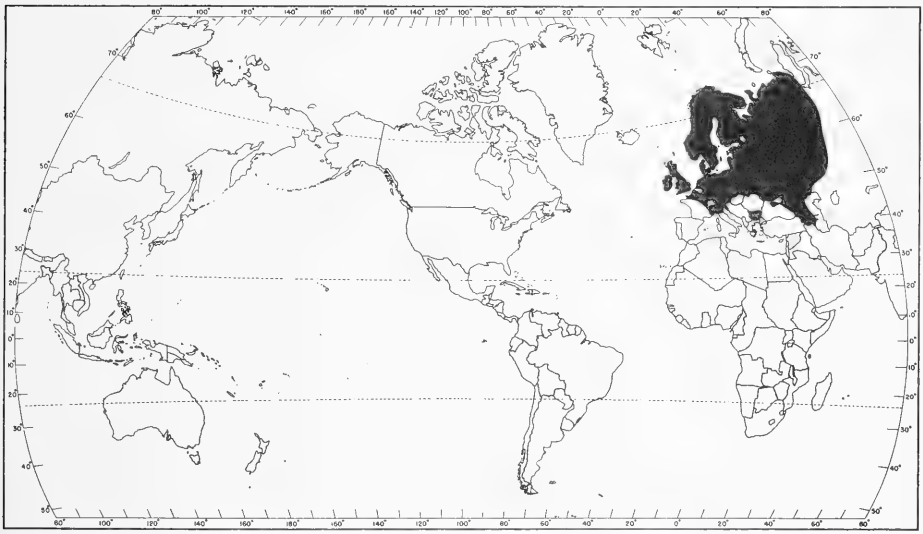
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

PINE LOOPER (Bupalus piniarius (L))

Economic Importance: Destructive outbreaks of this geometrid occur periodically in pine forests of Europe. Such infestations in Sweden in 1944 and in the British Isles in 1953 warranted aerial treatment. These were the first instances of aerial treatment against a forest defoliator in either country. One of the worst outbreaks (1892-96) on the Continent was responsible for destruction of pine forests on over 900,000 acres. Infestation development in some countries seems to be favored by areas of low rainfall or extended periods of drought. Trees in the 25-50-year-old range are generally most heavily infested.

Distribution: Most of Europe.

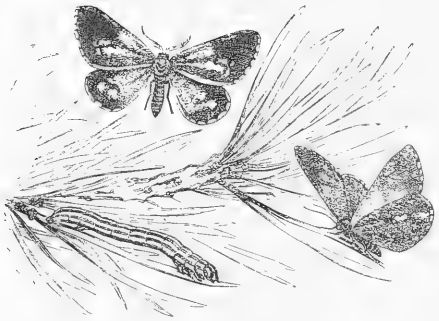
Hosts: Pinus spp. Attacks other conifers only in exceptional cases.



General Distribution of Bupalus piniarius

Life History and Habits: Moths are active in May and June in Britain. They fly during the day. Eggs are deposited on the underside of pine needles in a line parallel to the long axis. The larvae feed on foliage throughout the summer into autumn then drop to pupate in the soil or debris.

Description: Expanse about 30-37 mm. Color variable. Male - lighter ground color. Wings whitish, or pale ochreous. Forewings with dark-olive brown markings including tip and inner margin. Hindwings with costa, hind margins and two transverse lines of same color. Female - darker ground color. Wings dull-orange with hind margins and transverse band reddish-brown. Sexes similar in shape, abdomen of female much stouter. Larva green with three white lines on back and a yellow stripe on sides, 27-30 mm. Head and feet are greenish, a distinguishing characteristic of the species. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 9(20) 5-15-59.



Adulta and Larva of Bupalus piniarus

Figures (except map): Larva and adults from Tashenberg, E. P., 1884. Die insecten, tausendfussler und spinnen. Brehms Thierleben Allgemeine Kunde des Thierreichs. 2nd. Ed. Vol. 1 (Leipzig) 711 pp.

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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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

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

Volume 9 May 22, 1959 Number 21

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS hatching in Wisconsin, Nebraska, Kansas, Wyoming and Idaho. Nymphs increasing some cultivated fields in Maricopa County and averaged 26 per square yard on the San Carlos Indian Reservation in Arizona. Damage becoming apparent in alfalfa locally in Hidalgo County, New Mexico, and some controls applied to alfalfa acreage in Piute County, Utah. Heavy ARMYWORM infestations reported in scattered areas of Tennessee and in southeast Missouri. (p. 401). GREENBUG damage heavy in areas of Missouri, killing oats in parts of Illinois, damaging small grains in Lincoln County, Nebraska, and abundant in Marion and McPherson Counties, Kansas. (pp. 401, 402). EUROPEAN CORN BORER emergence noted in Missouri, Illinois, Alabama and Delaware. (p. 402). BILLBUGS damaging young corn severely in local areas of several states. (p. 403).

PEA APHID continues to damage alfalfa over a wide area. Populations considerably reduced in Alabama and Arizona. (pp. 403, 404). CLOVER APHID heavy on clover in Idaho and California. (p. 404). FALSE CHINCH BUGS damaging alfalfa in New Mexico and Utah. (p. 405). SWEETCLOVER WEEVIL damage to sweetclover increased in Nebraska and reported in Idaho and Minnesota. (p. 406).

CODLING MOTH emergence reported and RED-BANDED LEAF ROLLER activity noted in a number of states. (p. 407). TENT CATERPILLARS migrating from cherry to orchard trees in several Eastern States. (pp. 407, 416). EUROPEAN RED MITE threatening apple orchards in Orleans, Indiana, area and building up throughout Delaware. STRAWBERRY CROWN BORER unusually damaging to fruit trees in Utah. (p. 408). PLUM CURCULIO infestations heavy in peaches at Ft. Valley, Georgia, increasing on plums in Ohio and causing considerable damage in Indiana. GREEN PEACH APHID a problem in peaches in Colorado and New Mexico. (p. 409). MEXICAN FRUIT FLY trapped at Tiajuana, Mexico. (p. 410).

POTATO FLEA BEETLE heavy on potatoes and tomatoes in Maryland and Delaware. (p. 410).

A PINE SAWFLY heavy on pines in northern Louisiana. Damage by PINE SAWFLIES not expected to be heavy in Arkansas. Neodiprion pratti pratti damage continues on pines in Virginia and Maryland. (p. 415). TENT CATERPILLARS causing extensive damage in Pennsylvania and Ohio. Treatments underway in Somerset County, Pennsylvania. MAY BEETLES defoliating trees in areas of Louisiana, Oklahoma and Texas. (p. 416).

MOSQUITOES active generally, heavy populations reported in Florida, North Carolina and Utah. (p. 417). HORN FLY populations heavy on cattle in New Mexico. (p.418).

PERIODICAL CICADA emerging in an area extending from Georgia, South Carolina and North Carolina in the East, to Missouri in the West. (p. 419).

Some First Reported Records of the Season: POTATO LEAFHOPPER adults and EUROPEAN CORN BORER egg masses found on potatoes in Delaware. BOLL WEEVIL emerging from hibernation in Alabama. First GYPSY MOTH hatch observed in Rhode Island. FOREST TENT CATERPILLAR hatching in Wisconsin, Minnesota and North Dakota. ELM LEAF BEETLE adults and larvae reported in Delaware. First HORN FLY adults reported in Oregon.

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Reports in this issue are for the week ending May 15, 1959, unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

MID-MAY TO MID-JUNE 1959

The Weather Bureau's 30-day outlook for the period mid-May to mid-June calls for temperatures to average below seasonal normals over the eastern half of the Nation and also in the Central Plains region. Greatest departures are indicated over the eastern Great Lakes and Ohio Valley areas. Above normal averages are predicated for the northwest quarter of the country and along the coast of California. In unspecified areas near normal temperatures are in prospect. Precipitation is expected to exceed normal in a broad belt extending from the Central and Southern Plains northeastward to the Great Lakes. Subnormal rainfall is predicted for the Northern Plains, the far Southwest, and the east Gulf States. Otherwise near normal amounts of rainfall are indicated.

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

WEATHER OF THE WEEK ENDING MAY 18

Temperatures averaged above normal from the far Southwest to the central Rockies and southwestern Great Plains, along the immediate Gulf coast to Florida and in the coastal sections of the Middle Atlantic and New England States. Below-normal values prevailed generally over the northern tier of states, and from the eastern Great Plains and Great Lakes into the Southeast. A large and vigorous low pressure area moved across southern Canada during the week, drawing cold air southward over all the country except extreme southern Florida and the Southwest by the weekend. Very strong winds accompaning the cold air whipped up dust over Minnesota and the Dakotas. East of the Great Plains, temperatures ahead of the advancing cold air rose into the 80's as far north as New York and New England where Boston, Massachusetts, recorded a new high of 85° for the 12th. Temperatures dropped sharply in the cold air with scattered freezing as far south as northern Missouri, Ohio, central Pennsylvania and the southern Appalachians during the latter half of the week. The mercury dropped to 22° at Klingman's Peak, North Carolina, into the teens in the Dakotas, the middle to high 20's in Iowa and Ohio on the morning of the 15th and the middle 20's in western New York and northern New England over the weekend. In northern areas west of the Rockies temperatures averaged near normal, being generally abnormally cool at the beginning and end of the week, and unseasonably warm on the 12th and 13th when maxima reached the 80's and 90's as far north as Washington and Idaho. Very warm temperatures were recorded in the southern Rockies, the Great Basin and Southwest, with readings topping 100° in the desert areas and 90° in most other sections.

General rains early in the week in the Ohio and middle Mississippi Valleys replenished needed topsoil moisture in southern Illinois and Indiana, Kentucky and Tennessee. Heavy showers and thunderstorms left substantial to locally excessive rainfall along the immediate Gulf coast and over the South Atlantic States. Apalachicola, Florida, reported over 7 inches at midweek. Almost daily precipitation totaled from 1/2 to 1 inch over much of the Northeast. Only light amounts, however, were recorded in areas of northern New England, the upper Great Lakes and the northern Great Plains. Light snow fell in Minnesota and Wisconsin at midweek. On the 16th, 17th and 18th severe squall lines and thunderstorms developed over the central Great Plains. Damaging winds, several tornadoes and hail accompanied heavy precipitation from Oklahoma northward through Kansas and Missouri to Iowa. Rains of 4 to 5 inches and some hail were reported locally in Iowa, Kansas and nearby states. Pleasant Hill, Kansas, recorded a 4.74-inch

(Weather continued on page 421.)

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - ILLINOIS - Hatching in southeast, nymphs very abundant in fence rows and margins of alfalfa fields. (Ill. Ins. Rpt.). WISCONSIN - Nymphs observed in light soil areas in central counties; in alfalfa field margins primarily. (Wis. Coop. Sur.). MINNESOTA - Eggs in northwest district range in development from clear to eye-spot condition. Many Melanoplus femur-rubrum show more development than normally. (Minn. Ins. Rpt.). NEBRASKA - First-instar nymphs of Ageneotettix deorum, Melanoplus bilituratus and M. bivittatus present in southeast, less than one per square yard. In western area, M. bilituratus eggs in full segmentation stage and economic hatch possible in short time if temperatures are favorable. M. differentialis will not show economic hatch for several weeks. M. femur-rubrum and Aeoloplides turnbulli not observed. Of range species observed, A. deorum most advanced, Aulocara elliotti in full segmentation with no hatch apparent. (Roselle, Bell, Fitchett). KANSAS - M. bilituratus hatching in grassland areas of Riley County and first and second-instar nymphs collected in northeast and east central areas. (Arnett, Peters). OKLAHOMA - Nymphal populations 4-8 per square yard in widely scattered areas in northwestern and panhandle counties. Hatch well underway, but not complete. All nymphs first to third instar. Dominant species along roadsides and field margins were M. bivittatus and M. differentialis. Dominant rangeland species were A. elliotti, A. deorum, Drepanoptera femoratum, Phlibostroma quadrimaculatum and Amphitornus coloradus. (Pela, Owens). Very light elsewhere in State. (PPC). ARIZONA - First and third-instar M. differentialis increasing, averaging as high as 10 per square yard some cultivated fields in Maricopa County. Some adults of M. cuneatus, M. bilituratus and A. elliotti appearing on San Carlos Indian Reservation in Graham and Gila Counties. Populations average 26 per square yard. (Ariz. Coop. Sur.). NEW MEXICO - Nymphs becoming very numerous along fence rows and ditch banks in Gila-Cliff area, Hidalgo County. Averaged as high as 5-6 per sweep in alfalfa fields. Damage becoming apparent. Alfalfa fields in Tularosa area averaged about 25 nymphs per 100 sweeps. (N. M. Coop. Rpt.). WYOMING - Melanoplus confusus hatching in rangeland south of Glendo. No damage observed. (Pfadt). IDAHO - M. bilituratus second-instar nymphs slightly under 1 per square yard in Riggins area. (Evans). UTAH - Hatching occurring in Washington, Iron, Millard, Kane, Piute and Sevier Counties. First to third instars present. Controls applied to 150 acres of alfalfa and 200 additional acres will need controls in Piute County. Becoming threatening locally in Iron County. Trimerotropis spp. adults scarce in Washington and Iron Counties compared with outbreak same time in 1958. No hatching observed in Boulder area of Garfield Co., where outbreak was severe in 1958. (Knowlton). SOUTH DAKOTA - About 90 percent of M. differentialis egg pods in north central area in eye-spot stage while M. femur-rubrum eggs averaged about 90 percent in coagulated stage. (Mast).

ARMYWORM (Pseudaletia unipuncta) - TENNESSEE - Heavy, scattered infestations requiring control in pastures and small grains in western area. (Mullett). ILLINOIS - Damaging wheat and barley in extreme southern tip of State, scattered and light north of Peoria. (Ill, Ins. Rpt.). MISSOURI - Heavy in barley and wheat with some head clipping in barley in southeast. Small larvae in fescue and dense wheat in central area. (Kyd, Thomas, Munson). OKLAHOMA - Light in 2 wheat fields in Grandfield area (Hatfield), occasional larvae found in barley in central and north central counties (Henderson) and none noted in central and east central counties. (Wood). DELAWARE - First larvae of season reported. (Burbutis, Conrad).

GREENBUG (Toxoptera graminum) - ILLINOIS - Counts 70-750 per 100 sweeps on oats and 10-1,000 on wheat in southeast. In southwest and central areas, spots in oat fields being killed or severely retarded. (Ill. Ins. Rpt.). MISSOURI - Damage to late-planted oats heavy in northeast and north central areas, counts 100-5,000 per linear foot. Counts in barley 50-1,000 and in wheat 40-800 per linear foot, heavier in late wheat. (Kyd, Munson, Thomas). NEBRASKA - Light on small grains in east central area. No damage to wheat. Moderate to heavy and

causing damage to spring-seeded grains in Lincoln County. (Roselle, Pruess). KANSAS - Abundant in barley in Marion and McPherson Counties, lighter in Reno County. (Painter). Counts less than 10 to about 150 per foot of row in northeast and east central counties. (Peters). OKLAHOMA - Light in east central and northeastern areas (VanCleave,Campbell) and none found in central, north central and east central counties (Henderson, Wood). IOWA - Damaging oats in field south of Fairfield. (Iowa Ins. Inf.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - LOUISIANA - Light to moderate in oats in northern area. (Spink). ILLINOIS - Counts 10-700 per 100 sweeps in wheat and 60-28,000 in oats in southeast; abundant other areas. (Ill. Ins. Rpt.). OKLAHOMA - Light in isolated small grain fields in northeastern area (VanCleave, Campbell) and none noted in central, north central and east central counties (Wood, Henderson).

CORN LEAF APHID (Rhopalosiphum maidis) - KANSAS - Found in barley fields in Marion, McPherson, Reno and Stafford Counties. (Painter). OKLAHOMA - Light in Johnson grass in Payne, Noble, Pawnee, Creek and Tulsa Counties (Wood) and present along roadsides in central and north central areas (Henderson). UTAH - Predators reducing populations many barley and wheat fields in St. George-La Verkin area. (Knowlton). NEW MEXICO - Present most barley fields in Luna, Dona Ana and Sierra Counties. Heavy, causing considerable damage in southern Dona Ana County. (N.M. Coop. Rpt.).

RICE STINK BUG (Oebalus pugnax) - LOUISIANA - Ranged 20-200 per 100 sweeps in oats in northern area. (Spink).

A RICE DELPHACID (Sogata orizicola) - TEXAS - Surveys for this vector of hoja blanca in rice fields in Ft. Bend, Wharton, Matagorda and Brazoria Counties were negative. (Cason, Hawkins).

WIREWORMS - OREGON - Damaging spring barley and other grains in Willamette Valley. Damage to grain unusual in this section of State. (Morrison, Dickason). IDAHO - Adults common in Latah and Nez Perce Counties. (Portman et al.). MONTANA - Reported in small grain area in Hill County. Treated seed being used for planting. (Roemhild). ALABAMA - Damaging corn in Monroe and Conecuh Counties. (Lemons).

EUROPEAN CORN BORER (Pyrausta nubilalis) - MISSOURI - Emergence observed in southeast, no pupation noted in northeast. (Kyd, Thomas, Munson). IOWA - Pupation 4 percent in central area compared with 32 percent in 1958 and 2 percent in 1957. (Iowa Ins. Inf.). ILLINOIS - Pupation 70 percent, emergence 4 percent in southern area; 15-35 percent pupation and no emergence in south central area; pupation 10-20 percent and no emergence in central and north central areas; and no pupation in northern area. (Ill. Ins. Rpt.). INDIANA - Winter mortality 43 percent in Posey County, 22 percent in Shelby County. Pupation 25 percent in Posey County May 12. No pupation observed in Shelby County May 13. Parasitism of larvae by Lydella grisescens averaged 14 percent in Shelby County. (Everly). OHIO - Pupation not begun by May 14 at Columbus or Wooster. (Triplehorn). ALABAMA - Emergence 10 percent on Sand Mountain and in the Tennessee Valley. Few egg masses being deposited on older corn. (Eden). DELAWARE - Adults present throughout most of State. (Burbutis, Conrad).

CORN EARWORM (Heliothis zea) - GEORGIA - Light to moderate in corn whorls in Clinch, Ware, Pierce, Tattnall, Evans and Bulloch Counties. (Johnson). LOUISIANA - Light on corn in Acadia and St. Landry Parishes. Heavy in clover in Acadia Parish, 45-380 per 100 sweeps in northern area. Heavy on soybeans in St. Landry Parish. (Spink). ARIZONA - Infesting newly appearing corn silks in Yuma County. (Ariz. Coop. Sur.).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - GEORGIA - Moderate on corn in Clinch County. (Johnson).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Pupation 26 percent near Perkins on May 11, 42 percent near Yale on May 13. (Arbuthnot). ARIZONA - Larvae light in Maricopa County corn. (Ariz. Coop. Sur.).

BILLBUGS - OKLAHOMA - Heavy populations destroyed approximately 130 acres of young corn in Mayes County. When one 90-acre field was replanted, second stand also destroyed. (Hellwege). GEORGIA - Calendra callosa damage to corn continues in several southern counties. Some farmers have planted 3 times. (Johnson). NORTH CAROLINA - Damaging corn fields in Duplin, Harnett and Columbus Counties. Complete loss reported in Duplin County. (Farrier, Jones, Scott). ALABAMA - Calendra maidis heavy and damaging corn in Crenshaw and De Kalb Counties. (Ruffin, Hays).

CORN FLEA BEETLE (Chaetocnema pulicaria) - ILLINOIS - Adults 0-2 per sweet corn stalk in East St. Louis area. (Ill. Ins. Rpt.). OKLAHOMA - Populations 0-3 per corn plant in east central and northeastern areas (VanCleave, Campbell), 6 per plant in Hugo area (Goin, Vinson), none found in central and east central counties (Wood) and averaged 1-5 per plant in Payne County (Henderson). DELAWARE - Present on young corn in Sussex County, no injury apparent. (Burbutis, Conrad).

FLEA BEETLES - NORTH CAROLINA - Light infestations in corn in Duplin, Pender, Bladen and Columbus Counties. (Scott).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ALABAMA - Damage to corn continues in southern area, replanting required some instances. (Lemons).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Adults averaged 0-2 per plant in corn fields in east central and northeast areas (VanCleave, Campbell) and 1-7 per linear foot in Creek, Tulsa, McIntosh, Okfuskee, Hughes, Muskogee and Wagoner Counties (Robinson). Counts ranged 0-5 per linear foot in central and east central counties. (Wood). Few found in central and north central counties. (Henderson). TEXAS - Damage to young corn and grain sorghum widespread in Kaufman and surrounding counties. (Randolph).

A CHINCH BUG (Blissus leucopterus insularis) - FLORIDA - Activity in Broward County at high level. Heaviest observed in 5 years. In 7 minutes, 251 counted in square foot, bugs still appearing at rapid rate in flotation can. (Kerr, May 6).

A GRASS SAWFLY - DELAWARE - Light, general infestations on grass in areas of New Castle County. (Burbutis, Conrad).

BRONZED CUTWORM (Nephelodes emmedonia) - PENNSYLVANIA - Severe and general in Greene County on bluegrass pastures. (Udine).

WEBWORMS (Crambus spp.) - WASHINGTON - Damaging lawns several areas around Puyallup, Pierce County. (Howitt).

PEA APHID (Macrosiphum pisi) - IDAHO - General in alfalfa fields in Latah and Nez Perce Counties. (Portman et al.). Range 10-20 per sweep west of Myrtle, Nez Perce County; none found in Benewah County. (Foote). Heavy in Twin Falls area, extensive damage occurring. Predators and parasites building up. (Gibson). Range 20-10,000 per sweep in untreated alfalfa in western and southern Canyon County. From 30 to 50 percent of fields have been treated once. Predators greatly reduced in treated fields. (Waters). WASHINGTON - Averaged 37 per 100 alfalfa tips on 12,000 acres near Walla Walla. This is lower than average. Few have entered pea fields. (Cook). WYOMING - Appearing in northwestern alfalfa fields. Heaviest infestation, 200-300 per 100 sweeps, in Thermopolis area. (Davison). UTAH - Generally low to occasionally threatening over western part of State. (Knowlton). ARIZONA - Greatly reduced in central area alfalfa fields (Ariz. Coop. Sur.). NEW MEXICO - Light to moderate most areas. (N.M. Coop.Rpt.).

TEXAS - Range 500-2,000 per sweep on vetch in Kaufman County. (Randolph). COLORADO - Counts 35-50 per 10 sweeps in alfalfa in Larimer County, 20-80 per 100 sweeps in Mesa County and 10-20 per 100 sweeps in Montrose County. (Exp. Sta., Colo. Ins. Det. Comm.). OKLAHOMA - Light in alfalfa along Arkansas River in east central area (VanCleave), 0-10 per sweep in east central counties (Robinson), 6-50 per sweep in Choctaw County (Goin, Vinson) and 0-0.6 per sweep in Caddo County (Hudson). KANSAS - Abundant and damaging alfalfa in Marion, McPherson, Reno and Stafford Counties. (Painter). Counts 25-200 per sweep in alfalfa and red clover in northeast and east central counties. (Peters). NEBRASKA - Averaged 120 per 10 sweeps in alfalfa and 8 in sweetclover in southeast. Increasing in alfalfa, no damage evident. (Roselle). IOWA - Extremely heavy in alfalfa in sandy areas of Black Hawk and Bremer Counties. (Iowa Ins. Inf.). MISSOURI - Heavy on vetch and alfalfa in southeast. Counts 6-10 per sweep on alfalfa in northern area. (Kyd,Thomas, Munson). WISCONSIN - Populations quite variable in alfalfa. (Wis. Coop. Sur.). ILLINOIS - Counts per 100 sweeps 30-5,000 in south and southwest, 200-10,000 in southwest and central and 50-200 in northern area. Predators and parasites still abundant. (Ill. Ins. Rpt.). VIRGINIA - Light to medium in alfalfa in Bland, Tazewell, Russell, Scott, Loudoun and Carroll Counties. (Morris, Brown, Price). MARYLAND - Averaged 5-10 per sweep on unsprayed alfalfa in eastern Allegany County. (U. Md., Ent. Dept.). LOUISIANA - Light to moderate in oats in northern area. (Spink). ALABAMA - Decreased considerably most sections of State. (Grimes).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Averaged 0.08 per trifoliate leaf in Maricopa County, a considerable reduction from April average of 0.57. (Ariz. Coop. Sur.). NEW MEXICO - Building up many alfalfa fields in Otero, Grant and Dona Ana Counties. Many growers cutting early rather than applying controls. (N. M. Coop. Rpt.). OKLAHOMA - Light in alfalfa fields along Arkansas River in east central area (VanCleave), 0-10 per sweep in east central counties (Robinson), 8-75 per sweep in Choctaw County (Goin, Vinson), 30-70 per square foot of crown area in Tillman County (Hatfield), 1-10 per sweep in Caddo County (Hudson) and 3 per square foot of crown area in Cimmaron County (Owen). UTAH - Populations low in Washington County, present in Iron County. (Knowlton). OREGON - None found during week of May 4-9 in fields known to have been infested in Gilliam, Morrow and Umatilla Counties. (Goeden). IDAHO - None found south of Lewiston in field heavily populated in 1958. (Portman et al.). None found in alfalfa east of Lewiston and in Latah County. (Foote).

CLOVER APHID (Anuraphis bakeri) - CALIFORNIA - Heavy on clover in Seeley area, Imperial County. (Cal. Coop. Rpt.). IDAHO - Counts 100-5,000 per red clover plant in southwest. Populations much higher than usual for time of year. Plant growth reduced considerably. (Waters).

SWEETCLOVER APHID (Myzocallidium riehmi) - NEBRASKA - Increasing on sweetclover, counts 16 per 10 sweeps in southeast. (Roselle).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - MASSACHUSETTS - First-instar nymphs collected in North Amherst, April 22. (Wheeler). MARYLAND - Light to moderate on alfalfa and clover in eastern Allegany County. (U. Md., Ent.Dept.). VIRGINIA - Heavy in alfalfa and clover fields in Bland, Tazewell, Russell and Scott Counties. Adults appearing in fields. (Morris). Medium in Carroll County, light in Loudoun County and severe on clover some Nelson County fields. (Price, Brown, Swain). ILLINOIS - Nymphs 75-200 per 100 stems in first-year hay fields in northern area. Population 50 percent decreased over previous week. Range 0-90 nymphs per 100 stems and 0-30 adults per 100 sweeps in southeast. (Ill. Ins. Rpt.). MICHIGAN - Nymphs observed May 5 at Centerville and May 10 at East Lansing. (Hutson). IDAHO - Few spittle masses, probably this species, found on roadside sweetclover west of Myrtle in Nez Perce County. (Foote). CALIFORNIA - Heavy in grasses in Richardson Grove area, Humboldt County. (Cal. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - ILLINOIS - Adults 0-60 per 100 sweeps in southeast. (Ill. Ins. Rpt.). WISCONSIN - In alfalfa most sections. (Wis.Coop. Sur.). MICHIGAN - Adults extremely numerous on vetch around East Lansing.(Hutson).

NEBRASKA - Averaged 10 per 10 sweeps in alfalfa in eastern area, buildup slow. (Roselle). KANSAS - Counts as high as 5 per sweep in northeast and east central counties. (Peters). ALABAMA - Numerous on maturing crimson clover in northern area and moderate activity on oats and clover in central area. (Eden, Grimes). LOUISIANA - Ranged 20-50 per 100 sweeps in oats in northern area. (Spink).

LYGUS BUGS (Lygus spp.) - OKLAHOMA - Common in alfalfa fields in east central area (VanCleave) and 0-4 per sweep in Choctaw County (Goin, Vinson). COLORADO - Range 1-3 per 10 sweeps in alfalfa in Larimer County (Exp. Sta.), 5-10 per 100 sweeps in Delta County, 5 in Mesa County and 15-20 in Montrose County (Colo. Ins. Det. Comm.). UTAH - Nymphs very numerous locally in alfalfa over State. (Knowlton). NEW MEXICO - Building up in alfalfa and small grains in southern counties. Averaged about 1 per sweep in Hidalgo and Grant Counties. (N. M. Coop. Rpt.).

PLANT BUGS - ILLINOIS - Adelphocoris rapidus 0-250 and A. lineolatus 0-20 per 100 sweeps in southeast. (Ill. Ins. Rpt.). DELAWARE - A. rapidus nymphs becoming common on legumes most areas of State. Trigonotylus brevipes common on grain in New Castle County and causing noticeable damage. (Burbutis, Conrad). MISSOURI - Leptopterna dolabratus nymphs 5-8 per sweep in bluegrass in northeast. (Kyd, Thomas, Munson).

FALSE CHINCH BUGS (Nysius spp.) - UTAH - More numerous than normal in alfalfa and other crops throughout Washington County and in Paragonah-Parwan area of Iron County. (Knowlton). NEW MEXICO - N. raphanus becoming very numerous in alfalfa fields in Virden Valley, Hidalgo County. (N. M. Coop. Rpt.).

POTATO LEAFHOPPER (Empoasca fabae) - ILLINOIS - Adults 0-60 per 100 sweeps in southeast, 100-200 in southwest, 100-260 in central and eastern and 3-30 in northern area. (Ill. Ins. Rpt.). NEBRASKA - Light most alfalfa fields in southeast. (Hill).

A CLOVER LEAFHOPPER (prob. Aceratagallia sanguinolenta) - MONTANA - Numerous locally in western area. (Roemhild).

ALFALFA WEEVIL (Hypera postica) - RHODE ISLAND - Very few larvae evident in alfalfa in South Kingstown. (Hansen). MARYLAND - Damage heavy on untreated alfalfa at Piney Grove, Allegany County. Control generally good from Allegany County eastward. (U. Md., Ent. Dept.). DELAWARE - Adults noticeably more common on alfalfa, especially in New Castle County. (Burbutis, Conrad). VIRGINIA - Light in Bland, Tazewell and Russell Counties (Morris) and medium in Clarke, Bath and Carroll Counties on alfalfa (Gerken, Brown, Price). SOUTH CAROLINA - Caused considerable damage in untreated alfalfa in York, Cherokee and Chester Counties. (Nettles et al.). GEORGIA - Larvae feeding on second-growth alfalfa in Putnam County. (Johnson). COLORADO - Larvae range 80-140 per 100 sweeps in untreated alfalfa in Mesa County, about 50 percent parasitized. (Colo. Ins. Det. Comm.). WYOMING - Average number of adults per 100 sweeps 15-20 in Worland-Basin area. 5 in Lovell area and 3-10 in Powell-Cody area. None found in Riverton, Thermopolis, Emblem and Torrington areas. (Davison). IDAHO - Adults and larvae present in fields near Lewiston. (Portman, Futter, Fenwick). NEVADA - Larvae averaged 30 per sweep in untreated fields, some pupation occurring in Fallon area, Churchill County. (York, May 8). Heavy and damaging untreated fields in Douglas County. (Roberts). Development very uneven in Fallon area, Churchill County. (Lauderdale). UTAH - Small larvae appearing in Salt Lake and Weber Counties. (Knowlton). MONTANA - Spraying practically completed. Larvae expected to hatch by May 22 in warmer areas. (Roemhild).

CLOVER LEAF WEEVIL (Hypera punctata) - Heavy in mixed vegetation in Martinez area of Contra Costa County. (Cal. Coop. Rpt.). IOWA - Heavy larval infestation in Page County. (Iowa Ins. Inf.).

CLOVER WEEVILS (Hypera spp.) - ILLINOIS - Newly emerged adults of H. nigrirostris 0-60 per 100 sweeps in southeastern area; H. meles 0-20 per 100 sweeps. Fifty to 100 percent of stems damaged by larvae of both species. Larval damage appearing in northern area. (Ill. Ins. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) -IDAHO - Adults 2-4 per sweep in alfalfa fields in Latah County and 1 per 10 sweeps in red clover north of Worley. (Portman, Foote, et al.).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NEBRASKA - Averaged 2 per 10 sweeps in sweetclover in southeast. Damage to seedling sweetclover increased this year. (Roselle). IDAHO - Abundant on sweetclover in Latah and Nez Perce Counties, severe feeding damage occurring. (Portman et al.). MINNESOTA - Feeding injury on overwintering sweetclover apparent most districts. (Minn. Ins. Rpt.).

VETCH BRUCHID (Bruchus brachialis) - TEXAS - Continues heavy in vetch in Kaufman and surrounding counties, ranges 5-10 per sweep in untreated fields. (Randolph).

THRIPS - UTAH - Numerous on alfalfa and small grains in Washington County and above normal in Iron County. (Knowlton).

ARMY CUTWORM (Chorizagrotis auxiliaris) - COLORADO - Larvae, 0-4 per alfalfa crown, in Rio Grande and Costilla Counties. (Ext. Serv.).

VARIEGATED CUTWORM (Peridroma margaritosa) - ILLINOIS - Counts 0-20 per 100 sweeps on alfalfa and red clover in southeastern area, 0-60 in southwest. (Ill. Ins. Rpt.). MISSOURI - Heavy on alfalfa in southeast. Small larvae observed in northeast and north central areas, counts 0-4 per square foot in alfalfa. (Kyd, Thomas, Munson). KANSAS - Counts as high as 2-3 per 5 sweeps in alfalfa fields in Riley, Pottawatomie and Douglas Counties. (Peters). ARKANSAS - Scattered heavy local infestations in eastern area, up to 25-35 per square foot in white clover in Craighead County. (Ark. Ins. Rpt.).

GREEN CLOVERWORM (Plathypena scabra) - OKLAHOMA - Light in about 50 percent of alfalfa fields in Arkansas River bottom in east central area (VanCleave) and averaged 0.25 and 0.30 per sweep in alfalfa fields in Choctaw County (Goin, Vinson). DELAWARE - First larvae of season reported. (Burbutis, Conrad).

ALFALFA LOOPER (Autographa californica) - OREGON - Peak first flight April 26. Infestation appears to be over large area. (Hanna). WASHINGTON - Scarce to May 15 at Walla Walla. May be less serious than during past 2 or 3 years. (Cook).

CLOVER CATERPILLARS (Grapholitha spp.) - IDAHO - Adults of G. conversana increased over previous week in Latah and Nez Perce Counties. (Portman et al.). Adults swept from red clover fields north of Worley and south of Deary. (Foote). INDIANA - Larvae of G. interstinctana moderately abundant in red clover fields in Decatur County (Wilson) and adults common on roadside weeds in Benton County (McCoy).

A TORTRICID (Tortrix pallorana) - DELAWARE - Larvae abundant some fields of alfalfa and clover by April 20 in New Castle and Kent Counties. (Burbutis, Conrad).

TOBACCO THRIPS (Frankliniella fusca) - ALABAMA - Damage to peanuts continues to increase in southeast. (Grimes).

A STRIPED BLISTER BEETLE (Epicauta sp.) - GEORGIA - Heavy on soybeans and velvetbeans in Tattnall, Evans, Bulloch and Emanuel Counties. (Johnson).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - PENNSYLVANIA - First caged emergence May 7, continuing through May 13 in Adams County. (Asquith). OHIO - First adults of season emerged May 14 at Wooster. (Cutright). INDIANA - Heavy emergence of overwintering larvae continues at Vincennes. Forty percent emergence in cages. First-brood entries expected to start about May 15 and increase in numbers during week of May 17. (Hamilton). ILLINOIS - Emerged rapidly until rains slowed emergence for several days in Carbondale area. (Meyer). WISCONSIN - During week ending May 8, survey in Door County revealed 50 percent mortality of overwintering larvae under bands on apple tree trunks. (Wis. Coop. Sur.). MISSOURI - Larvae noted in untreated apples near Campbell May 8. They will probably appear around Cape Girardeau by May 15 and about 10 days later around Columbia. (Wkly. Rpt. Fr. Grs.). COLORADO - First of season taken in traps on May 6, in Mesa County. (Ext. Serv., Exp. Sta.). OREGON - First eggs of season found in Medford area May 13. (Gentner).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MASSACHUSETTS - Egg masses abundant and hatching started. (Crop Pest Cont. Mess.). NEW YORK - Egg laying begun in several counties over the State. (N. Y. Wkly. Rpt.). NEW JERSEY - Some larvae on trunks of apple trees. (Ins. Dis. Newsl.) MARYLAND - Hatch about complete, larvae feeding on apple foliage at Hancock, Washington County. (U Md., Ent. Dept.). INDIANA - If not controlled, will cause considerable damage to some apple orchards in Orleans area. (Marshall). Hatched in Delaware, Elkhart, St. Joseph and La Porte Counties. Leaf damage and rolled leaves common. (Matthew). ILLINOIS - Larvae well protected in webs and rolled leaves in Carbondale area. Control will be difficult. (Meyer). MICHIGAN - On May 2, eggs still being laid and beginning to hatch at Niles, Stevensville and Baroda. (Hutson). WISCONSIN - Laying eggs during first week of May in Door County. (Wis. Coop.Sur.). MISSOURI - Light in northwest area. Some orchards around Columbia and Kansas City have nearly full frown larvae rolled up in leaves. Some difficulty reported from southeastern young untreated peach trees. (Wkly. Rpt. Fr. Grs.).

OBLIQUE-BANDED LEAF ROLLER (Archips rosaceana) - MICHIGAN - Feeding at Paw Paw, Coloma and South Haven. (Hutson).

CANKERWORMS - MISSOURI - Considerable damage to fruit trees in northwest area. (Wkly. Rpt. Fr. Grs.).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - WISCONSIN - Larvae going into cherry and apple buds May 4 in Door County. Plentiful in Calumet County orchards. (Wis. Coop. Sur.).

TENT CATERPILLARS (Malacosoma spp.) - NEW YORK - Nests evident some neglected orchards and occasionally in treated orchards in Niagara County. (N. Y. Wkly. Rpt.). OHIO - M. americanum nests numerous on untreated apple trees. (Cutright). PENNSYLVANIA - M. americanum migrating to other trees in southwest apple area. (Udine). OREGON - M. disstria light and scattered in Willamette Valley. (Stevenson).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - ILLINOIS - Moderate in several blocks of apple trees and on young unsprayed apple trees in Carbondale area. (Meyer).

ROSY APPLE APHID (Anuraphis roseus) - NEW YORK - Reproducing in large numbers and heavy on some neglected trees in Rockland County. Light in Ulster County. (N. Y. Wkly. Rpt.). INDIANA - Remain low in Orleans area. (Marshall). MICHIGAN - Hatch about complete in fruit growing districts as far north as Manistee. Hatch continuing further north. (Hutson). UTAH - Many apple leaves curled at Kanab, Mt.Carmel and Levan. Still numerous many instances. (Knowlton).

APPLE APHID (Aphis pomi) - INDIANA - Continue to increase on water sprouts in Orleans area. (Marshall). UTAH - Many apple leaves curled at Kanab, Mt. Carmel and Levan. Still numerous many instances. (Knowlton).

APHIDS - WISCONSIN - Aphids plentiful in Calumet County orchards. (Wis. Coop. Rpt.). OREGON - Heavy on prunes in Willamette Valley. (Stevenson).

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Adults appeared, first-generation eggs can be expected before petal-fall. (Crop Pest Cont. Mess.). NEW YORK - Laid eggs in untreated apple trees in Westchester County, hatched nymphs found May 7 in Clinton County and May 8 in Niagara County. (N. Y. Wkly. Rpt.). INDIANA - Threatening in Orleans area (Marshall) and vary extensively in Vincennes area due to effectiveness of control. (Hamilton). WISCONSIN - Hatching May 4 in Door County. (Wis. Coop. Sur.). MICHIGAN - Hatched at Spinks Corners, Benton Harbor, Allegan and East Lansing April 27. (Hutson). ILLINOIS - Second-generation hatch well under way in Carbondale area. (Meyer). MARYLAND - Spotty on apple in Washington County. (U. Md., Ent. Dept.). DELAWARE - Building up on apples throughout State. (Burbutis, Conrad).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - INDIANA - Very light on apple in Vincennes area May 11. Egg laying started. (Hamilton). OHIO - Few migrated from ground to lower limbs of peach trees, most remain on ground under leaves of dock, mustard and dandelion. (Rings).

A BRYOBIA MITE (Bryobia rubrioculus) - NEW MEXICO - Adults and larvae damaging foliage of apple in Cliff-Gila area and along Mimbres River in Grant County. (N. M. Coop. Rpt.). UTAH - Marking foliage in orchards in Washington County and numerous in some Salt Lake County orchards. Apricot foliage moderately infested. (Knowlton).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - UTAH - Conspicuous on apple foliage and heavier on pear foliage at Levan. (Knowlton).

CHERRY CASEBEARER (Coleophora pruniella) - WISCONSIN - Moving out to tips on cherry and apple trees in Door County May 4. (Wis. Coop. Sur.).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - CALIFORNIA - Medium on cherry trees in El Dorado area, El Dorado County. (Cal. Coop. Rpt.).

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) - UTAH - Unusually damaging to peach and apricot in Cache, Weber and Box Elder Counties (Davis) and in Tooele County (Knowlton).

PEAR PSYLLA (Psylla pyricola) - NEW YORK - Egg laying moderate in Westchester County and hatching in Orleans County. Nymphs observed May 5 in Wayne County and May 6 in Niagara County. (N. Y. Wkly. Rpt.). MICHIGAN - Had not hatched as of May 2 at Fennville and South Haven. (Hutson). OREGON - First adults of season noted in Hood River Valley May 7-11. (Ellertson). First-brood adults oviposited on pear foliage in Medford area May 11. (Gentner).

BLACK CHERRY APHID (Myzus cerasi) - MICHIGAN - Beginning to hatch on May 2 at South Haven, Fennville and Grand Rapids. (Hutson).

CATFACING INSECTS - SOUTH CAROLINA - Damage noted in York County. (Nettles et al.). INDIANA - Catfacing by stink bugs, week of May 11, in Vincennes area. (Hamilton). Stink bugs continue to feed on young peaches causing distortion in Orleans area. (Marshall). ILLINOIS - Stink bugs continue to enter peach orchards in Carbondale area. (Meyer).

PEACH TREE BORER (Sanninoidea exitiosa) - MISSOURI - Some orchards in Campbell area heavily infested. (Wkly. Rpt. Fr. Grs.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - LOUISIANA - Heavy in Lincoln Parish with emergence of adults more than three-fourths complete. (Spink). MISSOURI - Some orchards in Campbell area heavily infested. (Wkly. Rpt. Fr. Grs.).

PEACH TWIG BORER (Anarsia lineatella) - WASHINGTON - General, moderate damage on stone fruits. (Anthon).

PLUM CURCULIO (Conotrachelus nenuphar) - NEW YORK - Eight adults shaken from one cherry branch May 5, in Orange County. (N. Y. Wkly. Rpt.). MARYLAND - Adults emerging and depositing eggs on peach and plum at Hancock, Washington County. (U. Md., Ent. Dept.). GEORGIA - Peach drop caused by this pest is over. Total of 3,479 larvae emerged from a bushel of peach drops picked up in an orchard at Ft. Valley. This is a 58 percent infestation, and excepting last year, is the heaviest since 1947. (Snapp). FLORIDA - Attacking plums more severely this spring than previously in the Ocala district. (Fla. St. Plt. Brd., Apr. Rpt.). OHIO - Increasing on plums in northern area. First oviposition observed in Columbus May 9 and Wooster May 14. (Rings). MICHIGAN - First of season found at Baroda May 2. (Hutson). INDIANA - Abundant and active in peaches and cutting apples in many orchards surrounded by woods or peaches in Orleans area. (Marshall). Still active in Vincennes area. In an abandoned orchard, 355 adults were jarred from 5 trees. (Hamilton). Considerable damage to newly set fruit in Delaware County and also active in Elkhart, St. Joseph and La Porte Counties. (Matthew). ILLINOIS - Still active but have passed peak of activity in Carbondale area. (Meyer). MISSOURI - Light in central and northwest area but heavy in several orchards near Campbell and south of Cape Girardeau. (Wkly. Rpt. Fr. Grs.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - First larvae emerged in Orleans area. Entering peach twigs. (Marshall). Adults from overwintering brood continued coming to bait traps, especially heavy May 3-4 in Vincennes area. (Hamilton). ILLINOIS - Light damage continues to peach trees in Carbondale area. (Meyer). MISSOURI - Larvae full grown in southeast area and over half grown in central area. (Wkly. Rpt. Fr. Grs.). CALIFORNIA - Medium on peach and nectarine trees in Modesto area, Stanislaus County, and reported for the first time as light to heavy in local orchards in Gridley area, Butte County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Continues a problem to many growers in Mesa County. Heavy some Delta County peach orchards, as high as 20 colonies per tree. (Ext. Ser., Exp. Sta.). WASHINGTON - Moderate on peaches in north central area. (Anthon). NEW MEXICO - Continues a problem in many peach orchards throughout State. (N. M. Coop. Rpt.). NEVADA - Light to moderate on apricot, cherry and peaches in Reno-Sparks area, Washoe County. (Bechtel).

CURCULIONIDS - NEW JERSEY - Adults active in blueberry fields in Hammonton last week. (Ins. Dis. Newsl.).

GARDEN SYMPHYLID (Scutigerella immaculata) - WASHINGTON - Causing severe damage to 40 acres of blueberries in Gate, Thurston County. (Howitt).

GRAPE MEALYBUG (Pseudococcus maritimus) - MISSOURI - Reported in Rosati area, eggs not hatched as yet. (Wkly. Rpt. Fr. Grs.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Five entries noted in 300 clusters examined in pecan orchard in Jefferson County. Heavy populations of overwintering larvae noted. Approximately 22-28 percent of 400 shoots examined were infested. (Flora). TEXAS - In pupal or adult stage throughout pecan growing areas of State. Egg laying started in south central area and expected to begin in west central and upper coastal areas May 20-25. (King).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - VIRGINIA - Moderate on pecan trees in a Greensville County locality. (Morris, Rogers). NORTH CAROLINA - Three to 6 larvae per compound leaf on pecan in Hertford, Martin and Wake Counties. (Farrier et al.). ALABAMA - Light in several sections of State. (Grimes, Stephenson).

CIGAR CASEBEARER (Coleophora occidentis) - ALABAMA - Severe defoliation of small group of pecan trees occurred in Escambia County. Some in Pike and Montgomery Counties. (Grimes).

A SAWFLY (Periclista sp.) - ALABAMA - Damaging pecan trees in Covington County. (Stephenson, Arant).

MAY BEETLES (Phyllophaga spp.) - GEORGIA - Heavy on pecan and oak in Meriwether and Muscogee Counties. (Dyer). TEXAS - Continue to cause loss of leaves of pecan in Red River County. (Turney).

PLANT BUGS - ALABAMA - Large numbers feeding on new growth of pecans in central area. (Grimes).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - One male fly taken in a trap in Tiajuana, Baja California. This is the first fly trapped in this area since August 1957. (PPC, Mex. Reg.).

SCALE INSECTS - NEVADA - Heavy on pear in Lovelock, Pershing County. (Snyder). ARIZONA - Coccus pseudomagnoliarum infesting grove northwest of Phoenix, Maricopa County. (Ariz. Coop. Sur.). CALIFORNIA - Icerya purchasi heavy on orange in Live Oak, Sutter County. Aonidiella aurantii heavy on orange in Piru, Ventura County. (Cal. Coop. Rpt.). TEXAS - Chrysomphalus aonidum general and medium to heavy on citrus in Cameron County. (Day). MISSOURI - Lecanium nigrofasciatum heavily infesting few peach orchards in Campbell vicinity. (Wkly. Rpt. Fr. Grs.). OHIO -About 80 percent of female Lecanium corni complex ovipositing at Wooster on May 14. (Rings). FLORIDA - Pseudaulacaspis pentagona severely damaging peach trees and Protopulvinaria pyriformis populations heavy on avocado trees at Holly Hill, Volusia County. P. pyriformis building up on untreated avocado trees in Palm Beach district and moderately heavy on mangoes in north central Dade district. (Fla. St. Plt. Brd., Apr. Rpt.).

SIX-SPOTTED MITE (Eotetranychus sexmaculatus) - FLORIDA - General over Seminole County, causing severe damage to grapefruit. Increasing in most citrus nurseries in west central area of State. (Fla. St. Plt. Brd., Apr. Rpt.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW JERSEY - Light on tomatoes in Hammonton area. (Ins. Dis. Newsl.). MISSOURI - Much egg laying evident in Columbia area. (Wkly. Rpt. Fr. Grs.). OREGON - Adults present in Hermiston area, Umatilla County, during week May 4-9. (Goeden). MARYLAND - Adults and eggs common on potatoes in central and western areas. (U. Md., Ent. Dept.). DELAWARE - In fields where no control observed, adults common to prevalent and egg masses very abundant. (Burbutis, Conrad).

POTATO FLEA BEETLE (Epitrix cucumeris) - MARYLAND - Heavy on potatoes in Allegany and Washington Counties. (U. Md., Ent. Dept.). DELAWARE - Very abundant in a few fields of potatoes and tomatoes. (Burbutis, Conrad).

POTATO LEAFHOPPER (Empoasca fabae) - DELAWARE - Found for first time this season in Kent County on potatoes. (Burbutis, Conrad).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - On lycium in Larimer County, one per 100 sweeps. (Ext. Ser., Exp. Sta.). UTAH - Five per 50 sweeps on rabbitbrush at Glendale, 9 per 50 sweeps on matrimonyvine at Gunnison and 2 per 50 sweeps on matrimonyvine at Fayette. (Knowlton).

GARDEN SPRINGTAIL (Bourletiella hortensis) - MARYLAND - Heavy on potatoes at Flintstone, Allegany County. (U. Md., Ent. Dept.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - First egg masses found on potatoes in Kent and New Castle Counties. (Burbutis, Conrad).

A CRICKET (Acheta sp.) - NEW MEXICO - Damaged tomato plants near Deming, Luna County. (N. M. Coop. Rpt.).

SUCKFLY (Cyrtopeltis minimus) - TEXAS - Heavy locally on tomatoes in Cameron and Kendall Counties. (Deer).

A STRIPED BLISTER BEETLE (Epicauta sp.) - GEORGIA - Light to moderate on tomatoes in Tattnall and Evans Counties. (Johnson).

TOMATO FRUITWORM (Heliothis zea) - ARKANSAS - Attacking tomatoes in southeastern area. (Boyer).

CABBAGE MAGGOT (Hylemya brassicae) - NEW YORK - Egg laying heavy in Nassau County. (N. Y. Wkly. Rpt.). MASSACHUSETTS - First eggs of season observed May 4, egg laying heavy during remainder of week. (Wheeler).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW JERSEY - Heavy flight in northern area May 4-10. (Ins. Dis. Newsl.). GEORGIA - Heavy on cabbage in Colquitt, Thomas and Brooks Counties. (Johnson). MARYLAND - Infesting cabbage at Lanham, Prince Georges County, May 11. (U. Md., Ent. Dept.).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Heavy on cabbage in Colquitt, Thomas and Brooks Counties. (Johnson).

CABBAGE APHID (Brevicoryne brassicae) - MARYLAND - Infesting cabbage at Lanham, Prince Georges County, May 11. (U. Md., Ent. Dept.).

APHIDS - NEW MEXICO - Moderately heavy in several lettuce fields at Animas, Hidalgo County. (N. M. Coop. Rpt.).

FLEA BEETLES - MARYLAND - Phyllotreta sp. heavy on cabbage, kale and radishes in central and western areas. (U. Md., Ent. Dept.). NEW MEXICO - Heavy, some damage to cabbage in Luna County. (N. M. Coop. Rpt.).

HARLEQUIN BUG (Murgantia histrionica) - OKLAHOMA - Ranged up to 25 per plant in the Hugo area. (Goin, Vinson). Continued to damage a variety of garden plants throughout State. (Flora, Howell). TEXAS - Heavy, widespread on cabbage in Zavala County. (Prucia).

PEA APHID (Macrosiphum pisi) - OREGON - First infestations in peas, grown for processing, in northeastern area May 9. Infestation light. (Hanna). MARYLAND - Injuring untreated peas in Talbot County. (U. Md., Ent. Dept.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - SOUTH CAROLINA - General in Piedmont area on beans. Eggs noted in Cherokee, York and Oconee Counties. (Nettles et al). OKLAHOMA - Ranged up to 5 per plant on beans in Jefferson and Carter Counties. (Flora). NORTH CAROLINA - Earliest infestation ever observed in beans in Duplin, Pamlico, Bladen and Columbus Counties. Some fields with all plants injured. (Scott). MARYLAND - Damaging beans in eastern Allegany County. (U. Md., Ent. Dept.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - GEORGIA - Moderate to heavy on beans in Colquitt, Thomas, Brooks, Lowndes and Tattnall Counties. (Johnson). FLORIDA - Damaging beans in Mariana district. (Fla. St. Plt. Brd., Apr. Rpt.).

CUCUMBER BEETLES - UTAH - Numerous and especially damaging to squash in Washington County. (Knowlton). NEW MEXICO - Diabrotica undecimpunctata tenella heavy and damaging young melon plants in Virden Valley and causing minor damage to lettuce near Animas, Hidalgo County. (N. M. Coop. Rpt.).

BEAN APHID (Aphis fabae) - NEVADA - Heavy infestation on sugar beets at Logandale, Clark County. (Zoller, May 8).

BEET LEAFHOPPER (Circulifer tenellus) - OREGON - Light in Hermiston area, Umatilla County, during week May 4-9. Predominantly adults and a few nymphs. (Goeden).

FALSE CHINCH BUGS (Nysius spp.) - UTAH - More numerous than normal on sugar beets in Washington County and in Paragonah-Parwan area of Iron County. (Knowlton).

WIREWORMS - OREGON - Damaging sugar beets in Hermiston area, Umatilla County, week May 4-9. Caused 30 percent damage to some fields. (Goeden).

CUTWORMS - MICHIGAN - Very active on asparagus in Berrien, Newaygo and Oceana Counties, May 11. (Hutson).

ASPARAGUS MINER (Melanagromyza simplex) - DELAWARE - Adults common in asparagus fields in New Castle and Sussex Counties. (Burbutis, Conrad).

ASPARAGUS BEETLES (Crioceris spp.) - DELAWARE - Adults of C. duodecimpunctata and larvae of C. asparagi found for first time this season. (Burbutis, Conrad). RHODE ISLAND - C. duodecimpunctata adults found on asparagus in East Greenwich, May 11. (Hannah). OREGON - Adults of C. asparagi present in Hermiston area, Umatilla County, during week May 4-9. (Goeden).

ONION MAGGOT (Hylemya antiqua) - MICHIGAN - Quite active at Hopper, Bath and Pullman May 12, with eggs being laid at Hopper and Bath. (Hutson). WASHINGTON - Light flights at Walla Walla. (Woodworth).

SEED-CORN MAGGOT (Hylemya cilicrura) - WASHINGTON - Heavy flights at Walla Walla. (Woodworth).

GARDEN SYMPHYLID (Scutigerella immaculata) - WASHINGTON - Destroyed early plantings of onions and spinach at Bellingham, Whatcom County. (Howitt).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - MONTANA - Damaged strawberry plants in Hill County. (Roemhild).

WEEVILS - NEW JERSEY - Still doing some damage to strawberries. (Ins. Dis. Newsl.). NEW YORK - Heavy infestation of Anthonomus signatus observed in strawberries in Calveton, Suffolk County, May 7. (N. Y. Wkly. Rpt.).

SPIDER MITES - NEW JERSEY - Still numerous in some strawberry fields. (Ins. Dis. Newsl.). NORTH CAROLINA - Tetranychus spp. severe in many strawberry plantings in southeastern counties. (Scott). NEW YORK - T. telarius heavy in Suffolk County strawberry plantings. (N. Y. Wkly. Rpt.).

LEAF ROLLERS - NEW JERSEY - Eggs beginning to hatch in strawberries. Moth flights strong in Cumberland and Salem Counties but light around Hammonton. (Ins. Dis. Newsl.). NEW YORK - Ancylis comptana fragariae observed May 7 in Suffolk County. (N. Y. Wkly. Rpt.). INDIANA - A. comptana fragariae is mostly between broods in Orleans area. (Marshall).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - NORTH CAROLINA - Severe in untreated fields in Johnston County with over 100 holes per tobacco leaf. Untreated fields in Edgecombe County with severe infestations. (Guthrie).

TOBACCO BUDWORMS (Heliothis spp.) - GEORGIA - Moderate to heavy on tobacco in 14 tobacco-producing counties. (Johnson). NORTH CAROLINA - From 5 to 10 percent of tobacco plants infested in Duplin, Pender, Bladen and Columbus Counties. (Scott).

TOMATO HORNWORM (Protoparce quinquemaculata) - NORTH CAROLINA - First adult of season taken in Granville County on May 12. (Chamberlin).

A WIREWORM (Conoderus prob. vespertinus) - NORTH CAROLINA - Untreated fields with 67 percent of plants infested in Johnston County and 71 percent in Edgecombe County. (Guthrie).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Averaged 84 per acre in 26 fields inspected in McLennan and Falls Counties compared with 101 per acre in 14 fields in the corresponding week of 1958. (Parencia et al.). Being found in more fields each week throughout the lower Rio Grande Valley. (Deer). LOUISIANA - Range 0-200 per acre, average 41 per acre, in 6 of 14 fields examined in Madison Parish. Percentage of survival in hibernation cages to May 15 was 0.66 percent compared with 2.04 at same time in 1958. (Smith et al.). MISSISSIPPI - None found in Stoneville area. (Merkl et al.). ALABAMA - Emerging from hibernation in central area. (Rawson).

A CURCULIONID (Macrorhoptus sp.) - CALIFORNIA - Medium in cotton squares in Westmorland area of Imperial County. (Cal. Coop. Rpt.).

A WEEVIL (Compsus auricephalus) - TENNESSEE - Found in Lauderdale County on cotton. (Mullett).

STRIPED FLEA BEETLE (Phyllotreta striolata) - ALABAMA - Heavy in one field in Madison County. From 1 to 3 acres in sections have been completely destroyed. (Grimes).

BOLLWORMS (Heliothis spp., et al.) - GEORGIA - Light on cotton in Tattnall and Bulloch Counties; 2 larvae per 100 terminals in Tattnall County and 3 in Bulloch County. First report of season on cotton. (Johnson). TEXAS - Continue to cause some terminal damage in lower Rio Grande Valley. (Deer). MISSISSIPPI - Moth catches of H. zea very low in Stoneville area. (Merkl et al.). CALIFORNIA - H. virescens medium on flowers and squares in Westmorland, Imperial County. (Cal. Coop. Rpt.).

BEET ARMYWORM (Laphygma exigua) - ARIZONA - Increasing on cotton in Maricopa, Pinal and Pima Counties; 90 percent of plants show feeding damage some fields. (Ariz. Coop. Sur.). CALIFORNIA - Medium in Niland area and light in Westmorland area of Imperial County. (Cal. Coop. Rpt.).

CUTWORMS - MISSISSIPPI - Spotty but heavy in fields which were planted behind vetch or wild peas in the Stoneville area. (Merkl et al.). ARKANSAS - Agrotis ypsilon scattered and reducing stands in eastern area. (Ark. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Beginning to damage cotton in Niland area of Imperial County. (Cal. Coop. Rpt.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - CALIFORNIA - Appearing in Niland area of Imperial County. (Cal. Coop. Rpt.).

THRIPS - SOUTH CAROLINA - Attacking early-planted cotton, will be laying eggs soon. (Cott. Lett.). GEORGIA - Frankliniella sp. light on cotton in 9 counties. (Johnson). MISSISSIPPI - Tremendous numbers on alternate hosts but there is little movement to cotton in the Stoneville area. (Merkl et al.). LOUISIANA - Counts made in 46 fields in Madison Parish; all infested. Averaged 2.66 per plant and ranged 0.06-18.44 per plant. Heavy populations of nymphs appearing and damage is apparent. (Smith et al.). TEXAS - Increase in McLennan and Falls Counties over last week. Now showing injury. (Parencia et al.).

Generally light in most areas, with some isolated medium to heavy populations. (Gaines). NEW MEXICO - Building up rapidly many fields in southern Dona Ana County. (N. M. Coop. Rpt.). ARIZONA - Continue to increase in many Maricopa and Pinal County fields and in the Marana area of Pima County. Cotton in Rainbow Valley area of Maricopa County is heavily infested. (Ariz. Coop. Sur.).

APHIDS - NEVADA - Aphis gossypii damaging seedling cotton in Pahrump Valley, Nye County. (Zoller, May 8). NEW MEXICO - Occasional colony of Aphis medicaginis in Dona Ana, Luna and Hidalgo Counties. (N. M. Coop. Rpt.). TEXAS - Decreased in lower Rio Grande Valley. (Deer). A. gossypii moderate in one, light in 7, and none in 18 fields inspected in McLennan and Falls Counties. (Parencia et al.). LOUISIANA - Present in many fields in Madison Parish. Predators becoming general. (Smith et al.). ARKANSAS - A. gossypii common in eastern area. (Boyer). MISSISSIPPI - Light to heavy on seedling cotton. Several thousand acres treated in area around Scott. (Merkl et al.).

SPIDER MITES - TEXAS - Light but increasing in lower Rio Grande Valley. (Deer). LOUISIANA - Heaviest infestations adjacent to ditchbanks and road shoulders. More general than usual this early in season in Madison Parish. (Smith et al.). MISSISSIPPI - Light in several fields in Stoneville area. (Merkl et al.).

FLEAHOPPERS - TEXAS - Continue to increase and many infestations severe in lower Rio Grande Valley. (Deer). Psallus seriatus adults found in 8 fields and few nymphs in occasional fields in McLennan and Falls Counties. (Parencia et al.).

A FALSE CHINCH BUG (Nysius raphanus) - NEW MEXICO - Severely damaged cotton field near Las Cruces. Common, 40-50 nymphs per cotton seedling. (N. M. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A PINE TIP MOTH - ARKANSAS - Activity of first adult brood complete in southern part of State and tapering off sharply in northern areas. Infestations appear lighter than in 1958. Larval feeding damage appearing some plantings. (Ark. For. Pest Rpt.).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - INDIANA - Infesting a 13-year-old planting of white pine at La Porte, La Porte County. Infestation averages one brood tree per acre. (Schuder).

BARK BEETLES - ARKANSAS - Some increase in activity of Ips spp. noted in vicinities of Amity, Malvern and Ozark. Additional Dendroctonus terebrans activity noted in south central area near Camden, Hampton and Glenwood. About 200 trees treated near Glenwood. (Ark. For. Pest Rpt.). NEVADA - Ips oregoni heavy in felled timber in large housing subdivision near Zephyr Cove, Douglas County. (Bechtel, Lauderdale).

WHITE-PINE WEEVIL (Pissodes strobi) - WISCONSIN - Feeding in northeastern section of State. (Wis. Coop. Sur.).

SARATOGA SPITTLEBUG (Aphrophora saratogensis) - WISCONSIN - Local egg counts quite high in Vilas County. (Wis. Coop. Sur.).

AN APHID (Eulachnus agilis) - PENNSYLVANIA - Abundant on needles of red pine, several large plantations, Fayette County. Det. J. O. Pepper. (Udine).

A PINE SAWFLY (Neodiprion pratti pratti) - VIRGINIA - Severe on pines in western and northwestern Henrico County (Davis), severe on pines in areas of Prince William County (Trenary), heavy on pines in southeastern Halifax County (Meyers) and severe in Goochland County with timber selling below market price (Truett). MARYLAND - Numerous reports of injury to Virginia pine in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

PINE SAWFLIES - WISCONSIN - Neodiprion nanulus eggs hatched May 6 in Columbia County. (Wis. Coop. Sur.). ARKANSAS - Infestations light and spotty in Calhoun County and those near Crossett, Ashley County, reported as lightest in years. Damage for 1959 not expected to be heavy. (Ark. For. Pest Rpt.). LOUISIANA - Neodiprion sp. heavily infesting pine in northern part of State. (Spink).

A PINE PITCH MIDGE (Retinodiplosis resinicola) - SOUTH CAROLINA - Apparently increasing in abundance in northwestern part of State. (Nettles et al.). ARKANSAS - Infestations remain active in local areas. (Ark. For. Pest Rpt.).

A SPIDER MITE- LOUISIANA - Oligonychus milleri heavy on pines in northern part of State. (Spink).

SPRUCE BUDWORM (Choristoneura fumiferana) - MINNESOTA - Larvae observed mining old leaves of balsam near International Falls May 4. (Minn. Ins. Rpt.).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - PENNSYLVANIA - Hatching on blue spruce in Centre County and quite plentiful. (Pepper).

BAGWORM (Thyridopteryx ephemeraeformis) - ALABAMA - Limited activity on redbud trees in Montgomery County. (Grimes).

LARCH CASEBEARER (Coleophora laricella) - PENNSYLVANIA - Pupating on Japanese larch in Franklin and Lycoming Counties, spring population high in latter county. (Drooz). WISCONSIN - Pupae present in Dane County. (Wis. Coop. Sur.).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - First hatch observed in Glocester area May 4. (Mathewson).

CANKERWORMS - IOWA - Active throughout southern half of State. Heaviest at Shenandoah where elms and other shade trees are being defoliated one section of town. Larvae about one-fourth inch long in central area. (Iowa Ins. Inf.). NEBRASKA - Heavy populations of Paleacrita vernata in scattered eastern locations. (Roselle). KANSAS - Active stripping of trees by P. vernata widespread over most of State. Larval-feeding essentially complete. (Knutson).

TENT CATERPILLARS (Malacosoma spp.) - RHODE ISLAND - M. americanum unusually abundant locally. (Mathewson). PENNSYLVANIA - Complete defoliation of wild cherry by M. americanum in southwestern part of State causing migration to other trees. (Udine). M. disstria larvae common in Franklin County. (Drooz). Disease hit some M. disstria larvae soon after congregation on sugar maple in Somerset County, but great numbers still remain. As this is third year of possible defoliation, spraying is underway. (Udine). Present on ash at State College, Centre County. (Gesell). OHIO - Heavy throughout eastern and southwestern counties. (Neiswander). WISCONSIN - M. disstria hatched May 8 in Douglas County and May 2 in northeastern portion of State. M. americanum tents about two inches in northeastern area and 2 - 12 inches in southern counties. (Wis. Coop. Sur.). MINNESOTA - M. disstria began hatching in Little River area of Duluth and north of Colquet May 8. (Minn. Ins. Rpt.). NORTH DAKOTA - Eggs of M. disstria hatching in native timber stands at Fort Totten where severe defoliation occurred in 1958. (N. D. Ins. Rpt.). UTAH - Unusually troublesome in Weber and Box Elder County orchards (Davis) and into Salt Lake County (Knowlton). CALIFORNIA - Heavy migrations of Malacosoma sp. larvae in Cooks Station area, Amador County. (Cal. Coop. Rpt.).

AN ALDER FLEA BEETLE (Altica sp.) - IDAHO - Adults common in Bonner, Kootenai, Nez Perce and Latah Counties. (McPherson et al.). Abundant on willow south of Coeur d'Alene, with considerable feeding occurring on unfolding leaves. (Foote).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEVADA - Adults active in Yerington, Lyon County, and Reno, Washoe County. (Bechtel, Hilbig). DELAWARE - First adults and eggs noted on elm in Sussex County. (Burbutis, Conrad).

MAY BEETLES (Phyllophaga spp.) - VIRGINIA - Very heavy flights observed in Blacksburg area, Montgomery County, for past two weeks. (Morris). LOUISIANA - Stripping foliage from pecan, elm, persimmon and oak trees in northern part of State. (Spink). OKLAHOMA - Heavy populations, 2 per leaf, continued to defoliate trees in Pushmataha County. Some oak, black gum and persimmon trees completely defoliated. (Goin). TEXAS - Continued to cause loss of leaves of pecan and oak trees in Red River County. (Turney).

A WEEVIL (Odontopus calceatus) - TENNESSEE - Very heavy on poplar in Scott County. (Bennett).

A BIRCH APHID (Calaphis betulaecolens) - CALIFORNIA - Medium on white birch in Chico area, Butte County. (Cal. Coop. Rpt.).

APHIDS - NEW YORK - Unusually early on oaks in Ulster County. Leaves being damaged. (N. Y. Wkly. Rpt.). DELAWARE - Macrosiphum liriodendri building up on tulip trees and Drepanaphis acerifoliae abundant on Norway maple in New Castle County. (Burbutis, Conrad, Connell). MISSOURI - Numerous species present and causing some damage to various ornamentals and some crops. (Wkly. Rpt. Fr. Grs.). NEBRASKA - Numerous species building up on several ornamentals. (Roselle). NEW MEXICO - Heavy infestations on narrow-leaf poplar trees at Virden, Hidalgo County. Anuraphis tulipae heavy on iris in Dona Ana and Luna Counties. (N. M. Coop. Rpt.). NEVADA - Cinara sp. heavy on Juniperus spp. and Thuja spp. in Reno and Sparks, Washoe County. (Bechtel, Hilbig).

BIRCH LEAF MINER (Fenusa pusilla) - VERMONT - Adults laying eggs on unfolding leaves of white birch, May 6. (MacCollom).

SAWFLIES - MARYLAND - Undetermined species feeding on ash at White Oak, Montgomery County. (U. Md., Ent. Dept.). DELAWARE - Unidentified species present to common on black locust in Kent and New Castle Counties. Nematus ventralis larvae prevalent on weeping willow in western Kent County. (Burbutis, Conrad).

AN OLEANDER CATERPILLAR (Syntomeida epilais jucundissima) - FLORIDA - Active and requiring control in many localities in Broward County. Damage moderate at present. (Fla. Coop. Sur.).

HARLEQUIN BUG (Murgantia histrionica) - OKLAHOMA - Ovipositing on lilac in Payne County. (Walton).

A HOLLY BUDMOTH (Rhopobota naevana ilicifoliana) - OREGON - Overwintering eggs hatching and young larvae present week of May 11-16. (Larson).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - MASSACHUSETTS - Abundant at East Wareham, May 7, and 50 percent pupated. (Wheeler). MARYLAND - Adults on boxwood at College Park, Prince Georges County. (U. Md., Ent. Dept.). DELAWARE - Adult emergence noted May 8. (MacCreary).

SCALE INSECTS - INDIANA - Lecanium fletcheri heavy on Taxus spp. and junipers at Buffton, Wells County, and at Lafayette, Tippecanoe County. Females laying eggs. (Schuder). CALIFORNIA - Parlatoria oleae heavy on Modesto ash in Coalinga, Fresno County. Epidiaspis piricola medium on California holly in Kentfield, Marin County, and Saissetia oleae heavy on euonymus shrubs in Patterson, Stanislaus County. Icerya purchasi medium on aralia in Blythe, Riverside County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - MINNESOTA - Heavy, general rains May 3-11 resulted in heavy hatch of Aedes spp. in Twin City area. Most larvae now in second and third instars. Cool temperatures May 11-15 slowed development. Of 423 larval collections, 320 were small Aedes spp. Culiseta inornata was recovered in 37 larval collections and adults were found in low numbers in 3 of 10 light trap collections. (Minn. Ins. Rpt.). WISCONSIN - Appearing in Polk County. (Wis. Coop. Sur.). NORTH CAROLINA - Aedes sollicitans adults quite abundant in marshes of Hyde County. (Ashton). UTAH - Larvae abundant in some meadow areas in Tooele, Davis, Utah and Cache Counties. Adults becoming more common around communities. (Knowlton). NEVADA - Aedes dorsalis, A. melanimon, A. nigromaculis, Anopheles freeborni and Culex tarsalis adults present in moderate numbers in Fallon area, Churchill County, and light in Reno-Sparks area, Washoe County. Aedes vexans adults emerging in Dayton, Lyons County. (Chapman). FLORIDA - Very severe in unsprayed areas of Brevard County, increased in Orange County after heavy rains and increased over Volusia County. Populations sparse in north central Dade district, moderate in Palm Beach area and again heavy in the Indian River area. Populations increased in 9 west coastal counties. (Fla. St. Plt. Brd., Apr. Rpt.).

A BLACK FLY (Simulium venustrum) - MARYLAND - Annoying humans at Glen Burnie, Anne Arundel County. (U. Md., Ent. Dept.).

CATTLE GRUBS (Hypoderma spp.) - VIRGINIA - Adults emerging and running cattle in Montgomery, Bland and Tazewell Counties. (Morris, Ames).

HORN FLY (Siphona irritans) - NORTH CAROLINA - Numerous on dairy cattle in Wake County. (Jones). OREGON - First adults of season in Sherman County observed May 13. (Every). OKLAHOMA - Populations averaged 100 per animal on 15 beef cows checked in Rattan area and 200 per animal on 3 bulls. (Goin). NEW MEXICO - Heavy populations pestering dairy and range cattle in Grant, Sierra, Hidalgo and Luna Counties. (N. M. Coop. Rpt.).

A BLOODSUCKING CONENOSE (Triatoma sp.) - TEXAS - Heavy infestations around homes, business houses and oil field housing areas in Ward County. (Texas Coop. Rpt.).

TICKS - WISCONSIN - Prevalent in many sections of the State. (Wis. Coop. Sur.). MONTANA - Dermacentor andersoni very abundant in southern area of State. (Roemhild). OKLAHOMA - Counts averaged 65 per animal on 15 beef cows checked in Rattan area. Mostly Amblyomma americanum. (Goin).

BENEFICIAL INSECTS

LADY BEETLES - NEBRASKA - Development slow generally due to temperatures. Averaged one adult per 10 sweeps in alfalfa and sweetclover and 2 in wheat. (Roselle). KANSAS - All stages observed in most fields in northeastern and east central areas. Adults and larvae averaged up to 4-5 per sweep. Hippodamia convergens predominant species. (Peters). OKLAHOMA - H. convergens ranged up to 2.5 per sweep some Arkansas River bottom alfalfa fields in east central area (VanCleave); becoming abundant many east central alfalfa fields (Robinson); 0.5-6 per sweep in alfalfa fields in Choctaw County (Goin, Vinson); medium numbers in a Payne County alfalfa field (Stiles); light in 2 Caddo County fields (Hudson); 2-5 per square foot of crown area in 3 Tillman County alfalfa fields (Hatfield); and light in alfalfa field in Cimarron County (Owens). IDAHO - Common in Latah and Nez Perce County alfalfa fields. (Portman et al.).

LACEWINGS (Chrysopa spp.) - NEBRASKA - Numbers remain low, 1 per 10 sweeps, most fields. (Roselle). KANSAS - Adults and larvae observed most fields in northeastern and east central areas and averaged up to 3 per sweep. (Peters). OKLAHOMA - Averaged up to 0.5 per sweep in east central alfalfa fields (VanCleave) and up to 2 per sweep in Choctaw County, with heavy egg laying noted in one field (Goin, Vinson). IDAHO - Common in alfalfa fields in Latah and Nez Perce Counties. (Portman et al.). UTAH - Adults common in northern areas of State. Larvae numerous, attacking black cherry aphid at Brigham City and other species on maples at Farmington. (Knowlton).

NABIDS (Nabis spp.) - NEBRASKA - Populations increasing in alfalfa. Averaged 5 per 10 sweeps in southeast area. (Roselle). KANSAS - Adults and larvae averaged up to 2 per sweep in most fields in northeastern and east central areas. (Peters). OKLAHOMA - Averaged up to 0.8 per sweep in east central alfalfa fields (VanCleave); common in east central alfalfa fields (Robinson); and ranged up to 0.3 per sweep in alfalfa fields checked in Choctaw County (Goin, Vinson). IDAHO - Common in alfalfa fields in Latah and Nez Perce Counties. (Portman et al.).

BIG-EYED BUGS (Geocoris spp.) - IDAHO - Populations generally low in alfalfa and clover fields in Latah and Nez Perce Counties. (Foote).

INSIDIOUS FLOWER BUG (Orius insidiosus) - OKLAHOMA - Common in east central alfalfa fields, up to 0.8 per sweep some fields. (Van Cleave). Ranged 0-2 per sweep in some Choctaw County alfalfa fields. (Goin, Vinson).

SYRPHIDS - MASSACHUSETTS - Several species especially abundant on apple buds this season. (Wheeler). OREGON - Larvae increasing in Willamette Valley cherry orchards. (Stevenson).

A KLAMATHWEED BEETLE (Chrysolina gemellata) - IDAHO - Adults abundant on scattered klamathweed plants west of Myrtle, Nez Perce County. (Foote).

A GORSE WEEVIL (Apion ulicis) - OREGON - Introduced in Coos County in 1955 as a means of gorse suppression. Abundant at site of original release on May 9. (Every).

MISCELLANEOUS INSECTS

PERIODICAL CICADA (Magicicada septendecim) - TENNESSEE - Thirteen-year-variety beginning to emerge in central part of State. (Mullett). NORTH CAROLINA - Emerged in Person, Vance, Randolph, Davidson, Chatham, Stanly, Halifax, Hertford, Nash and Orange Counties. (Green et al.). SOUTH CAROLINA - Emerging in Abbeville, Greenwood, McCormick, Edgefield and York Counties, and extremely heavy in wooded areas throughout Saluda County. (Nettles et al.). GEORGIA - Heavy broods reported from Baldwin, Lincoln, Floyd, Wilkes, Butts, Oglethorpe, Houston and Putnam Counties. (Blasingame, Lund, Robertson, Jordan, Johnson). ALABAMA - Emerged during week of May 8, with peak during first part of week. Activity reported from nearly all sections of State. (Grimes). INDIANA - Small number of adults emerging along Ohio River floodplain in Hovey Lake region, Posey County. (Chandler). MISSOURI - Emergence of thirteen-year-variety begun in east central area of State. (Kyd, Thomas, Munson). Adults taken in Columbia May 9. (Wkly. Rpt. Fr. Grs.).

A ROUNDHEADED WOOD BORER (Saperda cretata) - ALABAMA - Collected for the first time in the State in a light trap in Tallapoosa County. (Good).

WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) - OREGON - Winged forms appearing in many areas during first half of May. Damage from this species increasing. (Every).

COLLEMBOLA - ARKANSAS - Tremendous numbers in worm beds in Jackson County resulting in reduction of earthworms. Worm production for fish bait seriously reduced. (Ark. Ins. Sur.).

SEED-CORN MAGGOT (Hylemya cilicrura) - VIRGINIA - Large numbers of adults dead and sticking to leaves of plants, clothes lines, etc. in Richmond. They were killed by a white fungus. They appear to be sucking the plants, but they are dead. Det. C. W. Sabrosky. The fungus will be studied by USDA. (Matheny). Specimens have been received from, or seen, in all parts of the State. (Morris, Amos, Rowell).

CORRECTIONS

CEIR 9(20) : 371 - GRASSHOPPERS - MINNESOTA - Melanoplus bivittatus should read Melanoplus bilituratus.

CEIR 9(20) : 372 - APPLE GRAIN APHID should read (Rhopalosiphum fitchii).

CEIR 9(20) : 373 - BRONZED CUTWORM should read (Nephelodes emmedonia).

CEIR 9(20) : 393 - Under BIG-EYED BUGS, OKLAHOMA should read, INSIDIOUS FLOWER BUG (Orius insidiosus) - OKLAHOMA - etc.

CEIR 9(20) : 398 - Legend for illustrations should read, Adults and Larva of Bupalus piniarius.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Protoparce quinq.	Protoparce sexta	Heliothis zea	Heliothis vires.
ALABAMA								
Auburn 5/12, 15	2	2			4		2	
Crossville 5/12	2	1		2			4	5
ARIZONA								
Mesa 5/6-12			32	51			47	
FLORIDA								
Gainesville 5/13			5					
Monticello 5/12						2	1	
ILLINOIS								
Urbana 5/8-14	23	15		2				
INDIANA (County)								
Tippecanoe 5/9-13	75	3	1	2				
KANSAS								
Garden City 5/5-7, 9-13	5	2		7			4	
Hays 5/7,9,12	3			6			2	
Manhattan 5/9-15	6	6	1	4			7	
LOUISIANA								
Baton Rouge 5/8-14	92	27	34	59			15	
Curtis 5/11	3	1		1		3	16	
Franklin 5/13				5			3	
MARYLAND								
Fairland 5/8-14	8	7		3				
MISSISSIPPI								
*Stoneville 5/9-15	43	89	70	18		4	60	
MISSOURI								
Columbia 5/7-12	67	23	7	4			63	
Sikeston 5/8-15	8	4					6	1
NEBRASKA								
Scotts Bluff 5/1-7	2	1		10			4	
NORTH CAROLINA								
Clayton 5/14		2	1		1	3	3	
Faison 5/14		5	3			2	3	
OREGON								
*Salem 5/6-14		5						
SOUTH CAROLINA								
Charleston 5/4-17	22	45	15	6	3	17	35	4
Clemson 5/8-15	15	9	8	2	30	4	64	1
SOUTH DAKOTA 5/8,15	7			12				

*Four traps - Stoneville; 2 traps - Salem

LIGHT TRAP COLLECTIONS - Continued

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Protoparce quinq. sexta	Heliothis zea vires.
TENNESSEE (Counties)						
Blount 5/5-11	84	8	4	8		8
Cumberland 5/5-11	4	3		8		2
Greene 5/5-11	49	5		1		5
Johnson 5/5-11	288	41		7		
Madison 5/5-11	56		14			92
Maury 5/5-11	33	2	9	4		3
Monroe 5/5-11	24			9		3
Robertson 5/5-11	7		2	2		2
TEXAS						
Brownsville 5/1-8	1	16	1	1		1
Waco 5/9-15	14		9	20		28

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(Weather continued from page 400)

deluge in a 50-minute period. Extremely dry weather continued from central California, Nevada and southwestern Colorado southward. No precipitation was reported anywhere in Arizona during the week. Good showers, beginning on Thursday and continuing through the weekend, covered the Pacific Northwest. Precipitation amounts exceeding 1 inch were reported from Washington and Oregon west of the Cascades, and in scattered sections of Idaho and western Montana. Rain was mixed with snow over the higher elevations from California northward. (Summary supplied by U. S. Weather Bureau).

A STATUS REPORT ON FOREST INSECT CONDITIONS IN THE UNITED STATES - 1958

Compiled by
Division of Forest Insect Research

CONDITIONS IN BRIEF

The scope and severity of forest insect infestation in the United States during 1958 were not markedly changed from conditions existing in 1957. While some of the pest species increased in numbers in some sections of the country, other species declined elsewhere thus offsetting what otherwise would have been more damage and destruction than in prior years.

1. Several species of bark beetles occurred in outbreak numbers in many places in the coniferous forests of the West and South but the extent of outbreaks and their severity were somewhat reduced from prior years. The reduction of bark beetle infestations was brought about largely by suppressive control action on the part of public and private agencies. Low winter temperatures, however, particularly in the southeastern States, also killed a large percentage of southern pine beetle broods, thus aiding the effectiveness of direct control action in that area. Nationwide, a total of 784,517 infested trees, cull logs, and stumps were treated with insecticides or salvaged from outbreak areas.

2. The spruce budworm continued in epidemic status in much of the spruce-fir forests from coast to coast. Infestations were most severe in Maine, Minnesota, the northern Rocky Mountains, Arizona and eastern Oregon. Lesser infestations occurred in Wisconsin and Michigan; in the central and southern Rockies; in New Mexico; and in one area in northeastern California. Aerial spraying to reduce epidemic populations and thus prevent damage and destruction of forest stands was undertaken on a total of 1,231,911 acres;301,861 in Maine; 12,000 in Minnesota; 100,000 in Arizona and 818,050 in Oregon. A lesser acreage is expected to be sprayed during 1959.

3. A variety of other defoliating insects occurred in outbreak numbers in all sections of the country. Several species of pine sawflies were particularly abundant in the East and South; needleminers were destructive in the West; tent caterpillars were numerous in the Lake States, the Northeast and the Southwest; and loopers, leafrollers, webworms, tussock moths were abundant in various other places nationwide. Aerial spraying on 11,066 acres was undertaken to suppress epidemic populations, and in most instances excessive damage to the forest resource was averted.

4. Twig and terminal-feeding insects were quite prevalent in most sections of the country and excessive damage was caused in many places, particularly in areas where pine stands are being regenerated by planting. Suppressive action for control on some 5,000 acres was initiated against such pests as the white pine weevil, European pine shoot moth, Saratoga spittlebug and pine reproduction weevils in many areas to protect plantations and reproduction.

5. The balsam woolly aphid continued in epidemic proportions in large areas in the Northeast and in the Pacific Northwest, and the pest was destructive in stands of Fraser fir in the Southeast. Major effort was made during the year to introduce and establish predaceous beetles from Europe and Japan for biological control. Effectiveness of the predators in control of the aphid is not yet known, but there are indications of successful colonization of two of the species liberated.

6. Outbreaks of the Douglas-fir tussock moth were discovered for the first time in fir forests of New Mexico and at a new location in Arizona. In addition, the New Mexico fir looper re-appeared in outbreak numbers on a portion of the Lincoln National Forest, the first since 1952. These infestations, discovered late in the year, will be treated during 1959 in an effort to prevent undue loss of the resource being attacked.

CONDITIONS IN ALASKA

Forest insect activity in Alaska increased during the year and continuing infestations at moderate levels are expected in several areas in 1959. The Alaska spruce beetle increased in portions of the white spruce stands on the Kenai Peninsula and for the first time in two years, new infestation centers of hemlock sawfly and black-headed budworm occurred at several locations in southeast Alaska. The spear-marked black moth which erupted as an epidemic in stands of paper birch on some 5,900,000 acres near Fairbanks in 1957 began to decline during the summer months due to parasites and a disease organism affecting the larval populations. The Sitka spruce beetle was endemic over its entire range and no further damage was reported by Ips beetles. There was no direct action undertaken to suppress any of the insect infestations in Alaska.

CONDITIONS IN CALIFORNIA

Losses due to forest insects decreased to some extent in California. In some of the high elevation recreational forests, however, this was not the case. Lodgepole pine, in particular, continued to sustain severe infestations of the mountain pine beetle and lodgepole needleminer. Jeffrey pine in these high elevation forests also was damaged by Jeffrey pine beetle and late in the year signs of increased bark-beetle activity began to show up in several localities throughout the state. The status of the major insects is as follows: The western pine beetle in ponderosa pine decreased; the mountain pine beetle in lodgepole pine increased; the Jeffrey pine beetle was active in many parts of the state; the Douglas-fir beetle showed signs of increased activity in northwestern California; the California flatheaded borer in ponderosa and Jeffrey pine occurred in outbreak numbers in southern California; pine engravers caused little damage early in the year, but showed signs of increasing late in the fall; the fir engraver was epidemic in only a few local areas; the lodgepole needleminer remained epidemic in lodgepole pine, with one new center of infestation discovered; seed and cone insects caused serious damage and for the first time in many years Douglas-fir engraver infestations were common in young Douglas-fir in northwestern California. Suppressive action to control bark beetles and flatheaded borer was intensified in southern California and a method was developed for control of the lodgepole needleminer.

CONDITIONS IN OREGON AND WASHINGTON

Outbreaks of forest insects in Oregon and Washington totalled slightly over 2 million acres, approximately the same as occurred in 1957. The spruce budworm, balsam woolly aphid, Douglas-fir beetle, mountain pine beetle, and western pine beetle accounted for most of the outbreak acreages. Aerial spraying of 818,050 acres, coupled with natural control, reduced the spruce budworm to the lowest point since 1947 and the population trend is downward. Tree-killing by the balsam woolly aphid declined, but the area

affected expanded and the insect population flared up late in the season. Efforts were intensified during the year to introduce predaceous beetles from Europe and Japan for biological control of the aphid infestations. A severe outbreak of the Douglas-fir beetle developed in southern Oregon but there were indications that the infestation will decline during 1959. The western pine beetle and mountain pine beetle flared up generally in the pine regions of both states but only the former species is viewed with alarm currently. Suppressive control for the Douglas-fir beetle was limited to salvage of infested trees. The selective removal of high risk trees from eastside stands of ponderosa pine was intensified as an indirect measure for control of western pine beetle.

CONDITIONS IN THE NORTHERN AND SOUTHERN ROCKY MOUNTAINS.

Forest insect infestations in the northern Rocky Mountains were similar in most respects to conditions during the previous year. Bark beetle activity, especially that of the mountain pine beetle increased and the Douglas-fir beetle appeared to be entering a new cycle of destructiveness. The Engelmann spruce beetle was epidemic only in local areas in and adjacent to previous outbreak centers. Defoliating insects, as a group, were the principal pests in the region. Although infestations of spruce budworm were static, intensity of tree defoliation increased in some areas. The larch casebearer, a relative newcomer in the northern Rockies, spread to additional areas. Although there was no aerial spraying for control of spruce budworm during the year, action programs were continued for control of Engelmann spruce beetles and 159,725 infested trees were salvaged.

In the central Rockies, losses increased and infestations of outbreak proportions occurred on over a million acres. The Engelmann spruce beetle continued as a problem in Colorado and Wyoming and new epidemics developed on portions of three national forests in Utah. The Black Hills beetle, mountain pine beetle, and Douglas-fir beetle increased in numbers and outbreaks were numerous and wide-spread. For the first time in several years, heavy defoliation of fir, spruce, and pine by spruce budworm occurred in Colorado and budworm infestations continued in Idaho. The Great Basin tent caterpillar was noted throughout southern Colorado and heavy defoliation of the aspen type is forecast again for 1959.

CONDITIONS IN THE SOUTHWEST

Insect activity decreased sharply in Arizona and New Mexico even though infestations of some species were more severe than in past years. Tree-killing caused by bark beetles was greatly reduced from levels of 1957 and defoliation of ponderosa pine by a needleminer almost disappeared. In contrast, damage to fir and spruce by spruce budworm increased; two additional areas were found infested by Douglas-fir tussock moth; and infestations of Douglas-fir beetle were more acute. Logging infested trees was continued as a measure for control of pine bark beetles, supplemented to the extent needed by spraying infested trees with toxic oils. The

spruce budworm was brought under control by aerial spraying on 100,000 acres in Arizona and tent caterpillars were combatted by introducing virus organisms into outbreak centers or by aerial application of DDT sprays.

CONDITIONS IN THE LAKE STATES, CENTRAL STATES AND THE NORTHEAST

The scope and intensity of the more important forest insects in the Lake States, Central States and the Northeast was not greatly different in 1958 from conditions the previous year. The spruce budworm caused moderate to severe defoliation of balsam fir in Maine, Minnesota, Wisconsin and Michigan and aerial spraying was undertaken to suppress infestations on 313,861 acres. Populations of the jack-pine budworm were generally light throughout Michigan and Wisconsin and suppressive controls were not needed in any area. Other pest species such as the European pine shoot moth, Saratoga spittlebug, white-pine weevil, larch sawfly, pine sawflies, tent caterpillars, the gypsy moth, and others were not materially changed from conditions in 1957. In all cases where infestations were most severe, suppressive controls were initiated to protect the forest resource. Control was needed, for example, to suppress the Saratoga spittlebug, shoot moths, sawflies, weevils, tent caterpillars, and the gypsy moth. The latter control program, a cooperative undertaking between Agricultural Research Service and the States involved spraying on 510,000 acres.

CONDITIONS IN THE SOUTHERN AND SOUTHEASTERN STATES

The insect situation in the Southern States is much improved over conditions of a year ago but several pests continue as a constant threat to the timber stands. Early in the year, rapidly developing infestations of southern pine beetle seriously threatened stands of southern pines in the Big Thicket area of southeast Texas but all were effectively suppressed by public and private agencies by late summer. In the South and Southeast, tree-killing by the major bark beetles was less than has been the case for the past several years. However, action programs in control involved spraying or salvaging over 415,000 trees. The extreme low temperatures of 1957-58 killed most of the larval broods of the southern pine beetles in the Southeast and for unknown reasons, black turpentine beetle activity diminished almost entirely by mid-year. Other insects, however, occurred in outbreak status over large areas and are of considerable concern; sawfly infestations were epidemic in Virginia, North Carolina and in north-central Florida; and an outbreak of the elm spanworm spread over 570,000 acres in Georgia, Tennessee and North Carolina. The balsam woolly aphid, a new pest in the Southeast, threatens the fir resources on Mt. Mitchell and in other areas in North Carolina.

Suppressive controls were not undertaken for sawfly and spanworm infestations although methods for doing so were developed and will be put to use, if needed, during 1959. Missible oil sprays will be tried on a pilot basis for control of woolly aphid on high value trees in heavily-used recreational areas in North Carolina.

STATUS REPORT ON INSECT PESTS

MOUNTAIN PINE BEETLE, Dendroctonus monticolae Hopk. - The Mountain pine beetle, a serious pest of the more important species of pines in the Western States, occurred in outbreak proportions in many areas. Stands of lodgepole pine in the Rocky Mountains were most affected but outbreaks also were reported in other tree species in other Western States as well.

In the lodgepole pine forests of the Intermountain Region, infestations continued on an upward trend. Many epidemic areas have increased in size and some new centers of infestations developed. Currently, some 22 epidemic infestations occur in five national forests in Utah, south Idaho and western Wyoming, and others are known at Glacier and Grand Teton National Parks, and at other locations. The largest infestation reported, and one that poses a severe threat to large volumes of lodgepole pine, is on the Wasatch National Forest in Utah. In this area, more than 146,000 gross acres are infested and some 110,000 trees were attacked and killed during the year. In Oregon and Washington, infestations in lodgepole pine decreased whereas in California the beetle continued to be very destructive at Yosemite National Park and in one area in Modoc County. In the same tree species in western Wyoming, an epidemic on the Shoshone National Forest continued unabated and some 10,000 additional trees were attacked and killed on the Wind River District during the flight season.

Infestations in western white pine occurred on some 268,000 acres on the Gifford Pinchot, Snoqualmie and Mt. Baker National Forests in Washington and on the Willamette National Forest in Oregon. The trend of these infestations, however, fluctuated both up and down.

Few infestations of any consequence were reported in stands of sugar pine in the Pacific Coast states but outbreaks in second-growth ponderosa pine did occur in a few localities. At Crystal Bay, Nevada, the beetle remained epidemic and an increasing rate of loss in similar stands was reported in the Boise National Forest in Idaho.

The extent of mountain pine beetle infestations in all areas and in all host types in the Western States was such as to preclude initiation of suppressive control action in all areas. However, control was undertaken in outbreak areas in the lodgepole pine stands of Idaho, Utah, California and Wyoming and 71,900 trees were either sprayed with toxic oils or salvaged. In Nevada, the epidemic in second-growth ponderosa pine at Crystal Bay was brought under partial control by cooperative efforts of public and private agencies. In this area, 6,010 trees were either sprayed with toxic oils or logged.

ENGELMANN SPRUCE BEETLE, Dendroctonus engelmanni Hopk. - During the course of the past several years this major bark beetle has killed several billions of board feet of Engelmann spruce in the northern and southern

Rocky Mountains as well as in portions of the Pacific Northwest. It is noteworthy, therefore, that the rate of tree-killing in old outbreak centers is materially reduced. Although remnants of the epidemic in the northern Rockies still persists, infestations currently are confined largely to areas where spruce was preserved from logging in prior years. Most of the outbreaks now known in Montana and Idaho are confined to portions of the Flathead, Kootenai, Kaniksu, and Clearwater National Forests and, in the Beartooth Primative Area on the Custer National Forest.

New outbreaks of serious proportions were discovered early in the year on portions of three national forests in northeastern Utah. In these areas, populations developed to epidemic levels in windthrown trees in 1957 and some 150,000 standing trees were attacked and killed during 1958. In Colorado, beetle populations breeding in cull logs and windthrown trees along the edges of uncut strips of timber also attacked and killed some trees on the San Juan, Rio Grande and Gunnison National Forests and at a few other locations. Tree-killing in Oregon and Washington is at a reduced level and epidemic outbreaks were recorded on but 8,480 acres as compared to 32,000 acres in 1957. On the Wenatchee National Forest in Washington, 1,920 acres were infested. In Oregon, there were 3,040 acres infested, most of which was on the north half of the Umatilla National Forest. Broods in all trees in all areas were generally light and the trend of these infestations is downward.

Suppressive action for control of epidemic infestation centers was continued in Montana, North Idaho and southern Colorado. In Utah, a stepped-up control program was needed to confine the new epidemic in that area. In all, 251,500 trees were salvaged or sprayed with toxic oils.

DOUGLAS-FIR BEETLE, Dendroctonus pseudotsugae Hopk. - Outbreaks of Douglas-fir beetle showed up extensively in southwestern Oregon during the spring months and elsewhere in Oregon and Washington later in the year. The most extensive infestations were recorded in the South Umpqua drainage and adjacent stands on the Rogue River National Forest but considerable tree-killing also was recorded on the Siskiyou and Siuslaw National Forests. Smaller centers of aggressive infestation occurred on the Okanogan National Forest and Colville Indian Reservation in eastern Washington and the combined acreage of outbreak in both states totalled 931,480 acres. In Montana and north Idaho, activity by the beetle also increased, particularly in Swan Valley adjacent to the Flathead National Forest, and in the Fisher River drainage in the Kootenai National Forest. On the St. Joe and Nezperce Forests in Idaho, large groups of trees were killed and the outbreak at Yellowstone National Park continued. In Colorado and Wyoming, infestations were recorded on a total of 41,330 acres, a part of which contained outbreaks of severe proportions.

Although a decrease in area of infestations was reported from Arizona and New Mexico, the beetle population in those states still remains at a high

level. In California, the insect continued in outbreak status in a portion of Siskiyou County where it has been epidemic since 1954. Elsewhere in the state, however, infestations were at a comparatively low level. Control of Douglas-fir beetle in all of the Western States was limited to the salvage of infested trees.

BLACK HILLS BEETLE, Dendroctonus ponderosae Hopk.- The Black Hills beetle, a major pest of ponderosa pine in the Rocky Mountains and the Black Hills of South Dakota, occurred in outbreak status in several areas during the year. In Wyoming, population increases as high as 4 to 1 were noted in the Big Horn Mountains and a similar ratio of increase occurred in portions of the Black Hills, and in Colorado. Total area of infestations in all areas was estimated at 77,290 acres. No new infestations were reported from Arizona and New Mexico and except for the long-standing outbreak on the Dixie National Forest in Utah, no other outbreaks of serious proportions are known elsewhere.

Direct control efforts against the Black Hills beetle involved spraying or salvaging 16,600 trees in portions of five states.

WESTERN PINE BEETLE, Dendroctonus brevicomis Lec. - Increased tree-killing by this important forest insect was general in the ponderosa pine forests of Oregon and Washington but was most evident on the Ochoco National Forest and the Warm Springs Indian Reservation in eastern Oregon. In Washington, infestations were most pronounced on the Okanogan National Forest and on the Yakima and Spokane Indian Reservations. Although all of these outbreaks still are in the light epidemic category, group tree-killing characterizing severe outbreaks is increasing. In California, infestations throughout most of the commercial timber zone were at low levels. Principal localities where the insect was noted in outbreak proportions were in Modoc County, Shasta County, and at Harris Mountain in Siskiyou County. Infestations in Coulter pine in Southern California also were more prevalent and more severe, but were below epidemic levels. In the northern Rockies, endemic loss conditions were the rule regionwide.

Although direct control action was undertaken to suppress outbreak populations of the western pine beetle in a few areas, the selective removal of high risk trees was intensified as an indirect measure for control. Salvage of infested trees also was used for control in many areas.

JEFFREY PINE BEETLE, Dendroctonus jeffreyi Hopk. - This tree-killing bark beetle, a pest only of Jeffrey pine in California, showed signs of increased activity during the year. Infestations of rather severe proportions were noted in the mature and overwinter pine stands in portions of Fresno County and at Lassen Volcanic National Park in Lassen County. In southern California, the insect was particularly damaging in some of the prized forest recreational areas and in large second-growth timber in the vicinity of Truckee, in

Placer County. The serious infestation reported in 1957 in the Cannel Meadows area in Tulare County is being brought under control by logging trees of high-risk to attack. Logging infested trees also was used for control in a few areas.

SOUTHERN PINE BEETLE, Dendroctonus frontalis Zimm.- The scope and severity of southern pine beetle infestations in the southern and southeastern states was much reduced in 1958 from the epidemic levels which have persisted for the past several years. The decrease in beetle activity in the Southeast is attributed largely to extreme low winter temperatures which killed a large percentage of larval broods in the infested trees. However, populations also were reduced by logging and spraying a large number of infested trees. In the South, decreased beetle activity also was brought about by the concerted efforts of public and private agencies to suppress populations by spraying and salvaging about 75,000 infested trees. New infestations of serious proportions were reported from Tyrrell and Hyde Counties, North Carolina, and from the Big Thicket area of Southeast Texas during the early spring months. However, the infestations in North Carolina subsided from unknown causes by year-end and the Texas outbreak was suppressed by treating 1,500 trees. No other infestations of damaging proportions are now known in the southern and southeastern states.

BLACK TURPENTINE BEETLE, Dendroctonus terebrans (Oliv.)- The black turpentine beetle continued to be a serious pest of pine in the southern and southeastern states. However, the scope and severity of losses caused by the beetle in 1958 were somewhat less than for the past several years. In the Southeast, for example, there were no serious infestations reported since early summer despite increased cuttings in several areas where the insect had been a major problem in prior years. A similar lessening of beetle activity occurred in the southern States but new build-ups of populations late in the fall months are a potential source of trouble in many areas in Mississippi and Alabama. In the latter areas, attacks were especially common where timber was cut at intervals of several months--first for poles and piling, next for sawtimber, and finally for pulpwood. When cutting was terminated, beetles emerging from stumps spread and attacked standing trees, killing them by force of numbers.

Despite the decrease in severity of infestations, suppressive controls by spraying infested stumps or the basal portion of standing trees were continued and a total of 320,000 stumps and trees were treated with toxic chemicals.

SOUTHWESTERN PINE BEETLE, Dendroctonus barberi Hopk.- The southwestern pine beetle, together with an association of Ips beetles and other Dendroctonus species, was reported to have killed large numbers of ponderosa pines on some 535,000 acres in Arizona and New Mexico. Tree-killing was most severe on portions of the Coconino National Forest and the Fort Apache

Indian Reservation in Arizona and on the Cibola National Forest in New Mexico. In Nevada, the infestation at Charleston Mountain continues at a high level despite continued efforts to suppress populations by direct means. In this latter area, 339 trees were treated in the control program.

ROUNDHEADED PINE BEETLE, Dendroctonus convexifrons Hopk. - The roundheaded pine beetle, often occurring in association with other bark beetles in beetle-killed ponderosa pine in the Southwest, was not reported as a problem in any area during 1958. A small outbreak on Mt. Graham, Coronado National Forest, Arizona was suppressed in August by treating 29 infested trees and no additional tree-killing of any consequence has been found since that time.

ALASKA SPRUCE BEETLE, Dendroctonus borealis Hopk. - Increased activity of the Alaska spruce beetle was reported in stands of white spruce at several places on the Kenai Peninsula in Alaska. Several large groups of dead and dying trees occurred along Resurrection Creek, Palmer Creek, Granite Creek, and Quartz Creek and tree-killing is expected to continue at a fairly high level in and adjacent to the infested areas during 1959. To date, no action has been undertaken for control.

SITKA SPRUCE BEETLE, Dendroctonus obesus Mann. - The recent outbreak of the Sitka spruce beetle in the vicinity of Blackstone Bay in southeast Alaska subsided completely during the year. No other infestations were reported, and populations of this major pest are believed to be at the lowest levels of the past several years.

LODGEPOLE PINE BEETLE, Dendroctonus murrayanae Hopk. - The lodgepole pine beetle was reported for the first time in several years from a number of drainages of the Gallatin National Forest in Montana. The beetle is not ordinarily a serious pest of lodgepole pine and beetle-attacked trees this year were reported as having been previously injured by porcupines pitch moths, or mountain pine beetles. No control was needed.

CALIFORNIA FLATHEADED BORER, Melanophila californica Van Dyke - The California flatheaded borer continued in epidemic status, alone or in association with one or more species of pine bark beetles in many places in California. Tree-killing by the borer in southern California was quite heavy, enough so as to prompt a stepped-up program in control by salvaging infested trees, logging high risk trees, and in some cases by spraying with toxic oils.

PINE ENGRAVER BEETLES, Ips spp. - Green slash created by logging, windstorms, right-of-way clearings, and in other ways often is responsible for outbreaks of pine engraver beetles in and adjacent to disturbed areas. Reports from many sections of the country about flare-ups of engraver beetle infestations made mention of their occurrence in association with

fire-killed and wind-thrown timber and in areas disturbed by logging. In the South, three species of Ips beetles, I. avulsus Eichh., I. calligraphus Germ., and I. grandicollis Eichh., were reported from scattered locations in localized areas near burns and logging operations, and in overdense stands. In the Southeast, the beetles also occurred in localized areas adjacent to stands disturbed by logging. For the most part, attacked trees were scattered except in eastern and southeastern Georgia where group-killing occurred in areas as large as 1/2 acre.

In the coniferous forests of the western states, Ips beetles were generally at a low endemic level. Damage caused by I. oregonis Eichh. in Oregon and Washington was the least in many years and outbreaks were recorded from only 11,000 acres. In California, I. confusus Lec. caused only light damage until the fall months when activity increased along the coastal areas in the central portion of the state. Damage in New Mexico and Arizona by I. lecontei Sw. I. oregonis Eichh. and I. ponderosae Sw. was extensive and quite serious because one or more of the species usually made the initial attack in the top portion of pines which later were attacked and killed by other bark beetles. The extensive infestation of I. lecontei in the pinyon-juniper stands in New Mexico declined to an extremely low level due to high mortality of overwintering adults.

For the first time in several years, engraver beetles were abundant in nearly all of the Northeastern States. In all areas where Ips-killed trees were merchantable major efforts were made to salvage them. Except for salvage and preventive measures, no other efforts were made for control.

FIR ENGRAVER, Scolytus ventralis Lec. - There was little change in conditions of infestations of fir engraver beetles in Oregon and Washington and outbreak areas which totalled 22,000 acres, approximately the same as last year, were evenly divided between the two states. Similar conditions occurred in California and outbreaks for the state as a whole were quite localized and losses were moderate. Tree-killing in the fir resources of the central Rocky Mountains, however, were severe in some areas and infestations on some 98,000 acres, mixed with Dryocoetes confusus Sw. occurred on portions of the Grand Mesa, Uncompahgre, Rio Grande, San Juan, White River, Medicine Bow and Arapaho National Forests. In New Mexico, a new infestation of severe proportions on 4,480 acres was discovered on the Lincoln National Forest and the rate of tree-killing in the fir stands on the Sandia Mountains continued at high levels. In this latter area, infestations are reported to have spread to an additional 2,000 acres. D. confusus decreased sharply in northern New Mexico and tree-killing, now at moderate rates, is confined to portions of the Carson and Santa Fe National Forests.

DOUGLAS-FIR ENGRAVER, Scolytus unispinosus Lec. - For the first time in many years this insect was reported in outbreak status in parts of California. In cutover lands in Humboldt and Mendocino Counties, numerous groups of young Douglas-firs were heavily infested and other infestations occurred in scattered locations southward.

SILVER FIR BEETLES, Pseudohylesinus spp.- During the past several years, one or more species of fir engraver beetles have caused severe tree-killing in fir stands in portions of Oregon and Washington. During 1957, infestations dropped to near endemic levels. In 1958, however, populations increased and tree-killing was noted on some 5,000 acres as compared to only 1,120 acres infested last year. The severity of infestations currently is much less than was experienced in the recent epidemics, but broods currently were reported as aggressive and the trend of loss appears to be upward. Major efforts by public and private agencies were continued during the year to salvage dead and dying trees.

PINE WEEVILS, Hylobius, Pachylobius, Pissodes, and Cylindrocoptorus spp. Several species of pine reproduction weevils were reported to be particularly destructive to pine seedlings and reproduction in many sections of the country. At times, a single weevil species was responsible for damage or tree-killing; at other times, two or more species were found in the infestation areas. Hylobius and Pachylobius spp. occurred in concentrated numbers in slash pine planting areas in parts of Florida and the same insects were reported to be quite common in other states in the South and Southeast where pine plantings were made in areas recently logged. P. approximatus Hopk. was reported to be increasing in numbers and causing considerable damage in various sections of Ohio and in adjacent states where cutting in pine plantations has been heavy for Christmas trees. H. radicis Buch. was noticeably heavier in red pine and jack pine plantations in northwestern Wisconsin, in western Michigan, and at scattered locations in Minnesota. In all areas, this weevil was most severe in sandy soils. Pissodes strobi (Peck) also was noticeably heavier during 1958 in St. Lawrence County New York and in northwestern Wisconsin and Lower Michigan. In the Lake States, as much as 15-20 percent of the red pine and over 40 percent of the jack pine in plantations were found to be weeviled. In California, Cylindrocoptorus eatoni Buch. caused severe killing of sapling-sized ponderosa pines on a portion of the Stanislaus National Forest but the pest was not reported from other areas in the state where infestations have been severe in past years.

Control of pine reproduction weevils in the southern and southeastern States is being accomplished by delaying the planting of trees for about 9 months after areas are logged. Dipping seedlings in insecticidal solutions also is proving satisfactory for control. Aerial application of DDT was used for control of Cylindrocoptorus in California and lead arsenate and lindane was applied by ground methods for control of P. strobi in Pennsylvania, Michigan and New York.

SPRUCE BUDWORM, Choristoneura fumiferana (Clem.) - The spruce budworm, a major pest of mixed conifer forests in all sections of the country, continued in epidemic status in susceptible host type in many areas from coast to coast. The most extensive infestations occurred in the northern Rocky Mountains where nearly six million acres have been defoliated to one degree

or another since the budworm epidemic developed there in the late 1940's. The rate of increase of new infestations in this region during the past two years has been less than heretofore and extension of the older outbreaks in 1958 was not great. However, total area of active infestations in Montana and north Idaho now occur on 3,521,700 gross acres. Control of these infestations was not attempted during 1958.

Budworm infestations in the Lake States also are extensive and defoliation during 1958 increased over prior years. Although some 1,300,000 acres of balsam fir forests in Michigan, Wisconsin and Minnesota are infested, defoliation in most areas was not severe. However, to avert tree mortality in severely defoliated areas aerial spraying was undertaken and 12,000 acres were treated in northern Minnesota.

Increasing infestations over relatively large areas also were reported from portions of southern Colorado and from northern New Mexico. In Colorado, defoliation was noted on more than 172,000 acres and in New Mexico on some 200,000 acres. In these two states, tree defoliation in some portions of the infested areas was severe and fear is expressed that the host type will be threatened if the trend of populations continues to rise. There are no plans currently, however, for initiation of control.

In Maine, outbreak populations occurred on nearly three million acres but aerial spraying on 302,000 acres in that state reduced most infestations to endemic levels. However, subsequent to the aerial spraying program, an appreciable egg population was found along the western and southern edges of the sprayed area and heavy infestations occur therein for the first time in many years.

In eastern Oregon, budworm populations were particularly severe on a large acreage but aerial spraying on 818,000 acres reduced those infestations to the lowest levels since 1947. Although some 315,000 acres remain infested, the population trend is downward and need for additional controls is not anticipated in the near future.

Although spruce budworm infestations in California are restricted to the northeastern corner of the state, the severity of defoliation during the year increased and infestations spread southward.

BLACKHEADED BUDWORM, Acleris variana (Fern.)- The black-headed budworm is a periodic pest of western hemlock and sitka spruce in coastal Alaska and in the hemlock alpine fir stands in the northern tier of western states. After a lapse of two years, the insect again was found in the hemlock stands of southeast Alaska and although light and moderate defoliation during the year was restricted to the vicinity of Ketchikan, increased budworm activity there and elsewhere in southeast Alaska is expected during 1959. The widespread infestations reported on the Kootenai National Forest in Idaho in 1957 subsided and now occurs on only 1,500 acres in

that area. The outbreak on some 253,000 acres in western Washington during 1957 also declined to 2,720 acres and complete collapse of this infestation is expected during the current year. A small sub-epidemic infestation on sub-alpine fir along the Tollgate-Troy ridge in eastern Oregon flared up during the summer months but was quelled by high larval parasitism during the fall months. In Idaho, an infestation on some 50,000 acres of alpine fir is restricted to high altitude ridge tops. There was no need in any infestation area for direct action in control.

JACK-PINE BUDWORM, Choristoneura pinus Free. - Populations of this major pest of jack-pine in the Lake States were much reduced from levels occurring there during the past several years. However, an extensive area of host type on a portion of the Indian Sioux Roadless area in northern Minnesota was defoliated during 1958 and a moderate infestation occurred on the lower Penninsula of Michigan. It is of interest that extremely light populations were reported in northwestern Wisconsin where epidemic infestations were present during 1956 and 1957. No direct action was needed in any area for control.

LARCH AND SPRUCE BUDMOTHS, Zeiraphera spp. - Two species of budmoths have been in epidemic status in portions of Oregon and Washington for the past several years. The larch budmoth, Z.griseana (Hbn.) in western larch stands on the Snoqualmie and Wenatchee National Forests in Washington increased during the year but populations attacking Douglas-fir and white fir in both eastern and western Oregon continued light and caused no appreciable damage. Z.ratzeburgiana Sax. which has been in outbreak status in stands of sitka spruce along the coastal areas of Oregon and Washington declined to a few small spots and damage from the defoliation was slight.

DOUGLAS-FIR TUSSOCK MOTH, Hemerocampa pseudotsugata McD. - Five separate outbreaks of Douglas-fir tussock moth were reported from New Mexico, Arizona and Idaho. One outbreak, first discovered on 125 acres on Pinal Mountain, Tonto National Forest, Arizona in 1957, now occurs on 2,500 acres. Another outbreak, first discovered in 1958 on Mt. Baker on the same national forest, is 3,000 acres in size. In New Mexico, some 300 air miles distant from the outbreaks in Arizona, the moth was found in outbreak status at two separate locations. One is on the Lincoln National Forest in the southern part of the state; the other is in the Sandia Mountains east of Albuquerque. Defoliation of white fir in the outbreak areas has been severe and tree mortality is expected in lieu of suppressive controls.

The 10,000 acre tussock moth outbreak reported from Owyhee County in southern Idaho was practically eliminated during the year by a virus disease affecting the larval population. This is the second time in 10 years that outbreaks of tussock moths have been brought under control by a virus disease in this area. A closely related tussock moth, species unknown, was discovered in epidemic numbers on range plants in the foothills between Carson City and Reno, Nevada.

NEW MEXICO FIR LOOPER, Galenara consimilis Hein. - An infestation of New Mexico fir looper, endemic in New Mexico since 1952, was discovered on some 1,500 acres in the Capitan Mountains during the late fall months. The looper population currently is being held in check by a fungus disease and some 50 percent of the pupae collected from the soil in December were infected. The Douglas-fir tussock moth also occurs in outbreak status in the looper infestation area and combined feeding by both insects has been such that tree mortality is imminent on some 600 acres.

PINE BUTTERFLY, Neophasia menapia (Feld.) - The pine butterfly, a periodic pest of ponderosa pine in the western states, was found on some 50,000 acres on the Salmon National Forest in Idaho during the summer months. Damage to host trees was not great but egg deposition in the entire area is sufficient to cause concern that a new epidemic may be in the making.

PINE NEEDLEMINERS, Recurvaria and Argyresthia spp. - Damaging infestations of pine needleminers were reported at several locations during the year. The epidemic of Recurvaria milleri Busk. which has persisted for the past several years at Toulumne Meadows, Yosemite National Park, California continued unabated in the lodgepole pine forests at that location and spread to additional areas as well. The pest was found at a new location on the Stanislaus National Forest and was reported as being abundant there, on a portion of the Inyo National Forest, and at Sequoia-Kings Canyon National Park. In addition, this species also occurred in outbreak numbers in a large area on a portion of the Sawtooth National Forest in Idaho and on 1,500 acres in the Targhee National Forest in the same state. In these latter areas, defoliation has not resulted in tree-killing. At Yosemite National Park, however, defoliation is now causing mortality of trees and in lieu of suppressive controls, the entire stand of lodgepole pine currently affected is expected to be killed. Insecticidal formulations dispersed by aircraft and helicopter are being tested for control at Yosemite in hopes of saving the lodgepole pine in the most heavily used recreational areas.

Another Recurvaria sp. which occurred in outbreak status in the Southwest during 1956 and 1957 disappeared during 1958. In contrast, two new outbreaks of this unknown species occurred in Colorado; one was reported from the vicinity of Durango and the other from an area southwest of Colorado Springs. Damage to trees in both areas, however, was not great.

During the early spring months, an outbreak of a needleminer of the genus Argyresthia caused extensive discoloration of foliage of ponderosa pine on the Warner District of the Freemont National Forest in southeastern Oregon and there was fear that the attacked trees might be killed or so weakened as to be particularly susceptible to bark beetles. However, the mined needles dropped during the fall months leaving the trees in apparently healthy condition. Furthermore, at the time of pupation, the needleminer suffered considerable mortality from unknown causes and the infestation is not now a threat to the pine stand in this area.

PANDORA MOTH, Coloradia pandora Blake - A light infestation of the pandora moth on ponderosa pine was reported from along the McKenzie Highway on the Deschutes National Forest in eastern Oregon. Feeding of the new brood occurred during September and October but the heavy feeding will occur in 1959 when the caterpillars mature. It is of interest that this new infestation occurs in the same general area where an outbreak of the same species appeared 25 years ago. The former outbreak subsided from natural causes without causing appreciable damage to the resource attacked.

SPEAR-MARKED BLACK MOTH, Eulype hastata L. - Stands of paper birch over relatively large areas in the vicinity of Fairbanks, Alaska were severely defoliated by the spear-marked black moth during the summer months of 1957. This insect pest, undetermined at that time, and not previously known to occur in Alaska, increased in numbers during the year and spread to a gross area of 5,829,000 acres. Heavy defoliation occurred on 333,000 acres but a sharp decline in the population, caused by a granulosis virus and insect parasitism, was noted in mid-season. The infestation is expected to decrease further in 1959. Direct action for control was not needed.

TENT CATERPILLARS, Malacosoma spp. - Tent caterpillar infestations were reported from various sections of the country and heavy populations in some areas caused severe defoliation of host trees. In the western states, M. fragilis Stretch was particularly prevalent. Aspen stands in Colorado, for example, were completely defoliated on 130,000 acres and cumulative damage for as much as 9 years is causing severe mortality of trees on 1,180 acres. Infestations also were abundant in Utah, Idaho, New Mexico, Montana and Arizona. One of the more serious of these infestations was on the Cache National Forest in Utah, where chokecherry and several brouse plants were completely stripped. The trend of infestations in Arizona and New Mexico was downward and acreage of defoliation in those states was somewhat less than in prior years.

The forest tent caterpillar, M. disstria Hbn. was reported to be quite prevalent in many areas in Montana and North Idaho and for the first time in 4 years, infestations appear to be increasing in those areas. The same species also increased in numbers in the Lake States and along the East Coast and infestations were particularly severe in Pennsylvania, West Virginia, Wisconsin and Minnesota. In the latter state, defoliation of aspen occurred on 185,000 acres and lesser amounts of feeding on an additional 625,000 acres.

The severity of tree defoliation in heavily used recreational areas in Colorado, Utah, New Mexico and Arizona prompted land-managing agencies to initiate suppressive controls. Although most areas needing control action were of small size, a total of 6,100 acres were treated during the year.

PINE SAWFLIES, Diprion and Neodiprion spp. - Several species of pine sawflies were reported in outbreak status from many sections of the country. In some places, defoliation was severe over large areas; in others, trees on smaller areas were defoliated to a lighter degree. N.pratti pratti (Dyar) occurred sporadically on Virginia pine in a broad zone from northern Virginia south to North Carolina, a gross area of approximately 2,750,000 acres. In Florida, some 300,000 acres of loblolly pine in five counties were partially defoliated by species identified as N. excitans Roh., N.lecontei (Fitch), N. abbottii (Leach), and N. compar (Leach). N. excitans Roh. also was identified as the species causing defoliation of scattered areas of loblolly pine in southeast Texas and N. lecontei defoliated young plantations of all southern pine species at various places in the southern states. N. taedae linearis Ross was reported from southern Arkansas and northern Louisiana but defoliation was usually light. In Missouri, the widescale infestation of the latter species in 1957 failed to reappear altogether.

Several other sawflies caused noticeable damage to natural and planted pines in the northeastern states. A species attacking pitch and short leaf pine, believed to be N. pratti paradoxicus Ross occurred on over 1,630 square miles in south-central New Jersey; N. sertifer (Geoff.) was abundant locally in portions of New York, Connecticut, New Jersey and Pennsylvania and, N. lecontei increased in such numbers in New York that applied control may be needed to prevent tree-killing on large acreages in 1959. In the Lake States, infestations of N. lecontei were reported as severe in portions of Michigan and Wisconsin and control is forecast for 1959. Other species, such as N. sertifer, N. pratti banksianea Roh. and D. similis (Htg.) all occurred in portions of Minnesota, Wisconsin and Michigan. N. pinetum (Nort.) was reported to have caused complete defoliation of white pine in some places in Ohio but heavy infestations did not cover large acreages. N. fulviceps complex was noted defoliating ponderosa pine in the vicinity of Grants, New Mexico but no tree mortality occurred in the affected area. An unidentified Neodiprion species defoliated lodgepole pine on two islands in Granby Reservoir, Colorado and a small spot infestation on the same tree species was reported on the Willamette National Forest in central Oregon. This latter species has occurred over extensive areas in Oregon in prior years, last reported on some 70,000 acres in 1953.

BALSAM WOOLLY APHID, Chermes piceae (Ratz.)- The balsam woolly aphid was first discovered in the Pacific Northwest in 1954. Since then, the extent and severity of infestations increased rapidly in each succeeding year. In 1958, however, intensity of damage in both Oregon and in Washington decreased. Nevertheless, very aggressive bole infestations were prevalent in the subalpine fir stands in the Cascade Range late in the season, indicating that the epidemic may increase in severity in these stands during 1959. In Pacific silver fir, the heaviest centers of damage are in the Green, Toutle and Kalama River drainages on the Gifford Pinchot National Forest in Washington. However, considerable improvement of damaged trees was

noted in the Lewis River drainage. The insect was discovered in Mt. Ranier National Park for the first time and this marks the northernmost point the insect has been found in Washington.

Damage by the aphid in the northeastern states also is assuming truly serious proportions and tree mortality is occurring throughout most of Vermont and in the White Mountain National Forest in New Hampshire. In Maine, an apparent increase in populations resulted in more gout-injury to trees along the coast and on the Penobscot Experimental Forest near Bangor. In the latter area, stem attacks also are more severe and tree-mortality appears imminent.

In the Southeast, this aphid, previously thought to be C. nusslini Bor. was responsible for the killing of thousands of Fraser firs on Mt. Mitchell, North Carolina and infestations now are known in Virginia as well. Estimates from surveys indicate that some 25 percent of the fir resources on Mt. Mitchell are now dead and that 90 percent of the remaining trees are threatened.

In lieu of suitable measures to combat aphid infestations by direct means, major efforts were made during the year to introduce predators from Europe and Japan for biological control. The severity of tree-killing by the aphid in all areas of infestations has prompted a stepped-up program by landowners and land-managers to salvage dead and dying trees.

EUROPEAN PINE SHOOT MOTH, Rhyacionia buoliana (Schiff.) - The severity and extent of European pine shoot moth infestations during 1958 continued at about the same levels and in the same parts of the country as in the past several years. The moth was present throughout Ohio wherever red pines occurred in plantations and infestations ranging from light to heavy also were reported from many parts of Indiana. Populations were particularly high in Carbon County, Pennsylvania and in portions of West Virginia, New York, southern Connecticut, and in Lower Michigan, parts of Wisconsin, and in Minnesota.

Other Rhyacionia moths also occurred at about the same level of intensity and in the same parts of the country as reported in prior years. R. frustrana (Comst.) and R. rigidana (Fern.) caused severe damage to shortleaf pine plantations at several locations on the Brownstown Ranger District, Hoosier National Forest, Indiana; in "The Pounds" area on the Shawnee National Forest in the same state; and in eastern Maryland. Moderate to severe infestations were reported throughout Ohio, in Delaware, in most of the southern states, and all of the southeastern states. An undetermined species was reported as causing considerable damage to ponderosa pine reproduction on the Custer National Forest in Montana.

An expanded program of research on biology, ecology and control of shoot moths lead to the development of more suitable methods to suppress

infestations in plantations and pilot control tests on some 500 acres of red pine plantations were conducted in southern Michigan and in Pennsylvania. Preliminary results of these tests indicate satisfactory control.

GYPSY MOTH, Porthetria dispar (L) - The gypsy moth was generally at a lower level in the northeastern states during the year and in the newer infestation area in Michigan as well. Aerial spraying programs by the states and the Federal government were needed, however, to suppress populations in Pennsylvania, New York, Connecticut, Massachusetts, and Maine. No spraying was undertaken in Michigan. Total area sprayed in all states amounted to 510,000 acres.

ELM SPANWORM, Ennomos subsignarius (Hbn.) - Defoliation of hardwoods by the elm spanworm in the mountains of Georgia, Tennessee, and North Carolina occurred on a much larger acreage in 1958 than was reported in 1957. Currently, infestations are known to occur on more than a million acres of which a half million acres were severely defoliated. A pilot test was undertaken during the year to determine timing and dosages of DDT sprays needed for control of this pest species. If natural factors fail to bring this infestation under control, aerial application of DDT sprays may be needed to protect the resource affected.

SPITTLEBUGS, Aphrophora spp. - Red pine plantations in portions of Michigan, Wisconsin and Minnesota often are seriously damaged by Saratoga spittlebug, A. saratogensis (Fitch) when this insect pest is abundant, and suppressive measures for control usually are requ red to protect planted trees until they grow beyond susceptible size. Although populations of the spittlebug were quite heavy in Wisconsin and Minnesota early in the year, late spring frosts materially reduced nymphal populations and control was found to be unnecessary in many areas. In Michigan, damage within infested stands was spotty but most conspicuous in the northern Lower Peninsula. Suppressive controls were undertaken on some 4,500 acres of public and private plantations in the three states.

The pine spittlebug, A. parallela (Say) was reported to have occurred in moderate numbers in stands of white pine on the Mohican State forest in Trumbull County, Ohio but damage to host trees was not severe and control was not necessary. The latter species, or a closely related one, also was reported more common in 1958 than usual on pitch and shortleaf pines in southern New Jersey and on loblolly pine on the upper Eastern Shore of Maryland and in Delaware.

LARCH SAWFLY, Pristiphora erichsonii (Htg.) - The larch sawfly continues as a major pest of stands of tamarack in the Lake States and extent of infestations in 1958 were greater than in prior years. The intensity of infestations increased in portions of Wisconsin and Minnesota where reports were received that tree-killing occurred in many areas. In Michigan, all of the larch stands in the Upper Peninsula suffered at least 20 percent defoliation and some stands were more than 60 percent defoliated. It is noteworthy that an infestation affecting western larch, discovered in Missoula County, Montana, was the first record of the insect in the northern Rocky Mountains since 1944.

SPRUCE MITE, Oligonychus ununguis (Jac.) - Infestations of the spruce spider mite which erupted to epidemic proportions in stands of Douglas-fir in Idaho and Montana during 1957 were reported to be persisting on several of the national forests east of the Continental Divide in Montana. The mite populations, found to be heaviest in areas sprayed with DDT for control of spruce budworm in prior years were reported on the wane, however, and tree-killing as a result of infestations did not occur.

SPRUCE MEALYBUG, Puto sp. - The infestation of spruce mealybug in stands of Engelmann spruce in southern Utah was reported as very active in 1958. Although the area of infestation has not increased beyond the 60,000 acres infested in prior years, continued heavy feeding is rapidly reducing vigor of the mature trees and is causing some deformity in the younger trees. Another mealybug, unidentified as to genus, was reported from southern Utah. This species, attacking true firs, white bark pine, spruce and lodgepole pine, occurs on an area of some 6,000 acres. There was little or no damage to affected trees. No control was attempted in either infested area.

PINE NEEDLE SCALE, Phenacaspis pinifoliae Fitch. - Infestations of pine needle scale often are reported from place to place in the pine stands of the western states. During 1958, one outbreak on ponderosa pine was reported to have spread and became more conspicuous around orchards in the vicinity of Wenatchee, Washington. These infestations have been observed for the past several years and are attributed to the effects of spray drift from the orchards. Another outbreak center on 10,400 acres was recorded on the Colville Indian Reservation in Washington. Cause of this latter outbreak was not reported.

LARCH CASEBEARER, Coleophora laricella (Hbn.) - An outbreak of the larch casebearer, first discovered in 1957 on some 15,000 acres in the vicinity of St. Maries, Idaho, was a new locality record for this forest pest. Surveys during 1958 revealed that the insect is present on some 110 square miles in northern Idaho and northeastern Washington. Although no visible defoliation was observed outside the 15,000 acre area reported in 1957, the insect was found in small numbers north to Sandpoint, Idaho and Chewelah, Washington. The southern edge of the infestation is believed to be in the vicinity of Clarkia, Idaho.

PINE LEAF APHID, Pineus pinifoliae Fitch - The pine leaf aphid which was particularly abundant in the northeastern states during 1957 was much reduced in 1958. However, the areas where infestations have persisted for as long as five years affected trees are being killed. Lower levels of infestations also were reported from the Lake States where the insect was quite prevalent in past years. Another aphid, tentatively identified as P. coloradensis Gill was reported from extensive areas in Montana and North Idaho and although affected trees were not killed, there was a serious loss of 2 and 3-year old needles which caused deterioration of crowns of attacked trees. The pine bark aphid, P. strobi (Htg.) was reported as abundant on white pine in nearly all of the Northeastern States and particularly abundant in the vicinity of Parsons, West Virginia, in portions of Maine, and in New York.

FALL WEBWORM, Hyphantria cunea Drury. - The fall webworm was reported from many areas throughout the country but infestations in most places were not viewed with particular alarm. Trees and shrubs in a rather large area west of Ft. Collins, Colorado and south to Colorado Springs were severely defoliated during the year and cumulative effects of defoliation is depleting shade trees and esthetic values in those areas. The webworm also was common in the southern part of the Lower Peninsula of Michigan where it caused complete defoliation of ash in affected areas. Wherever infestations occurred in areas heavily used by recreationalists, populations were suppressed by direct means.

THE LARGE ASPEN TORTRIX, Archips conflictana Wlkr. - The large aspen tortrix was reported to have caused light to moderate defoliation on 220,450 acres of aspen on the Grand Mesa, Uncompahgre, Gunnison, and San Juan National Forests in Colorado, and throughout most of the Upper Peninsula of Michigan. Tree-killing was not reported in any area where defoliation was extremely heavy, and no measures were undertaken for control. An unidentified leaf-roller, also on aspen, was reported on 1,300 acres in northern New Mexico.

The fruit tree leaf-roller, A. argyrospila (Wlkr.) which occurred in epidemic numbers in the Lower Peninsula of Michigan in 1957 was drastically reduced by parasites and late spring frosts.

ORANGE-STRIPED OAK WORM, Anisota senatoria A & S. - Reports were received that severe defoliation in a wide area in the Connecticut River Valley and in Rhode Island was caused by the orange-striped oakworm, and that the pest was unusually abundant in southern New Jersey, Maryland and in Pennsylvania. In the vicinity of Tamworth, New Hampshire, A rubicunda was reported to have caused heavy defoliation of sugar and red maple. In Lower Michigan, the red-humped oakworm, Symmerista albiscosta (Hbn.) defoliated some 21,000 acres of oak woodland. No control was needed for infestations in any areas.

ASPEN LEAF MINER, Phyllocnistis populiella Chamb. - The aspen leaf miner has been in epidemic status for some 10 years on four national forests in western Wyoming and southwestern Idaho. The infestations were reported active again in 1958 and nearly all of the aspen foliage in affected areas has been heavily mined. On the Teton National Forest, much of the foliage on affected trees has been stunted and some patches of aspen up to ten acres in size have been killed. Thus far, there has been no effort made to suppress populations by direct means.

INSECT PESTS OF SEEDS AND CONES OF CONIFERS. - The status of insects affecting the seeds and cones of coniferous trees is not known in detail except where special surveys are undertaken to determine their abundance and destructiveness. In California, such surveys were undertaken, and cone moths, seed chalcids and midges were reported as causing serious damage to the 1958 seed crop from Jeffrey, ponderosa and sugar pine, and Douglas-fir. Cone moths were identified as belonging to the genera Barbara, Dioryctria, Laspeyresia, and Hedula; the seed chalcid as Megastigmus spermotrophus Wachtl.; the midges as Contarinia sp., and the cone beetles as Conophthorus spp. Seeds and cones in some areas examined were less seriously affected than others, but generally, damage was so great that seeds could be collected profitably only in a few areas. Public and private agencies are exploring suitable methods for control of cone and seed insects, particularly in areas set aside as seed orchards.

C. resinosae Hopk. was reported to be abundant in portions of Michigan where new growth on red pine poles and larger trees was damaged. In this area, the cone beetle attacked new shoots of trees only because the 1958 cone crop was scarce.

TULIPTREE SCALE, Toumeyella liriodendri (Gmel.) - Heavy infestations of tuliptree scale were reported in localized areas in southern Kentucky, throughout Ohio, and in southern Illinois. In these latter areas, young reproduction as well as merchantable-sized trees were severely damaged.

WALNUT CATERPILLAR, Datana integerrima G.&R. - The walnut caterpillars caused moderate to complete defoliation of black walnut in southern Ohio, northern Kentucky, and at a few places in other of the Central States. The insect also occurred in outbreak numbers at Carlsbad Caverns National Park in southeastern New Mexico but excessive damage to affected trees was averted by mist-blower application of DDT sprays. D.ministra (Drury) caused noticeable damage in New Castle County, Delaware and the insect appears to be generally present in the complex of hardwood defoliators from Massachusetts southward to Maryland.

MIMOSA WEBWORM, Homadaula albizziae Clarke - Heavy infestations of mimosa webworm were reported from the vicinity of Indianapolis and Dayton, Ohio and lighter infestations occurred generally over the western portion of Ohio, in central Indiana, and in western Kentucky. Although the insect

occurs in other states in the eastern half of the country, no reports were received of outbreak infestations in any of these areas.

BAGWORM, Thyridopteryx ephermeraeformis (Haw.) - Bagworms defoliating and killing white pines were reported from Delaware County, Ohio where trees were infested with 200 to 300 bagworms per foot of tree-height. In Delaware, Maryland and New York, populations also were abundant and injurious to red cedar and arborvitae.

SADDLED PROMINENT Heterocampa guttivitta (Wlkr.) - At periodic intervals the saddled prominent is a serious pest of birch in the eastern states. In 1956 a large-scale outbreak was reported in portions of several of the northeastern states but by 1957, all infestations had collapsed from natural causes. In 1958, a new infestation was reported on the southwestern slopes of Bald Mountain in New Hampshire. Extent of this infestation is not known.

MAPLE LEAF CUTTER, Paraclemensia acerifoliella (Fitch) - The maple leaf cutter defoliated several thousand acres of maple in Lewis County, New York and infestations in local areas were reported from most of Vermont. Generally speaking, infestations of this insect seldom require suppressive measures for control and none were undertaken in 1958.

VARIABLE OAK LEAF CATERPILLAR, Heterocampa manteo (Dbldy.) - The variable oak leaf caterpillar was very abundant in several sections of Delaware and Maryland. In the latter state, infestations were reported to be concentrated in Cecil County with most severe defoliation in the vicinity of Port Deposit and Principio Furnace.

RED-PINE SCALE, Matsucoccus resinosae B&G. - No change was reported in the status of red-pine scale infestations in the generally infested area in the vicinity of Bridgeport, Connecticut. Low winter temperatures may have killed portions of the brood of this pest thus resulting in a lessening of tree-killing from the level sustained in past years.

TEXAS LEAF-CUTTING ANT, Atta texana Buckley. - Damage to planted seedlings by the Texas leaf-cutting ant was reported from several areas in East Texas and in Louisiana. Although the ants are not usually destructive to forest trees, they often become pests of pine seedlings and reproduction during the winter months when other green plants are unavailable. The ants appear to have become more abundant in recent years, presumably because of drier soil in drought areas.

Washington 25, D. C.
April 22, 1959

STATUS OF SOME IMPORTANT INSECTS IN THE UNITED STATES

ASIATIC GARDEN BEETLE (Autoserica castanea (Arrow))

Economic Importance: Asiatic garden beetle is native to the Orient and was first found in the United States at Rutherford, New Jersey, in 1921. Though this species is not very destructive in Japan and China, it has found climatic conditions in the United States favorable for its multiplication and many plant hosts preferable for food. The adults can cause serious injury to foliage of host plants in a single night's feeding. Moderate feeding causes ragging of foliage while heavy attacks lead to complete destruction. Asiatic garden beetle is a considerable nuisance on warm summer evenings, flying about in brightly lighted places in large numbers.

Distribution: Occurs in China, Japan and the eastern United States (see map).

Hosts: About 80 plants are attacked, some of which are beet, carrot, eggplant, parsnip, pepper, turnip, aster, chrysanthemum, dahlia, strawflower and sunflower.

Life History and Habits: There is only one generation a year; the greater portion of the life history is spent as a larva in the soil. Eggs are laid in the soil at depths up to 4 inches from mid-July to mid-August. They hatch in about 10 days and larvae begin feeding on roots of plants and organic matter. There are 3 larval instars. In mid-October, larvae move down 6 to 12 inches in the soil and overwinter in the third instar. They become active in mid-April and move up to the top 5 inches of soil and resume feeding. In June, mature larvae construct an earthen cell about $1\frac{1}{2}$ to 4 inches below the surface, spend about 4 days as prepupae, then pupate. The pupal stage lasts about 10 days, after which adults emerge and burrow out of the soil. Adults are most abundant between July 15 and August 15. They are nocturnal and spend daylight hours concealed in the soil.

DISTRIBUTION OF ASIATIC GARDEN BEETLE *(AUTOSERICA CASTANEA)*

Description: EGG - White, ovoid and about 1.0 mm. in diameter. LARVA - Newly hatched larvae are about 1.34 mm. long and when fully grown about 19.5 mm. long. They have a distinct head, 3 pairs of legs and are similar in appearance to larvae of May beetles, Phyllophaga spp., except being smaller and lighter colored. A single transverse row of spines on the underside of the last abdominal segment and a smaller claw on the third leg distinguishes A. castanea from most larvae that resemble this species. A. castanea can also be distinguished by the light-colored, enlarged, bulbous palpi. PUPA - About 8.3 mm. long and resembles adult. ADULT - From 8 to 11 mm. long, dull, chestnut brown. A few erect, irregularly arranged, backward-projecting hairs on the top of the head are characteristic of this species. (Prepared in cooperation with other ARS agencies and the U. S. National Museum). CEIR 9(21): 5-22-59.

Dorsal and Lateral View of Asiatic Garden Beetle (Autoserica castanea)

USDA Photographs

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VOL. 9 NO. 22 MAY 29, 1959

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
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Volume 9 May 29, 1959 Number 22

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS averaged up to 50 per square yard in weedy areas, locally in Arizona; causing minor damage to alfalfa near Isleta, Bernalillo County, New Mexico; ranged 15 to 25 per square yard on rangeland southeast of Cheyenne, Roger Mills County, Oklahoma, and 50 per square yard on cropland in Dewey County; populations much lower than in 1958 in Texas Panhandle; control measures being advised in Mesa County, Colorado; some controls being applied in Carbon and Emery Counties, Utah, threatening locally; and in Phillips County, Kansas, Melanoplus differentialis counts over 300 per yard. (p. 449). CORN EARWORM moths becoming more abundant and larvae damaging crops in several Southern States. (p. 450). GREENBUG seriously damaging oats in Illinois. (p. 452).

PEA APHID populations decreasing generally in the southern part of the country. (pp. 452-453) ALFALFA WEEVIL injury increasing rapidly in alfalfa in New Jersey and damaging in Delaware, Maryland and Virginia. (p. 453). SWEETCLOVER WEEVIL injury serious in areas of Missouri, Minnesota, Illinois and Utah. (p. 454). MEADOW SPITTLEBUG nymphs continue to be of concern in several Eastern States. (p. 454).

COLORADO POTATO BEETLE abundant on potatoes in New Jersey, Maryland, Delaware and Virginia and more numerous than usual in Yakima County, Washington. (p. 459). Second POTATO PSYLLID SURVEY from Colorado, Wyoming and Utah. (p. 459). FLEA BEETLES damaging potatoes and tomatoes in several states. (p. 460).

THRIPS damaging cotton in areas of Texas, Louisiana, Arizona and New Mexico. (p. 462).

ELM SPANWORM causing nearly complete defoliation of deciduous forests in Cherokee County, North Carolina. (p. 465).

HORN FLY populations heavy statewide in New Mexico and Louisiana and in areas of Alabama and Texas. MOSQUITOES causing considerable annoyance in northern Ohio and are more extensive and earlier than 1958 in Minnesota. (p. 466).

Large numbers of SEED-CORN MAGGOT adults being killed by fungus disease in several states. (p. 468).

Some First Reported Records of the Season: SMALLER EUROPEAN ELM BARK BEETLE emerging in Wisconsin and Indiana and ELM BORER in Indiana.

INSECT DETECTION: Spotted alfalfa aphid collected for first time in Hillsborough County, Florida, and St. Clair County, Alabama. (p. 453). ALFALFA WEEVIL collected for first time in Greene, Westmoreland and Montour Counties, Pennsylvania. (p. 469). Haplothrips clarisetis reported for first time in Kern County, California. (p. 455). Imported fire ant found for first time in Carroll and Scott Counties, Mississippi, Tensas Parish, Louisiana, and Liberty County, Florida. (p. 468).

ADDITIONAL NOTES. (p. 469).

INSECTS not known to occur in the United States. (p. 473).

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Reports in this issue are for the week ending May 22, 1959, unless otherwise designated.

WEATHER OF THE WEEK ENDING MAY 25

Thunderstorms and showers brought moderate to heavy precipitation to most states east of the Rockies. Amounts of 1 inch or more fell from the central Rockies and Great Plains eastward through the lower Great Lakes to western New York, and from central Texas to Florida and the Carolinas. Hail and high winds accompanied many of these storms in the midcontinent area. Locally, excessive precipitation fell at numerous scattered localities. Some sections of Jacksonville, Florida, received over 11 inches in 24 hours on Wednesday and Thursday; Addison Dam, Kentucky, measured 5.56 inches in 24 hours on the 21st, a new record 24-hour total for May in that State; and Britt, Iowa, registered 6 inches in 3 hours on Wednesday evening. Scattered showers over the northern Rockies and from the Pacific Northwest to northern California, Nevada, Utah and Arizona were beneficial. Isolated late-season snows fell over the northern Rockies, with 1 to 3 inches in Wyoming at mid-week, and heavier amounts in the Sierras of California later in the period.

Temperatures averaged below normal from the Pacific coast eastward to a line joining western Texas and western Wisconsin reaching extremely low levels for so late in the season over the Great Basin. Ely, Nevada, reported 15° on the morning of the 20th, while freezing temperatures in the agricultural sections of Utah caused extensive damage to sugar beets. The upper Ohio Valley, central Great Lakes, Middle Atlantic and New England States experienced humid summer warmth, with 80° to 90° readings as far north as Maine until the weekend when an intrusion of cold, dry air sharply reduced temperatures and humidities. Extreme temperature contrasts were also recorded over the upper Great Plains as cold air moved southeastward. Maxima in the warm air reached 80° to 90° levels in the Dakotas early in the week and were followed by maxima in the 40's and 50's by mid-week. Subfreezing minimum occurred as far south as western Nebraska and central Minnesota. Soil moisture is now generally adequate to excessive over most of the Nation. A major dry area remains in the Southwest from southern California to southwestern Colorado, where moisture conditions are still generally poor. Locally, dry areas are scattered through eastern Montana, the Dakotas, and western Minnesota, western Tennessee, and sections of the Middle Atlantic and New England States. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - ARIZONA - In Greenlee County, nymphs of Melanoplus bilituratus average 8 per square yard some alfalfa fields. M. bilituratus and M. cuneatus average 20 per square yard in weedy areas and Aulocara elliotti 12 per square yard in grass areas in Peeples Valley, Yavapai County, while M. femur-rubrum averages 5-10 per square yard in low meadowland areas of Peeples Valley and 20 per square yard in Skull Valley area of Yavapai County. (Ariz. Coop. Sur.). NEW MEXICO - Several species very abundant in alfalfa and small grains in Springer-Maxwell area, Colfax County. Very little damage apparent. Causing minor damage to alfalfa near Isleta, Bernalillo County. (N. M. Coop. Rpt.). TEXAS - Nymphal surveys made in Parmer, Castro, Deaf Smith, Armstrong, Collingsworth, Wheeler and Hemphill Counties. Spotted infestations found in some counties, mixed populations of common range species present. In most short grass areas, populations light. Populations this year much lower than in 1958. At present, situation looks good and it appears that only small, localized, areas will be treated. (Garner, PPC). OKLAHOMA - Counts on rangeland ranged 15-25 per square yard southeast of Cheyenne and 4-7 per square yard in extreme western and northwest areas of Roger Mills County and south of Erick in Beckham County. Egg hatch nearly complete throughout area with most nymphs in second-third instars. Dominant species A. elliotti. Counts in cropland in Beckham County 3-25 per square yard. (Frazier, Burke). Counts averaged 10 per square yard on rangeland, 20 per square yard on roadsides and 50 per square yard on cropland in Dewey County. (Owens). Nymphs 2-4 per square yard on roadsides in Rogers and Mayes Counties, dominant species M. differentialis. Rangeland counts same area less than 1 per square yard. (Robinson). COLORADO - Many nymphs appearing along ditch banks and weedy areas in Mesa County, control measures advised. Counts ranged 5-15 per square yard along roadsides and fence rows and 10-30 per 100 sweeps in crop borders in Larimer County, none observed on rangeland. (Colo. Ins. Det. Comm., Exp. Sta., May 19). UTAH - Hatching in Uintah and Duchesne Counties. Controls applied in areas of Carbon and Emery Counties. Populations generally moderate, threatening locally, with hatch still in progress. (Knowlton).

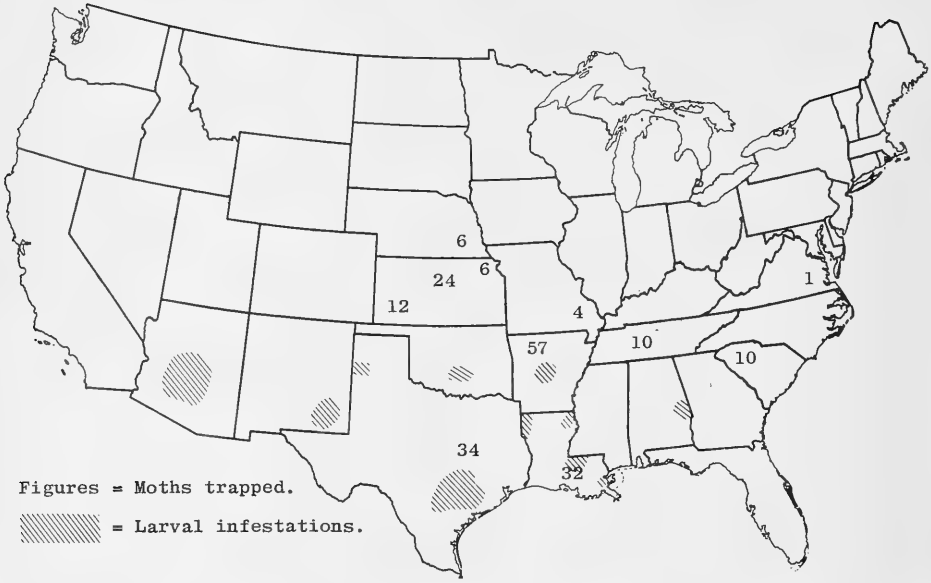
WYOMING - Hatch of range species beginning at Glenco, Platte County; main hatch yet to come. (Pfadt). No hatch observed in Fremont, Hot Springs and Park Counties, very few nymphs observed in Sheridan County and some nymphs found west of Kaycee in Johnson County. (Stanford). KANSAS - M. bivittatus, M. bilituratus and M. differentialis found in field margins, most fields in central, west central, northwest and north central areas. Predominant species M. bivittatus. Counts from less than 1 to over 50 per sweep. (Peters). In Phillips County, M. differentialis over 300 per yard. (Gates). MINNESOTA - Development reported as follows: M. femur-rubrum eggs clear to coagulated, M. bilituratus eggs eye-spot to segmented. Nymphs of Melanoplus group, probably M. bilituratus, 1 per 10 sweeps. (Minn. Ins. Rpt.). WISCONSIN - Eggs mostly clear with few milky in Dunn, Marathon and Taylor Counties. Few nymphs observed in field margins. (Wis. Coop. Sur.). NORTH DAKOTA - M. bivittatus eggs in Fargo area well segmented. (N. D. Ins. Rpt.). INDIANA - First Melanoplus spp. swept from roadside weeds in Clinton County. (Matthew).

MORMON CRICKET (Anabrus simplex) - WYOMING - Reported in Echeta area, Campbell County, and quite numerous southeast of Casper in Natrona County. (Stanford).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Overwintered larval populations averaged 73 percent and 4 percent emergence in fields in Payne County. (Arbuthnot).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - GEORGIA - Moderate infestation on seedling corn in Franklin County. (Johnson).

Corn Earworm Situation, Week Ending May 22



CORN EARWORM (Heliothis zea) - VIRGINIA - First moth of season trapped on Eastern Shore May 17. (Hofmaster). ALABAMA - Heavy infestations, ranging from very small to mature larvae, on tasseling sweet corn in Lee County. (Guyton). ARKANSAS - Moderate to heavy on wheat in Conway County. (Dowell). LOUISIANA - Heavy on late crimson clover in West Feliciana Parish. Light in corn in West Baton Rouge and Caddo Parishes; plants show 10 percent budworm damage in East Baton Rouge Parish. (Spink). TEXAS - Light to heavy in corn, sorghum and alfalfa in Wharton County (Tex. Coop. Rpt.); light to medium in whorls of corn in Gonzales, Bastrop, Guadalupe and Wilson Counties (Hawkins); heavy in Ft. Bend and Karnes Counties (Cason, Jones, PPC); and numerous adults in alfalfa fields in Deaf Smith County (Garner). OKLAHOMA - Eggs and early instars common in corn fields checked in Garvin County, moderate ragging of leaves in Stratford area. Eggs found in corn at Stillwater. (Arbuthnot, VanCleave). ARIZONA - Budworms infesting 35 percent of corn stalks in Maricopa County. (Ariz. Coop. Sur.). NEBRASKA - Flights started to arrive in North Platte week of May 11. (Pruess).

EUROPEAN CORN BORER (Pyrausta nubilalis) - VIRGINIA - Eggs and larvae medium on corn in Sussex County (Parson, Woodside) and egg masses hatching on Eastern Shore May 12 (Hofmaster). DELAWARE - Adults common throughout State, fresh egg masses noted on potatoes in Kent and New Castle Counties. (Burbutis, Conrad). WISCONSIN - Survival ranged from 91 percent in Manitowac County to 25 percent in Grant County. Survival average for southern and eastern counties 69 percent. (Wis. Coop. Sur.). MINNESOTA - No pupation observed. (Minn. Ins. Rpt.). MISSOURI - Pupation 50-80 percent in northwest in standing corn. (Kyd, Thomas, Munson). KANSAS - Larvae 20-30 percent pupated in Pottawatomie County. (Burkhardt) ARKANSAS - Adult emergence 100 percent in Poinsett County, but no eggs found on corn in area. (Whitcomb).

ARMYWORM (Pseudaletia unipuncta) - VIRGINIA - Heavily damaged several large pastures in Highland County (Jones, Morris) and causing some damage to rye in Northampton and Princess Anne Counties (Hofmaster). MARYLAND - Light on barley at New Market, Dorchester County. No economic infestations found or reported. (U. Md., Ent. Dept.). NORTH CAROLINA - Spotty, local infestations in Hyde, Perquimans and Pasquotank Counties. (Jones et al.). INDIANA - Infestation in corn field near Frankfort, Clinton County. Larvae, early instars, damaging 58. percent of plants. (Matthew). ILLINOIS - Low, 0-1 per linear foot of drill row in grains, except for down grain where maximum populations are 4 per linear foot. Higher in extreme southern area. (Ill. Ins. Rpt.). MISSOURI - Range 0-2 per square foot in wheat and barley in southwest, 0-3 in ranker and denser wheat in northwest and 0.5-5 in improved pastures in northwest. Most larvae in northwest in third instar. (Kyd, Thomas, Munson). LOUISIANA - Heavy infestations of previous week in white clover in Acadia Parish now pupating. (Spink).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Damage to corn in 1958 ranged 30 percent in St. Landry Parish and 75 percent in Acadia Parish compared with less than 1 percent in St. Landry Parish and 20 percent in Acadia Parish this season. Infestation heavy in corn in St. Mary Parish. Deadhearts in sugarcane ranged 0-71 per acre and recent feeding signs ranged 5-11 percent. No egg masses reported. (Spink). TEXAS - Few larvae in grain sorghum in Ft. Bend County. (Cason).

BILLBUGS - NORTH CAROLINA - Calendra callosa causing severe damage to corn throughout Jones County, some fields completely destroyed. (Scott, Farrier). ALABAMA - C. maidis continues to damage corn in Conecuh County. (Lemons).

CORN FLEA BEETLE (Chaetocnema pulicaria) - NEW YORK - Counts lowest in 7 years on sweet corn in Hudson Valley. (N. Y. Wkly Rpt., May 13). MARYLAND - Light on field corn in Dorchester and Prince Georges Counties and heavy on sweet corn at Fairland, Montgomery County. (U. Md., Ent. Dept.). DELAWARE - Present on young corn in Kent and Sussex Counties. (Burbutis, Conrad). MISSOURI - Adults 0-5 per seedling corn plant over southwest. Populations very light to non-existent over northern half of State. (Kyd, Thomas, Munson). KANSAS - Damaging corn in Reno County. (Peters). OKLAHOMA - Populations 0-5 per plant in corn in central area (VanCleave), 3 per linear foot in corn and young sorghum in Okmulgee County (Robinson) and numerous in seedheads of Johnson grass along roadsides and field margins in Garvin County (Henderson).

SEED-CORN BEETLE (Agonoderus lecontei) - KANSAS - Damaging in north central area. (Gates).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Moderate to heavy, damaging barley, in Valencia, Sierra and Dona Ana Counties. (N. M. Coop. Rpt.). TEXAS - Light on sorghum in Gonzales County (Hawkins) and heavy on sorghum and corn in Matagorda County (Tex. Coop. Rpt.).

CHINCH BUG (Blissus leucopterus) - MISSOURI - Light in small grains over much of State. Mating and egg laying underway. None observed on small grain or grain sorghum. (Kyd, Thomas, Munson). OKLAHOMA - Light most corn fields in central area. (VanCleave). Counts 0-2 per linear foot in corn in Rogers County and in grain sorghum in Okmulgee County. (Robinson). TEXAS - Nymphs and adults abundant on corn and sorghum in north central, central, east, south central, upper coastal and coastal bend areas. (Tex. Coop. Rpt.).

A FALSE CHINCH BUG (Nysius sp.) - TEXAS - Heavy, widespread infestation attacking sorghum in Milan County. (Tex. Coop. Rpt.). Medium widespread infestation on flax in Wilson County. Damage not apparent as plants almost mature. (Hawkins).

GREENBUG (Toxoptera graminum) - MISSOURI - Populations checked by predators, parasites and diseases; most damage is over. (Kyd, Thomas, Munson). MINNESOTA - Present most grain fields, especially oats, in area west of line from Minneapolis to Albert Lea and south of Highway 212. One field severely damaged in Nicollet County. (Minn. Ins. Rpt.). ILLINOIS - Seriously damaging oats from south central to north central area. (Ill. Ins. Rpt.). KANSAS - Found most wheat and barley fields in central, west central, northwest and north central areas. Counts from less than 10 to about 250 per foot, most fields less than 50 per foot. (Peters). NEBRASKA - No damage to wheat in Lincoln County; spring barley and oats severely injured or killed. Infestations exceed 100 per foot. Hard rains caused 50-90 percent mortality some areas. (Pruess).

ENGLISH GRAIN APHID (Macrosiphum granarium) - WISCONSIN - Appeared in Green, Lafayette, Iowa and Sauk County oats on May 19 and 20. (Wis. Coop. Sur.). LOUISIANA - Light on oats in West Feliciana Parish. Predators and parasites very numerous. (Spink). MARYLAND - Light on barley at New Market, Dorchester County, and on wheat at Aquasco, Prince Georges County. (U. Md., Ent. Dept.). DELAWARE - Common on cereals throughout most of State. (Burbutis, Conrad).

A WHEAT APHID (Brachycolus tritici) - TEXAS - Light to medium infestation on wheat in Potter County, stunting wheat in 3-15 foot spots. (Daniels).

DATE MITE (Oligonychus pratensis) - KANSAS - Found all wheat fields in one central county, 8 west central counties, 7 northwest counties and 4 north central counties. (Peters). Severe damage noted one field in Wallace County and damaging wheat in combination with drought and mosaic in Thomas County. (Knutson, Peters).

STEM MAGGOTS (Meromyza spp.) - OKLAHOMA - M. americana caused light damage to wheat and rye, widely scattered in wheat growing areas of State. (VanCleave et al.). CALIFORNIA - Medium infestation on wheat in Woodfords area of Alpine County. (Cal. Coop. Rpt.).

WIREWORMS - MISSOURI - Melanotus spp. caused 2-6 percent stand reduction of small corn in scattered southwest areas. (Kyd, Thomas, Munson). IDAHO - General and heavy in grain fields following green manure crops in Franklin County. (Roberts).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - LOUISIANA - Averaged 22 per 100 sweeps on rice in Ascension Parish. (Spink).

RICE STINK BUG (Oebalus pugnax) - LOUISIANA - Averaged 7 per 100 sweeps in oats in East Feliciana, West Feliciana, Livingston and East Baton Rouge Parishes. (Spink). ARKANSAS - Averaged 20 per 20 sweeps on wheat in Conway County. (Dowell)

A RICE DELPHACID (Sogata orizicola) - FLORIDA - Inspections of volunteer rice for this vector of hoja blanca disease at Belle Glade, Palm Beach County, and in Hillsborough, Manatee and Sarasota Counties have been negative during April. (PPC, So. Reg.). TEXAS - None found in 3 rice fields checked in Wharton County. (Cason).

PEA APHID (Macrosiphum pisi) - IDAHO - Becoming abundant in alfalfa in Idaho County. (Cook). Generally low in Latah County. (Futter, Portman). UTAH - More abundant in northern area. (Knowlton). COLORADO - Counts 450-600 per 100 sweeps in alfalfa in Larimer County, 30-90 per 100 sweeps in Mesa County and light in Montrose County. (Exp. Sta., Colo. Ins. Det. Comm., May 19). OKLAHOMA - Populations considerably decreased in central area and generally light in Okmulgee and Mayes Counties. (VanCleave, Robinson). Heavy in field in Dewey County. (Owens). KANSAS - Present all alfalfa in central, west central, northwest and north central areas. Counts 50 to about 300 per sweep. (Peters). WYOMING - Averaged 5-10 per sweep in Platte and Goshen Counties. (Davison). NEW MEXICO - Generally light on alfalfa throughout most of State except in Mora County. (N. M. Coop. Rpt.). MINNESOTA - Counts 5-30 per 10 sweeps in alfalfa, predators mainly lady beetles. (Minn. Ins. Rpt.). WISCONSIN - Counts in alfalfa

ranged 0 to 140 plus per sweep, highest in east central and southeastern counties of Washington, Ozaukee and Waukesha. (Wis. Coop. Sur.). OHIO - Populations remain low in northern and eastern areas, averaging 8 per 100 sweeps. (Treece). MARYLAND - Averaged over 100 per sweep on alfalfa in Howard County. (U. Md., Ent. Dept.). DELAWARE - Generally decreasing, but common on clover and alfalfa most of State. (Burbutis, Conrad). NEW JERSEY - Populations low in alfalfa. (Ins. Dis. Newsl.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - FLORIDA - Adult and immature stages collected on sweetclover at Tampa, Hillsborough County, during April. (Stokes). This species had previously only been found in Gainesville area of State. (Fla. Coop. Sur.). ALABAMA - Moderate infestation on alfalfa in Lee County (Guyton) and collected for first time in St. Clair County (Grimes). MISSOURI - Light infestations most alfalfa fields in extreme southwest. (Kyd, Thomas, Munson). TEXAS - Light on alfalfa in Deaf Smith County. Beneficial insects in sufficient numbers to check infestations. (Garner). OKLAHOMA - Light in central area alfalfa, 0.5-20 per sweep in Choctaw County and none found in Payne County. (VanCleave, Goin, Stiles). NEW MEXICO - Several moderate to heavy infestations in alfalfa in Chaves and Eddy Counties, otherwise generally light throughout State. (N. M. Coop. Rpt.). ARIZONA - Populations in major alfalfa-growing areas are less than one per trifoliate leaf. (Ariz. Coop.Sur.). CALIFORNIA - Medium on alfalfa in McArthur area of Shasta County. (Cal. Coop. Rpt.).

SWEETCLOVER APHID (Myzocallidium riehmi) - IDAHO - General throughout Latah County but not extremely high. Few winged forms seen. (Futter, Portman).

YELLOW CLOVER APHID (Therioaphis trifolii) - DELAWARE - Common to prevalent on clover in Kent and Sussex Counties. (Burbutis, Conrad).

CLOVER APHID (Anuraphis bakeri) - MARYLAND - Heavy on red clover stems in Dorchester and Talbot Counties. (U. Md., Ent. Dept.). DELAWARE - Present to common on clover in Kent and Sussex Counties. (Burbutis, Conrad). IDAHO - Colonies on about 96 percent of red clover in southwestern area. (Waters).

ALFALFA WEEVIL (Hypera postica) - RHODE ISLAND - No buildup evident on alfalfa. (Hansen). NEW JERSEY - Injury increasing very rapidly in alfalfa. Heavy damage expected in central counties. (Ins. Dis. Newsl.). NEW YORK - Present in numbers at Poughkeepsie, 50 per 100 sweeps. All stages found. (N. Y. Wkly. Rpt.). DELAWARE - Extensive feeding noticeable in alfalfa where controls not applied. Pupae present in New Castle County. (Burbutis, Conrad). MARYLAND - Damage moderate to heavy in untreated alfalfa all sections of State. Pupation underway in central and southern sections. (U. Md., Ent. Dept.). VIRGINIA - Damage generally heavy in Alleghany County alfalfa and some controls needed in Highland County. (Morris). Second-brood larvae emerging in Steeles Tavern area of Augusta-Rockbridge Counties. (Bishop). Infestations light in southwestern Bland County (Mallory), severe in Lodi area of Washington County (Groseclose)and light to severe in Smyth County (Eller). GEORGIA - Larvae 14 per sweep and adults 10 per square foot in second-growth alfalfa in Franklin County. Adults also infesting second-growth alfalfa, 15 per square foot, in Jasper County. (Johnson). OHIO - Not found in brief survey of Harrison, Jefferson, Belmont, Monroe and Washington Counties. (Treece). COLORADO - Larvae 10-30 per 100 sweeps in alfalfa in Larimer and Weld Counties; high in unsprayed alfalfa in Mesa County, ranging 500-1,200 per 100 sweeps; larvae appearing in unsprayed alfalfa, 5-10 per 100 sweeps, in Montrose County; and larvae light, 20-40 per 100 sweeps, in Garfield County. Larval parasitism 40-50 percent,Mesa County,and 51 percent in Garfield County. (Exp. Sta., Colo. Ins. Det. Comm., May 19). UTAH - Larvae present. Considerable early season treatments reported in Carbon and Emery Counties. (Knowlton). WYOMING - Adults per 100 sweeps were 15 in Platte County and 2 in Goshen County. Larvae were 2 per 100 sweeps in Goshen County.(Davison).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - MISSOURI - Red clover in central area averages from 40 to 70 percent of stems and buds damaged. (Kyd, Thomas, Munson). INDIANA - Infestation 10-15 percent in northeastern area. (Wilson). OHIO - In southeastern area, damage averaged 0.63 buds per red clover stem. Many larvae extremely small on May 18; however, few full grown. (Treece). IDAHO - Larvae damaging 66 percent of red clover stems in untreated field west of Parma. (Waters).

A CLOVER WEEVIL (Hypera meles) - MISSISSIPPI - Heavy on clover several counties in southern area. (Hutchins).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - MISSOURI - Most seedling sweetclover fields in northwest show leaf feeding injury to 100 percent of plants. Very few adults present most fields. (Kyd, Thomas, Munson). MINNESOTA - Feeding damage quite general in southwest and south central districts. (Minn. Ins. Rpt.). ILLINOIS - Sweetclover seedings being seriously depleted many areas of State. (Ill. Ins. Rpt.). IDAHO - Second-year sweetclover in Latah County outgrowing feeding damage by adults. (Portman, Futter). UTAH - Foliage damage conspicuous in parts of Davis, Tooele, Juab and Salt Lake Counties. (Knowlton).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - NEW MEXICO - Larvae averaged about 3 per 10 sweeps in alfalfa in Bernalillo and Valencia Counties. Lighter most southern counties. (N. M Coop. Rpt.).

VARIEGATED CUTWORM (Peridroma margaritosa) - MISSOURI - Considerable damage being caused to marginal rows of cotton, corn and soybeans in extreme southeast by migrating populations from alfalfa, red clover and grassy areas. Larval counts in alfalfa and red clover range 1-5 per square foot in southwest, central and northwest area. (Kyd, Thomas, Munson). LOUISIANA - In Acadia Parish, heavy infestations of white clover of previous week now pupating. (Spink). KANSAS - Found in alfalfa in Dickinson, McPherson and Mitchell Counties, less than 1 per sweep. (Peters).

CLOVER HEAD CATERPILLAR (Grapholitha interstinctana) - DELAWARE - Adults common in clover fields in Kent and Sussex County. (Burbutis, Conrad). INDIANA - Infestations average 30 percent in northeast on red clover. (Wilson).

A CLOVER BUD CATERPILLAR (Grapholitha conversana) - IDAHO - Adults general throughout Latah County in clover fields, but only about 10 percent of those of previous week. (Futter, Portman).

BEET WEBWORM (Loxostege sticticalis) - NEW MEXICO - Moths very abundant in alfalfa and small grain fields, as well as along roadsides and on rangeland, throughout the State. (N. M. Coop. Rpt.).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - ALABAMA - Moderate infestations on alfalfa in St. Clair County. (Grimes).

MEADOW SPITTLEBUG (Philaneus leucophthalmus) - NEW YORK - Hatched eggs present throughout State from Long Island to Essex County on May 11. (N. Y. Wkly. Rpt.). MARYLAND - Adults common in red clover in St. Marys County. (U. Md., Ent.Dept.). DELAWARE - Prevalent to abundant on clover and alfalfa most areas, nymphs almost mature. (Burbutis, Conrad). VIRGINIA - Very heavy on untreated alfalfa and clover in Alleghany, Bath and Highland Counties. (Morris). OHIO - Nymphal populations high in southeast. In 14 red clover fields, nymphs (second to fourth instar) averaged 3.1 per stem. (Treece). INDIANA - Outbreak in eastern area, counts believed highest on record for area. Counts in northeast average as high as 500 per 100 stems. One field in southeast area averaged 950 per 100 stems. Counts in central and western areas moderately low, approximately 75-100 per 100 stems. (Wilson). ILLINOIS - Nymphs varied 0-50 per 100 stems in central and southeastern areas. (Ill. Ins. Rpt.). WISCONSIN - High numbers in Green, Lafayette, Dane, Iowa and Grant Counties. (Wis. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - MINNESOTA - Counts 0-10 per 10 sweeps in legumes in southwest, south central, southeast and central districts. (Minn. Ins. Rpt.). KANSAS - Found most alfalfa fields in central, west central, northwest and north central areas, counts up to 3 per sweep. (Peters). MARYLAND - Adults and nymphs abundant on red clover in St. Marys County. (U. Md., Ent. Dept.). DELAWARE - Nymphs common to prevalent on clover and alfalfa throughout most of State. (Burbutis, Conrad). ALABAMA - Moderate on alfalfa in St. Clair County. (Grimes). LOUISIANA - Averaged 110 per 100 sweeps in white clover in East Baton Rouge Parish. (Spink).

RAPID PLANT BUG (Adelphocoris rapidus) - MARYLAND - Nymphs and adults abundant on red clover in St. Marys County. (U. Md., Ent. Dept.). DELAWARE - Adults present on clover in Kent County. (Burbutis, Conrad).

LYGUS BUGS (Lygus spp.) - OKLAHOMA - Common in alfalfa throughout central area, 0.8 to 3 per sweep, and 1 per sweep in alfalfa in Choctaw County. (VanCleave, Goin). ARIZONA - Increasing in alfalfa statewide. Average 12 adults and nymphs per 10 sweeps. (Ariz. Coop. Sur.). UTAH - Many adults and some nymphs present in alfalfa fields in Tooele, Juab and Millard Counties. All stages numerous in Washington County and in Kanab area of Kane County. Adults moderately numerous in Uintah Basin of Duchesne and Uintah Counties. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Averaged 107 per 100 sweeps on white clover and 37 per 100 sweeps on soybeans in East Baton Rouge Parish. (Spink).

POTATO LEAFHOPPER (Empoasca fabae) - ILLINOIS - Populations range 50-250 per 100 sweeps in southern third of State, 300-2,000 in central area, 100-700 in western area and 50-200 in northern area. Populations changing from day to day with radical weather. (Ill. Ins. Rpt.). DELAWARE - Common on clover in Sussex County, present on alfalfa most areas. (Burbutis, Conrad).

GARDEN FLEAHOPPER (Halticus bracteatus) - ILLINOIS - Very abundant some alfalfa fields in southern and western areas. (Ill. Ins. Rpt.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - NORTH CAROLINA - Delimiting of known infested area in Gates County nearly complete, 6 additional infestations found during April in county. (PPC, So. Reg.). VIRGINIA - Six additional properties found in Nansemond County during April. Since November 18, 1958, 26 properties, involving 1,273 acres, found infested. (PPC, East. Reg.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSOURI - Damage to seedling soybeans evident in southwest, populations 1-3 adults per linear foot of row. (Kyd, Thomas, Munson). MARYLAND - Heavy on soybeans at Clements, St. Marys County. (U. Md., Ent. Dept.). DELAWARE - Common on soybeans in Sussex County, causing only light injury. (Burbutis, Conrad).

GROUND MEALYBUG (Rhizoecus falcifer) - CALIFORNIA - Heavy populations in soil in San Leandro, Alameda County. (Cal. Coop. Rpt.).

A GROUND PEARL (Eumargarodes sp.) - NORTH CAROLINA - St. Augustine grass lawns in New Hanover severely infested. (Scott).

APHIDS - CALIFORNIA - Aphis fabae and Myzus persicae medium on safflower in Yolo County. (Cal. Coop. Rpt.).

A THRIPS (Haplothrips clarisetis) - CALIFORNIA - Light on tumbling Russianthistle in the Jasmine area of Kern County. This is first record in Kern County. Efforts to collect this species north of this area were negative. No commercial damage has been reported so far in the State. (Dr. W. H. Ewart, U. C.).

THRIPS - MARYLAND - Light to moderate on soybeans at St. Clements, St. Marys County. (U. Md., Ent. Dept.). ALABAMA - Extremely heavy infestation on alfalfa in St. Clair County. (Grimes). TEXAS - Frankliniella sp. heavy on peanuts in LaSalle County. Terminal buds showing injury. (Tex. Coop. Rpt.). CALIFORNIA - Frankliniella occidentalis causing high percentage of sterile beards in barley plantings in San Ardo area of Monterey County. (D. M. Irving, Ext. Serv.).

JAPANESE BEETLE (Popillia japonica) - INDIANA - About 50 percent of grubs found in Newton County still in second instar. (Gould).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW YORK - First of season taken May 13 in eastern area. (N. Y. Wkly. Rpt.). INDIANA - Cool, wet weather slowed activity in Vincennes area. (Hamilton). Emerging from packing houses in large numbers in Orleans area. Hatching taking place but no affected fruit as yet. (Marshall). MISSOURI - First of season for Cape Girardeau area found on May 18 and expected in central area week of May 25. (Wkly. Rpt. Fr. Grs.). KANSAS - First of season appeared in cages on May 18. (Eshbaugh). COLORADO - High counts taken in traps in Mesa County, high as 120 per 5 traps. First moth of season in Austin area taken May 11. (Ext. Ser., Exp. Sta., May 19). CALIFORNIA - Generally light on English walnut in most areas in northern San Joaquin Valley and lower Sacramento Valley. (Michelbacher).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MASSACHUSETTS - Hatching rapidly. (Crop Pest Cont. Mess.). INDIANA - Still present in a few orchards in the Vincennes area. (Hamilton). NEW YORK - Hatching May 12 in Spencerport area. (N. Y. Wkly. Rpt.). MISSOURI - Pupation begun in central area, indicating end of first brood. (Wkly. Rpt. Fr. Grs.). MICHIGAN - Hatching in Niles-South Haven-Kalamazoo area and in Grand Rapids. (Hutson). ILLINOIS - Most larvae one-half to full grown. Pupae found on May 16 at Carbondale. (Meyer).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - NEW YORK - Moderate to heavy in widely scattered areas of Ulster County and common in Dutchess County. (N. Y. Wkly. Rpt.). NEW MEXICO - Light with larvae hatching and feeding on apple foliage near Taos. (N. M. Coop. Rpt.).

HALL SCALE (Nilotaspis halli) - CALIFORNIA - During April, several small communities within 25 miles of previous infestations inspected. Survey in Bidwell Park area, which started in August 1958, was completed during April and third inspection in Rath area is being continued. No Hall scale was found. (PPC, West. Reg.).

EUROPEAN FRUIT LECANIUM (Lecanium corni complex) - OHIO - Ninety-one percent of females depositing eggs at Clyde. No hatch observed. (Rings).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - ILLINOIS - Damage increased in peach shoots where numerous in the Carbondale area. Generally light. (Meyer).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - OREGON - Caused appreciable damage to young unsprayed prune and peach orchards in Willamette Valley. (Every).

CANKERWORMS - NORTH DAKOTA - Several larval infestations on apple in Fargo area. (N. D. Ins. Rpt.).

RED-HUMPED CATERPILLAR (Schizura concinna) - CALIFORNIA - Light on plum trees in Oroville, Butte County. (Cal. Coop. Rpt.).

EUROPEAN RED MITE (Panonychus ulmi) - MASSACHUSETTS - Some heavy populations being found. (Crop Pest Cont. Mess.). NEW YORK - First of season found May 12 in Orleans County; eggs hatching but not abundant in Monroe County; and summer eggs found May 13 in eastern area. (N Y. Wkly. Rpt.). NEW JERSEY - Numerous in few

orchards but very light in most. (Ins. Dis. Newsl.). INDIANA - Slowed down considerably due to cold, wet weather in the Orleans area. P. ulmi is the only spider mite of economic importance in the northern area. (Marshall). ILLINOIS - Only egg and immature forms on apple at present in the Carbondale area. (Meyer). CALIFORNIA - Building up on English walnut in San Jose area of Santa Clara County. (Michelbacher).

ORCHARD MITES - MASSACHUSETTS - Tetranychus telarius heavy on ground cover many orchards. (Crop Pest Cont. Mess.). MARYLAND - T. telarius becoming troublesome on apple at Hancock, Washington County. (U. Md., Ent. Dept.). NEW MEXICO - Tetranychus sp. light and confined mostly to base and center foliage of trees in Lincoln, Bernalillo and Rio Arriba Counties, while Bryobia rubrioculus heavy in unsprayed orchards in Lincoln, Taos, Rio Arriba, Sandoval, Bernalillo and Valencia Counties. (N. M. Coop. Rpt.).

APHIDS - MISSOURI - Numerous species troublesome over State on many plants, some on cherry in southeast area. (Wkly. Rpt. Fr. Grs.). NEW MEXICO - Heavy on plums at Corrales, Sandoval County. Eriosoma lanigerum light to moderate most orchards in Lincoln, Taos, Rio Arriba, Sandoval, Bernalillo and Valencia Counties. (N. M. Coop. Rpt.). CALIFORNIA - Anuraphis roseus heavy on apple in Baxter, Placer County. (Cal. Coop. Rpt.). IDAHO - Myzus cerasi heavy on cherry in neglected orchard at New Plymouth. (Foote). UTAH - M. cerasi severely curling cherry foliage some orchards at Brigham City and Salt Lake areas and M. persicae conspicuously curled peach foliage in Price-Helper area of Carbon County and at Green River, Castle Dale and Huntington, Emery County. (Knowlton). MICHIGAN - M. persicae common on peach trees at Niles, Stevensville, Baroda, Coloma, Paw Paw and Bangor. (Hutson). NEW YORK - Aphis pomi building up in Clinton County where no early season control applied. (N. Y. Wkly. Rpt.).

LEAFHOPPERS - NEW MEXICO - Severely damaging apple foliage at Anton Chico, Guadalupe County. (N. M. Coop. Rpt.).

PLUM CURCULIO (Conotrachelus nenuphar) - ILLINOIS - Activity is declining in Carbondale area. (Meyer). INDIANA - Still present in small numbers in Vincennes area commercial peach orchards. New egg-laying punctures have decreased. Total of 117 adults jarred from 5 trees on May 15 compared with 355 on May 11.(Hamilton). Still heavy in peach orchards in Orleans area (Marshall). OHIO - Oviposition activity increasing on plums in northern area. (Rings). NEW YORK - Feeding on unsprayed apples May 13, near New Paltz. Cutting peaches, cherries and apples in Rockland County. (N. Y. Wkly. Rpt., May 18). LOUISIANA - Emergence expected week of May 25 in northern area. (Spink). GEORGIA - New adults not yet emerged but are expected the last week of May. (Snapp).

CURCULIONIDS - MASSACHUSETTS - In all orchards on May 19. By May 22, high temperatures increased activity, 380 adults were collected from test trees at Waltham, which represents about 50 percent of expected total. (Crop Pest Cont. Mess.). NEW JERSEY - Week of May 25 should see end of activity in southern area. (Ins. Dis. Newsl.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - OHIO - Adult emergence first observed at Doylestown, May 21. Six adults emerged from 41 trees. (Rings).

PEACH TWIG BORER (Anarsia lineatella) - OREGON - Caused appreciable damage to young unsprayed prune and peach orchards in Willamette Valley. (Every).

WALNUT APHID (Chromaphis juglandicola) - CALIFORNIA - Lightest infestation in several years on walnut in San Jose area of Santa Clara County and the Linden area of San Joaquin County. (Michelbacher).

WALNUT BLISTER MITE (Aceria erinea) - NORTH CAROLINA - Infesting black walnut in Wake County. (Farrier).

WALNUT SCALE (Aspidiotus juglans-regiae) - CALIFORNIA - Heavy on walnut trees in Riverside, Riverside County. (Cal. Coop. Rpt.).

A LEAF MINER (Nepticula juglandifoliella) - CALIFORNIA - Light on English walnut in Salinas Valley of Kings City area, Monterey County. (Michelbacher).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Light and spotty on pecan in Gonzales and Guadalupe Counties. (Hawkins).

BAGWORM (Thyridopteryx ephemeraeformis) - TEXAS - Very heavy on pecan in Gonzales County. (Hawkins).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Feeding on pecan in Cherokee County. (Tex. Coop. Rpt.). Lighter than past years in south central area, with heavier than normal infestations in west cross timbers area. (King). OKLAHOMA - Larval entries in 10 percent of 139 pecan tips examined in Carter County, 17 entries in 999 nut clusters in Jefferson County and 3 in 122 in Love County. (Whitehead, Hinrichs, Flora). Damaging pecan trees in an orchard in Addington area, Jefferson County. (Hatfield). Two percent damaged in 200 examined in Garvin County. (VanCleave, Perry).

PECAN PHYLLOXERA (Phylloxera devastatrix) - TEXAS - Heavy on pecan in Gonzales and Guadalupe Counties. (Hawkins). OKLAHOMA - Heavy on leaves of few native pecan trees in Sallisaw and Pauls Valley. (VanCleave).

A LYGUS BUG (Lygus sp.) - OKLAHOMA - Light on pecan trees in Carter, Jefferson and Love Counties. (Flora, Hatfield).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - During April, 916 traps were operated in Brooks, Cameron, Dimmit, Hidalgo, Jim Hogg, Starr, Webb, Willacy and Zapata Counties. Only 4 adults were taken, 3 males in Hidalgo County and one male in Willacy County. The population is extremely low for the time of year. Five larval infestations found in Hidalgo County; all light. (PPC, So. Reg.). CALIFORNIA - All trap inspections during April in San Diego and Imperial Counties were negative. (PPC, West. Reg.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - Trapping continues negative in FLORIDA, ALABAMA, LOUISIANA and TEXAS. (PPC, So. Reg., Apr. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - Total of 32,974 citrus trees inspected during April in Cameron, Hidalgo and Webb Counties. No infestations found. (PPC, So. Reg.). MEXICO - In chemical control zones of States of Tamaulipas, Nuevo Leon, Sonora and Baja California, 124,575 citrus trees were inspected of which 46 found lightly infested; 15 in Municipio Hidalgo, Tamaulipas, and 31 at Allende, Nuevo Leon. Inspections in and along Texas-Mexico border in Tamaulipas were negative. (PPC, Mex. Reg., Apr. Rpt.).

Citrus Insect Situation, Lake Alfred, Florida, Second Week in May - Further drop in PURPLE SCALE activity this week. Will remain near current low level for two weeks and then will increase. FLORIDA RED SCALE activity decreased sharply this week and will decrease further during next two weeks and remain average during May. Sharp rise in CITRUS RED MITE activity this week. Increase will be rapid during the remainder of May and high level of infestation will prevail in early June. CITRUS RUST MITE activity increased this week and marked start of strong upward trend that will continue through July. SIX-SPOTTED MITE infestations approaching peak considerably above average. (Simanton, Thompson, Johnson).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NEW YORK - Appearing in potato fields in Suffolk and Nassau Counties. (N. Y. Wkly. Rpt., May 18). NEW JERSEY - Very numerous in potato fields. (Ins. Dis. Newsl., May 19). VIRGINIA - All stages present on potatoes on Eastern Shore. (Hofmaster). MARYLAND - Medium to heavy on untreated potatoes and tomatoes in Dorchester, Wicomico and St. Marys Counties. (U. Md., Ent. Dept.). DELAWARE - All stages abundant on unsprayed potatoes in Sussex County, common over State. (Burbutis, Conrad). WASHINGTON - Adults and eggs on young potatoes in Yakima County. Adults more numerous than normal for time of year. (Landis).

EUROPEAN CORN BORER (Pyrausta nubilalis) - VIRGINIA - Hatching on potatoes May 12 on Eastern Shore. (Hofmaster). MARYLAND - Eggs being deposited on potatoes at Cambridge May 18. (U. Md., Ent. Dept.). DELAWARE - Adults continue to lay eggs on potatoes in New Castle and Kent Counties. (Burbutis, Conrad).

BEET ARMYWORM (Laphygma exigua) - CALIFORNIA - Medium damage to tomatoes in Lakeside, San Diego County. (Cal. Coop. Rpt.).

TOMATO FRUITWORM (Heliothis zea) - LOUISIANA - Light on tomatoes in St. Bernard Parish and general in West Carroll Parish. (Spink). NEW MEXICO - Light damage to lettuce in Artesia area, Eddy County. (N. M. Coop. Rpt.).

POTATO LEAFHOPPER (Empoasca fabae) - OHIO - First of season trapped at Wooster on May 19, on May 20, 215 trapped. (Treece). DELAWARE - Common on potatoes in New Castle and Kent Counties. (Burbutis, Conrad).

POTATO APHID (Macrosiphum solanifolii) - MARYLAND - Heavy on tomatoes at New Market, Dorchester County, and light in Wicomico County. (U. Md., Ent. Dept.). DELAWARE - Generally increasing on tomatoes and potatoes and becoming common in some fields in Kent County. (Burbutis, Conrad).

Potato Psyllid Survey - A second survey in the summer breeding area was made during the week of May 18-23. Populations remained relatively low although there was an increase in the Arkansas Valley, Colorado area. Lycium was well developed in all locations except Laramie, Wyoming. Rain and snow were encountered in southern Wyoming. Populations east of the mountains averaged one per 100 sweeps in the Greeley area, 51.7 in the Arkansas Valley, one in Torrington and less than one at Laramie. Populations at Salida averaged 2 per 100 sweeps, Grand Junction less than one, Provo-Logan 2 and none at Green River-Rock Springs. (PPC).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - On lycium in Larimer County, 10 per 100 sweeps. (Ext. Ser., Exp. Sta., May 19). NEBRASKA - First survey of 1959 season on May 12. There were 3.16 per 100 sweeps on Lycium. (Hagen). UTAH - One taken in 50 sweeps on lycium at Spanish Fork and 3 taken in 50 sweeps on matrimonyvine at Green River. (Knowlton).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Heavy on pepper plants in Encanto, San Diego County. (Cal. Coop. Rpt.).

ONION MAGGOT (Hylemya antiqua) - MICHIGAN - Adults numerous at Grant, Munith, Stockbridge, Hooper and Bath. Eggs very numerous and hatching at Bath and Hooper. (Hutson, May 20). INDIANA - Common, with light injury in onion field in Jasper County. (Gould).

ONION THRIPS (Thrips tabaci) - CALIFORNIA - Heavy and damaging onions in Brentwood area of Contra Costa County. (Michelbacher).

CABBAGE CURCULIO (Ceutorhynchus rapae) - VIRGINIA - Caused considerable damage to cabbage in Northampton County. (Hofmaster).

HARLEQUIN BUG (Murgantia histrionica) - NEBRASKA - Unusually large numbers on weed hosts. (Hill).

CABBAGE MAGGOT (Hylemya brassicae) - NEW JERSEY - Severe damage to cabbage in Atlantic County. (Ins. Dis. Newsl., May 19).

CABBAGE LOOPER (Trichoplusia ni) - LOUISIANA - Light on tomatoes in Bossier Parish. (Spink). NEW MEXICO - Newly hatched larvae damaging lettuce at Artesia, Eddy County. (N. M. Coop. Rpt.). MARYLAND - Heavy on cabbage at Bushwood, St. Marys County. (U. Md., Ent. Dept.).

CABBAGE APHID (Brevicoryne brassicae) - VIRGINIA - Troublesome on cabbage on Eastern Shore, very hard to control. (Hofmaster). TEXAS - Medium on cabbage in Uvalde County. (Prucia).

A FALSE CHINCH BUG (Nysius sp.) - CALIFORNIA - Heavy on lettuce in the Santa Maria area of Santa Barbara County. (Cal. Coop. Rpt.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSOURI - Damage to garden beans common and heavy most areas. (Kyd, Thomas). MARYLAND - Heavy leaf damage on beans in Wicomico County. (U. Md., Ent Dept.). DELAWARE - Present to abundant on beans in Sussex County. (Burbutis, Conrad).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Moderate on beans in Sumter County and light in Blount and St. Clair Counties. (Grimes).

CUCUMBER BEETLES - MISSOURI - Damage by Acalymma vittata spotty to seedling cantaloups and watermelons in extreme southwest area. (Kyd, Thomas, Munson). MARYLAND - A. vittata heavy on untreated cucumbers in Wicomico and Dorchester Counties. (U. Md., Ent. Dept.). TEXAS - Diabrotica undecimpunctata howardi medium to heavy in cucumbers, watermelons and squash in Waller and Austin Counties. (Tex. Coop. Rpt.).

PEA APHID (Macrosiphum pisi) - WISCONSIN - In 10-inch peas in Sauk County averaged one per sweep on May 20. (Wis. Coop. Sur.).

ASPARAGUS BEETLES (Crioceris sp.) - WISCONSIN - Abundant in Dane and Sauk Counties. (Wis. Coop. Sur.). MISSOURI - Damage to asparagus common in most areas. (Kyd, Thomas, Munson). DELAWARE - C. asparagi larvae now present on asparagus in Kent and Sussex Counties. Adults still present in many fields. C. duodecimpunctata adults common on asparagus in New Castle County. (Burbutis, Conrad).

GARDEN SYMPHYLID (Scutigerella immaculata) - COLORADO - Reducing sugar beet stand 25-75 percent in Weld County, west of Ault. (Ext. Ser., Exp. Sta., May 19).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - First adult of season trapped at Eaton. (Ext. Ser., Exp. Sta., May 19).

FLEA BEETLES - MARYLAND - Epitrix hirtipennis light to moderate on tomatoes in Wicomico County. Phyllotreta sp. medium on cabbage at Bushwood, St. Marys County. (U. Md., Ent. Dept.). DELAWARE - E. cucumeris numerous on unsprayed tomatoes and potatoes most areas. (Burbutis, Conrad). MISSOURI - E. cucumeris adults numerous and damaging to potatoes over much of State. (Kyd, Thomas, Munson). NEW MEXICO - Damaging chili at Espanola, Rio Arriba County. (N. M. Coop. Rpt.). COLORADO - Systena sp. reducing sugar beet stand in Larimer County, making replanting necessary. (Ext. Ser., Exp. Sta., May 19). UTAH - Damaging radishes, turnips and tomatoes at Green River, Emery County. Controls applied in some sugar beet fields. (Knowlton). CALIFORNIA - E. hirtipennis heavy on potatoes in Nevada City, Nevada County. (Cal. Coop. Rpt.).

CUTWORMS - IDAHO - Causing extensive damage to 10 acres of onions near Weiser. (Hackler), damaging peas in Twin Falls area (Gibson). NEW MEXICO - Problem in gardens in San Miguel, Santa Fe, Rio Arriba and Bernalillo Counties. (N. M. Coop. Rpt.). CALIFORNIA - Agrotis ypsilon light on cabbage in Cypress area, Orange County. (Cal. Coop. Rpt.).

SPRINGTAILS - WASHINGTON - Probably Bourletiella hortensis and others damaging plantings of vegetables in Puyallup Valley. About 300 acres involved. (Howitt).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW JERSEY - Found on early and mid-season varieties May 16. (Ins. Dis. Newsl.).

SPIDER MITES - NEW JERSEY - Numerous in strawberries. (Ins. Dis. Newsl.,May 19). VIRGINIA - Heavy on strawberries on Eastern Shore, but slowed by heavy rains. (Hofmaster). MARYLAND - Tetranychus spp. medium on strawberry foliage near Allen, Wicomico County. (U. Md., Ent. Dept.). CALIFORNIA - T. telarius heavy in squash in Brentwood area, Contra Costa County. (Michelbacher).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - MICHIGAN - Eggs common in fields about Hartford, Watervliet, Sodus and Coloma. (Hutson, May 20). VIRGINIA - Enough moths present to cause trouble later on the Eastern Shore. (Hofmaster).

SLUGS - KANSAS - Badly damaging strawberries at harvest in Geary County.(Knutson). WASHINGTON - Deroceras reticulatum and Arion ater activity increased by rainy weather in Sumner area. (Doucette).

A SAP BEETLE (Lobiopa insularis) - LOUISIANA - Fruit infestations 3 percent in strawberry fields well kept and picked over, 20 percent in well kept but unregularly picked fields and 60 percent in neglected fields. (Spink).

TOBACCO INSECTS

THRIPS - MARYLAND - Common on newly set tobacco at Aquasco, Prince Georges County. (U. Md., Ent. Dept.).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - MARYLAND - Moderate damage to tobacco in beds at Barstow, Calvert County. (U. Md., Ent. Dept.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - VIRGINIA - Light to medium on newly set tobacco in scattered fields in Pittsylvania County. (Dominick). MARYLAND - Light to moderate in tobacco beds in Prince Georges and St. Marys Counties. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Noted in all cotton in Florence area, many buds being cut. Averaged 31 per basic acre May 20. (Fye et al.). LOUISIANA - Light on cotton in Tensas and Franklin Parishes. (Spink). Found in 8 of 14 fields examined Madison Parish and averaged 38 per acre. Ranged 0 - 150 per acre. Emergence from hibernation is light. (Smith et al.). TEXAS - Averaged 72 per acre in McLennan and Falls Counties compared with 138 in 30 fields inspected during corresponding week of 1958. (Parencia et al.). Some damage in fields near the river in Cameron County. (Deer). Overwintered weevils increased in numbers in fields in north central area. (Gaines). ALABAMA - Emerging from hibernation in large numbers. General throughout central area. Counts 150 per acre in Sumter County, 350 per acre in Hale County and 200 per acre in Tuscaloosa County. Some found in Autauga County. (Grimes). MISSISSIPPI - Counts in delta counties ranged 0 - 50 per acre. Two fields of 20 examined were infested. (Merkle et al.). TENNESSEE - Only one weevil found in Hardeman County. Most should emerge by July 1. (Locke).

FLEA BEETLES - MISSOURI - Systena blanda adults damaging widely scattered fields of cotton in extreme southeast. (Kyd, Thomas, Munson). ALABAMA - Phyllotreta striolata damage to cotton continues in Madison County. (Rawson). TENNESSEE - Damaging in southern area. (Locke).

THRIPS - SOUTH CAROLINA - Some damage in Florence area May 20. (Fye et al.). ALABAMA - Extremely heavy in central area. (Grimes). TENNESSEE - Present in all fields surveyed in western area. (Locke). MISSISSIPPI - Large numbers present on primrose, clovers and other flowering plants in delta counties and movement to cotton steady but not extreme. Damage apparent in older cotton. (Merkl et al.). LOUISIANA - Heavy on cotton in northeast area and light in central area. (Spink). Counts made in 52 Madison Parish fields, all infested. Averaged 6.15 per plant, and ranged 0.34 - 23.66 per plant. Damage severe in untreated fields. (Smith et al.). TEXAS - Heavier and damage becoming general in McLennan and Falls Counties. (Parencia et al.). Light with minor damage to cotton near onion fields in Cameron County. (Deer). Infestations increased somewhat many areas of State. Bulk of damage light to medium with heavy infestations in north central area. (Gaines). OKLAHOMA - None to light on seedling cotton in Garvin County area. (VanCleave). Light in the Chickasha area. (Bryan). NEW MEXICO - Light to heavy and damaging cotton in Dona Ana, Eddy, Chaves, Socorro and Sierra Counties. (N. M. Coop. Rpt.). ARIZONA - Heavy in Willcox area of Cochise County, particularly in vicinity of Kansas settlement. Continuing heavy some fields in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

APHIDS - TEXAS - Aphis gossypii continues generally light in McLennan and Falls Counties. (Parencia et al.). A problem some sections of coastal bend and upper coastal areas. (Gaines). NEW MEXICO - Occasional light infestations in southern counties. (N. M. Coop. Rpt.). ALABAMA - A. gossypii heavy on seedling cotton in Hale County and light in Sumter County. (Grimes). GEORGIA - Light on cotton in Crisp County. (Robertson). OKLAHOMA - A. gossypii none to light on seedling cotton in Garvin County area. (VanCleave). MISSISSIPPI - Light and general in delta counties. (Merkl et al.). TENNESSEE - Light but increasing. (Locke). LOUISIANA - Present in varying degrees in many fields in Madison Parish. (Smith et al.).

FLEAHOPPERS - TEXAS - Psallus seriatus found in 13 of 34 fields inspected and nymphs becoming more common in McLennan and Falls Counties. (Parencia et al.). Some increase in Willacy and Hidalgo Counties with some indication of moderation in Cameron County. (Deer). Activity increased many areas, especially in lower Rio Grande Valley, coastal bend and upper coastal areas. (Gaines). ARIZONA - Spanogonicus albofasciatus moderate in central area, light in southeast Counties. (Ariz. Coop. Sur.). TENNESSEE - Found in most fields in western area of State. Light at present. (Locke).

SPIDER MITES - TEXAS - Increased sharply in western Hidalgo and Willacy Counties. (Deer). ALABAMA - Common in Lee County. (Grimes). LOUISIANA - Observed in several fields and unusually heavy in one large field in Madison Parish. (Smith et al.). MISSISSIPPI - Light populations common in fields adjoining ditch banks and pastures in delta counties. (Merkl et al.).

BOLLWORMS (Heliothis spp., et al.) - SOUTH CAROLINA - Small larvae found in most fields in Florence area May 20. (Fye et al.). TEXAS - Heavier in much of the lower Rio Grande Valley with some damage to squares. (Deer). GEORGIA - Heliothis zea light on cotton. (Sell, Maxwell). CALIFORNIA - H. zea numerous on stub cotton. Unusual early buildup throughout Imperial Valley, Imperial County. (Peterson). H. virescens infesting cotton in Niland area of Imperial Cotton. (Cal. Coop. Rpt.).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Some rosetted blooms near Santa Maria in Cameron County. (Deer). ARIZONA - Emergence lighter but continuing in cage tests at Tempe. (Ariz. Coop. Sur.). CALIFORNIA - Blossom inspection continuing on approximately 7000 acres of stub cotton in Imperial Valley, Imperial County. All inspections negative so far. (Cal. Coop. Rpt.).

COTTON SQUARE BORER (Strymon melinus) - CALIFORNIA - Light and damaging cotton bolls in Niland area of Imperial County. (Cal. Coop. Rpt.).

BROWN COTTON LEAFWORM (Acontia dacia) - TEXAS - Light in 3 fields in McLennan and Falls Counties. (Parencia et al.).

GARDEN WEBWORM (Loxostege similalis) - LOUISIANA - About 30 acres of cotton in Ouachita Parish heavily infested. (Spink).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Light in cotton statewide. (Ariz. Coop. Sur.).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - TEXAS - Light in 4 fields in McLennan and Falls Counties. (Parencia et al.).

CUTWORMS - CALIFORNIA - Exceptionally numerous this season where fields could not be treated at proper time. Some replanting necessary. (Peterson). MISSISSIPPI - Populations remain spotty, some decrease in number over last week in the delta counties. (Merkl et al.). TENNESSEE - Scattered light damage over cotton area in western sections. (Locke). MISSOURI - Peridroma margaritosa damaging cotton in southeastern counties. (Kyd, Thomas). TEXAS - Damaging cotton in south central and north central areas. (Gaines).

A FALSE CHINCH BUG (Nysius raphanus) - CALIFORNIA - Continues to damage cotton in west Fresno County and in the Famosa-Buttonwillow area of Kern County. (Leigh, Beards).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) - IDAHO - Initial emergence from caged trees and new attacks in cull logs on South Fork of Salmon River, Valley County, May 13, about two or three weeks later than in previous years. Trees attacked last May fading and trend of damage continues upward since abrupt decline of 1957. Fading trees occur in larger groups and more groups exist than in past two years. (Furniss).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Control applied to one tree found newly infested in Hardin County on an area of severe wind damage. An aerial detection survey failed to locate any groups of dead or dying trees suspected of infestation. (Young).

IPS BEETLES - TEXAS - Causing mortality in a dense stand in northern Houston County. (Young).

AN EASTERN JUNIPER BARK BEETLE (Phloeosinus dentatus) - RHODE ISLAND - Heavily attacking eastern red cedar. Egg galleries in sufficient numbers to cause fading of many trees in Wickford. (Hansen).

AN AMBROSIA BEETLE (Trypodendron sp.) - IDAHO - Intense attacks in windthrown lodgepole pine and in small sections of Engelmann spruce on May 13 on South Fork of Salmon River in Valley County. (Furniss).

WHITE PINE WEEVIL (Pissodes strobi) - WISCONSIN - Continues to oviposit in west central area, but in northeastern area, punctures light. (Wis. Coop. Sur.).

A LEAF BEETLE (Anomoea laticlavia) - OKLAHOMA - Heavy on branches and leaves of black locust in Duncan area. (Hatfield).

MAY BEETLES (Phyllophaga spp.) - KANSAS - Feeding on leaf petioles of elm, oak and other trees in many places in northeast area. Many trees defoliated. (Thompson, Keen).

SPITTLEBUGS - NORTH CAROLINA - In ornamental pines in Wake County. (Jones, Farrier). MARYLAND - Spittlebugs, probably Aphrophora parallela, medium to heavy on young Virginia and loblolly pines in southern counties. (U. Md., Ent. Dept.).

PINE SAWFLIES (Neodiprion spp.) - DELAWARE - Neodiprion, probably pratti, larvae rather common on Virginia and loblolly pines locally in Sussex County. (Burbutis, Conrad). MARYLAND - N. pratti pratti larvae continue to injure Virginia pine in central areas of State. (U. Md., Ent. Dept.). VIRGINIA - N. pratti pratti defoliated pines in Danville, Pittsylvania County. (Blanton). MICHIGAN - N. pratti banksianae eggs hatching at Roscommon, May 13. (Hutson).

SAWFLIES - KANSAS - Larvae of probably Arge sp. feeding on leaves of oaks, causing a feathery appearance in Riley County. (Thompson). CALIFORNIA - Heavy infestations of Tomostethus multicinctus on ash in Incline, Maricopa County. First time recorded from county. (Cal. Coop. Rpt.).

TENT CATERPILLARS (Malacosoma spp.) - WISCONSIN - M. disstria predicted to be heavy on parts of Douglas, Ashland, Iron, Vilas, Langlade and Marathon Counties; medium in parts of Douglas, Ashland, Iron, Vilas and Price Counties. Prediction based on a winter egg band survey. (Wis. Coop. Sur.). MINNESOTA - M. disstria still hatching. Observations near Duluth indicate a lower population than last year. (Minn. Ins. Rpt.). MICHIGAN - M. americanum nests very numerous in vicinity of Grand Traverse, Cadillac and Cheboygan. (Hutson). CALIFORNIA - M. constrictum heavy on white oak in Santa Ysabel area of San Diego County. (Cal. Coop. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Feeding on elm, hackberry and locust about completed for 1959 in northeastern area. (Thompson).

SPRUCE BUDWORM (Choristoneura fumiferana) - MINNESOTA - Actively feeding in buds in International Falls area and Kawishiwi Experimental Forest. Larval development retarded due to cold weather. (Minn. Ins. Rpt.).

SPRUCE NEEDLE MINER (Taniva albolineana) - NEBRASKA - Moderate to severe to spruce locally in eastern area. (Roselle).

A CHRYSOMELID - NEW MEXICO - Larvae damaging poplars along Rio Grande River near Espanola. (N. M. Coop. Rpt.).

ASH PLANT BUG (Neoborus amoenus) - CALIFORNIA - Heavy on alder in Colusa, Colusa County. (Cal. Coop. Rpt.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - WISCONSIN - Only 3 percent of larvae survived the past winter in several areas along Lake Michigan. Temperatures as low as -17° in some of these areas. (Wis. Coop. Sur.). INDIANA - First pupa found May 21 at Lafayette. (Schuder).

ALDER FLEA BEETLE (Altica ambiens) - IDAHO - Adults abundant in spotted infestations throughout the area around Sandpoint. Heavy damage to leaves. (McPherson). WASHINGTON - Defoliating poplars at Hooper, Adams County. (Brannon).

APHIDS - DELAWARE - Cinara spp. abundant on Virginia and loblolly pines near Millsboro, Sussex County. Eriosoma lanigerum very abundant on elms in southern Sussex County. (Burbutis, Conrad). MARYLAND - Building up on flowering quince, rose, chrysanthemum and other ornamentals over State. (U. Md., Ent. Dept.). MINNESOTA - Pineus pinifoliae abundant and active on white pine along Highway 1, southeast of Ely. Last heavy infestation in 1956. (Minn. Ins. Rpt.). KANSAS - Many hundreds of Longistigma caryae per twig on numerous shade trees in Riley County. Macrosiphum rosae averaged over 50 per leaf on roses in same county. (Thompson). NEW MEXICO - Periphyllus negundinis heavily infesting boxelder trees in Albuquerque. Severe damage to terminal growth. Coccinellid larvae numerous. (N. M. Coop. Rpt.). NEVADA - Myzus cerasi and M. persicae heavy on ornamental Prunus in Reno, Washoe County. (Bechtel).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - WISCONSIN - Began emerging May 12, Milwaukee County, but peak emergence expected about first part of June. (Wis. Coop. Sur.). INDIANA - Adults emerging, May 20, West Lafayette. (Schuder).

ELM BORER (Saperda tridentata) - INDIANA - Adults emerging, May 20 at Lafayette. (Schuder).

ELM LEAF BEETLE (Galerucella xanthomelaena) - OKLAHOMA - Counts on untreated Siberian elms at Stillwater showed the following averages per 100 leaves; egg masses 8, larvae 97 and adult 0.8. Some indications that larvae had been killed by disease. (Bieberdorf). Causing considerable damage to elms at Guthrie. (Howell). ILLINOIS - On elms in southern area. (Ill. Ins. Rpt.). DELAWARE - First larvae of season on elm in southern Sussex County. Eggs very common. (Burbutis, Conrad). DELAWARE - Laying eggs in Reno-Sparks area, Washoe County. (Bechtel, et al.).

ELM SPANWORM (Ennomos subsignarius) - NORTH CAROLINA - Countywide severe infestation of deciduous forest trees has resulted in nearly complete defoliation in Cherokee County. (Nave).

POPLAR AND WILLOW BORER (Sternochetus lapathi) - MINNESOTA - Injuring young willows around Twin Cities and reported from a windbreak planting in Meeker County. (Minn. Ins. Rpt.).

A WILLOW LEAF BEETLE (Chrysomela interrupta) - OKLAHOMA - Causing up to 75 percent defoliation of willows in Slick area of Creek County. (Stiles).

SYCAMORE LACE BUG (Corythucha ciliata) - DELAWARE - Very abundant on sycamore in Sussex County. Yellowing and extensive leaf curling noticeable on several trees. (Burbutis, Conrad).

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - Heavy populations of early-instar larvae on red cedar in northwestern Oklahoma City. (Latham). ILLINOIS - Hatching in the south one-third to one-fourth of State. (Ill. Ins. Rpt.).

SCALE INSECTS - MICHIGAN - Gossyparia spuria very common on elms at Kellogg Gull Lake Biological Station. (Hutson). MINNESOTA - Phenacaspis pinifoliae hatched May 17. (Minn. Ins. Rpt.). ALABAMA - Moderate infestation of Icerya purchasi

on pittosporum in Lee County. Adults and larvae of Rodolia cardinalis feeding on this scale. (Grimes). NORTH CAROLINA - Nearly every fork of azaleas infested with Eriococcus azaleae infested in a large ornamental planting in Cumberland County. (Scott, Farrier). MARYLAND - A pit-making scale severe on holly in Anne Arundel County. (U. Md., Ent. Dept.). OHIO - Pulvinaria innumerabilis females rapidly approaching maturity in Clyde area, some oviposition. (Rings).

NARCISSUS BULB FLY (Lampetia equestris) - WASHINGTON - Noted in the field, May 5 at Sumner. First emergence from concentrators at Sumner laboratory was on May 12, and increasing since that date. (Doucette).

JAPANESE BEETLE (Popillia japonica) - Traps being placed in ALABAMA, FLORIDA, LOUISIANA and SOUTH CAROLINA. Trapping will be increased in NORTH CAROLINA this season. TENNESSEE - In city of Bristol, 505 acres treated. (PPC, So. Reg., Apr. Rpt.). VIRGINIA - Total of 342 acres treated in Bristol. (PPC, East. Reg., Apr. Rpt.). ILLINOIS - Soil treatments completed on 10,865 acres in Blue Island area, South Chicago, on April 15. (PPC, Cent. Reg., Apr. Rpt.).

A FRUIT FLY (Eutreta pacifica) - CALIFORNIA - Severely damaging chrysanthemum plantings by producing stem galls in San Anselmo, Marin County. (Cal. Coop. Rpt.).

IRIS BORER (Macronoctua onusta) - INDIANA - Invaded iris leaves at West Lafayette. (Schuder). MARYLAND - Larval damage to flower buds reported from Charles, Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

SPRINGTAILS - CALIFORNIA - Onychiurus fimetarius and O. armatus in heavy populations on iris plantings in Dixon, Solano County. (Cal. Coop. Rpt.).

INSECTS AFFECTING MAN AND ANIMALS

HORN FLY (Siphona irritans) - NEW MEXICO - Populations very heavy on cattle throughout State. Many ranchers treating. (N. M. Coop. Rpt.). TEXAS - Light to medium in Lee County. Heavy on dairy and beef cattle in Harris County. (Tex. Coop. Rpt.). OKLAHOMA - Counts averaged 300 per beef cow and 1000 per bull at Rattan (Goin) and 200 per animal on 15 head of range cattle in Garvin County (VanCleave). NORTH DAKOTA - Appearing in some western herds. (N. D. Ins. Rpt.). LOUISIANA - Generally very heavy on untreated herds throughout State. (Spink). ALABAMA - Heavy on a herd of Hereford cattle in Sumter County. (Grimes).

MOSQUITOES - OHIO - Aedes trivittatus, A. vexans and A. sticticus causing considerable annoyance in Lorain and Wayne Counties, northern Ohio. (Rings). ALABAMA - Anopheline larvae plentiful in fresh water in Lee County. (Guyton). MINNESOTA - Of the 1016 larval collections, May 10-16, there were 389 A. vexans. A heavy brood of mosquitoes, which hatched following heavy rains, is far larger and more extensively distributed than any produced in 1958 and appeared at least 3 weeks earlier than the first significant brood in 1958. (Minn. Ins. Rpt.). COLORADO - Larvae of A. dorsalis taken at Fort Collins. Number lower than at this time last year. (Exp. Sta.). NEVADA - Adults of Aedes spp. present in light to moderate numbers in Douglas County. (Roberts).

FLIES - LOUISIANA - House flies, horse flies and deer flies becoming very abundant throughout the State. (Spink).

SCREW-WORMS (Callitroga spp.) - NEW MEXICO - Wounds from dehorning and branding infested with larvae in herds in Socorro County. (N. M. Coop. Rpt.). ARIZONA - Heavy activity of C. hominivorax. Many reported cases of infested cattle in Greenlee County. (Ariz. Coop. Sur.).

CATTLE GRUBS (Hypoderma spp.) - VIRGINIA - Adults severe on untreated beef and dairy cattle in Wythe County (Bird) and running cattle in Highland County (Morris, Jones). Numerous complaints of chasing cattle of college herds at Blacksburg. Severely cut milk production of the dairy herd. (Turner).

SHEEP KED (Melophagus ovinus) - NEW MEXICO - Ewes and lambs heavily infested in many herds of northern counties. (N. M. Coop. Rpt.). UTAH - Infestations reported as unusually high in Emery County. (Knowlton).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Counts averaged about 25 per animal on 20 head of 200-pound hogs in Garvin County area. (VanCleave). TEXAS - Heavy on hogs in Limestone County. (Tex. Coop. Rpt.).

ITCH MITE (Sarcoptes scabiei) - TEXAS - Heavy on hogs in Limestone County. (Tex. Coop. Rpt.).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Mainly this species with counts of 65 per beef cow at Rattan. (Goin).

A BLOOD-SUCKING CONENOSE (Triatoma protracta) - CALIFORNIA - Adults found in a bed in a home at Mt. Ranch, Calaveras County. This species occurred in unusually heavy numbers last year and many individuals were bitten. (Cal. Coop. Rpt.).

STORED-PRODUCT INSECTS

RICE WEEVIL (Sitophilus oryza) - LOUISIANA - Damage increasing in old stored corn, approximately 35 percent kernel damage in southern area. (Spink).

KHAPRA BEETLE (Trogoderma granarium) - TEXAS - Two properties found in Hudspeth County during April, a new county record. In El Paso County, 2 additional properties found during April, brings total known infested properties in county to 18 with total infested volume of 1,588,721 cubic feet. (PPC, So. Reg., Apr. Rpt.). MEXICO - Second infestation found in Cd. Juarez, Chihuahua, early in April. Total of 1,130 additional inspections conducted in States of Baja California, Sonora, Jalisco, Mexico, Chihuahua, Durango and Tamaulipas and the Distrito Federal. (PPC, Mex. Reg., Apr. Rpt.).

BENEFICIAL INSECTS

WHEEL BUG (Arilus cristatus) - TEXAS - Abundant in pecan groves in Gonzales and Guadalupe Counties, attacking leaf-feeding larvae. (Hawkins). OKLAHOMA - Nymphs common on pecan trees in Carter, Jefferson and Love Counties (Flora), heavy in orchard near Addington in Jefferson County (Hatfield) and common on pecan in Pauls Valley area (VanCleave).

AN ICHNEUMONID (Exenterus canadensis) - NORTH CAROLINA - Large numbers of adults under pines, in Granville County, infested with Neodiprion pratti pratti. This species provisionally identified, reared from cocoons of same sawfly in 1958. Det. L. M. Walkley. (Green et al.).

LACEWINGS (Chrysopa spp.) - KANSAS - Adults and larvae observed most fields in central, west central, northwest and north central areas. Counts as high as 3 per sweep. (Peters). OKLAHOMA - Light, 0-2 per sweep, in alfalfa in central area (VanCleave) and ranged 0.2-1 per sweep in Choctaw County (Goin).

NABIDS (Nabis spp.) - KANSAS - Adults and larvae observed most fields in central, west central, northwest and north central areas. Counts as high as 3 per sweep. (Peters). IDAHO - General in alfalfa and clover fields in Latah County. (Futter, Portman). KANSAS - Averaged up to 1 per sweep in alfalfa in central area (VanCleave) and were light in alfalfa in Choctaw County (Goin).

LADY BEETLES - COLORADO - Hippodamia convergens range 10-30 per 100 sweeps in alfalfa in Mesa County. Adults 10-20 per 100 sweeps in alfalfa in Montrose County and 10 per 100 sweeps in Delta County. (Colo. Ins. Det. Comm., May 19).

KANSAS - H. convergens present most fields in central, west central, northwest and north central areas. Counts as high as 7 adults and larvae per sweep. (Peters). IDAHO - General in alfalfa and clover fields in Latah County and increasing in alfalfa in southwestern area. Larvae abundant in apple orchards and adults abundant in cherry orchards near New Plymouth. (Futter et al.). OKLAHOMA - H. convergens increased in alfalfa in central area, counts averaged up to 2.5 per sweep, and were common in corn fields same area. (VanCleave, Arbuthnot). Counts of H. convergens 0.2 -2 per sweep in alfalfa and 0.01 per corn stalk in Choctaw County. (Goin).

MISCELLANEOUS INSECTS

PERIODICAL CICADA (Magicicada septendecim) - MISSOURI - The most conspicuous insect over most of the State. Brood XIX present in large numbers except in southeast and west central areas. (Kyd, Thomas). MISSISSIPPI - Very heavy population of 13-year race in Oktibbeha and other surrounding counties. (Hutchins). VIRGINIA - Severe on forest and shade trees in Williamsburg area of James City County and emerging in northeastern end of Hanover County. (Matheny). GEORGIA - Found on May 7 at Line Creek which separates Spalding and Cowetta Counties. This was same date this insect was found at this location 13 years ago. (Dupree, Tippins). Reported from Bullard, Twiggs County May 5-14 (Shannon), Lincoln County, May 5-18 (Gill). Found at Jacksonville, Coffee County, May 18. This is farthest south the species has been reported this year. (Mosely). ALABAMA - Considerable oviposition damage by 13-year race on small bushes and apple trees in St. Clair County. (Grimes). NORTH CAROLINA - Large numbers in Vance County (Whitford) and heard singing in Bladen County (Pender).

SEED-CORN MAGGOT (Hylemya cilicrura) - MARYLAND - Adults killed by fungus found in considerable numbers all parts of State. Usually stuck to leaves of various plants. (U. Md., Ent. Dept.). DELAWARE - Adults prevalent throughout State. (Burbutis, Conrad). VIRGINIA - Dead adults continue to be reported in several areas of State. (Rowell et al.). CALIFORNIA - Unusually large numbers of adults of H. cilicrura and Hylemya sp. collecting on trees, plants and shrubs. A fungus disease is causing hundreds to die attached to foliage in all areas of State. The common muscid fungus Entomophthora muscae identified from large numbers of dead Fannia sp. (Cal. Coop. Rpt.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Found for first time in Carroll and Scott Counties, MISSISSIPPI, Tensas Parish, LOUISIANA, and in Liberty County, FLORIDA, during April. Treatments during April totaled 26,210 acres in ALABAMA, 39,043 acres in FLORIDA, 1,338 acres in NORTH AND SOUTH CAROLINA, 43,819 acres in LOUISIANA, 6,394 acres in MISSISSIPPI, 5,607 acres in TEXAS and 58,804 acres in GEORGIA. (PPC, So. Reg.).

RED HARVESTER ANT (Pogonomyrmex barbatus) - TEXAS - Mounds numerous in pastures and along roadsides in Washington and Austin Counties. (McClung, PPC).

A BEETLE (Anthicus nitidulus) - CALIFORNIA - Heavy populations of adults on alfalfa in McArthur area of Shasta County. (Cal. Coop. Rpt.).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - OHIO - Numerous flights reported from northern area. (Rings).

MILLIPEDES - OHIO - Annoying residences in north central area. (Rings).

ADDITIONAL NOTES

PENNSYLVANIA - PEAR LEAF BLISTER MITE infesting all pear leaves in Pike County, PLUM CURCULIO causing moderate damage to stone fruits in Pike and Wayne Counties and to unsprayed fruit in south central area. (Gesell, Pepper). RED-BLANDED LEAF ROLLER eggs hatched and infestation heavy some apple orchards in south central area and moderate to heavy in southeast area. (Pepper, Menusan). COLDING MOTH adults emerging, entrances in apples expected during week of May 24-30 in south central area. (Pepper, Asquith). OBLIQUE-BANDED LEAF ROLLER very heavy on ornamental crabapple and hawthorne in Centre County. (Gesell). EUROPEAN RED MITE increasing on apple and ORIENTAL FRUIT MOTH damage to peach twigs appearing in southeast. (Menusan). PEA APHID infestations in alfalfa fairly heavy some fields in south central and showing some increase in southeast. (Pepper, Menusan). ALFALFA WEEVIL found for first time in Greene, Westmoreland and Montour Counties, spreading in Sullivan County and infesting all of Fayette County. Larvae heavy in unsprayed alfalfa fields in south central area. (Udine, Gesell, Pepper). POTATO LEAF HOPPER adults appearing in alfalfa in southeast. (Menusan). POTATO FLEA BEETLE damaging potatoes and tomatoes in south central and southeast area (Pepper, Menusan). PEA APHID 5-10 per plant on peas in southeast. (Menusan).

NEVADA - BROWN WHEAT MITE light on wheat in Kings River Valley, Humboldt County, and CORN LEAF APHID infestations light to heavy on grain in Fallon area of Churchill County. (Bechtel, Lauderdale, York).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Protoparce quinq.	Protoparce sexta	Heliothis zea	Heliothis vires.
ALABAMA								
Auburn 5/19			2		3		1	
Crossville 5/20		1	3				3	
Fairhope 5/18	14	3		23			1	
ARIZONA								
Mesa 5/13-19			32	17			50	
ARKANSAS								
Morrilton 5/14-20	1	8					8	
Fayetteville 5/14-20	48	48		3			57	
Kelso 5/14-20	16	23					12	
GEORGIA (County)								
Clarke 5/1-30	44	37		6				
FLORIDA								
Quincy 5/11						6	2	1
Gainesville 5/19							1	
ILLINOIS								
Urbana 5/15-21	6	2		2				
INDIANA (County)								
Tippecanoe 5/14-22	41	2		1				
KANSAS								
Garden City 5/14-21	11	6		3			12	
Manhattan 5/16-22	4	7		3			24	
Wathena 5/12-19	7	4		3			6	
LOUISIANA								
Franklin 5/18		2						
Curtis 5/18				3			9	
Baton Rouge 5/15-21	33	8	57	51			32	
MARYLAND								
Fairland 5/15-21	2							
MISSISSIPPI								
*Stoneville 5/16-22	168	63	26	169		9	19	1
MISSOURI								
Sikeston 5/16-22	1	2					4	
NEBRASKA								
Kearney 4/29-5/6	1	1		11				
Lincoln 5/1-9	32	54		39			6	
North Platte 5/5-11	22	9		63				
Scotts Bluff 5/8-14		5		15				
NORTH CAROLINA								
Clayton		1	1				2	
Faison	2	1				5	4	
SOUTH CAROLINA								
Clemson 5/16-22	8	4	4	3	15	6	10	
Charleston 5/18-24	2	5		21		2	2	1
TENNESSEE (Counties)								
Madison 5/12-18	8	6	6	1		3	10	
Maury 5/12-18	4	1	2	3		4	1	
Robertson 5/12-18	9	1	2			1	5	
Cumberland 5/12-18	9	5		3			5	
Greene 5/12-18	2	1	1	1			6	
Blount 5/12-18	4	4		2		1	4	
Johnson 5/12-18	10	30		5		1	2	

*Three traps - Stoneville

LIGHT TRAP COLLECTIONS - Continued

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Protoparce quinq.	Protoparce sexta	Heliothis zea	Heliothis vires.
TEXAS								
Waco 5/16-22			7	15			34	
VIRGINIA								
Chatam 5/10-16					9	1		
Painter 5/17							1	

ADDITIONAL COLLECTIONS - ARIZONA (Mesa) - Zeadiatraea grandiosella - 174; Laphygma exigua - 197. NEBRASKA (North Platte and Scotts Bluff) - Chorizagrotis auxiliaris - 2,696.

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

A DRY-WOOD TERMITE (Cryptotermes dudleyi Banks)

Economic Importance: Termites of this genus are very destructive pests of hard, sound, dry wood in man-made structures such as buildings and furniture. Dry-wood termites are so-called because they feed on and live in dry wood. The name "domestic" is applied to several species of Cryptotermes since they are confined to man-made structures and do not compete with other dry-wood termites under "wild" conditions. In addition to C. dudleyi; C. domesticus(Haviland), C. havilandi (Sjöstedt) and C. brevis (Walker) are important species in various areas of the world. The latter species, C. brevis, has been recorded in the southern United States. The presence of dry-wood termites in structures is indicated by small heaps of frass or fecal pellets beside or below infested hardwood. An infested piece of timber removed for inspection will show galleries filled with frass. The frass is uniform in size, regular in shape, oval with concave surfaces and seed-like. Although the population of an individual dry-wood termite colony is small and can exist in a few cubic inches of timber, a high degree of damage is obtained by large numbers of colonies living close together.

Distribution: Recorded in Panama, Costa Rica, Colombia, India, Ceylon, Philippines, Indonesia (Sumatra, Java), New Guinea, Australia (Northern Territory, Queensland) and the East African Coast of Kenya, Tanganyika and Zanzibar.

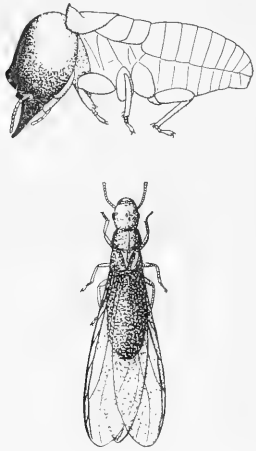
General Distribution of Cryptotermes dudleyi

Hosts: Attacks dry hardwood of all types though some hardwoods such as west Indian mahogany, teak, mvule and belian are resistant for long periods before becoming susceptible to damage because of weathering or other factors.

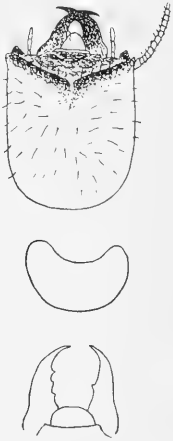
Life History and Habits: Colonies of dry-wood termites are small, only a few hundred individuals in each colony, compared with thousands in a colony of a subterranean species. The colony consists of a king and queen, soldiers and nymphal workers. Each of these castes may ultimately become adults. Some nymphs never complete development and continue to work throughout their lives. Other nymphs become kings and queens, some with wings and some without wings.

Adults leave the colony in swarms, but in smaller numbers than subterranean type. Emergence occurs at frequent intervals in wetter climates. If a colony is detached, nymphs will mature without undergoing the normal number of molts. Fertile eggs are produced and the colony grows. A colony started by adults is quite hard to detect. Once inside the wood, they seal the entrance hole and do not eject refuse until the colony is under development. After a year or more, winged forms are produced and swarming takes place. With the change of many nymphs to adults and their subsequent departure from the colony, activity in the colony is slowed down for a time. Dry-wood termites are able to digest cellulose with the aid of enzymes in large protozoa which live within the gut. No contact with the ground is needed to obtain moisture or supplementary foods.

Description (after Banks): SOLDIER - Front of head and mandibles black, rest yellowish; front of pronotum dark; antennae very pale. Head enlarged in front; face with cavity, elevated in front, ridge obliquely sloping backward, not roughened above; from side, head nearly twice as long as high, black ridge little uneven or roughened; surface with scattered erect hairs. Mandibles long, evenly curved, toothed slightly on inner edge (see figure). Pronotum nearly twice as broad as long; deeply roundedly emarginate in front; surface with many short hairs. Length 5 mm. WINGED - Head pale reddish-yellow; abdomen and thorax yellowish; antennae and legs paler. Eyes nearly circular, near lower margin of head; ocelli small, close to eyes. Pronotum nearly twice as broad as long, sides evenly convex, front margin concave. Scattered fine hairs on head and thorax. Radial sector of wing with several oblique branches near tip, median vein runs into radial sector about three-fourths way to tip. Length 10 mm. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U. S. National Museum). CEIR 9(22):5-29-59.



Soldier and Winged Adult of Cryptotermes dudleyi



Head, Pronotum and Mandibles of Cryptotermes dudleyi

Figures (except map): Soldier and adult from Harris, W. V., 1958. East Afr. Agr. Jour. 23(3):161-166. Head, pronotum and mandibles from Banks, N., 1918. Amer. Mus. Nat. Hist. Bul. 38(17):659-667.

VOL. 9 NO. 23 JUNE 5, 1959

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.

Volume 9 June 5, 1959 Number 23

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS heavy on about half of grasslands in Roosevelt County and on irrigated areas, ditch banks, fence rows and high-mountain pastures in Rio Arriba County, New Mexico. Spraying underway in Curry County, New Mexico. Hatching reported in several north central states. (p. 477). ARMYWORM conditions appear favorable for possible serious condition in Indiana. (p. 478). GREENBUG causing considerable damage to small grains in Iowa, Minnesota and Illinois. (p. 479).

PEA APHID building up on alfalfa in areas of Maryland, abundant in northern Iowa, increasing in Wisconsin and heavy in San Juan and Mora Counties, New Mexico. (p. 480). SPOTTED ALFALFA APHID heavy on alfalfa in southern area. (p. 481). ALFALFA WEEVIL injury increasing in Uintah and Duchesne Counties, Utah, and in Washoe County, Nevada. (pp. 479,495). POTATO LEAFHOPPER and SIX-SPOTTED LEAFHOPPER appearing in numbers in north central states. Aster yellows may be more of a problem in Minnesota than in 1958. (pp. 481, 487). MEADOW SPITTLEBUGS numerous on legumes in several eastern and north central states. (p. 482).

COLORADO POTATO BEETLE common to prevalent on potatoes and tomatoes in several eastern states and severe in Cullman County, Alabama. FLEA BEETLES abundant on potatoes and tomatoes in several eastern states. (p. 485).

THRIPS severe on untreated cotton in Madison Parish, Louisiana, and in the San Joaquin Valley of California. (p. 489). COTTON LEAFWORM eggs reported from Calhoun County, Texas, on May 25. First report of the season. (p. 490).

JAPANESE BEETLE adults emerging on May 20 in North Carolina. (p. 494).

INSECT DETECTION: Alfalfa weevil collected for first time in Tennessee. (p. 480). Imported fire ant found for first time in Carteret County, North Carolina. (p. 494). Aphis abietina recorded for first time in San Luis Obispo County, California. (p. 492).

CORRECTION. (p. 495). ADDITIONAL NOTES. (p. 495).

Status of some IMPORTANT INSECTS in the United States. (p. 497).

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Reports in this issue are for the week ending May 29, unless otherwise designated.

WEATHER BUREAU 30-DAY OUTLOOK

JUNE 1959

The Weather Bureau's 30-day outlook for June calls for temperatures to average above seasonal normals over the northeastern quarter of the Nation and also over the middle Mississippi Valley area. Below normal averages are expected over the western third of the country, except for near normal along the west coast and northern border states. Near normal temperatures are indicated for unspecified areas, although some cooler than normal weather is predicted for the South Atlantic States. Precipitation is expected to be subnormal from the central Great Lakes and Ohio Valley eastward to the Atlantic Coast, and also over the far Southwest. Above normal rainfall is predicted for the Gulf and South Atlantic States, as well as over the Central Rocky Mountain States and much of the Great Plains. In other areas about 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 1

This week brought continued warm, humid weather from the southern Great Plains eastward through the lower Mississippi and Ohio Valleys to New England, as tropical air flowed northward around a high pressure area centered off the Atlantic coast. Below seasonal temperatures prevailed over the upper Great Plains and the Rocky Mountain and Pacific Coastal States. Complex areas of low pressure developed in the central Great Plains along a slowly moving frontal zone separating cool polar air from the tropical air. Scattered showers, thunderstorms, and severe local storms with intensive rainfall, some hail, and tornadoes were observed from the northern Rocky Mountains into the central and nørthern Great Plains and the western Great Lakes region as the front moved through these areas. Generous rainfaill improved soil-moisture conditions over the Dakotas, but excessive falls caused some local flooding and left fields too wet to work in other sections of the Great Plains and upper Mississippi Valley. Arlene, the first tropical storm of the season, developed over the Gulf of Mexico on May 28, and moved across the Louisiana coast in the Vermilion-Atchafalaya Bay area during the afternoon of the 30th. Winds of 40 to 50 m.p.h., were observed on the coast and locally excessive rains occurred over southeastern Louisiana and southern Mississippi. Moisant Airport in New Orleans recorded 11.09 inches of rain in 24 hours; Houma, Louisiana, 11.35 inches in 17-1/2 hours, and 13.13 inches for a 3-day period.

Almost daily, locally heavy thundershowers over the Southeastern States brought substantial rainfall from the western Carolinas to eastern Texas. Athens, Georgia, received 5.54 inches on May 25-26 and 11.34 inches during May, making this the wettest month there since November 1948. Wet soil and continuing rains have resulted in fieldwork delays, and dry weather is needed. Unusually warm, humid, but generally dry weather prevailed in the Middle Atlantic and New England States until the weekend under the influence of high pressure centered off the coast. Only scattered, mostly light showers fell in the east from North Carolina northward. One exception was Atlantic City, New Jersey, where a local thunderstorm produced 4.13 inches in a 6-hour period on Friday. Most areas in the Northeast, except Rhode Island and southeastern Massachusetts, need rain badly. In some sections of New England, the past 4 weeks have been extremely dry. Hartford, Connecticut, with 0.73 inch, experienced the driest May on record. Many other sections from eastern North Carolina to New York report insufficient precipitation and soil-moisture deficits. Most areas of the Far West remain cool and very dry. The cool weather has slowed crop and range development over much of the area. From western Texas to California only a few widely scattered local showers, mostly in the mountains, fell during the week. (Summary supplied by the U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - NEW MEXICO - Spraying underway along eastern Curry County. Infestations heavy on about half of grassland in Roosevelt County. Heavy on irrigated areas, ditch banks, fence rows and high-mountain pastures in Rio Arriba County. (N. M. Coop. Rpt.). COLORADO - Ranged 15-30 per square yard in fence rows, borders and roadsides of wheat fields in Cheyenne and Kit Carson Counties. Melanoplus sp. averaged 25 per 100 sweeps in alfalfa in Larimer County. (Exp. Sta., May 26). OKLAHOMA - Second and third-instar nymphs common in most alfalfa fields in Payne Noble, Pawnee, Kay and western Osage Counties. (VanCleave). Populations 3-4 per square yard on rangeland in Major County. (Owens). SOUTH DAKOTA - First-instar Melanoplus bivittatus nymphs averaged 4 per sweep in alfalfa in northern Lawrence County and M. bilituratus nymphs found on alfalfa in northern Lawrence County. (Mast, May 23). IDAHO - Newly hatched nymphs first seen May 25 in cultivated fields in Canyon County. (Waters). Hatching underway in Dietrich-Butte area northeast of Shoshone. Oedaleonotus enigma reached third instar in area north of Sweet in Gem County. (Smith, Bishop). First-instar nymphs in alfalfa fields southeast of Pocatello. (Foote). MINNESOTA - Some hatching along field margins of grain and alfalfa fields in central area. Second instars found in Steele, Blue Earth, Freeborn and Olmsted Counties. (Minn. Ins. Rpt.). WISCONSIN - M. bivittatus nymphs emerging in Waupaca, Adams and Marquette Counties. Nymphs of lesser important species in third and fourth instar in several central and northeastern counties. MISSOURI - Nymphs of M. bilituratus range 2-4 per square foot along roadsides in southeastern area. (Kyd, Thomas,Munson). INDIANA - Few Melanoplus spp. nymphs found most fields surveyed. (Matthew, Schuder).

MORMON CRICKET (Anabrus simplex) - UTAH - Infesting 5,000 acres of rangeland in Maverick Point area of San Juan County. (Annand, Thornley, Knowlton).

EUROPEAN CORN BORER (Pyrausta nubilalis) - ALABAMA - Older field corn showing leaf-feeding injury in Tennessee Valley area. Peak moth flight during week in Sand Mountain area. (Eden). ARKANSAS - Twelve egg masses found per 100 corn plants, 30-36 inches high, in Pope County. (Boyer). Larvae found in barley in Jefferson County on April 28. (Ark. Ins. Sur.). VIRGINIA - Few larvae hatched on corn in Sussex County. (Woodside). NEW YORK - Emergence began May 20 at Poughkeepsie. (N. Y. Wkly Rpt.). OHIO - Pupation 25 percent in Franklin County south of Columbus on May 20; nearing completion same area on May 28. Pupation 33 percent in Van Wert County on May 22; survival appears light. (Triplehorn). MISSOURI - Pupation almost complete in central and east central areas. Egg laying started in southeast, 4 masses per 100 stalks in 40-inch corn. (Kyd, Thomas, Munson). IOWA - Pupation in central area 36 percent compared with 74 percent at same time in 1958. (Iowa Ins. Inf., May 23). SOUTH DAKOTA - Pupation not started in southeast area. (Mast, May 23).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Deadhearts increased to average of 354 per acre in sugarcane. No egg masses of second generation found. Infestations extremely light in field corn in Acadia, St. Landry, Avoyelles and Pointe Coupee Parishes. (Spink).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Populations in corn field near Yale were 1.7 percent larvae, 79 percent pupae and 19.3 percent adults. (Arbuthnot, VanCleave). TEXAS - Heavy in young corn in Hardin County. (Tex. Coop. Rpt.). ARKANSAS - Survival less than 6 percent in corn fields examined in Washington County. (Whitcomb, Wall).

A SOD WEBWORM (Crambus sp.) - INDIANA - Damage rather extensive to young corn in Newton County. (Gould).

CORN EARWORM (Heliothis zea) - OKLAHOMA - Light, becoming more common, in alfalfa fields in central and north central counties. (VanCleave). Light in corn fields in Choctaw and Bryan Counties. (Goin, Vinson). TEXAS - Heavy budworm infestation in corn in Burleson and Brazos Counties. (Randolph). Heavy and widespread in Uvalde County. (Prucia). ALABAMA - Eggs and larvae abundant on sweet corn in

southwest area. (Eden). LOUISIANA - Budworm damage very light, apparently old, on field corn in Acadia, St. Landry, Avoyelles and Pointe Coupee Parishes. Sweet corn in Avoyelles, St. Landry, Evangeline, St. Martin and Iberia Parishes showed 23 percent tassel damage. Infestations ranged light to heavy with eggs and all instars present. Very heavy on white clover in Pointe Coupee Parish. (Spink). MISSOURI - Budworms damaging about 4 percent of larger corn plants in southeast. (Kyd, Thomas, Munson). ARKANSAS - Fresh eggs ranged 1-2 per corn stalk in Pope County. Third and fourth-instar larvae ranged 8-9 per 20 sweeps in alfalfa in Conway County, none found in Washington County. (Ark. Ins. Sur.).

ARMYWORM (Pseudaletia unipuncta) - MISSOURI - Low in wheat and grass in central and east central areas. Counts 0-4 per square foot in dense wheat and 2-6 per square foot in fescue. (Kyd, Thomas, Munson). INDIANA - Scattered infestations in corn in southern and central areas. Conditions appear favorable for possible serious condition in near future. (Osmun). MARYLAND - Light infestations on legumes, corn, grain and lawn grasses in Queen Annes, Dorchester and Worcester Counties. (U. Md., Ent. Dept.). VIRGINIA - Damaging corn and alfalfa in King William County. (Kelley).

ARMYWORMS - INDIANA - Causing severe damage to alfalfa and other field crops in southern Knox County. (Hamilton). TEXAS - Causing heavy damage to vetch and corn in Cherokee County. (Tex. Coop. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Averaged 8 per 25 sweeps on rice in Vermilion Parish. (Spink).

CUTWORMS - IDAHO - Chorizagrotis auxiliaris destroyed 200 acres of wheat in Rexburg area. (Jacobs). UTAH - Damaged grain crops and moderately numerous some alfalfa fields in Pleasant Valley, Duchesne County, this spring. (Smith, Knowlton). COLORADO - C. auxiliaris and Agrotis sp. infesting some alfalfa fields in Rio Grande and Costillo Counties, 4-6 per crown. (Exp. Sta., May 26). MISSOURI - Peridroma margaritosa light in central areas, counts 0-6 per square foot in alfalfa and 2-5 in fescue, mixed with Pseudaletia unipuncta. WISCONSIN - Moderate to heavy populations in Waushara, Portage, Eau Claire, Jackson, Waupaca, Monroe, Sauk, Dane, Racine, Price, Chippewa, Shawano and Calumet Counties. (Wis. Coop. Sur.). ILLINOIS - Agrotis ypsilon reported from Paris, Danville and Kankakee in the east to Illinois River bottoms near Beardstown in the west. Some fields replanted, others treated with good results. (Ill. Ins. Rpt.). INDIANA - A. ypsilon damaging young corn in Carroll County. (Gould). OHIO - Nephelodes emmedonia infestation severe in grassland in 7 eastern counties, centered around Coshocton. (Holdsworth). TENNESSEE - Damaging alfalfa in Obion County. Species probably P. margaritosa. (Stanley). MARYLAND - P. margaritosa moderate on sweet corn at Vienna, Dorchester County. (U. Md., Ent. Dept.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Medium to heavy on sorghum in Falls, Milam and Denton Counties. (Tex. Coop. Rpt.).

CHINCH BUGS - SOUTH CAROLINA - Destroying annual grasses in pastures in Lexington County. (Nettles et al.). Lawns in Hampton County infested with heavier populations this year than ever before. (Nettles et al., May 20).

BILLBUGS - INDIANA - Light infestation of Calendra sp. found on corn in creek bottom fields in Jennings County, 12 percent of plants showed damage. (Matthew, Schuder). SOUTH CAROLINA - Causing considerable damage to corn in Florence County. (Nettles et al., May 20).

CORN FLEA BEETLE (Chaetocnema pulicaria) - DELAWARE - Becoming common some corn fields in Kent and Sussex Counties. (Burbutis, Conrad). MARYLAND - Adults light to moderate on field corn in Prince Georges and Kent Counties. (U. Md., Ent. Dept.). TEXAS - None to very light on corn in Collins County. Rather heavy populations noted during same period in 1958. (Tex. Coop. Rpt.).

SEED-CORN MAGGOT (Hylemya cilicrura) - VIRGINIA - Destroyed considerable acreage of corn on farm in Stafford County. (Rowell, Beck).

GREENBUG (Toxoptera graminum) - IOWA - Severe on oats in Des Moines, Lee, Van Buren, Henry, Jefferson and Decatur Counties. (Iowa. Ins. Inf., May 23). MINNESOTA - Building up, infestations observed on oats and wheat as far north as Traverse and Benton Counties. Most severe damage sustained in Nicollet, Blue Earth, Watonwan and Brown Counties. Many fields being treated. (Minn. Ins. Rpt.). NORTH DAKOTA - Traces observed in wheat and barley fields throughout Cass and Richland Counties. (N. D. Ins. Rpt.). ILLINOIS - Severely damaging oats from East Saint Louis north to Rock Island and Charleston north to Joliet. Some fields entirely destroyed. (Ill. Ins. Rpt.). SOUTH DAKOTA - Averaged 20 per leaf blade on spring wheat in local areas in Grant County, evidently doing some damage. Being found in Minnehaha, McCook and Moody Counties. (Mast).

ENGLISH GRAIN APHID (Macrosiphum granarium) - MINNESOTA - Counts 5-15 per 10 sweeps in southeast and south central areas. (Minn. Ins. Rpt.). NORTH DAKOTA - Present in many wheat and barley fields in southeastern area, but less frequent than Toxoptera graminum. (N. D. Ins. Rpt.).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Damaging numbers on sorghum in Denton and Brazoria Counties. (Tex. Coop. Rpt.).

RICE STINK BUG (Oebalus pugnax) - LOUISIANA - Averaged 92 adults and 60 nymphs per 100 sweeps at Abbeville and 4 adults and 14 nymphs per 100 sweeps at Gueydan on Vasey grass, Paspalum urvillei, bordering rice fields. (Spink). ARKANSAS - Counts ranged 2-4 per 20 sweeps on wheat in Conway County. (Ark. Ins. Sur.).

SAWFLIES - CALIFORNIA - Male Pachynematus sporax collected from mixed grasses in Crescent Mills area of Plumas County. Pachynematus sp., probably extensicornis, on wildrye and mixed grasses in Alturas, Modoc County, and Quincy, Plumas County. (Cal. Coop. Rpt.).

WHITE GRUBS - SOUTH DAKOTA - Damaging lawns and pastures in Grant and Hutchinson Counties. (Mast, May 23). UTAH - Damaging lawns at Price, Carbon County, and in several areas of Emery County. Damage was particularly severe at Price during 1958. (Knowlton). VIRGINIA - Killing bluegrass in spots from approximately 10 to 20,000 square feet in pastures and lawns in Clarke County, 12-20 grubs per square foot. Species involved probably Phyllophaga hirticula. (Rowell, Holland).

WIREWORMS - NEW MEXICO - Destroyed about 90 acres of sorghum in San Miguel County. (N. M. Coop. Rpt.). IDAHO - Larvae averaged 1-2 per red clover root near Wilder. (Waters). Infesting red clover near Nampa. (Bechtolt). Adults fairly common in margins of alfalfa fields near Robin in Bannock County. (Foote).

A RICE DELPHACID (Sogata orizicola) - TEXAS - Inspections of rice in 2 fields in Waller County and 3 in Colorado County were negative. (McClung).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - LOUISIANA - Counts 13 per 25 sweeps on rice in Vermilion Parish. (Spink).

FALSE WIREWORMS (Eleodes spp.) - SOUTH DAKOTA - Averaged 1 per 4 linear feet of row in winter wheat in central area. (Mast, May 23).

ALFALFA WEEVIL (Hypera postica) - COLORADO - Adults 75 per 100 sweeps in alfalfa in Larimer County. Larval counts per 100 sweeps in alfalfa were 25 in Larimer County, 20-50 in Delta County and 600-800 in Mesa County (25-35 percent parasitized). (Exp. Sta., May 26). UTAH - Injury increasing in Uintah and Duchesne Counties and at Green River in eastern area. (Knowlton). WYOMING - Adults and larvae present in alfalfa several areas in Fremont County. Highest counts 26 adults and 2 larvae per 200 sweeps in Cottonwood Bench area. No damage observed in areas inspected. (Davison). IDAHO - Adults averaged 1 per 20 sweeps in

alfalfa north of Mountain Home, young larvae fairly common. Adults ranged 1-3 per 30 sweeps in Blaine County, little larval feeding. Heavy infestations in fields south of Pocatello near Robin, adults 5-10 per sweep with feeding damage extensive. Few adults or larvae found in Lemhi County. Adults uncommon and larvae not found in fields near Gooding. (Foote). TENNESSEE - Found in Sullivan and Johnson Counties. This is first record in the State. (Bennett, Hammett, Mullett). SOUTH CAROLINA - Heavy damage to second crop of first-year planting in mountain area of Oconee County. Larvae fairly abundant and still feeding. (Nettles et al.). VIRGINIA - Severely damaged ladino clover in 18-acre field in Prince Edward County. (Bishop, Peery). Rather severe on second-growth cutting alfalfa in scattered fields in Prince Edward County. (Peery). MARYLAND - Larvae injuring second-growth alfalfa in Kent and Queen Annes Counties. Adults and larvae moderate on ladino clover at Vienna, Dorchester County. (U. Md., Ent. Dept.). DELAWARE - Newly emerged first-generation adults common in New Castle County. Feeding injury heavy on few uncut fields where controls not applied. Late-instar larvae common most areas, feeding injury on second growth light. (Burbutis, Conrad).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - IDAHO - Larvae generally abundant and very widespread in southwestern area. (Waters). Larvae common to fairly abundant in alfalfa fields in south central and eastern areas, less common in northeastern areas. Adults found only in red clover fields near Wendell, averaging 1-3 per 10 sweeps. (Foote). INDIANA - Adults swept from red clover in Washington and Ripley Counties. (Matthew, Schuder). DELAWARE - Mature larvae fairly common in clover heads and newly emerged adults becoming more common. (Burbutis, Conrad). MARYLAND - Larval injury to red clover axils common at Easton, Talbot County. (U. Md., Ent. Dept.).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - IDAHO - Adults general in sweetclover in eastern area but plants seem to have outgrown feeding damage. Adults numerous on roadside sweetclover across southwest, south central, eastern and northern areas. (Foote). NORTH DAKOTA - Feeding injury observed all seedling sweetclover fields,southeastern area. Injury mostly light although one field 25 percent defoliated. (N. D. Ins. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - IDAHO - Adults generally light in south central and eastern areas, averaged 1 per 10 sweeps in Wendell area. Larger numbers in alfalfa fields southeast of Pocatello near Robin, with counts 1-3 per sweep. (Foote).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Averaged 5 per 10 sweeps on alfalfa in east central area. (Mast).

PEA APHID (Macrosiphum pisi) - DELAWARE - Common most alfalfa and clover throughout State but not increasing. (Burbutis, Conrad). MARYLAND - Building up on alfalfa on Eastern Shore and in central area. Averaged over 60 per sweep at Vienna, Dorchester County. (U. Md., Ent. Dept.). IOWA - Abundant in northern part of State. Disease and predators should help reduce populations. (Iowa Ins. Inf., May 23). WISCONSIN - Increasing generally in alfalfa. Highest average per sweep was 25 in Waukesha County. (Wis. Coop. Sur.). MINNESOTA - Predators, mainly lady beetles, holding infestations in check on alfalfa. (Minn. Ins. Rpt.). SOUTH DAKOTA - Averaged 6 per sweep on alfalfa in Minnehaha, Moody and Brookings Counties. (Mast). WYOMING - No damage to alfalfa observed in several areas in Fremont County. Highest counts 150 per 200 sweeps in Cottonwood Bench area. (Davison). Very heavy in alfalfa in Goshen County, some stunting of growth. (Trierweiler). IDAHO - Generally low to moderate in alfalfa fields in south central, eastern and northern areas. (Foote). COLORADO - Counts per 100 sweeps in alfalfa were 400-500 in Larimer County, 40-60 in Delta and Montrose Counties and 50-100 in Mesa County. (Exp. Sta., May 26). OKLAHOMA - Light in alfalfa fields in north central and central counties. (VanCleave). NEW MEXICO - Destroying alfalfa stands in San Juan County. Heavy and damaging alfalfa in Mora County. Most growers treating. (N. M. Coop. Rpt.). TEXAS - Building up in

vetch in Kaufman County (Lewis) and 5-15 per sweep in alfalfa in Burleson County (Randolph). ARKANSAS - Extremely variable on alfalfa in northwest. Some fields with heavier infestations than past few weeks while others practically free. (Ark. Ins. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Extremely light in alfalfa fields in central and north central counties. (VanCleave). Counts 10 per sweep in field in Choctaw County (Goin) and 4 per sweep in vetch field in Marshall County (Vinson). NEW MEXICO - Heavy on alfalfa most southern counties. Especially destructive to spring-planted alfalfa in Dona Ana, Eddy and Chaves Counties. (N. M. Coop. Rpt.). TEXAS - None to very light in alfalfa in Burleson and Brazos Counties. (Randolph). ILLINOIS - Winged adult collected on May 15 at Havana. (Ill. Ins. Rpt.).

CLOVER APHID (Anuraphis bakeri) - IDAHO - Continues heavy in red clover fields in southwest (Waters) and numerous in south central area (Foote). MARYLAND - Light on red clover at Easton, Talbot County. (U. Md., Ent. Dept.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Counts ranged 28-71 per 100 sweeps in alfalfa, distribution seems general. (Wis. Coop. Sur.). MINNESOTA - Heavy flights on May 26 brough species as far north as Isanti, Todd and Stearns Counties. Nymphs expected to produce injury to alfalfa and potatoes about third week in June. ILLINOIS - Adult populations in eastern area from East Saint Louis to Danville ranged 0-100 per 100 sweeps. In area north to Rock Island and Chicago, counts 100-2,000 per 100 sweeps and in area north to Wisconsin border, counts 0-150. (Ill. Ins. Rpt.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Adults 10-80 per 100 sweeps. No nymphs found. Aster yellows may be more of a problem this year than in 1958. (Minn. Ins. Rpt.). NORTH DAKOTA - Present in small grain and legumes in southeastern area. Adults ranged 200-500 per 100 sweeps in Richland and southern Cass Counties and 10-72 per 100 sweeps in northern Cass and southern Traill Counties. Infestation considered higher than at same time in 1958. (N. D. Ins. Rpt.). SOUTH DAKOTA - Averaged 3 per 10 sweeps in legumes and cereal crops in east central area. (Mast).

LEAFHOPPERS - SOUTH DAKOTA - Aceratagallia sanguinolenta averaged less than one per 10 sweeps on alfalfa in eastern Pennington County. (Mast, May 23). TEXAS - Undetermined species averaged 80.3 per 10 sweeps and Draeculacephala portola averaged 7.7 per 10 sweeps in rice fields in Jefferson County. (Bowling).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - TEXAS - Counts 1-3 per sweep in alfalfa in Burleson and Brazos Counties. (Randolph).

LYGUS BUGS (Lygus spp.) - COLORADO - Counts per 100 sweeps in alfalfa were 25-35 in Larimer County, 20 in Montrose County and 20-40 in Mesa County. (Exp. Sta., May 26). UTAH - Numerous on alfalfa in San Juan and Grand Counties. (Knowlton). OKLAHOMA - Counts 0.5-1.2 per sweep in alfalfa in central and north central areas. (VanCleave). Averaged 4 per sweep in vetch field in Marshall County. (Vinson). WYOMING - No damage observed in alfalfa several areas inspected in Fremont County. Highest counts 32 per 200 sweeps in North Portal area. (Davison). MINNESOTA - Hatching and apparently much more numerous than Adelphocoris spp. Adults ranged 10-150 per 100 sweeps and nymphs up to 50 per 100 sweeps in southern area. (Minn. Ins. Rpt.). DELAWARE - L. lineolaris common to prevalent on alfalfa and clover throughout State. (Burbutis, Conrad). MARYLAND - L. lineolaris adults averaged 15 per sweep on red clover at Easton, Talbot County. (U. Md., Ent. Dept.). ARKANSAS - L. lineolaris counts 12-20 per 20 sweeps in alfalfa in northwest. (Ark. Ins. Sur.).

PLANT BUGS - DELAWARE - Nymphs and adults of Adelphocoris rapidus common to prevalent on alfalfa and clover throughout State. (Burbutis, Conrad). MINNESOTA - Adelphocoris lineolatus less numerous than usual and hatch appears well completed in southern and central areas. (Minn. Ins. Rpt.). SOUTH DAKOTA - A. rapidus averaged less than one per 10 sweeps on alfalfa in Minnehaha and Moody Counties. (Mast).

MEADOW SPITTLEBUG (Philaenus leucopthalmus) - DELAWARE - Adults very abundant on clover and common on alfalfa in New Castle County. (Burbutis, Conrad). MARYLAND - Adults common in alfalfa and red clover in central and southern counties. Averaged over 8 per sweep on red clover at Easton, Talbot County. (U. Md., Ent. Dept.). VIRGINIA - Adults extremely heavy in a Spotsylvania County clover field, medium on clovers two areas of Albemarle County and heavy in pastures and hay crops in Franklin County. (Morris, Smith, Kash, Tucker). WEST VIRGINIA - Heavy populations on alfalfa in eastern counties. (W. Va. Ins. Sur.). TENNESSEE - Counts 25-30 per sweep in Sullivan County and 10-15 per sweep in Johnson County. (Bennett, Hammett). INDIANA - Adults in red clover and alfalfa in Orange, Washington, Scott, Jackson, Bartholomew, Jennings, Ripley and Franklin Counties in southeast. Counts 12-80 per sweep. Nymphal counts 4-300 per 100 stems. (Matthew, Schuder). ILLINOIS - Adults 10 per 100 sweeps as far north as Urbana. (Ill. Ins. Rpt.). WISCONSIN - Nymphs heaviest in southern alfalfa fields, but moderate numbers in Jackson and Monroe Counties. (Wis. Coop. Sur.). IDAHO - Populations of spittlebugs, probably P. leucophthalmus, in red clover fields west of Deary in Latah County increased slightly during past three weeks. (Foote).

SPITTLEBUGS - IOWA - Averaged 1 per 2 stems in Linn and Johnson Counties. (Iowa Ins. Inf., May 23).

A FALSE CHINCH BUG (Nysius sp.) - CALIFORNIA - Heavy on seed alfalfa in Fresno area, Fresno County. (Calif. Coop. Rpt.).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - OKLAHOMA - Ranged 0-0.1 per sweep in alfalfa in central and north central counties and 2 per sweep in field in Choctaw County. (VanCleave, Goin). DELAWARE - Present on alfalfa most areas. (Burbutis, Conrad). IDAHO - Adults common to abundant in alfalfa fields near Idaho Falls. (Foote).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Present on clover and alfalfa in New Castle County. (Burbutis, Conrad).

GARDEN WEBWORM (Loxostege similalis) - TEXAS - Averaged 1 per 5 sweeps in alfalfa in Burleson and Brazos Counties. (Randolph).

THRIPS - ALABAMA - Frankiniella fusca damage to peanuts continues to increase in Houston, Geneva, Coffee, Dale and Henry Counties. (Eden, Grimes). GEORGIA - Moderate to heavy on peanuts in 19 counties. (Johnson).

A STRIPED BLISTER BEETLE (Epicauta sp.) - ALABAMA - Causing moderate damage to pastures in Chilton County. (Helms). GEORGIA - Light to moderate infestations on peanuts in Brooks, Colquitt and Cook Counties and moderate to heavy on soybeans and velvetbeans in 9 counties. (Johnson).

COWPEA CURCULIO (Chalcodermus aeneus) - GEORGIA - Light to heavy on cowpeas in Spalding County, as many as 8 adults per plant. (Dupree).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW YORK - Heavy activity on May 20-21, with extensive egg laying. (N. Y. Wkly. Rpt.). NEW JERSEY - Entry into young apples observed May 25 in Burlington County. (Ins. Dis. Newsl.). MASSACHUSETTS - Egg laying begun. (Crop Pest Cont. Mess.). OHIO - Peak emergence occurred in northern area May 19-21. No entrances noted in southern area on May 26. (Cutright).

INDIANA - Weather conditions unfavorable for larvae to enter fruit in Vincennes area. About 50 percent of larvae in overwintering cages have emerged. (Hamilton) Still very prevalent in Orleans area and may not have reached the seasonal peak yet. (Marshall). MISSOURI - A few new entries still being found in southeast area. (Wkly Rpt. Fr. Grs.). WISCONSIN - Pupating May 15 in Door County. (Wis. Coop. Sur.). COLORADO - High numbers taken in traps in Mesa County. (Ext. Ser., Exp. Sta., May 26).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - CALIFORNIA - Generally light to heavy locally on pear trees in Lake County and unusually light in Los Angeles County. (Cal. Coop. Rpt., April Summary). WISCONSIN - Began feeding in Door County orchards May 22. (Wis. Coop. Sur.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - First-brood larvae rolling leaves and feeding on fruit in Vincennes area. (Hamilton). MISSOURI - More numerous than previously thought in Kansas City area. Most have pupated. (Wkly. Rpt. Fr. Grs.). MINNESOTA - Hatch nearly complete in LaCrescent-Dakota area. (Minn. Ins. Rpt.). WISCONSIN - Eggs numerous in many Door County orchards May 15. (Wis. Coop. Sur.).

RED-HUMPED CATERPILLAR (Schizura concinna) - CALIFORNIA - Medium on apple in Fairfield, Solano County. (Cal. Coop. Rpt.).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - WISCONSIN - Numerous in many Door County orchards May 15. (Wis. Coop.Sur.).

SHOT-HOLE BORER (Scolytus rugulosus) - CALIFORNIA - Medium on apple, cherry and quince trees in the Montgomery Creek area of Shasta County. (Calif. Coop. Rpt.).

ROSY APPLE APHID (Anuraphis roseus) - INDIANA - The period for outbreaks in Vincennes area has passed and no major injury observed. (Hamilton). OHIO - Migration started in southern area, infestations light to date. (Cutright). NEW MEXICO - Light and spotty on apples in San Juan County. (N. M. Coop.Rpt.). WYOMING - Very light on apple trees in Fremont County. (Davison).

APPLE APHID (Aphis pomi) - DELAWARE - Building up again on apples statewide, especially on new terminal growth. (Kelsey).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Relatively heavy populations of newly hatched nymphs and eggs present in some apple and plum orchards in Vincennes area. (Hamilton). WISCONSIN - Hatching May 15, larvae and nymphs present May 22 in Door County. (Wis. Coop. Sur.). NEW YORK - Heavy in some orchards in Ulster County, summer eggs found May 21 in Clinton County and eggs quickly hatching in Orleans County. (N. Y. Wkly. Rpt.). OHIO - Second generation near maturity in southern area. Summer eggs hatching in northern area. Infestations serious in many orchards. (Cutright).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - RHODE ISLAND - Severe locally on pear in South Kingstown and Warwick, May 27. (Hansen).

PLUM CURCULIO (Conotrachelus nenuphar) - NEW YORK - Extremely active Niagara, Saratoga and Dutchess Counties. (N. Y. Wkly. Rpt.). OHIO - Numerous egg punctures on unsprayed apples and above normal in some sprayed orchards. (Cutright). INDIANA - Peak oviposition of spring brood adults passed in Vincennes area. Few adults can still be jarred from orchards. (Hamilton). Still doing considerable damage to apples and peaches in Orleans area. (Marshall). WISCONSIN - First of season taken in Door County, May 22. (Wis. Coop. Sur.) ALABAMA - Heavy damage to peaches in scattered locations in Chilton County. (Grimes). GEORGIA - New adults began emerging from soil May 25. (Snapp).

A PLUM APHID (Anuraphis helichrysi) - CALIFORNIA - Heavy on plums in Mokelumne Hill, Calaveras County. (Calif.Coop. Rpt.).

WESTERN TUSSOCK MOTH (Hemerocampa vetusta) - CALIFORNIA - Moderate to heavy, scattered on prunes in Santa Clara County, light on plums in Santa Cruz County and exceptionally light on citrus in Los Angeles County. (Calif. Coop. Rpt., April Summary).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - CALIFORNIA - Medium on prunes in Santa Cruz County. (Calif. Coop. Rpt., April Summary).

MEALY PLUM APHID (Hyalopterus arundinis) - CALIFORNIA - Medium on prunes in the Woodland area, Yolo County. (Calif. Coop. Rpt., April Summary).

BLACK CHERRY APHID (Myzus cerasi) - UTAH - Severe in many cherry orchards in Salt Lake, Davis, Weber, Box Elder and Cache Counties. Occasionally numerous in Washington and San Juan Counties. (Knowlton).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - First-brood larval injury in Vincennes area passed. Newly wilted twigs in Linton area indicates late first-brood larvae still hatching May 22. (Hamilton). Emergence from packing houses declining rapidly in Orleans area. Next brood will hatch and enter peach twigs about June 8. (Marshall). OHIO - Some first-brood populations about same level as in 1958. (Rings).

LESSER PEACH TREE BORER (Synanthedon pictipes) - OHIO - Twenty-five adults emerged from 41 trees in Doylestown area during period May 22-28. (Rings).

PEACH TWIG BORER (Anarsia lineatella) - CALIFORNIA - Light on peach trees in Marysville area, Yuba County. (Calif. Coop. Rpt.). Moderate on almond in western Yolo County and general on peaches in Tehama County. (Calif. Coop. Rpt., April Summary). UTAH - Damage above normal in Weber, Utah, Tooele, Washington, San Juan, Kane, Grand and Emery Counties. (Knowlton, Davis). Damage conspicuous in peach and apricot trees at Moab, Blanding and Bluff Counties. (Thornley).

CATFACING INSECTS - OHIO - Neolygus omnivagus, N. quercalbae and N. caryae matured at Wooster and will soon be entering northern peach orchards. (Rings).

MAY BEETLES (Phyllophaga sp.) - OKLAHOMA - Defoliating pecan, persimmon and oak trees in large area in the Boswell vicinity, Choctaw County. (Goin).

PECAN PHYLLOXERA (Phylloxera devastatrix) - TEXAS - Medium to heavy on pecan trees in Red River County. (Tex. Coop. Rpt.).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Spotted infestation found on pecan trees in Comanche County. (Tex. Coop. Rpt.).

WALNUT APHID (Chromaphis juglandicola) - CALIFORNIA - Medium on walnut trees in Merced County. (Calif. Coop. Rpt., April Summary).

GRAPE LEAF FOLDER (Desmia funeralis) - CALIFORNIA - Light on grape vines at Gustine, Merced County. (Calif. Coop. Rpt.).

VARIEGATED CUTWORM (Peridroma margaritosa) - CALIFORNIA - Light to heavy on grapes in Ukiah-Redwood Valley area of Mendocino County. (Calif. Coop. Rpt., April Summary).

FALSE CHINCH BUG (Nysius ericae) - CALIFORNIA - Medium to heavy on grapes in the Cucamonga area of San Bernardino County. (Calif. Coop. Rpt., April Summary).

GRAPE MEALYBUG (Pseudococcus maritimus) - MISSOURI - Some hatching reported from the Rosati area. (Wkly. Rpt. Fr. Grs.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - MINNESOTA - Hatched in the southeast area during past week. (Minn. Ins. Rpt.).

CITRUS THRIPS (Scirtothrips citri) - CALIFORNIA - Light to medium on citrus in San Bernardino County and light in Orange and Riverside Counties. (Calif. Coop. Rpt., April Summary).

CITRUS BUD MITE (Aceria sheldoni) - CALIFORNIA - Lemons in Santa Barbara County suffered trace to medium infestations. (Calif. Coop. Rpt., April Summary).

SCALE INSECTS - CALIFORNIA - Aonidiella aurantii medium in Santa Barbara County, spotted light to heavy in San Bernardino County and light in Orange County. A. citrina medium on orange trees in Dixon, Solano County. Coccus hesperidum medium on prunes, plums and pears in Santa Cruz County. (Calif. Coop. Rpt., April Summary). OHIO - About 99 percent of Lecanium corni females depositing eggs at Wooster but no hatch noted. (Rings).

A FLEA BEETLE (Altica foliacea) - NEW MEXICO - Causing considerable damage to apple foliage in Dona Ana, Valencia and Lincoln Counties. Defoliating grapes in Dona Ana County. (N. M. Coop. Rpt.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - RHODE ISLAND - Adults present in fields in South Kingstown May 25. (Hansen). NEW YORK - Becoming more numerous in Suffolk County, 4-5 per potato plant. (N. Y. Wkly. Rpt.). NEW JERSEY - Numerous on young tomato plants. (Ins. Dis. Newsl.). DELAWARE - Adults common, eggs common to prevalent and larvae present on tomatoes throughout State. Larvae causing severe injury in small potato plantings in Sussex County. (Burbutis, Conrad). ALABAMA - Severe on potatoes and tomatoes in Cullman County. Heavy in Chilton County area on potatoes. (Blake). VIRGINIA - Present in all stages on potatoes in eastern area. (Hofmaster).

FLEA BEETLES - MASSACHUSETTS - Abundant on potatoes. (Crop Pest Cont. Mess.) NEW YORK - Plentiful on tomatoes in Rockland County. (N. Y. Wkly. Rpt.). RHODE ISLAND - Epitrix cucumeris adult activity first observed this season in South Kingstown area. (Hansen). DELAWARE - Epitrix cucumeris present to very common some fields of potatoes and tomatoes throughout State. (Burbutis, Conrad). MARYLAND - Injuring eggplant and tomatoes at various localities in Kent County. (U. Md., Ent. Dept.). ALABAMA - Chaetocnema confinis limited activity in sweet-potato fields and beds in Cullman County. (Blake). WISCONSIN - E. cucumeris activity reported mostly from counties with light soils. (Wis. Coop. Sur.). UTAH - Damaging radishes, turnips and beets in Moab and Blanding areas in south-east and in Logan and Smithfield areas of Cache County. (Knowlton, Thornley). NEW MEXICO - Heavy, damaging tomatoes in several fields in Dona Ana and Luna Counties. (N. M. Coop. Rpt.). CALIFORNIA - E. hirtipennis medium and causing damage in tomato plantings in Woodland area, Yolo County. (Calif. Coop. Rpt., April Summary).

THREE-LINED POTATO BEETLE (Lema trilineata) - RHODE ISLAND - Adults appearing at South Kingstown. (Hansen).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - FLORIDA - More widely prevalent than for many years on tomatoes, avocados and beans near Homestead, Dade County. (Fla. Coop. Sur.).

A STRIPED BLISTER BEETLE (Epicauta sp.) - GEORGIA - Light to moderate on tomatoes in several counties. (Johnson).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW YORK - Now pupating in Ulster County. (N. Y. Wkly. Rpt.). NEW JERSEY - Egg masses present in potato fields in Camden County. (Ins. Dis. Newsl.). DELAWARE - Fresh egg masses fairly common some potato fields. Several egg masses and first-instar larvae found in lettuce field in Kent County. (Burbutis, Conrad).

TOMATO FRUITWORM (Heliothis zea) - GEORGIA - Heavy on tomatoes in 8 counties. Fruit 50 percent infested some fields. (Johnson). LOUISIANA - Severe damage to tomatoes in Plaquemines and St. Bernard Parishes. (Spink). CALIFORNIA - Several fields of lettuce heavily damaged in San Diego County, coastal area. (Calif. Coop. Rpt., April Summary).

BEET ARMYWORM (Laphygma exigua) - CALIFORNIA - Medium and increasing in peppers and tomatoes in Chula Vista-El Cajon area, San Diego County. (Calif. Coop. Rpt., April Summary).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - First adults of season taken on potatoes at Vienna, Dorchester County. (U. Md., Ent. Dept.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Found on lycium in the following counties and rates per 100 sweeps: Weld-1, Mesa-1, Chaffee-2, Larimer-5, Otero-50, Pueblo-50. None found in Saguache, Rio Grande, Alamosa and Conejos Counties. (Ext. Ser., Exp. Sta., May 26). UTAH - Seven per 50 sweeps on rabbitbrush at Glendale and 2 per 50 sweeps on matrimonyvine at Orderville and Green River. (Knowlton).

LEAF-FOOTED BUGS - LOUISIANA - Heavy on tomatoes in Acadia Parish. (Spink).

POTATO APHID (Macrosiphum solanifolii) - DELAWARE - Present to common on potatoes most areas and common to prevalent on tomatoes in New Castle, Kent and Sussex Counties. (Burbutis, Conrad). VIRGINIA - Aphids, probably this species, very heavy on potatoes in lower Northampton County. (Hofmaster).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Heavy on bell pepper in San Diego County. (Calif. Coop. Rpt.). Increased from light to medium on peppers in Chula Vista-El Cajon area, San Diego County, and light to medium on lettuce in Santa Maria area, Santa Barbara County. (Calif. Coop. Rpt., April Summary).

AN APHID (Rhopalosiphum subterraneum) - CALIFORNIA - Medium on potato roots in Paradise, Butte County. (Calif. Coop. Rpt.).

CUTWORMS - NEW YORK - Heavy damage to tomato plants in Rockland County. Troublesome in Westchester and Orange Counties. (N. Y. Wkly. Rpt.). WISCONSIN - Damaging vegetable transplants in several counties. TENNESSEE - Several species damaging tomato plants in Grainger County. (Stanley). LOUISIANA - Feltia subterranea heavy on sweetpotato seedlings in St. Landry Parish. (Spink).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - GEORGIA - Heavy on pimiento peppers in Spalding County. (Roberts).

ONION MAGGOT (Hylemya antiqua) - NEW JERSEY - Damage to onions more severe this year than for past two years. (Ins. Dis. Newsl.). MINNESOTA - Have been numerous in Anoka area. (Minn. Ins. Rpt.). WISCONSIN - Adults numerous in some Racine County onion fields. (Wis. Coop. Sur.). IDAHO - All larval instars now present in southwestern area. First pupae of season found May 25. Damage generally below one percent. (Scott).

THRIPS - NEW MEXICO - Heavy on onions in Dona Ana County. Average 6-20 per plant. (N. M. Coop. Rpt.). TEXAS - Damaging onions in Deaf Smith County and heavy on tomatoes in Gonzales County. (Tex. Coop. Rpt.). CALIFORNIA - Thrips tabaci medium on onion plantings in river district of Yolo County. (Calif. Coop. Rpt., April Summary).

CABBAGE CURCULIO (Ceutorhynchus rapae) - VIRGINIA - Damage to cabbage general in Northampton County. (Hofmaster).

HARLEQUIN BUG (Murgantia histrionica) - OKLAHOMA - Heavy, up to 10 per plant, on numerous garden plants in Duncan. (Hatfield). ALABAMA - Moderate on turnips and mustard in Cullman County. (Blake).

CABBAGE APHID (Brevicoryne brassicae) - CALIFORNIA - Light to medium ,with some severe infestations locally, in Santa Barbara, San Diego and Sacramento Counties on cabbage and cole crops. (Calif. Coop. Rpt., April Summary).

CABBAGE MAGGOT (Hylemya brassicae) - INDIANA - Injury reported from Lake and Marion Counties. Serious on turnips in Lake County. (Gould).

SEED-CORN MAGGOT (Hylemya brassicae) - CALIFORNIA - Caused 12-20 percent damage in several turnip fields in southern Los Angeles County. Medium to heavy in Arlington area of Riverside County during April. (Calif. Coop. Rpt.).

CUCUMBER BEETLES - ALABAMA - Acalymma vittata moderate on cucumber in Cullman County. (Blake). DELAWARE - Adults of A. vittata very abundant on squash, cucumber and watermelons in southern Sussex County, causing moderate feeding injury. (Burbutis, Conrad). NEW MEXICO - Diabrotica undecimpunctata tenella damaging cantaloup plants in Valencia County. (N. M Coop. Rpt.).

SQUASH BUG (Anasa tristis) - NEW MEXICO - A problem on squash in Dona Ana County. (N. M. Coop. Rpt.). ALABAMA - Moderate on squash in Cullman County. (Blake).

ARTICHOKE PLUME MOTH (Platyptilia carduidactyla) - CALIFORNIA - Light in artichokes in Santa Barbara County, light to heavy in Monterey County and 10-25 percent bud infestation in San Mateo County. (Calif. Coop. Rpt., April Summary).

BEET WEBWORM (Loxostege sticticalis) - IDAHO - First adult of season captured at Parma May 26. (Waters).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - NEW YORK - One to 2 per plant in some Orange County fields. Plentiful on lettuce in Oswego County May 28. (N. Y. Wkly. Rpt.) WISCONSIN - The main migratory mass from southern states is centered between Madison and the Mississippi River. This center is about 250 miles west of the 1958 position. (Wis. Coop. Sur.).

AN APHID (Triphidaphis phaseoli) - CALIFORNIA - Heavy and damaging bean roots in Oroville, Butte County. (Calif. Coop. Rpt.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - First adults of season found on snap beans in Sussex County. (Burbutis, Conrad). ALABAMA - Moderate to heavy on beans in most sections of State. (Blake, Grimes). GEORGIA - Moderate to heavy on beans in Colquitt, Mitchell, Grady, Thomas, Brooks and Lowndes Counties. (Johnson).

PEA WEEVIL (Bruchus pisorum) - IDAHO - Adults beginning to appear in pea fields near Lewiston. (Kambitsch).

BEAN LEAF BEETLE (Cerotoma trifurcata) - ALABAMA - Moderate on beans in Cullman County. (Blake).

SPINACH LEAF MINER (Pegomya hyoscyami) - OHIO - Abundant on sugar beets in Milan area, Huron County. (Triplehorn).

LEAF ROLLERS - TENNESSEE - Damaging strawberries in Knox County. (Bennett). WISCONSIN - Present in Door County strawberry plantings on May 22. (Wis. Coop. Sur.). CALIFORNIA - Anacampsis fragariella damaged strawberry plants in Mokelumne Hill, Calaveras County. (Calif. Coop. Rpt.).

SPITTLEBUGS - INDIANA - Damage relatively great in many strawberry patches in Orleans area. (Marshall).

STRAWBERRY WEEVIL (Anthonomus signatus) - MINNESOTA - Present in a number of strawberry fields. (Minn. Ins. Rpt.).

A GRASSHOPPER (Chortophaga viridifasciata) - ALABAMA - Heavy nymphal population on strawberries in Cullman County. (Blake).

A LYGAEID (Myodocha serripes) - TENNESSEE - Damaging ripe strawberries in Knox County. (Bennett).

SPIDER MITES - ALABAMA - Seriously damaging blackberries in Chilton County (Blake). INDIANA - Tetranychus spp. seriously damaging strawberry patches in Orleans area, though wet weather has prevented serious attacks. (Marshall). CALIFORNIA - T. telarius heavy on beans in San Diego County. (Calif. Coop. Rpt.). WISCONSIN - T. telarius larvae and eggs present in Door County strawberry plantings May 22. (Wis. Coop. Sur.).

A SCALE INSECT (Lecanium sp.) - IDAHO - Severe on raspberries in Rigby. (Gooch).

FLOWER THRIPS (Frankliniella tritici) - ALABAMA - Heavy on blackberries in Chilton County area. (Blake).

TOBACCO INSECTS

CUTWORMS - SOUTH CAROLINA - Making it difficult to get uniform stand in Clarendon County and caused considerable damage in Georgetown County. (Nettles et al., May 20).

STINK BUGS - GEORGIA - Nezara viridula and Euschistus servus light on tobacco in 6 counties and moderate to heavy in 11 counties. (Johnson).

WHITE-FRINGED BEETLES (Graphognathus spp.) - GEORGIA - Moderate in a tobacco field in Irwin County. (Murphy).

TOBACCO BUDWORMS (Heliothis spp.) - GEORGIA - Light to moderate on tobacco in 17 counties. (Johnson). NORTH CAROLINA - Average 3.75 second and third-instar larvae and 2.3 fourth-instar larvae per 50 plants in Columbus County. (Guthrie).

WIREWORMS - SOUTH CAROLINA - Making it difficult to get uniform stand in Clarendon County, damaged tobacco in Marion and Colleton Counties, and are extremely bad in Dillon County. (Nettles et al., May 20). VIRGINIA - Tunneled stalks of 60 percent of tobacco transplants in a 3-acre field in Prince Edward County. (Dominick, Rowell, Peery).

FLEA BEETLES - NORTH CAROLINA - Light to moderate on newly set tobacco in Granville County. (Chamberlin). VIRGINIA - Epitrix hirtipennis moderately heavy in several untreated fields newly set tobacco in Pittsylvania County. (Dominick). MARYLAND - E. hirtipennis heavy on newly set tobacco plants in Prince Georges and Calvert Counties. Averaged 5 per plant at Barstow, Calvert County. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - None found in Anson County and of 6 fields examined in Scotland County 3 had 1 per 150 terminals each. (Caudle). SOUTH CAROLINA - Activity increased during week with showers promoting movement from hibernation in Florence area. (Fye et al.). GEORGIA - Counts made in 25 fields in 17 southern counties and ranged from 0-7 per 100 feet of row. Weevils found in 21 of 25 fields. (Johnson). ALABAMA - Emergence of overwintering forms continues in all sections of State. Counts 0 - 2000 per acre in Autauga County, averaging 500 per acre. (Rawson). Very little activity in southeast area. (Grimes). TENNESSEE - None found this week in western area. (Locke). MISSISSIPPI - Found in 4 of 20 fields examined, averaging 50 per acre in infested fields. Mostly light in delta counties and heavy some hill areas of State. (Merkl et al.). ARKANSAS - Found at rate of 150 per acre near favorable hibernation quarters in a field in Pope County. None were found in field away from margins. (Boyer). LOUISIANA - Found in 13 of 19 fields examined in Madison Parish with an average of 234 per acre. Ranged 0 - 775 per acre. Percent survival in hibernation cages to May 29 was 1.54 compared with 3.26 at this time in 1958. (Smith et al.). TEXAS - Some increased activity in the lower Rio Grande Valley area otherwise still generally light. (Gaines). Averaged 39 per acre in 21 infested fields of 42 fields inspected in McLennan and Falls Counties. This compares with 143 per acre in 33 fields inspected during the corresponding week of 1958. (Parencia et al.).

FLEA BEETLES - MISSOURI - Systena blanda in marginal cotton with damage confined to cotyledons. Counts 1-6 per foot of row. (Kyd, Thomas, Munson). TENNESSEE - Two species present and doing damage in western area. Infestations considerably heavier below Jackson. (Locke).

THRIPS - CALIFORNIA - Present in cotton throughout the San Joaquin Valley, causing severe leaf distortion where no control applied. (Cal. Coop. Rpt.). TEXAS - Light in all areas except in the east, central and north central areas where severe infestations observed. (Gaines). General in untreated fields in McLennan and Falls Counties. (Parencia et al.). OKLAHOMA - Heavy, 4 per seedling plant, in cotton field in Choctaw County. (Goin). LOUISIANA - Counts made in 42 fields in Madison Parish, all infested. Averaged 3.16 per plant and ranged 0.20 - 10.56 per plant. Causing severe damage. (Smith et al.). MISSISSIPPI - Generally light in delta counties. (Merkl et al.). TENNESSEE - Present in all fields in western area and causing considerable damage. (Locke). SOUTH CAROLINA - No major damage in Florence area. (Fye et al.).

APHIDS - TENNESSEE - Present in all fields in western area. Damage light. (Locke). TEXAS - Aphis gossypii continues to be generally light in McLennan and Falls Counties. (Parencia et al.).

FLEAHOPPERS - ALABAMA - Psallus seriatus and other plant bugs ranged from light to heavy in Autauga County. (Rawson). TEXAS - Increasing in all areas with sharp increase expected as weed hosts mature. (Gaines). P. seriatus averaged 2.1 per 100 terminals in 42 fields with a maximum of 10.3 in McLennan and Falls Counties. This compares with 2.2 per 100 terminals in 33 fields during the corresponding week of 1958. (Parencia et al.).

FALSE CHINCH BUG (Nysius ericae)- CALIFORNIA - Continues to damage cotton in areas adjacent to weeds and barley fields and barley interplants in many locations in San Joaquin Valley. (Cal. Coop. Rpt.).

BOLLWORMS (Heliothis spp.,et al.) - CALIFORNIA - H. zea lightly damaged cotton in Tamarack district, Imperial County. (Cal. Coop. Rpt.). TEXAS - Still generally light. (Gaines). MISSISSIPPI - No activity in cotton in Stoneville area. (Merkl et al.). ARKANSAS - Migrating from crimson clover into young cotton in Nevada County. (Dowell). ALABAMA - Activity increasing in central area. Counts ranged 1-2 percent larvae and 1-2 eggs per 100 terminals in Autauga County. (Rawson). GEORGIA - Counts averaged 1.6 eggs and 1.0 larva per 100 terminals in 25 fields in 17 southern counties. (Johnson).

CUTWORMS - SOUTH CAROLINA - Necessitated replanting in Orangeburg, and Marlboro Counties. One field in Calhoun County almost completely wiped out. (Nettles et al., May 20). Becoming active with some damage to cotton in the Florence area. (Fye et al.). TENNESSEE - Present in many fields in western area with some increase in numbers. Damage light. (Locke).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Inspections in April of 19,803 blossoms, 13,152 squares and 3,025 green bolls; all negative. (Cal. Coop. Rpt., April Summary).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - CALIFORNIA - Continues to damage cotton in the Brawley area, Imperial County. (Cal. Coop. Rpt.).

COTTON LEAFWORM (Alabama argillacea) - TEXAS - Eggs reported from Calhoun County May 25. (Gaines).

SPIDER MITES - ALABAMA - Causing light damage in Lee and Autauga Counties. Abundant in rows adjacent to unpaved roads. (Rawson).

A CATERPILLAR (Noctuelia rufofascialis) - CALIFORNIA - Light in cotton squares in Calipatria area and damaging blossoms in the Imperial area of Imperial County. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - ALABAMA - Activity by Dendroctonus terebrans and Ips spp. increasing rapidly in a hundred acre plantation of Virginia pine in Calhoun County. D. frontalis increasing to some extent. (Fischer). ARKANSAS - Infestations of D. terebrans increasing about same areas where Ips sp. are building up around 500 trees affected one area in Ozark National Forest during May. (Ark. For. Pest Rpt.). CALIFORNIA - Ips radiatae causing complete kill of single Bishop pines in groups of 4-5 trees in Dark Gulch area of Mendocino County. (Lowell). D. jeffreyi causing scattered kill of Jeffrey pines throughout Martis Valley-Lake Tahoe area. This is a high value recreational area. (Meyer).

AN AMBROSIA BEETLE (Trypodendron sp.) - IDAHO - Adults active in Warm Lake area of Valley County with cull Douglas-fir logs heavily attacked. (Barr, Furniss).

DOUGLAS-FIR ENGRAVER (Scolytus unispinosus) - CALIFORNIA - Saplings and young saw timber in local area along Eel River slope in Mendocino County, showing partial and complete kill in an endemic infestation which is increasing. (Lowell).

WEEVILS (Cylindrocopturus spp.) - CALIFORNIA - Scattered infestations of C. eatoni causing complete kill of young ponderosa pines in Jawbone-Bull Meadow area, Groveland district of Stanislaus National Forest. This is a new location record. (Reedy). Seedling and sapling Douglas-fir in local area of Gualala River-Clarke Crossing, Sonoma and Napa Counties, showing heavy terminal, twig and complete kill by C. furnissi. (Spharler).

COTTONWOOD LEAF BEETLE (Chrysomela scripta complex) - WEST VIRGINIA - Heavy on poplars and willows in Kanawha County. (W. Va. Ins. Sur.).

COLUMBIAN TIMBER BEETLE (Corthylus columbianus) - INDIANA - Adults infesting red maple at Jasper. (Schuder, Matthew).

LOCUST LEAF MINER (Chalepus dorsalis) - MARYLAND - Adults active on black locust in southern counties. (U. Md., Ent. Dept.).

LARCH CASEBEARER (Coleophora laricella) - IDAHO - Heavy larval damage on larch between St. Maries and Plummer. Pupation underway. (Foote).

TENT CATERPILLARS - NEW YORK - Stripped wild cherry on golf course at Hopewell Junction, massed and feeding in gray birch and moving across fairways in objectionable numbers. (N. Y. Wlky. Rpt.). WEST VIRGINIA - Malacosoma disstria seriously defoliating various hardwoods in scattered localities. (W. Va. Ins. Sur.). OHIO - Malacosoma spp. extraordinarily abundant on wild hosts in eastern Ohio around Canton. Larvae a nuisance in crawling over lawns and buildings. (Neiswander). MINNESOTA - M. disstria active and feeding north of Duluth and Cloquet. (Minn. Ins. Rpt.). UTAH - M. fragilis stripping many cottonwood trees, smaller numbers on fruit trees, in areas of Grand and San Juan Counties. (Knowlton, Thornley).

PINE TIP MOTHS - ALABAMA - Activity increasing in an area of Calhoun County. (Fisher). ARKANSAS - Adult emergence well underway in southern area and a heavy infestation indicated in some areas during May. Pupae appearing in northern area. (Ark. For. Pest Rpt.).

SPRUCE BUDWORM (Choristoneura fumiferana) - MINNESOTA - Feeding in new buds in Cascade River area, southwest of Grand Marais. (Minn. Ins. Rpt.).

SPRING CANKERWORM (Paleacrita vernata) - SOUTH DAKOTA - On elms in Clay County. (Mast, May 23). IOWA - Widespread infestations. In Marion, Monroe and Warren Counties, elms defoliated in a band 20 miles wide (with Knoxville as the center). Damage expected to continue until last of May or longer. (Iowa Ins. Inf. May 23).

LINDEN LOOPER (Erannis tiliaria) - TENNESSEE - Considerable damage in Pope County. (Mullett).

CALIFORNIA TORTOISE-SHELL (Nymphalis californica) - CALIFORNIA - Heavy infestations in forest lands, Madera County. (Cal. Coop. Rpt.).

AN OLETHREUTID (Proteoteras aesculana) - TENNESSEE - Damaging tips of maples in Knox and Sullivan Counties. Det. H. W. Capps. (Mullett).

MAPLE PETIOLE BORER (Caulocampus acericaulis) - WEST VIRGINIA - Moderate on maple in Kanawha County. (W. Va. Ins. Sur.).

A WILLOW FLEA BEETLE (Altica bimarginata) - IDAHO - Adults abundant on stream-side willows in Vassar Meadows area north of Deary in Latah County. (Foote).

SAWFLIES - MISSOURI - Full-grown larvae of Neodiprion taedae linearis general over southeast feeding on shortleaf pine. Pupation underway. (Buchanan). IOWA - Cimbex americana adults more abundant than usual. (Iowa Ins. Inf., May 23). ARKANSAS - Nematus ventralis attacking willows in Marion County. (Dowell).

SPITTLEBUGS - SOUTH CAROLINA - Unusual number of inquiries concerning infestation on pines in Charleston and Oconee Counties. (Nettles et al.). WEST VIRGINIA - Aphrophora parallela light to moderate on pine in Mason and Fayette Counties. (W. Va. Ins. Sur.). TENNESSEE - A. saratogensis damaged pine in Knox and Scott Counties. (Stanley). ARKANSAS - Above normal infestations in south central area on pine during May. Little, if any, damage expected. (Ark. For. Pest Rpt.). CALIFORNIA - A heavy infestation of A. permutata occurred on Monterey pine in the Carmel Highlands, Monterey County. (Cal. Coop. Rpt.).

SPIDER MITES - ARKANSAS - Infestations of a spider mite, probably Oligonychus milleri, general on pines during May throughout southern areas. (Ark. For. Ins. Rpt.). LOUISIANA - Heavy localized infestations of Eotetranychus clitus on azaleas at Baton Rouge and Covington. (Spink).

MAPLE BLADDER-GALL MITE (Vasates quadripedes) - VIRGINIA - Heavy on a number of maples in Blacksburg, Montgomery County. (Morris, et al., May 8). MARYLAND - Galls abundant on leaves of silver maple at Pikesville, Baltimore County. (U. Md., Ent. Dept.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - INDIANA - Invading trunks of American elms in Jennings County. Dutch elm disease carried by this insect has been noted in Jackson and Jennings Counties. (Schuder, Matthew). WISCONSIN - Emerging in straggling numbers but peak expected first half of June. Thus far this season 22 cases of Dutch elm disease found in four counties. (Wis. Coop. Sur.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - INDIANA - Larvae skeletonizing elm leaves in Jennings County. (Schuder, Matthew). OKLAHOMA - Heavy defoliation of elms in Payne and Logan Counties. (Howell). LOUISIANA - Some damage to elms in greater New Orleans area. (Spink).

ELM LEAF MINER (Fenusa ulmi) - MINNESOTA - Active and mining elm leaves around the Twin Cities. (Minn. Ins. Rpt.).

BIRCH LEAF MINER (Fenusa pusilla) - NEW YORK - Moderate to severe infestation of birches along parkways around New York City. Some trees completely brown the last week of May. (N. Y. Wkly. Rpt.).

LEAF ROLLERS - NEW YORK - Tortricids were more abundant than usual and attacked a wide variety of ornamental and shade trees. (N. Y. Wkly Rpt.).

APHIDS - SOUTH CAROLINA - Curling leaves of willow oak in Greenwood, Cherokee and Anderson Counties. Considerable leaf shedding in some cases. (Nettles, et al., May 20). TENNESSEE - Prociphilus tessellatus quite widespread on maples. (Mullett). INDIANA - Pineus strobi abundant on white pine in windbreak in Franklin County and P. pinifoliae on an occasional pine in Franklin and Jackson Counties. (Schuder, Matthew). IDAHO - High populations on ornamentals reported. Severely infesting roses in Wilder and Twin Falls. (Bechtolt, Gibson). UTAH - Snowball aphids numerous, severely curling snowball bush foliage throughout eastern area. (Knowlton). CALIFORNIA - Pterocomma pseudopopulea heavy on poplar at Flynn Springs, San Diego County. Heavy egg deposition by Therioaphis tiliae on linden in Contra Costa County. Aphis abietina on spruce tree in Arroya Grande, San Luis Obispo County. First record for county. (Cal. Coop. Rpt.).

PINE COLASPIS (Colaspis pini) - LOUISIANA - Very heavy damage on spruce and loblolly pine as ornamentals in East Baton Rouge and Livingston Parishes. (Spink).

CATALPA SPHINX (Ceratomia catalpae) - ALABAMA - Considerable defoliation of catalpa trees by larvae in Dale County. (Grimes).

BAGWORM (Thyridopteryx ephemeraeformis) - INDIANA - Larvae found on junipers and pine in Franklin and Jennings Counties. (Schuder, Matthew). TEXAS - Medium widespread infestation of young larvae attacking cedar and arborvitae trees in Harris County. (Tex. Coop. Rpt.).

SCALE INSECTS - INDIANA - A sweet gum scale infesting gum in Daviess County. (Schuder, Matthew). MARYLAND - Eriococcus azaleae injuring azaleas at Crisfield, Somerset County. (U. Md., Ent. Dept.). TEXAS - Lecanium nigrofasciatum attacking flowering magnolia trees in Hardin County, almost completely covering stems and limbs. (Tex. Coop. Rpt.). NORTH DAKOTA - Phenacaspis pinifoliae heavy in many spruce plantings but hatch not yet begun in Fargo area. (N. D. Ins. Rpt.). UTAH - Lepidosaphes ulmi serious problem on lilacs, willows and poplars at Morgan. (Knowlton). CALIFORNIA - Heavy populations of Asterolecanium arabidis on pittosporum in Yuba City, Sutter County. (Cal. Coop. Rpt.).

AZALEA LACE BUG (Stephanitis pyrioides) - MARYLAND - Heavy on azaleas at University Park, Prince Georges County and in Baltimore. (U. Md., Ent. Dept.). DELAWARE - On azalea in New Castle County. (Bray).

AZALEA WHITEFLY (Pealius azaleae) - MARYLAND - Abundant on azaleas at University Park, Prince Georges County. (U. Md., Ent. Dept.).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - WEST VIRGINIA - Heavy on boxwood in Mercer County. (W. Va. Ins. Sur.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - SOUTH CAROLINA - Severe outbreak of Anopheles sp. in Clemson area. (Nettles, et al., May 20). OHIO - Populations considerably higher than normal in northern area. (Rings). IOWA - Larvae in roadside ditches in southeastern area, averaged 3-5 larvae per dip. Heavy populations expected this year. (Iowa Ins. Rpt., May 23). WISCONSIN - Begun to be troublesome. (Wis. Coop. Sur.). NORTH DAKOTA - First Aedes dorsalis adults of the season collected at Fargo on May 25 and first adult of Culex tarsalis on May 27. (N. D. Ins. Rpt.). OKLAHOMA - Heavy populations of Aedes sp. in Slick, Creek County. (Stiles). IDAHO - Adults fairly common and biting in wetter areas southeast of Pocatello, Bannock County; also fairly common near Worley, Kootenai County. (Foote). UTAH - Causing moderate annoyance in several localities. (Knowlton). CALIFORNIA - Culex tarsalis female taken in light trap during week of May 17-23. Most of districts in the San Joaquin and Sacramento Valleys reported its presence in light traps. (Peters).

TICKS - WISCONSIN - Remain numerous in many locations. (Wis. Coop. Sur.). TEXAS - Heavy on livestock over Smith County. (Tex. Coop. Rpt.). UTAH - Generally numerous locally in several parts of State and extremely numerous locally in Tooele County. (Thornley, Knowlton). CALIFORNIA - Dermacentor occidentalis flagged in a wide area 10 miles southeast of Burney, Shasta County. (Peters).

HORN FLY (Siphona irritans) - OKLAHOMA - Populations of 75-400 flies on range cattle in Payne, Noble, Pawnee, Kay and eastern Osage Counties. (VanCleave). On range cattle in panhandle area where counts averaged 1000 per bull and 300-500 per animal on cows and steers. (Howell). TEXAS - Medium to heavy and widespread on cattle and horses in Jackson County. (Tex. Coop. Rpt.). UTAH - Numerous at Green River. (Knowlton).

TABANIDS - MARYLAND - Deer flies abundant and biting humans and animals in southern sections. (U. Md., Ent. Dept.). OKLAHOMA - Four per animal on cattle in Rattan area. (Goin). LOUISIANA - Tabanus sp. very numerous throughout State. (Spink).

BLACK FLIES - IDAHO - Adults abundant and biting in Vassar Meadows area north of Deary. (Foote).

FLIES - TEXAS - Deer flies, stable fly and screw-worm medium to heavy and widespread on cattle and horses in Jackson County. (Tex. Coop. Rpt.).

FLEAS (Ctenocephalides spp.) - OKLAHOMA - Numerous in some houses in Comanche County. (Hatfield).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - NEW MEXICO - Light infestation found in Hatch, Dona Ana County. (N. M. Coop. Rpt.).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - CALIFORNIA - Colonies throughout State generally in good condition. During first three months of year, more than 1,500 colonies found diseased with American foulbrood compared with 748 colonies during same

period of 1958. There is a greater incidence of sacbrood disease this year. The incidence of European foulbrood and Nosema is below normal. (Cal. Coop. Rpt., Apr. Summ.). WISCONSIN - Winter and spring loss indicated at better than 33 percent among commercial beekeepers. Losses among smaller beekeepers probably as high as 50 percent. Honey crop outlook at present rather poor and uncertain due to spotty clover survival in many areas of State. (Wis. Coop. Sur.).

LADY BEETLES - SOUTH DAKOTA - Adults and larvae of Hippodamia sp. found most fields in southeast and east central areas. (Mast, May 23). COLORADO - Adults 10-20 per 100 sweeps in alfalfa in Larimer County. (Exp. Sta., May 26). OKLAHOMA - Counts of Hippodamia convergens ranged 0.5-1.2 per sweep in alfalfa fields in central and north central areas, 1 per sweep in alfalfa field in Choctaw County and 6 per sweep in vetch field in Marshall County. (VanCleave, Goin, Vinson). WISCONSIN - Populations quite high many localities. Egg numbers indicate that populations are building up. (Wis. Coop. Sur.). IDAHO - Populations vary from low to relatively high in alfalfa and red clover fields in south central and eastern areas. High in fields with high pea aphid populations. (Foote). NORTH DAKOTA - Most numerous predator in fields checked, ranging from 1-8 per 100 sweeps. (N. D. Ins. Rpt.). SOUTH DAKOTA - Numerous in cereal and forage crops in eastern area. (Mast).

NABIDS - OKLAHOMA - Ranged 0.3-0.8 per sweep in alfalfa in central and north central areas (VanCleave) and light in alfalfa field in Choctaw County (Goin). SOUTH DAKOTA - Increasing in alfalfa fields in eastern area. (Mast).

LACEWINGS - OKLAHOMA - Adults and larvae of Chrysopa sp. ranged 0-0.3 per sweep in alfalfa in central and north central areas (VanCleave) and 1 per sweep in alfalfa field in Choctaw County (Goin).

A BIG-EYED BUG (Geocoris punctipes) - ALABAMA - Large numbers observed on cotton in Lee, Houston, Henry, Coffee and Dale Counties. (Grimes).

CLERID BEETLES - IDAHO - Enoclerus sphegeus and Thanasimus undulatus adults attacking bark beetles in greater numbers than in recent years on South Fork of the Salmon River in Valley County. (Furniss, May 22).

PREDATORS - ARKANSAS - Situation somewhat better than a year ago, numbers lower in small grain, but considerably higher in legumes. (Ark. Ins. Sur.).

MISCELLANEOUS INSECTS

PERIODICAL CICADA (Magicicada septendecim) - NORTH CAROLINA - Heavy in Halifax County and identified from Wake, Warren, Person and Orange Counties. (Wray). SOUTH CAROLINA - Numerous in Clarks Hill and Saluda and observed in Greenwood County. (Nettles, et al., May 20). GEORGIA - Reported from Jeffersonville, Twiggs County, Macon, Bibb County, and Cochran, Bleckley County. (Turner). MISSOURI - Egg laying started. (Kyd, Thomas, Munson). ILLINOIS - Emerged in southern one-third to one-half of State. (Ill. Ins. Rpt.). ARKANSAS - Emerging for sometime in southern area. (Ark. Ins. Sur.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - NORTH CAROLINA - Local infestation found and treated in Carteret County. Det. M. R. Smith. (Williams). This is a new county record. (PPC).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Larvae injured a lawn at Adelphi, Prince Georges County. (U. Md., Ent. Dept.). NORTH CAROLINA - First adults emerged in New Hanover County, May 20. (Uzzell). GEORGIA - Moderate infestation in Richmond County. (Fortson).

HARLEQUIN BUG (Murgantia histrionica) - SOUTH DAKOTA - Found in nursery in Sioux Falls area of Minnehaha County. (Mast).

CORRECTION

CEIR 9 (21) : 401-ARMYWORM - Delete note from TENNESSEE. Infestations consisted primarily of Peridroma margaritosa with a small percentage of Pseudaletia unipuncta.

ADDITIONAL NOTES

ARIZONA - SPOTTED ALFALFA APHID populations continue to decline in alfalfa. Difficult to find many central area fields. Nymphs of MIGRATORY GRASSHOPPER averaged 15 per square yard on rangeland in Bonita area of Graham County. A CUCUMBER BEETLE is increasing in Graham County alfalfa. Some fields average 15 adults per 10 sweeps. LESSER CORNSTALK BORER infestations increasing in central area and in Yuma County on sorghum and corn. Populations generally light, but some stands being reduced. THREE-CORNERED ALFALFA HOPPER increasing in central area alfalfa fields, averaging 8 per 10 sweeps. A THRIPS, Frankliniella occidentalis, is very heavy on alfalfa in central area. PINK BOLLWORM moth emergence increased in cages at Tempe. THRIPS increased on cotton in Graham County, many fields averaging 2 per plant. BOLLWORMS increasing in Yuma County cotton fields and reported damaging squares. (Ariz. Coop. Sur.).

OREGON - First adult CODLING MOTHS taken from bait pots on May 22 in Hood River Valley. HOP APHID, (Phorodon humuli) is well distributed in hop yards in Marion County, appearing three weeks earlier than in 1958. OMNIVOROUS LEAF TIER infesting hops in Marion County. BLACK CHERRY APHID prevalent in Willamette Valley cherry orchards, infestations more severe than in 1958. SLUGS, primarily Deroceras reticulatum, injuring seedling carrots and beans in Willamette Valley. Slug injury to strawberries becoming evident as harvest season nears. (Ellertson, Morrison, Every, Crowell).

NEVADA - ALFALFA WEEVIL damage to untreated fields increasing and development uneven in Reno area, Washoe County. ONION MAGGOT damage to onions light to heavy in Reno area, Washoe County. MOURNING-CLOAK BUTTERFLY larvae causing light defoliation of elms in Reno, Washoe County. Aedes dorsalis, A. melanimon and A. nigromaculis increasing in Fallon area, Churchill County. A. hexodontus present in various instars at higher elevations in southern Washoe County. CHRYSANTHEMUM APHID heavy on chrysanthemums in Reno-Sparks area, Washoe County. (Bechtel, Gardella, Squires, Lauderdale, Chapman).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Protoparce quinq.	Protoparce sexta	Heliothis zea	Heliothis vires.
ALABAMA								
Crossville 5/26	4	1	4	1	6		3	
Fairhope 5/22		1	4	10			1	
ARIZONA								
Mesa 5/20-26			17	16			24	
COLORADO								
Rocky Ford 5/11,14	15							
FLORIDA								
Quincy 5/25						1		
Gainesville 5/26	1	1						
ILLINOIS								
Urbana 5/22-28	1	30		10				
INDIANA (County)								
Tippecanoe 5/22-28	20	9	1	9				
LOUISIANA								
Baton Rouge 5/22-28	17	11	74	59			26	35
MARYLAND								
Fairland 5/22-28					1			
Upper Marlboro 5/22-28					1			
MISSOURI								
Columbia 5/15-29	45	17	14	5	1		13	
NORTH CAROLINA								
Clayton 5/28		1			1	17	4	
Faison 5/28	1	1				6		
NORTH DAKOTA								
Fargo 5/23-28	100							
SOUTH CAROLINA								
Clemson 5/22-29	36	5	21	3	8	13	56	
SOUTH DAKOTA								
Brookings 5/27	8							
TENNESSEE (Counties)								
Monroe 5/19-25	6	1	1	3		15		
Madison 5/19-25	9		1	9		10	20	
Maury 5/19-25	5	6	3	4		17	16	
Robertson			1	1		2	7	
Cumberland	2	2		3		1	1	
Greene		1		2		8	2	
Blount	4	5	1	4		3	5	
Johnson	4	5		11			2	
TEXAS								
Brownsville 5/9-22	31	48	36				5	
Waco 5/23-29	6		13	17			29	
WISCONSIN								
Middleton 5/21-26	32	8						
Waterford 5/19-25	127							
Platteville 5/19-25	113	16						
River Falls 5/20-23	9							

STATUS OF SOME IMPORTANT INSECTS IN THE UNITED STATES

EUROPEAN PINE SAWFLY (Neodiprion sertifer (Geoff.))

Economic Importance: This diprionid is of European origin and was first collected in the United States in 1925 near Somerville, Somerset County, New Jersey. However, it was not until February 1937, after a study of the sawflies in the Somerville region was undertaken, that N. sertifer was recognized. This species is a serious defoliator of pines in Europe where outbreaks have been known to occur at irregular intervals in many countries on that continent. It is considered to be a serious defoliator of young pine plantations in areas where it occurs in the United States. Damage can be quite severe if control measures are not undertaken.

Distribution: Recorded in Spain, England, France, Germany, Austria, Czechoslovakia, Yugoslavia, Hungary, Poland, Finland, Sweden, USSR, Japan, Canada and the United States (see map).

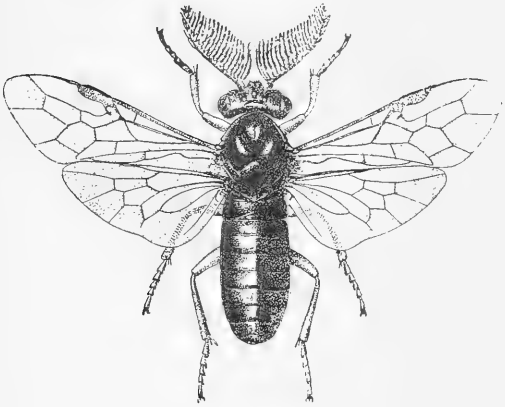
Hosts: Attacks Pinus spp. The favored pine hosts in the United States are red, Scotch, Japanese red, Swiss mountain and mugho pines.

Life History and Habits: There is one generation annually. Adults generally emerge in September and October. Females deposit eggs singly in slits in needles of the current year's growth. One to 10 or more eggs may occur in a needle. Winter is passed in the egg stage and hatching occurs in late April or early May. Larvae are gregarious and feed on the mature foliage. They feed first along the edges of individual needles and later completely defoliate the branch before migrating to another branch. Larvae become full grown in late May or early June and spin most of their cocoons in the duff beneath the trees, though sometimes cocoons are spun on twigs of the host.

DISTRIBUTION OF EUROPEAN PINE SAWFLY *(NEODIPRION SERTIFER)*

Map compiled in
Survey and Detection Operations, PPC, ARS, USDA,
from State reports received to January 1, 1959,
ARS and USNM records

Description: LARVA - Mature larva about 22 mm. long. Head is black and body dirty grayish-green with a longitudinal dorsal line of lighter shade. Laterally, there are 2 whitish lines bordering a stripe of very intense green or sometimes blackish, which has a tendency to break up into spots. The thoracic legs and the back of the anal segment are black. Arising from the dorsal and pleural areas of the body are many short black setae, those on the dorsum being arranged in transverse rows. COCOON - Light brown in color, with fine texture though tough. From 8 to 10 mm. long with rounded ends. ADULT - Rather stout bodied, particularly the female. Length 7 to 9 mm. Antennae of male are feathery, head and thorax black, abdomen more or less blackish above and reddish-brown beneath and legs reddish-brown. Female is yellowish-brown, with antennae, except basal segments, eyes and metathorax blackish. EGG - Whitish just before hatching, 2 mm. long and elongate-oval in shape. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U. S. National Museum).



N. sertifer Male

♂.

N. sertifer Female

♀.

Figures (except map) from Gussakovskii, V. V., 1947. Fauna SSSR. Zool. Inst. Akad. Nauk n. s. 32, Nasek. Perep. 2(2), Tenthredinoidea, 2, 234 pp., Leningrad.

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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
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Volume 9 June 12, 1959 Number 24

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPER nymphs generally present, but hatch not complete. Controls beginning in western Nebraska counties and populations threatening locally in Iron County, Utah. Infestations generally light in Texas Panhandle, but heavy damage reported to pastures, alfalfa fields and other crops in Runnels and Wheeler Counties, Texas. Counts generally less than 15 per square yard in Kansas. Nymphal populations generally low in Oklahoma, few adults noted. Infestations light to moderate on roadsides and ditch banks in Bernalillo, Rio Arriba, Sandoval and Valencia Counties and heavy populations are threatening large areas of wheat and newly-planted row crops in Curry, Quay and Roosevelt Counties, New Mexico. In Quay County, New Mexico, control operations underway on 10,000 acres. (pp. 501, 523). MORMON CRICKET nymphs abundant on 6,000 acres of rangeland northwest of Midvale, Idaho, and control will begin on 6,000 acres in San Juan County, Utah. (p. 502).

CORN EARWORM serious on corn in South Carolina; increasing in sweet corn in southwestern Alabama, and on alfalfa in several Oklahoma counties; and causing extensive damage to corn statewide in Texas. (p. 502). EUROPEAN CORN BORER eggs hatching in Massachusetts and masses present in Ohio and Missouri. First brood expected light in Wisconsin. Damage expected in central, western and northwestern sections of Illinois. (pp. 502, 523). ARMYWORM feeding light on corn in Delaware, light on legumes and grains in Indiana and on grain in northern Illinois and Missouri. Heavy in area of Rockland County, New York, on sweet corn. (p. 503, 524). GREENBUG damage increasing in South Dakota and Nebraska, and damage continues in Minnesota with increase likely. (p. 504).

PEA APHID extremely heavy in alfalfa in Klamath County, Oregon. Some damage continues elsewhere. (p. 505). ALFALFA WEEVIL damage noted in Nebraska, Wyoming, Nevada and Utah. (p. 507).

CODLING MOTH larval entries noted in apples in several states. APPLE APHID and ROSY APPLE APHID increasing on apple trees in several states. (p. 509). PEAR PSYLLA serious many orchards in Wenatchee and Yakima areas of Washington. (p. 510). CASEBEARERS heavy on pecans in Florida. FALL WEBWORM appearing in Florida and Louisiana on pecan. (p. 511).

Third POTATO PSYLLID survey in Colorado, Wyoming and Utah. (p. 512). MEXICAN BEAN BEETLE common in Montgomery County, Maryland, and heavy on beans in Georgia, Alabama and Louisiana. (p. 513). ONION MAGGOT heavy some southern areas of New Jersey and damage increasing in Reno, Nevada, area. (p. 514).

BOLL WEEVIL very active in Florence, South Carolina, area. Punctured squares averaged 18 percent in Georgia. Counts per acre averaged 105 in delta counties of Mississippi; 151 in Madison Parish, Louisiana; and 76 in McLennan and Falls Counties, Texas. (p. 515). THRIPS injury to cotton continues throughout most of cotton-growing area. (pp. 516, 524).

ELM LEAF BEETLE becoming active and damaging elms over a wide area. Unusual infestation noted in Washington County, Utah. (p. 518).

(Continued on page 500)

Highlights of Insect Conditions - (Continued)

MOSQUITOES becoming abundant and annoying in a number of states. (p. 520).

TABANIDS annoying in several states. (p. 521).

LADY BEETLES becoming more numerous and helping to check aphid infestations in several states. (p. 521).

INSECT DETECTION: Alfalfa weevil collected for first time in Carter County, Tennessee, and Garrett County, Maryland. (pp. 507, 523). Tetraneura hirsuta found at Belle Glade, Florida. Apparently first record for United States and New World. (p. 508). European apple sawfly recorded in Rhode Island for first time. (p. 509). Adults and larvae of Heterobostrychus aequalis found in mahogany boat in Winter Haven, Florida. The second report of species from State but, as far as known, not established in the United States. (p. 522). Platycleis tessellata recorded for first time in Sacramento County, California. (p. 524).

CORRECTION (p. 523). ADDITIONAL NOTES (pp. 523-524).

Some of the more important pests for 1958. (p. 526).

INSECTS not known to occur in the United States. (p. 529).

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WEATHER OF THE WEEK ENDING JUNE 8

This week brought warmer weather to the Far West and the upper Great Lakes region and unseasonable heat to the northern Great Plains, where abundant sunshine promoted rapid plant growth. Brisk, southerly winds boosted temperatures in the Dakotas, Minnesota, Montana and Wyoming during the latter half of the week to above 90° and Bismarck, Beach, and Drake, North Dakota, all registered 100° on Saturday. Rainfall over the northern Great Plains and the upper Mississippi and Ohio Valleys was generally light, with only a few widely scattered showers and thunderstorms from Kentucky and Michigan westward to the northern Rockies. Mild temperatures, resulting from widespread cloudiness, rain, and showers, prevailed from eastern New Mexico to the South Atlantic Coastal Plain. Squall lines in Texas and eastern New Mexico triggered heavy thunderstorms. Hail and high winds caused some damage in both states. Hail during a thunderstorm in northwestern Kansas on Wednesday fell over a 10-square-mile area including Selden. Falling steadily for over an hour, the hail measured up to 3 feet deep in drifts. Precipitation (rain and hail) at Selden was estimated at more than 5 inches. Moderate, locally heavy to excessive, rainfall over most of the Southeast continued to hamper agricultural operations. Variable weekly totals ranged from near 1/2 inch in eastern Arkansas, northern Mississippi, and central Florida, up to over 8 inches in parts of Georgia, and even higher totals in Mississippi and Louisiana.

Near-normal temperatures were experienced in the middle Atlantic and New England areas. Beneficial soaking rains fell from the Carolinas into southern New England on the 2nd and 3rd as a low pressure disturbance over Virginia moved northeastward just offshore. Heaviest amounts were in eastern Pennsylvania and southern New England, with 2 to 3 inches in Pennsylvania and 2 to 2-1/2 inches in southeastern Massachusetts. Thunderstorms on Saturday in New England further increased soil moisture, but caused scattered hail and wind damage. Warmer weather over the Far West, following several weeks of below-normal temperatures, was beneficial to crops. Scattered showers from northern Utah and Nevada northward left generally light totals during the latter half of the week, while up to 1-1/2 inches of rain fell in western Oregon and Washington. No rain fell from the western portions of New Mexico and Colorado to central California. Livestock ranges over the Far Southwest are short and dry, except in local areas which received showers during May. Moisture supplies over the rest of the Nation, however, generally range from adequate to excessive, except in local areas. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - COLORADO - Melanoplus bilituratus dominant species on rangeland. Nymphal counts of M. bilituratus per square yard by counties: Weld - 10-12 on rangeland, 0-10 in margins of wheat and 75 in alfalfa; Adams - 1-2 on rangeland and 1-5 in margins of wheat; Morgan - 60-500 in margins of wheat. (Ext. Ser., June 2). NEBRASKA - Nymphs of M. bilituratus and M. bivittatus average 10-25 per square yard in central area. Infestations spotted. Counts as high as 100-300 nymphs per square yard in field margins in western area. Controls beginning in western counties, with damage to wheat margins reported. (Roselle). IDAHO - Nymphs abundant in alfalfa and intermediate wheatgrass pastures in area southeast and east of Midvale. (Hackler). MONTANA - First and second-instar M. bivittatus nymphs present in grain of central area. Aulocara elliotti hatching on rangeland in Blaine County. (Roemhild). UTAH - Threatening locally in several areas of Iron County. (Knowlton). WYOMING - First and second-instar A. elliotti and Cordillacris occipitalis and other range species averaged 82 per 100 square feet on rangeland at Glendo, Platte County. Damage was insignificant. Hatch being delayed by cool weather and rain. (Pfadt). TEXAS - Surveys conducted May 25-28 in 14 panhandle counties. Infestations generally light, 1-10 per square yard. Some isolated counts higher. Aeoloplides turnbulli counts 50 per square yard on soil bank land one stop in Hansford County. Species noted generally were M. bilituratus, A. elliotti, M. bivittatus, Ageneotettix deorum, A. turnbulli, M. packardi and Amphitornus coloradus. Fields of volunteer wheat and field margins in Deaf Smith County had up to 250 Melanoplus spp. and A. turnbulli per square yard some stops. Most fields heavy with weedy growth. General light infestations of A. elliotti and A. deorum on rangeland and field margins in Carson County. (Russell et al.). Heavy damage to pastures, alfalfa fields and other crops in Runnels and Wheeler Counties. (Tex. Coop. Rpt.). KANSAS - Counts low in field margins, but heavier in alfalfa. Generally less than 15 per square yard. (Gates). Average crop and roadside counts of M. bivittatus, M. bilituratus, A. turnbulli and Hesperotettix speciosus ranged from less than 1 to 20-24 per square yard in southwestern counties, with heaviest counts in southern tier of counties. Average counts A. elliotti, M. bilituratus and Phlibostroma quadrimaculatum in rangeland were less than 1 to 2-3 per square yard in areas not treated during 1958 in southern Morton County, with other areas having counts of less than 1 per square yard on May 28-29. (Fitchett, Bell, Peters).

OKLAHOMA - Nymphal populations per square yard on rangeland averaged 3.2 in Beaver County, 5-9 and 6-7 on 2 locations in Cimarron County, 3.5 in Ellis County, 3 in Harper County, 7.3 in Roger Mills County, 3.5 in Texas County and 3 in Woodward County. Counts per square yard on crop margins and roadsides were 5 in Beaver County, 12 in Ellis County, 1.5 in Harper County, 10-25 in Roger Mills County, 20 in Texas County and slightly over 3 in Woodward County. Development variable, with few adults reported. Hatch not yet complete in all areas. In Texas and Cimarron Counties, M. bilituratus, A. elliotti and M. bivittatus predominate. Other species reported in infested counties were M. packardi, M. differentialis, A. turnbulli and Hesperotettix sp. (PPC, Robinson, Carroll). Light in 10 pasture areas checked in Kiowa, Washita and Beckham Counties. (Hudson). Ranged 5-7 on rangeland in Ryan area. (Hatfield). Counts on roadsides and crop margins 2-5 per square yard in Canadian, Kingfisher, Blaine, Dewey and Woodward Counties. (VanCleave, James). NEW MEXICO - Light to moderate infestations on roadsides and ditch banks, with few heavily infested areas in Bernalillo, Rio Arriba, Sandoval and Valencia Counties. Heavy populations moving from conservation reserve lands into nearby cropland and are threatening large areas of wheat and newly-planted row crops in Curry, Quay and Roosevelt Counties. Voluntary control operations underway on 10,000 acres in Quay County. (N. M. Coop. Rpt.). MISSOURI - Populations of M. bilituratus and M. differentialis range 1-5 per square yard in field margins in west central area. (Kyd, Thomas, Munson). MINNESOTA - Second and third instars, probably M. bivittatus and M. bilituratus, reported in southeast, south central and southwestern districts. (Minn. Ins. Rpt.) WISCONSIN - Present no immediate problem. Few nymphs of Camula pellucida found in Marinette County and nymphs of several other species found in Langlade, Forest, Oneida, Lincoln, Adams and Marquette Counties. (Wis. Ins. Sur.).

MORMON CRICKET (Anabrus simplex) - IDAHO - Nymphs abundant on rangeland northwest of Midvale, some 6,000 acres infested. (Dunn, Evans, Hackler). Ranged up to 20 per square yard in Pine-Keithley Creek drainage of Washington County. Although hatching still occurring, bulk of population now in fifth instar. Few in sixth instar. (Evans). UTAH - Control will begin soon on 6,000 acres of infested rangeland in San Juan County. In Enterprise area of Washington and Iron Counties, 150 acres baited and 1,000 additional acres are lightly infested. (Thornley, Knowlton).

CORN EARWORM (Heliothis zea) - DELAWARE - Small larvae feeding on field corn in Sussex County. (Burbutis, Conrad). VIRGINIA - Averaged 2 per 50 stalks in 4 corn fields surveyed in Mecklenburg County and light in a Prince Edward County corn field. (Morris). NORTH CAROLINA - Some injury appearing in whorls of field and sweet corn in Duplin and Pamlico Counties. (Stovall, Farrier). SOUTH CAROLINA - Serious outbreaks occurring on corn in various parts of the Pee Dee, such as Orangeburg and Sumter Counties. (Nettles et al.). ALABAMA - Activity increasing in untreated sweet corn in southwestern area. (Eden). ARKANSAS - Light feeding in whorls of corn in most of State. In corn that is silking, eggs average 10-20 per ear. (Boyer). Few larvae feeding on crimson clover seed pods in Dallas County. (Ark. Ins. Rpt.). MISSOURI - Budworms damaging corn in north and west central areas, 2-5 percent of plants infested. Also on soybeans in west central area, 1 to 4-5 feet of row. (Kyd, Thomas, Munson). OKLAHOMA - Increasing in alfalfa fields in Kingfisher, Canadian, Grady, Blaine, Dewey and Woodward Counties (VanCleave, James) and light to medium in fields checked in southeastern area (Goin). TEXAS - Causing extensive damage to corn statewide, feeding in whorls and tassels. (Tex. Coop. Rpt.). NEW MEXICO - Eggs and young larvae light in field corn in Dona Ana County. (N. M Coop. Rpt.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - MASSACHUSETTS - Eggs hatching. (Crop Pest Cont. Mess.). DELAWARE - First and second instars in sweet corn and early field corn throughout State. Egg laying continues. (Burbutis, Conrad). MARYLAND - Infestation 10 percent in wheat field in Talbot County. Light to moderate in 40-acre wheat field at Aquasco, Prince Georges County. Egg masses and newly hatched larvae light on young field corn at Aquasco, Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Larvae found in 75-90 percent of corn stalks on several farms in Sussex County, light in Prince Edward County field and present on 5-15 of 50 corn plants in 3-4 Mecklenburg County fields. (Morris et al.). OHIO - First oviposition observed at Columbus on June 3. Adults abundant in and around early sweet corn fields just tasseling. About 70 percent pupation and first emergence noted in emergence cage at Wooster. (Triplehorn). WISCONSIN - Moths appearing. First brood expected to be light throughout most of State. (Wis. Coop. Sur.). MINNESOTA - Pupation well underway in southwest. (Minn. Ins. Rpt.). NEBRASKA - Pupation in eastern area reached 96 percent. Emergence passed 4 percent. Light trap catches indicate that emergence will be rapid. (Weekman, Roselle). SOUTH DAKOTA - Pupation started in southeast area. (Mast). IOWA - First emergence occurred May 27 at Ankeny, compared with May 22 in 1958 and May 30 in 1957. (Iowa Ins. Inf.). MISSOURI - Emergence complete in west central area. Egg masses range 0-25 per 100 corn plants and from 0-5 hatched. In northern half of State, emergence 5-85 percent complete. Egg mass counts on corn 35-45 inches tall range 3-21 per plant. No egg masses found on corn under 33 inches tall in north. (Kyd, Thomas, Munson). ARKANSAS - Appearing in early corn in central and southwestern counties. First and second-instar larvae and an occasional egg mass found. One field of sweet corn in Pulaski Co. 40 percent infested. (Boyer). LOUISIANA - Three larvae found in several hundred corn stalks examined in 5 Tensas Parish fields. (Spink). (See Additional Notes).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Pupation complete, emergence 67 percent in Washington County. (Wall). LOUISIANA - Nonexistent in 3 corn fields ready to tassel in Caddo Parish. First generation apparently very light. (Spink). OKLAHOMA - Pupation complete and emergence 77.2 percent in field near Yale. (Arbuthnot). None noted in 2 corn fields checked in southeastern area. (Goin).

STALK BORER (Papaipema nebris) - OHIO - Infesting young corn plants in Butler County. (Holdsworth, May 29). KANSAS - Damaging sweet corn in Allen County. (Gates). INDIANA - Light to severe on corn in west central, northwest and north central counties. (Matthew). MISSOURI - High populations in field margins, with marginal rows of corn showing some damage. (Kyd, Thomas, Munson).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Deadhearts found in 71 percent of fields examined. Average number of deadhearts per acre was 340 in northern area, 840 in southeastern area and 1,133 per acre in southwestern area. Second-generation eggs not present in fields as yet. (Spink).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Heavy on corn in Baldwin County. (Bouler, Marable).

CHINCH BUG (Blissus leucopterus) - KANSAS - Damaging corn in Pottawatomie County. (Painter). MISSOURI - High in barley in west central area, counts 40-50 small nymphs per foot of row. (Kyd, Thomas, Munson).

CORN BLOTCH LEAF MINER (Agromyza parvicornis) - DELAWARE - Present to common on corn in Sussex County. (Burbutis, Conrad). NORTH CAROLINA - Locally moderate infestation in Pamlico County. (Stoval, Farrier).

CORN LEAF APHID (Rhopalosiphum maidis) - NEVADA - Increasing on barley and corn in Fallon, Churchill County. Treatments being applied to barley. (York). KANSAS - Found in several barley fields in north central and northwestern areas. (Painter, Esau).

CORN FLEA BEETLE (Chaetocnema pulicaria) - DELAWARE- Quite common most corn fields throughout State, but injury slight. (Burbutis, Conrad). MISSOURI - Populations 2-8 per stalk on corn in west central area. (Kyd,Thomas, Munson). MARYLAND - Averaged 5 per plant on field corn at Barstow, Calvert County. (U. Md., Ent. Dept.).

SALT-MARSH CATERPILLAR (Estigmene acrea) - DELAWARE - Small larvae on corn in New Castle and Sussex Counties. Population too low to cause much injury. (Burbutis, Conrad).

A SLUG (Deroceras agrestis) - OHIO - Injuring young corn plants in Franklin County. (Holdsworth).

CUTWORMS - NEVADA - Numerous on lawns and home gardens in Reno, Washoe County. (Gardella). MONTANA - Agrotis orthogonia damage scattered some grain fields in central area and moderate in some fields in Teton County. Chorizagrotis auxilaris damaging barley and safflower in Roosevelt County; infestation scattered. (Roemhild). WISCONSIN - Some corn replanted in southern counties and some treatments being applied. Peak of damage to corn will probably be reached soon in southern counties. (Wis. Coop. Sur.). MISSOURI - Few spotted infestations of Peridroma margaritosa in north central area. Moth emergence high in southeast. (Kyd, Thomas, Munson). ILLINOIS - Agrotis ypsilon averaged 0.4 per damaged corn plant in eastern and northeastern areas. Most damage in untreated fields. (Ill. Ins. Rpt.). WEST VIRGINIA - Total defoliation of 1-3-acre areas in pastures by Nephelodes emmedonia in Ohio, Brood and Pendleton Counties. (W. Va. Ins. Sur.).

ARYMWORM (Pseudaletia unipuncta) - DELAWARE - Feeding lightly on corn throughout State. Light on clover, alfalfa and various grains. (Burbutis, Conrad). INDIANA - Light to moderate in localized areas over northern two-thirds of State. (Matthew). MISSOURI - Larval populations low in northern half of State, but moths numerous in southeast. (Kyd, Thomas, Munson). ILLINOIS - Few small larvae found in grass and grain in northern area. (Ill. Ins. Rpt.).

WIREWORMS - IDAHO - Larvae damaging wheat in Latah County. (Futter). MONTANA - Damage to winter wheat scattered to moderate some fields in Judith Basin area. (Roemhild). WISCONSIN - Moderate numbers in corn fields in several counties. (Wis. Coop. Sur.) ILLINOIS - Damaged an average of 0.3 percent of corn plants in northeastern and eastern areas and averaged 0.7 per damaged plant. (Ill. Ins. Rpt.). DELAWARE - Attacking germinating seeds of field corn in field in northern Sussex County. (MacCreary).

GREENBUG (Toxoptera graminum) - ILLINOIS - Rapidly disappearing from oat fields in southern two-thirds of State. However, in northeastern area, populations 102-1,200 per 100 sweeps with average of 543 per 100 sweeps. (Ill. Ins. Rpt.). MISSOURI - Populations depleted in oats, but damage to oats in northern half of State severe, due to red leaf virus transmitted by this species. (Kyd, Thomas, Munson). WISCONSIN - Few small grain fields south of Galesville, Trempealeau County, destroyed. State escaped from heaviest "fallout". (Wis. Coop. Sur.). MINNESOTA - Reported from approximately 60 counties in State. Damage not readily apparent east of Martin County. Heavily damaged fields observed in Clearwater area along Stearns-Wright County line. Some heavy infestations in Annandale area of Wright County. Damage reported as far north as Fergus Falls in Otter Tail County. Some heavy infestations in Clay, Norman, Polk, Becker and Mahnomen Counties. It appears likely that infestations will spread and additional damaging infestations will develop. (Minn. Ins. Rpt.). IOWA - Infestations in small grains reported from most counties south of U. S. Highway 30 and from Lyon County in extreme northwest. (Iowa Ins. Inf., June 1). NEBRASKA - Increasing in central and western counties. Damage occurring in spring grains. Predators beginning to check populations in south and southeast. (Roselle). SOUTH DAKOTA - Increasing rapidly, economic numbers being reported progressively farther northwest in eastern half of State. Populations very high locally throughout eastern one-third of State, causing severe damage some areas. Lady beetles and nabids present. (Mast). KANSAS - Light to abundant, with evidence of feeding some fields in north central and northwestern areas. (Painter, Esau). Very light in some wheat and barley fields in southwestern and south central areas. (Peters, Guldner). COLORADO - None found on wheat in Weld, Adams and Morgan Counties. (Ext. Serv., June 2).

ENGLISH GRAIN APHID (Macrosiphum granarium) - WISCONSIN - Averaged 16 per sweep in Sauk County, 6 per 25 sweeps in Monroe County, 3 per 25 sweeps in La Crosse County, 6 per 25 sweeps in Richland County and as high as 200 per plant in some Green County fields. (Wis. Coop. Sur.). UTAH - Generally light. (Knowlton).

WHEAT HEAD ARMYWORM (Faronta diffusa) - KANSAS - Light numbers on wheat in Dickinson County. (Gates). Found in several wheat fields in southwest and south central areas, counts 0 to about 1 per 100 plants. (Guldner, Peters).

A WHEAT STEM MAGGOT (Hylemya cerealis) - NEBRASKA - Light to moderate in spotted central areas. No severe damage evident. (Roselle).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Light to heavy in few wheat fields in Cloud, Republic, Decatur, Rawlins, Thomas and Ellis Counties. (Painter, Esau).

FALSE CHINCH BUGS (Nysius spp.) - NEBRASKA - Numerous reports in lawns and gardens. (Roselle). KANSAS - Numerous in alfalfa fields in Finney County. (DePew). Found several alfalfa fields in southwest and south central areas. Highest counts in Clark County, averaging 20 per sweep. (Peters, Guldner).

DATE MITE (Oligonychus pratensis)- KANSAS - Found in several wheat and barley fields in north central and northwestern areas. Present in several wheat fields in southwestern area. (Peters, Guldner).

WHEAT CURL MITE (Aceria tulipae) - WASHINGTON - Wheat streak mosaic so severe in 50-acre field of wheat in Whitman County in mid-May that grower plowed it under. Although mosaic has previously been reported in State, this is first record of economic damage. (Bruehl).

A RICE DELPHACID (Sogata orizicola) - TEXAS - Four rice fields in Ft. Bend County and 3 in Brazoria County inspected, with negative results. (Cason).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - ARKANSAS - Adults 12-15 per 100 sweeps in Lonoke County. (Boyer).

A STRIPED BLISTER BEETLE (Epicauta sp.) - ALABAMA - Heavy infestations in pastures in Autauga, Morgan and Lee Counties. (S. Hays, K. Hays, Houston). Activity reported throughout State. (Grimes). GEORGIA - Light in alfalfa in Spalding County. Leaf feeding spotted, but heavy. (Beckham).

A CHINCH BUG (Blissus leucopterus insularis) - LOUISIANA - Infestations continue very severe in southern half of State on St. Augustine grass. (Spink).

WHITE GRUBS - WISCONSIN - Moderate in north central and central counties. (Wis. Coop. Sur., May 29).

SPOTTED ALFALFA APHID (Therioaphis maculata) - NEVADA - Averaged 50 per stem some alfalfa fields in Fallon. Churchill County. (Bechtel, Lauderdale, York). Averaged 1 per sweep in Douglas County. (Lauderdale, Roberts). First of season collected in Lovelock, Pershing County. All winged. (Bechtel, Lauderdale, Snyder). ARIZONA - Very light on alfalfa statewide. (Ariz. Coop. Sur.). NEW MEXICO - Light to heavy in alfalfa in Hidalgo, Luna, Dona Ana, Sierra, Socorro, Eddy, Chavez and Lea Counties. (N. M. Coop. Rpt.). COLORADO - None found in alfalfa fields in Pueblo County. (Ext. Serv., June 2). UTAH - Light in Washington County, due to heavy predation by predators. Few present at Blanding and detected at Moab. (Knowlton). OKLAHOMA - Extremely light in alfalfa in Grady, Canadian, Kingfisher, Blaine, Dewey and Woodward Counties (VanCleave, James); 10-50 per sweep in Choctaw and McCurtain Counties (Goin); 20 per sweep in Coal County (Vinson); and 20-40 per sweep in Carter County (Pennington, Vinson). KANSAS - Found in few alfalfa fields in Gray, Clark, Barber, Harper and Cowley Counties. Counts less than 1 per sweep. (Peters, Guldner). ARKANSAS - Occasionally found on alfalfa in Lafayette County. Light infestation in Howard County disappeared. (Ark. Ins. Rpt.).

PEA APHID (Macrosiphum pisi) - OREGON - Enormous numbers present in Klamath County, several thousand per alfalfa plant. Sufficient numbers to kill top growth of first cutting in established alfalfa fields. Parasites and predators numerous, but currently of no apparent significant value in reducing infestation. (Vertrees, Dickason). IDAHO - Populations unchanged in alfalfa near Lewiston. (Portman). Averaged 25-50 per sweep in alfalfa south of Porthill in Boundary County and 500-1,000 per sweep north of Bonners Ferry. (Foote). UTAH - Moderate to light on alfalfa in Washington County. Moderately high in some Davis County fields and at Blanding. (Knowlton). WYOMING - Counts in alfalfa 18-40 per sweep in Goshen and Platte Counties, and 3-5 per sweep in Converse County. (Davison). COLORADO - Counts in alfalfa per 100 sweeps by counties: Pueblo - 2,500-4,000; Larimer - 500-1,000; Delta - 60; Montrose - 50-80. (Exp. Sta., June 2). NEBRASKA - Present all fields examined in north central area. Counts 10-100 per 10 sweeps. (Roselle). SOUTH DAKOTA - Averaged 8 per sweep in Yankton, Clay, Hutchinson, Turner, Union and Lincoln Counties on alfalfa. (Mast). MINNESOTA - Counts in alfalfa 2-20 per 10 sweeps in south central district and 5-15 in southwestern district. Low numbers in west central district. (Minn. Ins. Rpt.). KANSAS - Found in several alfalfa fields in north central and northwestern areas, some damage reported in Cloud County. (Painter, Esau). Found most alfalfa fields in southwest and south central areas. Counts from less than 1 to about 5 per sweep. (Peters, Guldner). OKLAHOMA - Light in alfalfa checked in Grady, Canadian, Kingfisher, Blaine, Dewey and Woodward Counties (VanCleave, James); 35-60 per

sweep in alfalfa in Choctaw and McCurtain Counties (Goin); 5-15 per sweep in Carter County; and 250 per sweep in Coal County (Vinson). IOWA - Populations low in legumes. Adults and larvae of lady beetles numerous. Many aphids killed by a fungus. (Iowa Ins. Inf., June 1). ILLINOIS - Averaged 195 per 100 sweeps in alfalfa in eastern and northeastern areas. (Ill. Ins. Rpt.). MARYLAND - Light on alfalfa in eastern Garrett County. (U. Md., Ent. Dept.). ARKANSAS - Extremely low on alfalfa in southwest area. (Ark. Ins. Rpt.).

CLOVER APHID (Anuraphis bakeri) - IDAHO - In Canyon County, 95 percent of clover infested. (Waters). OREGON - Present in crown and under leaf stipules of alsike clover in Klamath County. Honeydew excessive. (Vertrees, Dickason).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Adults light on alfalfa in eastern Garrett County. (U. Md., Ent. Dept.). DELAWARE - Becoming more common on alfalfa throughout State. (Burbutis, Conrad). VIRGINIA - Medium in red clover in spotted areas of Bedford County. (Lester). ILLINOIS - Adults 140-480 per 100 sweeps in east and 70-230 in northeast. Nymphs 0-180 per 100 sweeps in east and 0-10 in northeast. (Ill. Ins. Rpt.). WISCONSIN - Averaged 3 per 10 sweeps in one Adams County field and 2-4 per 10 sweeps some Green County fields. (Wis. Coop. Sur.). SOUTH DAKOTA - One per 100 sweeps in Brookings County. (Mast).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - SOUTH DAKOTA - Averaged 3 per sweep in alfalfa and cereal crops in east central area. None found on flax. (Mast). MINNESOTA - Populations 2-10 per 10 sweeps in southeast and 10-30 in central district. (Minn. Ins. Rpt.). WISCONSIN - At least 3 percent of first migration capable of virus transmission. Populations as high as 8 per 25 sweeps in small grains in Sauk, Monroe, La Crosse, Vernon and Richland Counties. Hatching of overwintering eggs probably occurred some time ago. (Wis. Coop. Sur.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Averaged 231 per 100 sweeps in alfalfa experimental plots in East Feliciana Parish. (Spink).

LYGUS BUGS (Lygus spp.) - ARIZONA - Heavy in alfalfa statewide. Averaged 20 adults and nymphs per 10 sweeps many fields. (Ariz. Coop. Sur.). NEW MEXICO - Averaged 20-60 adults and nymphs per 100 sweeps in alfalfa in southern half of State. (N. M. Coop. Rpt.). IDAHO - Averaged 1 per sweep in alfalfa north of Bonners Ferry and 1-3 per 10 sweeps north of Moscow. (Foote).

RAPID PLANT BUG (Adelphocoris rapidus) - SOUTH DAKOTA - Averaged less than one per 10 sweeps on alfalfa in east central and southeast areas. (Mast). ILLINOIS - Adults averaged 75 per 100 sweeps in alfalfa and clover in eastern and northeastern areas. (Ill. Ins. Rpt.).

MEADOW SPITTLEBUG (Philaneus leucophthalmus) - WISCONSIN - Average number per 10 alfalfa stems by counties: Marinette - 6, Oconto - 6, Rock - 15, Green - 6, Sauk - 5, Monroe - 5, La Crosse - 3, Vernon -1, Richland - 4. (Wis. Coop. Sur.). ILLINOIS - Adults 0-340 per 100 sweeps in eastern area, but none in northeast. Nymphs 0-50 per 100 stems in east and 0-190 in northeast. (Ill. Ins. Rpt.). OHIO - Adults observed in Pickaway County on May 28 and at Wooster, June 1. Averaged 3 nymphs per stem in Franklin and Pickaway Counties, and 1.5 per stem in Lorain County and at Wooster. In general, populations lower than in 1958. (Treece). DELAWARE - Adults abundant most clover and alfalfa fields in New Castle County, averaging more than 50 per sweep some fields. Common to present in Kent and Sussex Counties. (Burbutis, Conrad). MARYLAND - Nymphs light on alfalfa in eastern Garrett County. (U. Md., Ent. Dept.).

SPITTLEBUGS - KANSAS - Noneconomic on legumes in Manhattan area. (Marvin).

CLOVER HEAD CATERPILLAR (Grapholitha interstinctana) - IOWA - Moths averaged 2 per 10 sweeps in red clover in southern area. (Iowa Ins. Inf., June 1).

CLOVER ROOT BORER (Hylastinus obscurus) - IDAHO - Adults 1-3 per 20 sweeps in alfalfa near Bonners Ferry. (Foote).

BEET WEBWORM (Loxostege sticticalis) - NEW MEXICO - Moths very numerous in alfalfa fields and weedy areas in Albuquerque area. No eggs or larvae found. (N. M. Coop. Rpt.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - IOWA - Adults averaged 2 per 10 sweeps on red clover in southern area. (Iowa Ins. Inf., June 1). OHIO - Extremely heavy in central area. Damaged buds per red clover stem were 2.6 at Columbus, 1.7 in Fayette County, 0.9 in Lorain County and 1.7 at Wooster. Pupation first observed at Wooster on June 1. (Treece). ILLINOIS - Larval feeding observed on 40-90 percent of red clover stems and buds in eastern and northeastern areas. Pupae also present. (Ill. Ins. Rpt.). DELAWARE - Adults quite heavy in clover in New Castle County. (Burbutis, Conrad).

ALFALFA WEEVIL (Hypera postica) - NEW JERSEY - In southern area, damage to regrowth of alfalfa appears to be less than in past years. (Ins. Dis. Newsl.). DELAWARE - Adults becoming more noticeable most alfalfa fields throughout State and few late-instar larvae present. Injury very slight most fields. (Burbutis, Conrad). MARYLAND - Larvae averaged 13 per 25 sweeps on alfalfa in eastern Garrett County. First record in county. All counties in State now infested. (U. Md., Ent. Dept.). RHODE ISLAND - Pupation occurring. (Hansen). COLORADO - Larval counts in alfalfa per 100 sweeps by counties: Pueblo - 1,500-5,000; Larimer - 500-1,200; Delta - 70; Mesa - 600-800; Garfield 50-75; Montrose - 40-50. Forty percent of larvae parasitized in Delta, Mesa and Garfield Counties. (Exp. Sta., June 1). NEVADA - Damage to untreated fields increasing in Lovelock, Pershing County. (Bechtel, Lauderdale, Snyder). UTAH - In Duchesne County, 75 percent of alfalfa early treated. Damage appearing some untreated fields. (Knowlton, Smith). Larvae increasing, but little damage apparent in northern and central areas. (Knowlton). WYOMING - Adults averaged about 5 per 25 sweeps in alfalfa in Goshen and Platte Counties and larvae averaged 8 per 25 sweeps. Hatch just beginning and damage noted. In Converse County, only occasional adult found. (Davison). NEBRASKA - Larvae damaging alfalfa most panhandle counties. (Andersen).

CLOVER ROOT CURCULIO (Sitona hispidula) - IDAHO - Adults averaged 1 per 10 sweeps in alfalfa near Bonners Ferry. (Foote).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NEBRASKA - Damaging seedling sweetclover in eastern area. Infestations appear to be more general than past several years. (Roselle). SOUTH DAKOTA - Small numbers found on sweetclover in east central area. (Mast).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Averaged 6 per 10 sweeps on alfalfa. No damage evident. (Mast).

VETCH BRUCHID (Bruchus brachialis) - OKLAHOMA - Counts in hairy vetch field in Lincoln County averaged 4.5 eggs per seed pod, with 69 percent hatched. Seeds infested with grubs averaged 77.5 percent and percentage of pods set was estimated at 75. (Walton).

THRIPS - DELAWARE - Anaphothrips obscurus very abundant on corn throughout State. Sericothrips variabilis present to abundant on soybeans throughout State, causing noticeable injury in Sussex and Kent Counties. (Burbutis, Conrad). MISSOURI - Heavy on corn and grain sorghum in west central area, with some damage to small sorghum. (Kyd, Thomas, Munson). GEORGIA - Moderate to heavy infestations on peanuts in 13 counties. (Johnson).

GARDEN FLEAHOPPER (Halticus bracteatus) - DELAWARE - Common on soybeans and alfalfa throughout State. (Burbutis, Conrad). MISSOURI - High in grassy alfalfa fields in north central area, with some damage evident. (Kyd, Thomas, Munson).

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - Light on soybeans throughout State. (Burbutis, Conrad).

A GRAPE COLASPIS (Colaspis sp.) - ARKANSAS - Soybean stands being destroyed in Lawrence County. In many cases, inconsistent damage quite common in fields. Adult emergence about 10 percent. (Dowell).

BEAN LEAF BEETLE (Cerotoma trifurcata) - DELAWARE - Light on soybeans throughout State. (Burbutis, Conrad). MISSOURI - Range 2-5 per foot of row in soybeans in west central area. (Kyd, Thomas, Munson).

A ROOT APHID (Tetraneura hirsuta) - FLORIDA - Found on rice at Belle Glade Experiment Station, Palm Beach County, during period May 25-29. Det. L. M. Russell. (Sistrunk). This is apparently the first record from the United States and the New World. The species is widely distributed in Asia and Africa on various members of the grass family. As far as known, its economic importance has not been determined. (PPC).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - MASSACHUSETTS - First-brood egg laying and hatching has started. (Crop Pest Cont. Mess.). DELAWARE - First fruit entries noted on apples in Kent and Sussex Counties. (Kelsey). MARYLAND - First stings in apples noted at Hancock, Washington County. (U. Md., Ent. Dept.). OHIO - First entry of season in southwest area May 27, and in northern area June 1, much earlier than in 1958. (Cutright). INDIANA - Larval entries very light in most Vincennes area orchards. About 70 percent of overwintering larvae emerged from emergence cages. (Hamilton). Peak emergence from packing houses may have occurred May 29 to June 2, in the Orleans area. (Marshall). MICHIGAN - First adults of season observed at Grand Rapids, May 26. (Hutson). COLORADO - First significant number trapped in Garfield County May 24. (Ext. Ser., Exp. Sta.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MISSOURI - Fresh twig injury appearing in orchards near Puxico. (Wkly. Rpt. Fr. Grs.).

FRUIT TREE LEAF ROLLER (Archips argyrospila) - UTAH - Moderate to slightly above normal at Blanding, Moab and Green River, in southeastern area. (Knowlton). MINNESOTA - Serious damage in neglected orchards in LaCrescent area. (Minn. Ins. Rpt.).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - MICHIGAN - Larvae numerous in orchards about Traverse City, Leland, Empire, Pellston and Acme localities. (Hutson).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - DELAWARE - Fresh egg masses noted on apple trees in New Castle County. (Burbutis, Conrad).

APPLE APHID (Aphis pomi) - INDIANA - Increase due to wet, cool weather and may become troublesome in some Vincennes area orchards, especially where young non-bearing trees are present. (Hamilton). NEW JERSEY - Found in increasing numbers. (Ins. Dis. Newsl.). OHIO - Migrants starting colonies on growing terminals. (Cutright). DELAWARE - Appearing on apple fruit in considerable numbers. (MacCreary). MARYLAND - On increase in apple orchards at Hancock, Washington County. (U. Md., Ent. Dept.).

ROSY APPLE APHID (Anuraphis roseus) - NEW JERSEY - Found in increasing numbers. (Ins. Dis. Newsl.). OHIO - Infestations light and general. (Cutright). OREGON - Present in greater than normal abundance in the Willamette Valley. Considerable damage to poorly cared for trees. (Every).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Building up on apple trees in Bernalillo, Sandoval, Rio Arriba, Santa Fe and Valencia Counties. (N. M. Coop. Rpt.).

LEAFHOPPERS - UTAH - Causing some apple leaf discoloration at Blanding, Green River, Moab, Price and Helper. (Knowlton).

SAN JOSE SCALE (Aspidiotus perniciosus) - UTAH - Damaging apple trees at Arcadia, Duchesne County. (Knowlton).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - NEW JERSEY - Moderate larval infestations on unsprayed apples in Monmouth County, May 27. (Ins. Dis. Newsl.). RHODE ISLAND - First record for State. Larvae infesting apples locally in Hopkinton orchard, June 3. (Hansen).

EUROPEAN RED MITE (Panonychus ulmi) - INDIANA - Populations vary extensively in Vincennes area orchards due to difference in treatments. (Hamilton). Threatening this week in Orleans area. (Marshall). NEW JERSEY - First summer generation appearing in southern area June 1. (Ins. Dis. Newsl.). OHIO - Generally above normal for June 1. (Cutright).

SPIDER MITES - MARYLAND - Tetranychus telarius and Panonychus ulmi building up in some apple orchards in western Washington County. (U. Md., Ent. Dept.). NEW MEXICO - Tetranychus sp. and Bryobia complex increasing in unsprayed orchards in Bernalillo, Sandoval, Santa Fe and Rio Arriba Counties. (N. M. Coop. Rpt.).

PEAR PSYLIA (Psylla pyricola) - WASHINGTON - Nearing peak in adult forms of first spring generation. Serious in many orchards in the Wenatchee and Yakima fruit-growing areas. (Burts).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - IDAHO - General on pears in Bonner County. (McPherson).

TOMATO FRUITWORM (Heliothis zea) - ARKANSAS - Few larvae feeding on peaches and apples in Dallas County. Migrated from crimson clover. (Boyer).

PEACH TWIG BORER (Anarsia lineatella) - WASHINGTON - Much more abundant on peaches in north central area than earlier. (Anthon).

GREEN PEACH APHID (Myzus persicae) - UTAH - Decreasing on peaches in many northern orchards, but serious in Santa Clara-Hurricane area of Washington County. (Knowlton). WASHINGTON - More abundant on peaches in north central area than earlier. (Anthon).

APHIDS - UTAH - Extremely abundant in curling leaves of peaches, apples and cherries in areas around Ogden to Roy, and elsewhere in Weber County. Several species extremely abundant on plum foliage in many parts of Davis, Salt Lake, Weber, Box Elder and Cache Counties. (Knowlton).

CATFACING INSECTS - INDIANA - Stink bugs especially serious due to light set of certain varieties of peaches this year in the Orleans area. Still attacking heavily. (Marshall). COLORADO - Lygus sp. light in peach orchards in Mesa County with little injury at present. (Ext. Ser., Exp. Sta.).

BLACK CHERRY APHID (Myzus cerasi) - UTAH - Above normal in many central and northern orchards. (Knowlton). NEVADA - Damaging leaves of cherry in Reno, Washoe County. (Gardella). MARYLAND - Heavy on cherry foliage at several localities in Baltimore and Caroline Counties. (U. Md., Ent. Dept.).

CHERRY FRUIT FLY (Rhagoletis cingulata) - MICHIGAN - Emerged June 1, at Grand Rapids, Kent City and Shelby. (Hutson).

WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - OREGON - Emerged at The Dalles May 28 and at Hood River May 29. (Ellertson). WASHINGTON - First adult of season taken in trap May 23 at Prosser, is largest emergence in past 11 seasons, due to cool weather. (Frick).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - NORTH CAROLINA - On plum in Wake County. (Scott, Farrier).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MARYLAND - First-brood pupation underway at Hancock. Heavy in a plum orchard at Hancock, Washington County. (U. Md., Ent. Dept.).

PLUM WEB-SPINNING SAWFLY (Neurotoma inconspicua) - MISSOURI - An infestation reported from near Ashland. (Wkly. Rpt. Fr. Grs.).

PLUM CURCULIO (Conotrachelus nenuphar) - OHIO - First larvae of season emerged from dropped plums at Wooster June 4. First-brood larval populations much higher than in 1958 and 1957. (Rings). MARYLAND - Larvae injuring apples, cherries and plums in Baltimore County. (U. Md., Ent. Dept.). RHODE ISLAND - Adults active on apple in South Kingstown. (Hansen). MINNESOTA - Serious damage to neglected orchards in LaCrescent area. (Minn. Ins. Rpt.). OKLAHOMA - Heavy and damaging plums in Hugo area. (Goin).

A PLUM APHID (Anuraphis helichrysi) - OREGON - On prunes in Willamette Valley in greater than normal abundance. (Larson).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - LOUISIANA - Causing severe damage to plums in East Baton Rouge Parish. (Spink).

PISTOL CASEBEARER (Coleophora malivorella) - MICHIGAN - Infestations of this pest at Northport. (Hutson, May 23).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - RHODE ISLAND - Crawlers first appearance this season in South Kingstown, June 2. (Mathewson).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Newly hatched larvae observed on pecan trees in DeWitt County. Light at present. (Smith).

A NOCTUID (Catocala palaeogama) - OKLAHOMA - Considerable damage to shoots and small nut clusters on pecan trees in the Ryan area, Jefferson County. (Hatfield).

PECAN NUT CASEBEARER (Acrobasis caryae) - FLORIDA - Larvae causing heavy damage to pecans in orchards where no control applied. (Fla. Coop. Sur.).

PECAN LEAF CASEBEARER (Acrobasis juglandis) - FLORIDA - Moderate to heavy on pecans in Monticello area, Jefferson County. (Fla. Coop. Sur.).

A GALL INSECT (Caryomyia sp.) - NORTH CAROLINA - Severe on pecans in Wayne and Davidson Counties and on pecan leaves on Onslow County. (Bernhardt, Scott, Farrier).

FALL WEBWORM (Hyphantria cunea) - FLORIDA - First colony of larvae of season on pecans in Jefferson County. (Fla. Coop. Sur.). LOUISIANA - Webs appearing on pecan and walnut trees in East Baton Rouge and greater New Orleans areas. (Spink).

CARPENTERWORM (Prionoxystus robiniae) - SOUTH CAROLINA - As many as 15-20 large holes in pecan trees caused by this pest in Dillon County. (Nettles et al.).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Heavy on citrus in Yuma and Maricopa Counties. (Ariz. Coop. Sur.).

Citrus Insect Situation, Lake Alfred, Florida, Fourth Week in May - PURPLE SCALE activity increased sharply this week. Will continue upward trend during June but will not reach normal summer level. FLORIDA RED SCALE activity increased this week. Will be considerably above normal during June with infestations reaching a high level in many districts. CITRUS RED MITE activity increased this week and further rise is expected during next two weeks. CITRUS RUST MITE activity is little changed this week, but a sharp upward climb will start next week and carry through July. (Simanton, Thompson, Johnson).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - MICHIGAN - Oviposition about complete at Niles, Benton Harbor, South Haven and Grand Rapids. Most common on blueberries. (Hutson, May 24). OHIO - Ninety-nine percent of females depositing eggs but none hatched to date. (Rings).

CHERRY FRUITWORM (Grapholitha packardi) - NEW JERSEY - Though delayed by cool nights, larvae have entered blueberries. (Ins. Dis. Newsl.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - IDAHO - Adults seriously defoliating two acres of tomatoes at Weiser. Eggs abundant, but hatch not yet occurred. (Waters). MARYLAND - Heavy on untreated potatoes in central and southern sections. (U. Md., Ent. Dept.).

POTATO APHID (Macrosiphum solanifolii) - DELAWARE - Becoming more common on tomatoes; light on most commercial potatoes. (Burbutis, Conrad).

Potato Aphids in Maine - Spring migrations started by June 3 for Aphis abbreviata and Myzus persicae, by June 5 for M. solani, while for Macrosiphum solanifolii it likely began during the last few days of May. Dates for all four species are somewhat earlier than usual. (Shands).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Twenty per 100 sweeps in Larimer County; none found in Delta County. (Ext. Ser., Exp. Sta., June 2).

Potato Psyllid Survey - A third survey in the summer breeding areas was made during the past week. Populations remain low, although there was again an increase in the Colorado Arkansas Valley. Lycium was well developed in all locations and the weather was excellent. Populations per hundred sweeps east of the mountains averaged 6.67 at Scottsbluff-Torrington, 1.73 at Laramie, 8.93 at Greeley-Ault, 129.7 at Pueblo-LaJunta and 1.45 at Salida. West of the mountains averages were 0.26 at Provo-Salt Lake City, 1.5 at Grand Junction, zero at Green River-Rock Springs. (PPC).

GARDEN FLEAHOPPER (Halticus bracteatus) - DELAWARE - Present to very common on potatoes and beans throughout State. (Burbutis, Conrad).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Untreated plantings of potatoes may expect considerable early injury. (Wis. Coop. Sur.). DELAWARE - Slight increase on potatoes noted throughout most of State. (Burbutis, Conrad).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - NORTH CAROLINA - Terminal injury to potatoes not as severe in Duplin County as in 1958. (Reid).

RAPID PLANT BUG (Adelphocoris rapidus) - DELAWARE - Very common on potatoes and asparagus throughout most of State. (Burbutis, Conrad).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Very common on potatoes and asparagus throughout most of State. (Burbutis, Conrad).

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - First and second-instar larvae boring in potato stalks throughout State. Heavy where little or no control applied. (Burbutis, Conrad). VIRGINIA - Completely destroyed a potato patch in James City County. (Bryant).

STALK BORER (Papaipema nebris) - OHIO - Infesting young tomato plants in Wyandot County May 29. (Holdsworth).

TOMATO FRUITWORM (Heliothis zea) - GEORGIA - Moderate to heavy on tomatoes in Colquitt, Brooks, Thomas and Mitchell Counties. (Johnson). LOUISIANA - Tomato fruit damage ranged 0.5 - 40 percent in St. Bernard and Plaquemines Parishes. Heavy damage to peppers in Tangipahoa Parish. (Spink). ARKANSAS - Few larvae feeding on beans in Dallas County to which they migrated after crimson clover had matured. (Boyer). NEW MEXICO - Eggs and larvae light to moderate and spotty on tomatoes in Dona Ana, Luna and Lea Counties. (N. M. Coop. Rpt.).

FLEA BEETLES - MARYLAND - Phyllotreta striolata averaged 6 per cabbage plant at Barstow, Calvert County, and Epitrix hirtipennis light to moderate on tomatoes in Prince Georges and Calvert Counties. (U. Md., Ent. Dept.). DELAWARE - P. cruciferae common on mustard planting, Kent County; E. hirtipennis common on potatoes in Kent and New Castle Counties. Injury by E. hirtipennis very light (Burbutis, Conrad). WISCONSIN - E. cucumeris present in over 80 percent of 300 acres of potatoes in 20 southeastern fields. Abundant in other sections. (Wis. Coop. Sur.). OKLAHOMA - Chaetocnema confinis heavy, 3 per plant, on sweetpotato slips in Hugo area. (Goin). NEW MEXICO - Light on seedling cabbage in field in Bernalillo County. Scattered infestations damaging tomatoes in Lea and Luna Counties. (N. M. Coop. Rpt.).

SPINACH LEAF MINER (Pegomya hyoscyami) - WISCONSIN - Problem in some gardens and may also be problem in red beet acreage. (Wis. Coop. Sur.).

IMPORTED CABBAGEWORM (Pieris rapae) - DELAWARE - Adults and larvae common on turnips in Kent County. (Burbutis, Conrad). MARYLAND - Light to moderate on cabbage at Barstow, Calvert County. (U. Md., Ent. Dept.).

FALSE CHINCH BUG (Nysius ericae) - KANSAS - Severely damaging radishes, heavy on lettuce and light on tomatoes in Pottawatomie County. (Lawson).

DIAMONDBACK MOTH (Plutella maculipennis) - DELAWARE - Larvae and puape very common turnips in Kent County; larvae also present on horseradish. (Burbutis, Conrad).

CABBAGE LOOPER (Trichoplusia ni) - DELAWARE - Larvae common on turnips in Kent County. (Burbutis, Conrad).

CABBAGE APHID (Brevicoryne brassicae) - WISCONSIN - Heavy on some plants in commercial acreage of Jefferson County. (Wis. Coop. Sur.). MARYLAND - Medium on cabbage at Barstow, Calvert County. (U. Md., Ent. Dept.).

A CASEMAKER (Apterona crenulella) - IDAHO - Possibly this species, feeding entensively on whitetop mustard in Owyhee County. (Samson).

CABBAGE MAGGOT (Hylemya brassicae) - WISCONSIN - Moderate in southeastern area and damaging radishes in Dane County. (Wis. Coop. Sur.).

LYGUS BUGS (Lygus spp.) - IDAHO - Fairly large populations in sugar beet fields near Marsing with slight feeding damage. (Gibson).

A STRIPED BLISTER BEETLE (Epicauta sp.) - LOUISIANA - Defoliating beets in East Baton Rouge Parish. (Spink).

BEET LEAFHOPPER (Circulifer tenellus) - IDAHO - Generally light in southwest. Spring-generation adults concentrating in sugar beet fields. (Gibson). NEW MEXICO - Severe damage to tomato transplants, southern Dona Ana County. (N. M. Coop. Rpt.).

BEET WEBWORM (Loxostege sticticalis) - WYOMING - Adults very numerous along roadsides in Goshen County. Laying eggs in sugar beet fields. (Davison).

PEA APHID (Macrosiphum pisi) - IDAHO - Lightly scattered in pea fields near Lewiston. (Foote). WISCONSIN - Averaged 3.5 per sweep in Sauk County peas. Migrating to peas but not building up as expected. Averaged 1-3 per sweep in southern area. (Wis. Coop. Sur.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - MARYLAND - Adults common on beans in Montgomery County. (U. Md., Ent. Dept.). GEORGIA - Moderate to heavy on beans in Colquitt, Brooks, Thomas and Mitchell Counties. (Johnson). ALABAMA - Heavy in various sections of State. Severe infestation in Morgan County. Activity increasing in Baldwin County. (Grimes). LOUISIANA - Heavy on snap beans in Tensas Parish. (Spink).

BEAN LEAF BEETLE (Cerotoma trifurcata) - NEBRASKA - Moderate to severe damage to garden beans in north central counties. (Roselle).

ASPARAGUS BEETLES (Crioceris spp.) - IDAHO - Adults of C. asparagi depositing eggs on asparagus in Moscow. (Portman). WISCONSIN - C. duodecimpunctata slightly more prevalent than earlier, but lower than in 1958. (Wis. Coop. Sur.).

GOLDEN TORTOISE BEETLE (Metriona bicolor) - LOUISIANA - Averaged 10 per 100 sweeps on sweetpotatoes in St. Martin Parish. (Spink).

ONION MAGGOT (Hylemya antiqua) - NEW JERSEY - Injury in Great Meadows area light to moderate, but heavy in some southern areas. Not usually a problem in this area. (Ins. Dis. Newsl.). NEVADA - Damage to onions and garlic increasing in Reno area, Washoe County. Heavy larval populations. (Gardella).

SEED-CORN MAGGOT (Hylemya cilicrura) - COLORADO - Ranged 9-99 per trap in Weld County and 3-290 on the western slope. (Ext. Ser., Exp. Sta.). IDAHO - First-generation adults emerged by June 2. Slight damage to onion fields continuing in southwestern area. (Scott).

THRIPS - UTAH - Thrips tabaci moderate and causing some damage in area of Washington County. Seventy acres treated in area west of Layton, Davis County. Damage light to moderate in Salt Lake and Weber Counties. Unusually abundant on berry crops in Hurricane-Toquerville-LaVerkin area, Washington County. (Knowlton). TEXAS - Frankliniella sp. heavy on onions in Hockley and Collin Counties. (Gaines). MINNESOTA - F. tritici present in great numbers in strawberry blossoms. (Minn. Ins. Rpt.).

MELON APHID (Aphis gossypii) - OKLAHOMA - Medium, 200 per plant, on watermelon plants in Fleetwood area. (Hatfield).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - NORTH CAROLINA - Not as severe this year as in previous years on cucurbits in Duplin County. (Reid).

SQUASH BUG (Anasa tristis) - ARKANSAS - Mating on squash in Dallas County. Eggs averaged 12 per leaf. (Dowell).

CUTWORMS - MICHIGAN - Locally abundant on strawberries at Paw Paw, Shelby and Traverse City, May 23. (Hutson). WISCONSIN - Damage to vegetable transplants common and widespread. (Wis. Coop. Sur.). COLORADO - Agrotis orthogonia appearing in Fruita and Loma areas on sugar beets. (Ext. Ser., Exp. Sta., June 2). NEVADA - Damaging sugar beets in Fallon, Churchill County. (York).

HARLEQUIN BUG (Murgantia histrionica) - OKLAHOMA - Heavy, 40 per linear foot, on a variety of garden plants in Marshall County. (Vinson).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - NEW JERSEY - Averaged 3-4 per lettuce head. (Ins. Dis. Newsl.).

SPITTLEBUGS - IOWA - Abundant on strawberries in Scott County. (Iowa Ins. Inf.).

MITES - MARYLAND - Heavy and stunting leaves of strawberries at Cumberland May 28. (U. Md., Ent. Dept.). WISCONSIN - Damage by Steneotarsonemus pallidus present in large percentage of strawberry acreage. (Wis. Coop. Sur.).

WHITE GRUBS - IOWA - Severely damaged a commercial strawberry planting in Fremont County. (Iowa Ins. Inf.).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Continues to trouble newly-set tobacco in Prince Georges, Calvert and Anne Arundel Counties. (U. Md., Ent. Dept.). VIRGINIA - Decreased on newly-set tobacco plants in Pittsylvania County (Dominick) and is light on tobacco plants in 3 fields surveyed in Mecklenburg County. (Morris). NORTH CAROLINA - Ten percent of plants injured by larvae in a 3-acre field in Wilson County. (Guthrie).

HORNWORMS (Protoparce spp.) - VIRGINIA - P. quinquemaculata and P. sexta larvae just beginning to show up on tobacco in Pittsylvania County. (Dominick). MARYLAND - P. quinquemaculata increased at light traps at Fairland and Upper Marlboro. Few newly hatched larvae noted on tobacco at Barstow, Calvert County. (U. Md., Ent. Dept.).

TOBACCO BUDWORMS (Heliothis spp.) - VIRGINIA - Light in 2 fields of newly-set tobacco in which plants are more advanced in growth than average. (Dominick).

WIREWORMS - VIRGINIA - Severely damaged 90-95 percent of tobacco plants in 2.5-acre field in Franklin County, caused field to be re-set. Three other fields in same county attacked. (Reynolds).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Light number of winged forms on newly-set tobacco at several localities in Calvert County. (U. Md., Ent. Dept.).

GRASSHOPPERS - GEORGIA - Light to moderate on tobacco in Tift, Irwin, Berrien, Colquitt, Lowndes, Brooks, Thomas and Mitchell Counties. (Johnson).

CRICKETS - VIRGINIA - Caused light damage on a farm in Franklin County. (Tucker).

THRIPS - MARYLAND - Declining on tobacco at Aquasco, Prince Georges County. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Some fields in the southeast with adults present in old cotton. (Jones). SOUTH CAROLINA - Very active in the Florence area and readily found in untreated fields. (Fye et al.). Present or increasing in all areas of State. (Nettles et al.). TENNESSEE - Only 5 found in 56 fields that normally support heavy infestations, along Highway 57 in southern McNairy and Hardeman Counties. (Locke). GEORGIA - Square counts made in 16 southern area fields, ranged 10-34 percent punctured squares, averaging 18 percent. (Johnson). MISSISSIPPI - Found in 12 of 50 fields examined in delta area. Ranged 50-150 per acre and averaged 105. (Merkl et al.). LOUISIANA - Found in 25 of 34 fields examined in Madison Parish, averaging 151 per acre; ranged 0-1,250 per acre. Percent survival in hibernation cages to June 5, was 2.22 compared with 3.60 at this time in 1958. (Smith et al.). Beginning to show up in cotton in East Baton Rouge Parish. (Spink). ARKANSAS - Number of overwintered adults very low in cotton at present. Practically none found in delta section. Four fields checked in Hempstead County near favorable hibernation areas averaged 350 per acre, which is considered low for this area. (Boyer, Hunter). TEXAS - In McLennan and Falls Counties, 150 per acre in 15 untreated fields and 59 per acre in 29 treated fields with an overall average of 76. During corresponding week of 1958 was found at rate of 144 per acre in 12 untreated fields and 35 per acre in 50 treated fields with overall average of 54. (Parencia et al.). Have been gradual in their buildup in the lower valley, but increasing, while other areas of State report light infestations with isolated hot spots. (Gaines).

BOLLWORMS (Heliothis spp., et al.) - SOUTH CAROLINA - Decrease in number of infestations. (Nettles et al.). No heavy infestations observed; however, moth flight increasing. (Fye et al.). GEORGIA - Counts in 24 southern fields ranged 2-16 eggs per 100 terminals, with average of 6. Larvae ranged 0-2 per 100 terminals, with average of one. (Johnson). MISSISSIPPI - Light trap catches remain low in delta area. (Merkl et al.). LOUISIANA - Some eggs observed and few squares damaged by small larvae in Madison Parish. (Smith et al.). ARKANSAS - Averaged about one per 100 terminals in Lafayette and Hempstead Counties. (Boyer, Hunter). TEXAS - Only occasional eggs and larvae found in few fields in McLennan and Falls Counties. (Parencia et al.). Have increased in the lower valley with infestations widespread. (Gaines).

THRIPS - VIRGINIA - Light in 2 fields surveyed in Mecklenburg County. (Morris). SOUTH CAROLINA - Injury noted in nearly all cotton-growing counties. (Nettles et al.). TENNESSEE - Do not appear to be increasing but are retarding growth of cotton over western cotton-growing area. Some fields practically at standstill. (Locke). MISSISSIPPI - Increasing in delta area; damage more noticeable. Counts of more than 20 per plant common in some fields. Young cotton being seriously damaged in many fields. (Merkl et al.). LOUISIANA - In 23 infested Madison Parish fields, averaged 2.33 per plant; ranged 0.24-7.44. Older cotton recovering from earlier damage, but late, young cotton still being damaged. (Smith et al). Causing considerable damage to cotton in Tensas Parish. (Spink). OKLAHOMA - Counts ranged 3-31 per 20 plants near Chickasha. Averaged 7.75 per 20 plants in treated plots and 18 per 20 plants in nontreated plots. (James). TEXAS - In McLennan and Falls Counties, heavy in 4, medium in 5 and light in 3 untreated fields; light in 23 treated fields. (Parencia et al.). Continues as a problem in the east, central and north central areas. (Gaines). NEW MEXICO - Average 7-25 per plant in Luna County. Severe damage in many fields. Light to heavy and spotty in Dona Ana and Hidalgo Counties. (N. M. Coop. Rpt.). ARIZONA - Continuing heavy in some central area fields and increasing in southeastern counties. (Ariz. Coop. Sur.).

FLEAHOPPERS - TEXAS - Psallus seriatus adults migrating to cotton increased over past week in McLennan and Falls Counties. Averaged 12.4 per 100 terminals in 44 fields with infestations exceeding 25 per 100 terminals in 3 fields. Averaged 15.2 per 100 terminals in 68 fields during corresponding week of 1958. (Parencia et al.). Heavy migrations began early in week in coastal areas with counts as high as 300 per 100 terminals. Counts of 200 per 100 plants noted in the Brazos River Valley. (Gaines). NEW MEXICO - P. seriatus light spotty in fields starting to set squares. (N. M. Coop. Rpt.). ARIZONA - Spanogonicus albofasciatus increasing statewide. Many fields average 35 adults and nymphs per 100 sweeps. (Ariz. Coop. Sur.).

APHIDS - VIRGINIA - Light in 2 fields surveyed in Mecklenburg County. (Morris). SOUTH CAROLINA - Great buildup in cotton during past week. Some fields being destroyed in Anderson County. (Nettles et al.). TENNESSEE - Still present in all fields in western cotton area; damage light. (Locke). GEORGIA - Aphis gossypii light in Lee and Terrell Counties. (Johnson). ARKANSAS - A. gossypii being kept at low numbers by beneficial insects. (Boyer). LOUISIANA - Infestations decreasing with frequent showers in Madison Parish. (Smith et al.). OKLAHOMA - A. gossypii medium in a cotton field in Jefferson County. (Hatfield). TEXAS - Light in 13 of 44 fields inspected in McLennan and Falls Counties. (Parencia et al.).

TARNISHED PLANT BUG (Lygus lineolaris) - LOUISIANA - Numerous in many Madison Parish cotton fields with damage to small squares apparent. Adults taken at average rate of 14 per 100 sweeps and ranged 4-38. (Smith et al.). MISSISSIPPI - Light to heavy in all fields of older cotton in delta area. Damage to small squares general over area. (Merkl et al.).

FLEA BEETLES - VIRGINIA - Light in 2 fields surveyed in Mecklenburg County. (Morris). SOUTH CAROLINA - Have been a problem in many western counties. (Nettles et al.). TENNESSEE - Continue to cause damage in western cotton-growing area. (Locke).

SPIDER MITES - ARIZONA - Increasing on cotton in Maricopa and Pinal Counties. Average 10 per plant in some fields. (Ariz. Coop. Sur.). ARKANSAS - Present on pre-squaring cotton in Craighead County. (Dowell). LOUISIANA - Infestations decreasing with frequent showers in Madison Parish. (Smith et al.).

LYGUS BUGS (Lygus spp.) - ARIZONA - Increasing in central counties and in Yuma County, particularly in fields near alfalfa. (Ariz. Coop. Sur.).

STALK BORER (Papaipema nebris) - NORTH CAROLINA - Tunnelling in cotton stalks in Wilson County. (Farrier et al.).

COTTON LEAFWORM (Alabama argillacea) - TEXAS - Spotted infestations in Matagorda County of half-grown larvae. (Gaines).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - MICHIGAN - More than 50 percent pupated at Bath. (Hutson). INDIANA - Adult emergence about 20 percent at LaPorte, LaPorte County; about 20 percent of pupae have been parasitized. (Schuder).

NANTUCKET PINE MOTH (Rhyacionia frustrana) - NORTH CAROLINA - Second-generation larvae appearing in Durham, Orange and surrounding counties on short leaf and loblolly pines. (Davison). Severely attacked terminals of 3 pines in Perquimans County. (Thompson, Farrier).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - MICHIGAN - Infestations becoming noticeable at Saginaw, Grand Haven and Manistee. (Hutson). INDIANA - Larvae invading terminals of Scotch and red pines in LaPorte area, in north central part of State. (Schuder).

PINE COLASPIS (Colaspis pini) - LOUISIANA - Continues to cause damage to ornamental spruce and loblolly pines in East Baton Rouge Parish. (Spink).

PINE APHIDS - VIRGINIA - Pineus strobi present on new growth of some white pines in Nelson County. (Morris, Swain, Lyon). IDAHO - Cinara sp. very abundant on new growth of lodgepole pine near Chilco, Kootenai County. On some trees, new growth appeared black due to large numbers present. Alate, wingless and nymphal forms present. (Barr, Foote).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - IDAHO - Fairly abundant on needles of lodgepole pine near Chilco, Kootenai County. (Barr). NORTH CAROLINA - Averaged 10-50 per needle bundle on long leaf pine locally in Johnston County. (Sanderson).

PINE SAWFLIES (Neodiprion spp.) - INDIANA - N. sertifer began to pupate at Rochester, June 3. (Schuder). MICHIGAN - N. lecontei adults ovipositing at Cadillac, May 20. (Hutson). SOUTH CAROLINA - Mature N. lecontei larvae present in Laurens County. (Nettles et al.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - SOUTH DAKOTA - Specimens reported in CEIR 9(19):358, found to have come from infested fire wood (American elm) which had been cut in Dell Rapids, Minnehaha County. Has been

found working on elm trees along north side of Gavins Point Reservoir, Yankton County, where it is causing considerable damage. (Mast). WISCONSIN - To date, in 1959, 34 cases of Dutch elm disease, transmitted by this species, have been diagnosed in the State. (Wis. Coop. Sur.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - IDAHO - Adults emerging in Parma area. Elm leaves appear ragged due to adult feeding. (Scott). UTAH - Unusual infestation on one tree at Hurricane, Washington County. (Knowlton). DELAWARE - All stages present and causing noticeable injury to elms in northern Sussex County. (Burbutis, Conrad). NEVADA - First-instar larvae present in Reno-Sparks area, Washoe County. Eggs present in Fallon, Churchill County, and Lovelock, Pershing County. (Bechtel, Lauderdale, Snyder). VIRGINIA - Larvae very heavy on a number of elms in Blackstone, Nottoway County, and on elms in some areas of Pittsylvania County. (Morris, Cassell, Dominick). OKLAHOMA - First-generation population 40 percent in larval stage, 59.8 in pupal stage and 0.2 percent adults, at Stillwater. (Bieberdorf). Larvae heavy, 1.5 per leaf, on Chinese elms in Norman. No adults noted. (Pennington). Heavy on elms at Guthrie, Cushing and Seminole. (Howell). ILLINOIS - Present on elms in south central and western areas. (Ill. Ins. Rpt.).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEW MEXICO - Building up on elms in Albuquerque, Santa Fe and Espanola. (N. M. Coop. Rpt.).

MAPLE CALLUS BORER (Sylvora acerni) - INDIANA - Pupation and emergence occurred during last two weeks of May. Many pupae destroyed by ants, especially Aphaenogaster tennesseensis. (Chandler).

MAPLE-PETIOLE BORER (Caulocampus acericaulis) - MICHIGAN - Injury very noticeable on hard maple in Lansing. (Hutson).

BIRCH LEAF MINER (Fenusa pusilla) - MINNESOTA - Appearing in some nurseries and in some home plantings in Minneapolis-St. Paul area. (Minn. Ins. Rpt.).

A LEAF MINER - SOUTH CAROLINA - Seriously defoliating oaks in Orangeburg County. (Nettles et al.).

AN OAK SKELETONIZER (probably Bucculatrix ainsliella) - NORTH CAROLINA - Skeletonizing white oak leaves in Rockingham County. (Foil, Rabb).

LINDEN LOOPER (Erannis tiliaria) - WISCONSIN - Heavy localized outbreak causing oncisderable defoliation, principally on oak, in vicinity of Skullsburg, Lafayette County. (Wis. Coop. Sur.).

A KERMES SCALE (Kermes sp.) - MISSOURI - Killed terminals of white oak in west central area, especially in Henry and Johnson Counties. (Kyd, Thomas, Munson).

PAINTED MAPLE APHID (Drepanaphis acerifoliae) - DELAWARE - Continues to build up on maples. (Burbutis, Conrad).

WOOLLY ALDER APHID (Prociphilus tessellatus) - VIRGINIA - Very heavy on 6 silver maples in Prince Edward County, in Sussex County and medium on a maple in Amelia County. (Morris, Peery, Parson, Wilson). NORTH CAROLINA - Infestations in Alamance and Onslow Counties. (Jones, Scott, Farrier). MARYLAND - Heavy on silver maple at Tracys Landing, Anne Arundel County. (U. Md., Ent. Dept.).

A LEAF TIER - WEST VIRGINIA - Heavy population affecting 5,000 acres of hardwoods in Pocahontas County. (W. Va. Ins. Sur.).

COTTONWOOD LEAF BEETLE (Chrysomela scripta complex) - NEW MEXICO - Defoliated cottonwood trees in Albuquerque area. Masses of pupae and emerging adults reported in several scattered sections of the city. (N. M. Coop. Rpt.). NORTH CAROLINA - Defoliating willows in Graham and Dare Counties. (Wood, Jones, Farrier).

A LEAF BEETLE (Chrysomela sp.) - IDAHO - Adults abundant on marshland willows near Porthill, Boundary County. As many as 6 adults feeding on young leaves on some twigs. Large number of egg masses present, but no larvae observed. (Foote).

HACKBERRY ENGRAVER (Scolytus muticus) - INDIANA - Large numbers emerged from dead and dying hackberry limbs in West Lafayette, Tippecanoe County. Peak of emergence was about May 31. (Chandler).

JAPANESE BEETLE (Popillia japonica) - VIRGINIA - First adults (4 specimens) observed on swamp willow in Deep Creek area of Norfolk County, May 29. (Williams).

BAGWORM (Thyridopteryx ephemeraeformis) - DELAWARE - Newly-hatched larvae feeding commonly on arborvitae, red cedar and mimosa in Kent and Sussex Counties. (Burbutis, Conrad). VIRGINIA - Beginning to form characteristic bags on arborvitae in South Boston, Halifax County. (Dinwiddie). KANSAS - Hatch completed in Douglas and Franklin Counties. (Thompson). OKLAHOMA - Heavy on arborvitae in Stillwater. (Drew, Apt, VanCleave). ILLINOIS - Have hatched in the central part of the State. (Ill. Ins. Rpt.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - IDAHO - Larvae feeding on antelope bitterbrush (Purshia tridentata) in Pine Creek-Keithley Creek drainage area, Washington County. Larvae ranged up to 20 per limb with complete defoliation on most heavily infested limbs. Generally, however, damage only about 2 percent. (Evans).

TENT CATERPILLARS (Malacosoma spp.) - NEW JERSEY - Great numbers observed dead on wild cherry trees in Monmouth and Middlesex Counties, May 27. Apparently due to virus disease. (Ins. Dis. Newsl.). WEST VIRGINIA - M. disstria caused 80-100 percent defoliation of oak, maple and various other hardwoods on 800-1,000 acres in Hardy County. (W. Va. Ins. Sur.). OHIO - M. americanum remained troublesome in Canton area, defoliating wild cherry trees and now migrating to other areas. (Rings). MINNESOTA - M. disstria in second instar in Cloquet area, Carlton County. Populations drastically reduced in area north of Cloquet, probably by storms, cold weather and late leafing out of aspens. Defoliation will be considerably less than anticipated. M. americanum also in second instar, with tents appearing in wild cherry trees. (Minn. Ins. Rpt.). MONTANA - Damaging trees and shrubs in Miles City. (Roemhild). UTAH - Continue to damage shade trees, ornamentals and fruit trees in home orchards in Cache, Weber, Box Elder and Davis Counties. (Knowlton).

A SHIELD BEARER (Coptodisca sp.) - NEVADA - Causing heavy damage to leaves of popular trees, Las Vegas, Clark County. (Lee).

TULIPTREE APHID (Macrosiphum liriodendri) - DELAWARE - Very abundant on tuliptrees in New Castle County. (MacCreary).

A GALL MIDGE (Dasyneura pseudacaciae) - DELAWARE - Deforming honeylocust leaves throughout new Castle County.(Burbutis, Conrad).

SAWFLIES - INDIANA - Larvae of an undetermined species completely defoliating elderberry. (Chandler). KANSAS - Monoctenus melliceps stripping foliage from some juniper trees in Franklin County. (Thompson). RHODE ISLAND - Profenusa canadensis infesting hawthorn in North Kingstown and North Providence, May 28. (Mathewson).

LACE BUGS - NEW JERSEY - Appearing on planetrees, rhododendron and azaleas. (Ins. Dis. Newsl.).

ROSE CHAFER (Macrodactylus subspinosus) - WEST VIRGINIA - Heavy on roses in various isolated areas over the State. (W. Va. Ins. Sur.)

APHIDS - WASHINGTON, D. C. - Myzus persicae severe on ornamental pansy plantings at Shoreham Hotel. (Leonard). IDAHO - Severe, but spotted, infestation of Macrosiphum rosae on roses in Moscow. (Portman). Anuraphis viburnicola severe and has resulted in stunted leaves and flowers on snowball bushes in Nez Perce. (Dailey). MONTANA - Appearing on roses and other ornamentals in Rosebud County. (Roemhild). UTAH - Aphis spiraecola infestations very severe in some northern localities. Heavy predation by lady beetles common at Logan. Eriosoma americanum curling elm foliage at Logan. (Knowlton).

SCALE INSECTS - WEST VIRGINIA - Pseudaulacaspis pentagona heavy on privet in Kanawha County. (W. Va. Ins. Sur.). OREGON - Heavy infestation on rhododendron on one property in Portland, determined as Eriococcus azaleae by J. McKenzie, May 14. Several reports in Portland area since that date indicate the species may be becoming more prevalent. (Larson). MARYLAND - Pulvinaria innumerabilis infesting dogwood at Bethesda, Montgomery County, May 27. (U. Md., Ent. Dept.). WYOMING - P. innumerabilis becoming increasingly prevalent on shade trees in Torrington, Goshen County. (Davison).

EUROPEAN EARWIG (Forficula auricularia) - RHODE ISLAND - First report of the season from North Providence, June 3. (Mathewson).

SPIDER MITES - NEW JERSEY - Beginning to infest Japanese holly. (Ins. Dis. Newls.). KANSAS - Tetranychus telarius causing bronzing of foliage on pine, juniper and arborvitae in Franklin County. (Thompson). MARYLAND - Probably Oligonychus ununguis, heavy on spruce at Timonium, Baltimore County, and at Kensington, Montgomery County. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - DELAWARE - Aedes sollicitans adults abundant in eastern Kent and Sussex Counties. (Burbutis, Conrad). MINNESOTA - Of 1,292 larval collections during period May 17-23, 852 contained Aedes vexans, 206 Aedes spp. and 167 Culiseta inornata, with 14 additional species (mostly Aedes spp.) also found. Light trap and biting collections yielded a few A. vexans and C. inornata. Larval control activities continued at a high level. A heavy emergence occurred May 30 and dispersal of adults from breeding sites took place. (Minn. Ins. Rpt.). IOWA - Aedes trivittatus flying and biting at Ames. Abundant rains have made conditions favorable for A. vexans and community control programs will be essential in many towns and communities. (Iowa Ins. Inf.). OHIO - Several species still causing considerable annoyance in northern part of State. Aedes sticticus predominant, with A. trivittatus and A. vexans intermixed. (Rings). MISSOURI - Anopheles spp. and Culex spp. populations extremely high in areas throughout the State. (Kyd, Thomas, Munson). NEBRASKA - Aedes spp. and Culex spp. adults numerous in most areas, causing severe annoyance in eastern counties. (Roselle). TEXAS - Attacking livestock and field personnel in Castro, Deaf Smith, Swisher and Carson Counties. (Russell). IDAHO - Aedes spp. adults abundant and biting viciously in wetter areas around Sandpoint, Chilco and Worley in northern part of State. (Barr, Foote). MONTANA - Hatching begun in all but high elevation areas. Many late larvae and pupae present in breeding waters along Milk River. (Roemhild). UTAH - Annoyance has increased in parts of Davis County, from Helper to Wellington along Price River, and several localities in Uintah and Duchesne Counties. Aedes dorsalis and A. nigromaculis larvae moderately numerous in some areas, with Culex tarsalis and Culiseta inornata appearing early in some areas. (Fronk, Knowlton).

WYOMING - Appearing in Converse County. (Davison). NEVADA - Aedes dorsalis and A. melanimon less numerous than at same time in 1959, in Lovelock area, Pershing County. A. hexodontus and A. pullatus larvae and pupae very abundant in Lamoille area, Elko County. (Bechtel, Lauderdale, Chapman).

TABANIDS - DELAWARE - Chrysops spp. very annoying throughout the State. (Burbutis, Conrad). LOUISIANA - Continue severe throughout State. (Spink). OKLAHOMA - Ranged 1-3 per animal on heads of cattle in Rattan and Hayworth areas. (Goin). OHIO - Tabanus reinwardtii unusually abundant and annoying in Doylestown area. Chrysops nigra abundant and annoying in fields, pastures and orchards in Wooster area. (Rings). NEVADA - Numerous and annoying people in Henderson area, Clark County. (Zoller).

CATTLE GRUBS (Hypoderma spp.) - WYOMING - Adults of H. bovis and H. lineatum beginning to bother cattle in Goshen, Platte and Converse Counties. (Davison).

HORN FLY (Siphona irritans) - INDIANA - Populations range to highs of 300 per animal in east central area of State. (Matthew). NEBRASKA - Populations on cattle in range areas increasing. Averaged 100-150 per head in north central counties. (Roselle). KANSAS - Average 200 per head in a Riley County cattle herd. (Knapp). OKLAHOMA - Ranged 100-150 per steer on 10 checked near Pawnee and 50-125 per cow on 8 checked near Cleveland. (Stiles). Ranged 400-600 per animal in Rattan area and 100 per animal in Hayworth area. (Goin). Ranged 250-500 per yearling steer on 300 checked in Harper and Woodward Counties. (Howell).

SCREW-WORM (Callitroga hominivorax) - TEXAS - Infestation less than one per 100 head in a well managed herd in Cameron County. (Day).

TICKS - SOUTH DAKOTA - Very active in eastern and southeastern parts of the State. (Mast). OKLAHOMA - Counts ranged 40-55 per animal on cattle checked in Rattan and Hayworth areas. (Goin). TEXAS - Medium to heavy widespread populations noted in Jackson County. (Texas Coop. Rpt.).

STORED-PRODUCT INSECTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - TEXAS - Adults heavy in stored milo in Cochran County. (Texas Coop. Rpt.).

GRANARY WEEVIL (Sitophilus granarius) - TEXAS - Adults heavy in stored milo in Cochran County. (Texas Coop. Rpt.).

AN EARWIG - TEXAS - Causing extensive damage to recently stored potatoes in Brazos County. (Hawkins).

BENEFICIAL INSECTS

LADY BEETLES - ILLINOIS - Adults averaged 0-10 per 100 sweeps and larvae 0-30 per 100 sweeps in clover and alfalfa fields in eastern and northeastern areas of the State. (Ill. Ins. Rpt.). MINNESOTA - Larvae becoming more numerous in fields with heavy aphid populations. (Minn. Ins. Rpt.). WISCONSIN - Abundant, reproducing and destroying many aphids. (Wis. Coop. Sur.). OKLAHOMA - In alfalfa fields checked, Hippodamia convergens counts per sweep ranged 0.4-1.2 in Grady, Canadian, Kingfisher, Blaine, Dewey and Woodward Counties; 0.1-3 in Choctaw and McCurtain Counties; 2-4 in Carter County; and averaged 4 per sweep in Coal County. (VanCleave et al.). Light on black oak tree infested with aphids in Stillwater. (Washum, Campbell). SOUTH DAKOTA - Hippodamia spp. appearing in large numbers in most fields in eastern part of State, ranging 4-60 per 10

sweeps. Very active in small grain fields where greenbug is present in large numbers and also numerous in alfalfa fields. (Mast). WYOMING - Populations increasing in alfalfa fields infested with aphids. Average 3-4 per 50 sweeps in Goshen and Platte Counties. (Davison). IDAHO - Adults numerous in alfalfa fields near Lewiston. No larvae found. (Portman). Adults ranged 1-3 per sweep in alfalfa fields heavily infested with pea aphid north of Bonners Ferry. (Foote).

ASH-GRAY BLISTER BEETLE (Epicauta fabricii) - WISCONSIN - Present May 29 in Marinette, Waushara, Adams and Marquette County alfalfa. Averaged one per sweep in Waushara County. Larvae of this species attack grasshopper eggs. (Wis. Coop. Sur.).

LACEWINGS (Chrysopa spp.) - OKLAHOMA - Larval counts per sweep in alfalfa fields checked ranged 0-0.2 in Grady, Canadian, Kingfisher, Blaine, Dewey and Woodward Counties, 0.05-0.5 in Choctaw and McCurtain Counties, 0.1-2 in Carter County and 2 in Coal County. (VanCleave et al.). Light on aphid-infested black oak in Stillwater. (Washum, Campbell). WYOMING - Population generally low in southeastern part of State. (Davison). SOUTH DAKOTA - Few taken in alfalfa in southeastern area. (Mast).

NABIDS (Nabis spp.) - ILLINOIS - Averaged 0-20 per 100 sweeps in clover and alfalfa fields in eastern and northeastern areas. (Ill. Ins. Rpt.). OKLAHOMA - Populations in alfalfa fields surveyed ranged 0.2-0.8 per sweep in Grady, Canadian, Kingfisher, Blaine, Dewey and Woodward Counties (VanCleave, James) and were light in one of 5 alfalfa fields checked in Choctaw and McCurtain Counties (Goin). SOUTH DAKOTA - Populations increasing in alfalfa fields in eastern part of State. (Mast). WYOMING - Average 2-3 per 25 weeps in alfalfa. (Davison). UTAH - Moderately numerous in alfalfa fields at Green River, Moab and Blanding, reducing pea aphid populations. (Knowlton).

BIG-EYED BUGS - UTAH - Numerous in alfalfa fields examined in Washington and southern Kane Counties. (Knowlton).

INSIDIOUS FLOWER BUG (Orius insidiosus) - OKLAHOMA - Populations ranged 0.4-1.2 per sweep in alfalfa fields checked in Grady, Canadian, Kingfisher, Blaine, Dewey and Woodward Counties (VanCleave, James) and 1-2 per sweep in Choctaw and McCurtain Counties. (Goin).

SYRPHIDS - MINNESOTA - Larvae reported in moderate numbers in some fields. (Minn. Ins. Rpt.). OKLAHOMA - Larvae averaged up to one per sweep in alfalfa fields checked in Choctaw and McCurtain Counties. (Goin).

AN ALKALI BEE (Nomia melanderi) - WASHINGTON - First pupae found at Gardena, Walla Walla County. Development about normal. (Wash. Coop. Rpt.).

A BEEFLY PARASITE (Heterostylum robustum) - WASHINGTON - First pupae found at Gardena, Walla Walla County. Development about normal. (Wash. Coop. Rpt.).

A SPOTTED ALFALFA APHID PARASITE (Praon palitans) - NEVADA - Increasing in more heavily infested fields in Fallon, Churchill County. (Bechtel, Lauderdale, York).

MISCELLANEOUS INSECTS

A BOSTRICHID (Heterobostrychus aequalis) - FLORIDA - Adults and larvae found boring in mahogany boat at Winter Haven, Polk County, May 18. (Berger). This is the second report of this species from the State. The previous report was from Apalachicola in mahogany boards imported for use in boat building. (Fla. Coop. Sur.). As far as is known, this species has not become established in the United States.

A SEED-CORN MAGGOT (probably Hylemya cilicrura) - IDAHO - Many adults killed, apparently by a fungus, in the Parma area. (Scott).

PERIODICAL CICADA (Magicicada septendecim) - IOWA - Reported from Lee County. (Dowling, Iowa Ins. Inf.). MISSOURI - Have practically disappeared in central part of State. (Wkly. Rpt. Fr. Grs.). NORTH CAROLINA - Injury appearing on some trees in Coastal Plain and Piedmont areas. (Green). Adults taken in Perquimans County. (Wray).

CORRECTION

CEIR 9(23) : 487 - SEED-CORN MAGGOT should read (Hylemya cilicrura).

ADDITIONAL NOTES

PENNSYLVANIA - ALFALFA WEEVIL pupating and feeding in the south central area, all stages, with new adults in southeast area and infesting 50 percent of the alfalfa in the southern part of Huntingdon County. MEADOW SPITTLEBUG emerging in south central area and Beaver County and in large numbers in southeast area in forage. BRONZED CUTWORM moderate in Washington and Beaver Counties and destroyed 3-acre pasture in Armstrong County. POTATO APHID appearing on tomato and reproducing rapidly in York County. MEXICAN BEAN BEETLE in large numbers on beans in York County but no eggs. CODLING MOTH emerging in Adams County, entering apples in the south central area and no entries yet in the southeast. GREEN FRUITWORM more common than usual on apple in Adams County. TENT CATERPILLARS moderate to heavy on forest and shade trees in several counties. EUROPEAN PINE SAWFLY heavy to common on pines in several eastern counties. Argyrotoxa semipurpurana defoliating oaks in several counties. SPRING CANKERWORM caused heavy widespread defoliation of oaks and forest trees in 4 counties. PALES WEEVIL - Heavy feeding by spring adults on Scotch pine, Douglas-fir and balsam fir in Fulton County. PINE SPITTLEBUG heavy on pines in Clinton, Indiana and Beaver Counties. NANTUCKET PINE MOTH moderate to heavy on pine in southeast. (Pepper et al.).

TENNESSEE - ARMYWORM light in Johnson County alfalfa. ALFALFA WEEVIL widely distributed in Johnson County and found for first time in Carter County. ROSE CHAFER damaging roses, apples, plum and walnut in Johnson County. (Bennett).

NORTH DAKOTA - SIX-SPOTTED LEAFHOPPER surveys conducted through eastern and central areas showed it to be present west to Minot and Bismarck. Populations light to moderate in small grains and legumes with highest counts in southeastern counties where adults averaged 169 per 100 sweeps. Elsewhere counts ranged 10-70 adults per 100 sweeps. GREENBUG observed as scattered trace infestations in small grain through southeastern area and also in south central section as far west as Bismarck. None observed north of a line from Hillsboro to Bismarck. No increase over previous week. Predator activity increasing in all sections. ENGLISH GRAIN APHID present in small grains through southeastern and south central areas with very low counts. Lygus sp. average 1-10 per 25 sweeps in alfalfa. PEA APHID light and variable in legumes. Numbers much below those of 1958. GRASSHOPPERS hatching generally over State, infestations light with no crop injury. SWEETCLOVER APHID light in old sweetclover stands in southeastern section. PINE NEEDLE SCALE hatch underway in Fargo area. LADY BEETLES averaged 0-7 per 25 sweeps in small grain and 0-10 per 25 sweeps in alfalfa and sweetclover. AMERICAN DOG TICK heavy in trees and shrubs in farm planting near Devils Lake. (N. D. Ins. Rpt.).

KANSAS - EUROPEAN CORN BORER - As of May 29, 96 percent had pupated and 26 had emerged in Jefferson County. (Burkhardt).

ILLINOIS - EUROPEAN CORN BORER - Development general, about the same as in 1956, but a little later than in 1955. These were last 2 years of severe damage. In advanced corn fields in central and western areas, peak egg laying may not occur until June 20 to 30. In northwestern area, few days later. These will be areas of heaviest infestations. (Ill. Ins. Rpt.).

CALIFORNIA - Several specimens of Platycleis tessellata collected in yard in Sacramento, first record in Sacramento County. OMNIVOROUS LEAF TIER medium on sweet corn in Vallejo, Solano County. BOLLWORM fairly abundant in some Imperial County stub cotton fields until reduced by predators. SPIDER MITES building up rapidly in Tulare County, with some defoliation occurring. THRIPS abundant in cotton in Kings, Fresno and Madera Counties, with cotton outgrowing them in Kings and Kern Counties. Neoborus illitus heavy on Oregon ash locally in Mariposa County. HONEY BEE colonies throughout State in fairly good condition. Honey plants in unirrigated areas suffered from lack of moisture. Unseasonably cool, windy weather hampered bee activity first week in May. Nectar secretion seriously impaired in many parts of State by drying winds during May. Many colonies were moved to clover and alfalfa seed fields for pollination work. Disease losses during first 4 months of 1959 were 2,351 colonies diseased with American foulbrood. This compares with 1,265 at this time in 1958. (Cal. Coop. Rpt.).

NEW YORK - First CODLING MOTH first-brood entries into fruit noted June 1, in Ulster County; easily found in Dutchess County; and eggs in red-ring stage June 4, in Niagara County. TWO-SPOTTED SPIDER MITE abundant on ground cover in Clinton County and becoming increasingly evident on apple foliage as very dry weather continues. First BLACK CHERRY FRUIT FLY catches of season taken in Monroe County, June 1 and Niagara County, June 3. Emergence on increase in Orleans County, with some being found in cherry orchards. SPITTLEBUG activity heavy in strawberries in Erie County. ARMYWORM heavy in the Germonds area of Rockland County on sweet corn. EUROPEAN CORN BORER entering corn in Ulster County. SIX-SPOTTED LEAFHOPPER heavy on lettuce in Orange and Oswego Counties. CUTWORMS heavy and damaging on all muck crops in Orange County. FLEA BEETLES troublesome in tomatoes, cabbage, potatoes and beans in Erie County. EUROPEAN CHAFER larvae along the Belt Parkway in Brooklyn, Suffolk County. BIRCH LEAF MINER heavy throughout Suffolk County. PINE SAWFLIES have been feeding for about 7 days in Ulster County. Apparently heavy year for their activity. (N. Y. Wkly. Rpt.).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Protoparce quinq.	sexta	Heliothis zea	vires.
ALABAMA								
Auburn 5/29	4			1			4	
Crossville 5/30	2				13		3	
ARIZONA								
Mesa 5/27-6/2			47	21			67	
ARKANSAS								
Fayetteville 5/28-6/3	26	19					27	
Kelso 5/21-27	12	15					67	
Morrilton 5/28-6/3	3	26		1			13	
FLORIDA								
Gainesville 6/2	1							
Quincy 6/1						3	2	
ILLINOIS								
Urbana 5/29-6/4	133	14	1	87			1	
INDIANA (Counties)								
Lawrence 5/26-31	5	25	3	7				
Tippecanoe 5/29-6/3	198	35	83	3				
KANSAS								
Garden City 5/26,30,6/1	2	1	20	8	6		9	
Hays 5/28,31,6/2	2	1		4			6	
Manhattan 5/24-6/5	18	10	22	11			36	
Wathena 5/23-27,6/1	6	4		1				

(Continued on page 525)

	Pseud. unip.	Agrot yps.	Prod. ornith.	Perid. marg.	Protoparce quinq.	Protoparce sexta	Heliothis zea	Heliothis vires.
LOUISIANA								
Baton Rouge 5/29-6/4	21	49	367	147			167	
Curtis 6/3	29	9	37	155			55	
Franklin 6/1			8	1				
MARYLAND								
Fairland 5/29-6/3		1		1	4	1		
MISSISSIPPI								
*Stoneville 5/23-6/4	942	84	216	1150		11	314	8
MISSOURI								
Sikeston 5/23-6/5	858	80		234			15	
NEBRASKA								
Alliance 5/18-26	14	3		24				
Kearney 5/19-25	2			3				
Lincoln 5/8-20	47	30		7	3		1	
North Platte 5/26-6/1	506	51		203	2		94	
Scotts Bluff 5/15-21	4	9		85				
NORTH CAROLINA								
Clayton 6/4						3		
Faison 6/4		5			4			3
SOUTH CAROLINA								
Charleston 5/25-31	6	4		42		3	1	1
Clemson 5/30-6/5	34	9	36	8	8	11	83	4
SOUTH DAKOTA								
Brookings 6/4	106	7		2				
TENNESSEE (Counties)								
Blount 5/26-6/1	6	8	17	3		11	9	
Cumberland 5/26-6/1	1	1				2		
Greene 5/26-6/1	1	4				24	3	
Johnson 5/26-6/1	27	49	1	6			4	
Madison 5/26-6/1	153	15	3	73		5	23	
Maury 5/26-6/1	7	1	2			16	2	
Monroe 5/26-6/1	3					12	3	
Robertson 5/26-6/1	6	7	2	3		4	10	
TEXAS								
Brownsville 5/23-29		14	5	2		1	2	
Waco 5/30-6/5	11	2	7	19			26	
WISCONSIN								
Middleton 5/27-6/3	144							
Platteville 5/26-6/1	1938							
River Falls (no date)	63							
*Theresa 5/18-28	318							
Waterford 5/26-6/1	700							

*Three traps - Stoneville; 2 traps - Theresa

SOME OF THE MORE IMPORTANT PESTS FOR 1958

Due to suggestions of cooperators, two categories of the more important pests of 1958 are summarized. These are "Crop and Forest Pests" and "Man and Animal 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.

ALA.	Boll weevil	Corn earworm	Rice weevil	Bollworm	Mexican bean beetle	European corn borer	Fall armyworm	Lesser clover leaf weevil	Chinch bug	Pecan nut casebearer
	House fly	E.subterranean termite	Horn fly	Cockroaches	Cattle sucking louse	Common cattle grub	Carpet beetle	Stored-grain pests	Dog and cat fleas	Northern fowl mite
ARIZ.	Lygus bugs	Cabbage looper	Bollworm	Green peach aphid	House fly	Cotton leaf perforator	Spider mites	Pink bollworm	Cattle grubs	Garden webworm
ARK.	Boll weevil	Bollworm	Corn earworm	Aphids	Southwestern corn borer					
	Horn fly	Termites	Spider mites	Armyworm						
FLA.	Blissus l. insularis	Florida red scale	Citrus rust mite	Liriomyza sp.	Spider mites on citrus	Corn earworm	Southern armyworm	Tobacco budworm	Wireworms	Fall armyworm
IDAHO	Alfalfa weevil	Beet leafhopper	Clover pests	Grasshoppers	Beet webworm	Green peach aphid	Lygus bugs	Corn earworm	Onion maggot	Douglas-fir beetle
	Clover mite	House fly	Cattle lice	European earwig	Horn fly	Mosquitoes	Deer flies	Carpet beetles	Cattle grubs	Western subterranean termite
ILL.	Corn seed insects	Black cutworm	Grape colaspis	Stable flies	Wireworms	Termites	Smaller Eur. elm bark beetle	European corn borer	Stored-grain insects	Corn earworm
KANS.	Grasshoppers	Variegated cutworm	White grubs	Chinch bug	Corn earworm	European corn borer	Stored-grain insects	Spotted alfalfa aphid	Cankerworms	Fall armyworm
	Horn flies	House flies	Termites	Stable flies	Cattle grubs	Cockroaches	Cattle lice	Mosquitoes	Screwworm	Poultry lice and mites
LA.	Bollworm	Boll weevil	Sugarcane borer	Rice weevil	Fall armyworm	Garden webworm	Chinch bug	Rice stink bug	Southern corn rootworm	Cabbage looper
	Blood sucking insects	Cockroaches	Mosquitoes	Termites	Imported fire ant					
MD.	Alfalfa weevil	Angoumois grain moth	European corn borer	Corn earworm	Fall armyworm	Flea beetles	Green peach aphid	Pine sawflies	Rosy apple aphid	Dusky sap beetle
	American dog tick	Biting flies	Carpet beetles	Cattle lice	Cockroaches	Eastern subterranean termite	House fly	Millipedes	Old-house borer	Salt-marsh mosquito
MINN.	Spruce budworm	Beet webworm	Apple maggot	English grain aphid	Soil insect complex	European corn borer	Grasshoppers	Larch sawfly	Pea aphid	Forest tent caterpillar
	Mosquitoes	Flies	Carpet beetles & clothes moths	Clover mites	Pantry insects	Cattle lice	Powder post beetles	Ants	Cockroaches	Ticks

Some of the More Important Pests for 1958 (Continued)

MO.	Heliothis zea	European corn borer	Garden webworm	Corn flea beetle	Armyworms	Chinch bug	Variegated cutworm	Grape colapsis	Hessian fly	Spider mites on cotton
	Subterranean termites	Mosquitoes	Fleas	Cockroaches	House flies	Horn flies	Ticks	Carpet beetles	Powder post beetles	Slugs and snails
MONT.	Beet webworm	Alfalfa weevil	Grass-hoppers	Aphids	Cutworms	Spruce spider mite	Lygus bugs	Blister beetles	Wireworms	Mites
	Mosquitoes	Dermestids	Cattle grubs	Cattle lice	House flies	Clover mites	Stored-grain insects	Horn fly	Wood boring insects	Cluster fly
NEBR.	Grasshoppers	European corn borer	Cutworms	Corn root-worms	Corn earworm	Stored-grain pests	Pea aphid	Potato leafhopper	Spotted alfalfa aphid	Tarnished plant bug
*	Mosquitoes	House fly	Stable fly	Termites	Cattle grubs	Cattle lice	Horn fly	Cockroaches	Dermestids	Mange mites
N.J.	Alfalfa weevil	European red mite	Codling moth	Corn earworm	European corn borer	Plum curculio	Cabbage looper	Smaller European elm bark beetle	Meadow spittlebug	Colorado potato beetle
	Salt-marsh mosquito	Northern house mosquito	House fly	Eastern subterrenean termite	German cockroach	Pavement ant	Black carpet beetle	Stable fly	Clover mite	Chicken mite
N.MEX.	Heliothis zea	Lygus bugs	Spider mites	Grasshoppers	Aphids	Codling moth	Southwest-ern corn borer	Cabbage looper	Spruce budworm	Beet leafhopper
	Horn flies	Mosquitoes	Cockroaches	Cattle grubs	Screw-worm	Silverfish	Nose bots	Stored-grain pests	Black widow spiders	
N. C.	Boll weevil	Cigarette beetle	Heliothis zea	Mexican bean beetle	Rice weevil	Diabrotica undecim-punctata howardi	Tobacco budworm	Tobacco hornworm	Tobacco wireworm	Two-spotted spider mite
	Cat flea	Chigger	A deathwatch beetle	E. subterra-nean termite	German cockroach	Horn fly	House fly	Northern fowl mite	Salt-marsh mosquito	Stable fly
N. D.	Grasshoppers	Wheat stem sawfly	Wireworms	Beet webworm	European corn borer	Sweetclover weevil	Green peach aphid (on potatoes)	Leafhoppers	Sugar-beet root maggot	English grain and corn leaf aphids
	Horn fly	House fly	Mosquitoes	Cattle lice	Cattle grubs	Stable fly	Northern fowl mite	Sheep ked	Mange mite (on hogs)	Dermestids
OREG.	Codling moth	Pear psylla	Western cherry fruit fly	Garden symphylid	Spider mites	Balsam woolly aphid	Spruce budworm	Cabbage looper	Aphids	Beet armyworm
	Cattle grubs	Mosquitoes	House flies	European earwig	Termites	Carpet beetles	Cockroaches	Sheep ked	Northern fowl mite	Cattle lice
S.DAK.	European corn borer	Grass-hoppers	Six-spotted leafhopper	Cutworms	Potato leafhoppers	Stored-grain insects	Soil pests of corn (rootworms & wireworms)	Lygus bugs	Corn earworm	Sweetclover weevil
	Mosquitoes	House flies	Horn flies	Stable flies	Cattle grubs	Cattle lice	Ants (in homes)	Fabric pests	Structural pests	Cockroaches

* Nevada - last entry on page 528

Some of the More Important Pests for 1958 (Continued)

TEXAS	Cotton fleahopper	Boll weevil	Sorghum webworm	Flea beetles	Stored-grain insects	Cabbage looper	Corn earworm (bollworm)	Grasshoppers	A false chinch bug	Walnut caterpillar
	Screw-worms	Cattle grubs	Termites	House flies	Cockroaches					
UTAH	Beet leafhopper	Fruit mites - Tetranychus spp.	Alfalfa weevil	Corn earworm	Aphids	Lygus bugs	Say stink bug	Grasshoppers	Mountain pine beetle	Forest tent caterpillar
	Mosquitoes	House flies	Cattle lice	Horn flies	Stored-grain pests	Cattle grubs	Sheep ked	European earwig	Clover mite	Termites
VA.	Corn earworm	Alfalfa weevil	European corn borer	Aphids	Spotted cucumber beetles	Spider mites	Angoumois grain moth	Red-banded leaf roller	Scale insects	Pine bark beetles
	House fly	Termites	Cockroaches	mosquitoes	Cattle grubs	Cattle lice	Horn fly	Clothes-moths	Tabanids	Stable flies
WASH.	Codling moth	Pear psylla	Mites	Colorado potato beetle	Corn earworm	Variegated cutworm & alfalfa looper	Pea aphid	Lygus bugs	Balsam woolly aphid	Elm leaf beetle
	Cattle grubs	Cattle lice	Horn fly	Mosquitoes	House and stable flies	Sheep ked	Northern fowl mite	Fleas	Chicken lice	Head lice
WIS.	Sm.European elm bark beetle.	Pea aphid	White-pine weevil	Spider mites	Meadow spittlebug	Cutworms	Apple maggot	Plant bugs	Grasshoppers	European corn borer
	Clover mites	Carpenter ants	Powder-post beetles	American dog tick	Carpet beetles	Mosquitoes	Tabanids (deer & horse flies)	Stable fly	Horn fly	House fly
WYO.	Beet webworm	Mexican bean beetle	Potato psyllid	Alfalfa weevil	Oystershell scale	Pea aphid	Wheat curl mite	Beet leafhopper	Lygus bugs	Grasshoppers
	Cattle grubs	Sheep ked	Bot flies	Carpet beetle	Cattle lice	Stable fly	House fly	Horn fly	Boxelder bug	Mosquitoes
NEV.	Alfalfa weevil	Lygus bugs	Pea aphid	Thrips	Harvester ants	Spotted alfalfa aphid	Beet leafhopper	Grasshoppers and Mormon cricket	Corn earworm	Elm leaf beetle
	Mosquitoes	Cattle grubs	Cattle lice	Horn flies and stable flies	Sheep ked	Horse flies	House flies	Termites	Eye gnats	Screw-worm

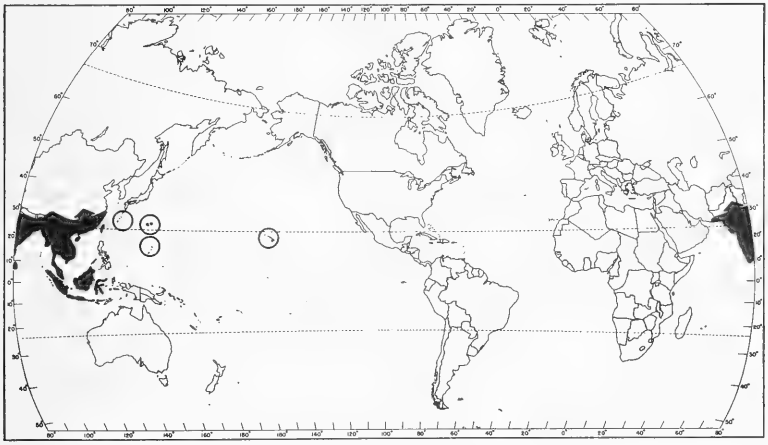
INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

ORIENTAL FRUIT FLY (Dacus dorsalis Hendel)

Economic Importance: This fruit fly is regarded as the most destructive pest of fruit in many areas where it occurs. Infestations of 50 to 80 percent have been recorded in pear, peach, apricot, fig and other fruits in West Pakistan. It is the principal pest of mangoes in the Philippines and reportedly a serious pest of citrus in Formosa. Injury to fruits occurs through oviposition punctures and subsequent larval development. The insect was found to be established in Honolulu, Hawaii, in 1946. Within a short time it became very abundant and spread to all of the main Hawaiian Islands. The outbreak ruined most of the fruit, except pineapple, in that area. The Hawaiian infestation is believed to have been associated with troop movement during World War II. Following the discovery in the Islands, elaborate quarantine measures were established, both in Hawaii and on the Mainland, to prevent spread to the fruit areas of the United States. The pest has been intercepted on many occasions at ports of entry on the Mainland.

Distribution: Bonin Islands, Hawaiian Islands, Mariana Islands, and Southeast Asia (Burma, Ceylon, China, Formosa, India, Indochina, Indonesia, Malaya, Pakistan, Philippine Islands, Ryukyu Islands and Thailand).

Hosts: Attacks over 150 kinds of fruits and vegetables, including citrus, guava, mango, papaya, banana, loquat, avocado, tomato, Surinam cherry, rose-apple, passion fruit, peach, pear, apricot, fig and coffee.



General Distribution of Oriental Fruit Fly

Life History and Habits: Observations in Hawaii show that development from egg to adult under summer conditions requires about 16 days. A period of about 9 days, during which essential nutrients are ingested, is required for attainment of sexual maturity after the adult flies emerge. The developmental periods may be extended considerably by cool weather. The eggs are inserted underneath the

skin of the host fruit after careful exploration by the female to find a suitable oviposition site. Lesions or breaks in the skin, as well as ovipunctures made by other fruit flies are frequently used for egg laying purposes. Ripe fruits apparently are preferred for oviposition, but immature ones may also be attacked. Generally, less than 10 eggs are laid at one time but the number may range up to one hundred or more. When provided with proper foods and water, individual females may lay more than 3,000 eggs during their lifetime. From 1,200 to 1,500 eggs per female is considered to be the usual production of this fruit fly under normal host and nutritional conditions it encounters in the field. D. dorsalis greatly suppresses the numbers of C. capitata in areas where temperatures are favorable for rapid development of both species, as in many parts of Hawaii. Pupation occurs in the soil which the mature larvae enter after leaving decaying host fruits.

Description: ADULT - Considerably larger than house fly; 8.0 mm. body length, 7.3 mm. wing length, wing 2.8 mm. at broadest point. Color very variable but mostly yellow with dark markings on thorax and abdomen (see illustration). Generally, abdomen has two horizontal black stripes and a longitudinal median stripe extending from base of third segment to apex of abdomen. These markings may form a T-shaped pattern but the pattern varies considerably. Ovipositor is very slender and sharply pointed. Subapical bristles small and inconspicuous. Bristles extend less than half way to oviposition tip. EGG - Measures about 1.17 mm. by 0.21 mm., white, elongate, elliptical, chorion without sculpturing. Third-instar LARVA, which is of typical maggot appearance, is 10 mm. in length and creamy-white. PUPARIUM varies in color from tan to dark brownish-yellow. Length averages about 4.9 mm. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 9(24):6-12-59.

Stages of oriental fruit fly (Dacus dorsalis): A - Adult female, greatly enlarged. B - Thorax, dorsal view. C - Ovipositor. D - Antenna. E - Anterior portion of larva showing enlargement of thorasic spiracle.

Figures (except map) from Maki, M., 1921. Investigations on the Orange Fruit Fly (Dacus ferrugineus dorsalis Hend.) in Formosa. Published by Bureau of Productive Industries. 271 pp., /Taiwan/. In Japanese.

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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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

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

Volume 9 June 19, 1959 Number 25

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS heavy on pastures in area of Madera County and in dry fields in area of Orange County, California. In Colorado, counts up to 150 per square yard reported on conservation land in Weld County and 200 in Morgan County; rangeland counts 10-50 per square yard west of Fort Collins in Larimer County, and south into Boulder County. Populations in alfalfa in Larimer, Weld, Boulder and Adams Counties, Colorado, are variable, up to 200 per square yard in margins of fields. Heavy, localized migratory flights of MIGRATORY GRASSHOPPER observed June 10 in Sweetwater vicinity of Beckham County, Oklahoma. Heavy hatch of DIFFERENTIAL GRASSHOPPER, 500 per square yard, found along roadsides in Union, Clay and Yankton Counties, South Dakota. (pp. 533, 556). ARMYWORM controls being applied in Indiana. (p. 533). CORN EARWORM infestations reported as far north as Kansas and Maryland. (p. 534). EUROPEAN CORN BORER moth activity reported generally. Egg masses 200 or more per 100 plants on early corn in eastern Nebraska and 300 at Amana, Iowa. Moderate to heavy infestations reported in Delaware. (pp. 534, 555, 556). Treatments for SUGARCANE BORER may be necessary soon in Louisiana. (p. 535). Damage to 70 percent of corn by a GRAPE COLASPIS appearing in central and southern Illinois. (p. 536). Damage by GREENBUG continues in Wisconsin, Illinois, Indiana, Minnesota and South Dakota. Red leaf disease appears more prevalent in Wisconsin than for nearly a decade and is severe in many northern Illinois fields. (p. 536).

ALFALFA WEEVIL larvae 1,000 to 2,000 per 100 sweeps on first-cutting alfalfa in Larimer, Weld, Boulder and Adams Counties, Colorado, and 25 per sweep in areas of Nye County, Nevada. Treatments planned in Goshen County, Wyoming. (pp. 538, 555, 556). MEADOW SPITTLEBUG nymphs heavy in many eastern and southern Wisconsin counties. (p. 559)

CODLING MOTH entries increasing in apples in New Jersey and larvae appearing over a wide area. (p. 540). SPIDER MITES increasing rapidly on apples in a number of areas. (pp. 541, 556). FALL WEBWORM increasing on pecan in southern Alabama. (p. 542).

POTATO APHID increasing on tomatoes in New Jersey and common in Delaware. (p. 543).

BOLL WEEVIL - Populations high in hill sections of Mississippi. Punctured squares averaged 18 percent in Georgia, 28 percent in Madison Parish, Louisiana, and counts were high in Alabama. Squares being freely punctured in Florence, South Carolina, area. (pp. 545, 546). BOLLWORMS appearing on cotton generally. Some control needed in California and in Mississippi. THRIPS damage continues over a wide area. (p. 546). LYGUS BUGS causing considerable damage to cotton in delta of Mississippi and in Madison Parish, Louisiana. Increasing in Arizona and California. (p. 547).

SPRUCE BUDWORM controls will be applied to 100,000 acres in Montana and 7,200 acres in Minnesota. (p. 549). ELM LEAF BEETLE larvae abundant and damaging elms in several states. (p. 550).

(Continued on page 532)

Highlights of Insect Conditions - (Continued)

MOSQUITOES annoying in several states. (p. 553). HORN FLY ranged 50-300 per cow and over 1,000 per bull on beef cattle and HOUSE FLY very abundant around dairy barns in southern Indiana. (p. 553).

INSECT DETECTION: New county records were European corn borer in Duplin County, North Carolina, (p. 534) and Brood 19 of periodical cicada in Monroe and Mahaska Counties, Iowa. (p. 556). A mirid, Labopidea ainsliei, was collected for first time in North Carolina. (p. 551).

CORRECTION (p. 555). ADDITIONAL NOTES (pp. 555,556).

Hawaiian insect notes for April and May, 1959. (p. 559).

Status of some IMPORTANT INSECTS in the United States. (p. 561).

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WEATHER OF THE WEEK ENDING JUNE 15

Temperatures for the week averaged above normal from the far Southwest through the Great Plains to the Great Lakes and western New England. Unusual heat covered the Rocky Mountains, the northern Great Plains and the Plateau region late in the week, with temperatures for the week averaging 9° or more above normal over parts of western Nebraska and adjoining States. Maxima reached 90° to 100° levels in most sections from southern Idaho and Montana eastward and southward to the Mississippi Valley. In the Northeastern States hot, humid weather moved as far north as central New England at midweek, and temperatures reached record levels for so early in the season. Boston, Massachusetts, recorded 96° on the 10th, New York City 95° on the 9th, and 80° to low 90° readings were general. Temperatures fell sharply from the Great Lakes and New England into the lower Mississippi Valley and the South Atlantic States as a dry, cool air mass pushed southward during the last half of the week. Near record low temperatures in the 40's were felt in New England, while readings dropped to the 40's in the hills of Tennessee and North Carolina. Augusta, Georgia, recorded 54°, Raleigh, North Carolina, 49° and Columbia, South Carolina, 53° on Monday morning, record lows for so late in the season. Showers and thunderstorms accompanied the cold front and brought generous beneficial rainfall from New England to the central Appalachians.

Temperatures averaged below normal from eastern Texas and Oklahoma across the Southern States. Moderate to heavy rainfall in showers and thunderstorms extended from northern Florida and Louisiana through the lower Mississippi and Ohio Valleys. Arkansas reported the wettest week of the season. Excessive moisture continued to limit agricultural activities in Louisiana, Mississippi, Alabama, and northern Florida. In Georgia and the Carolinas, only scattered, light showers fell during the week, and sunny, mild days favorable for fieldwork and unusually cool nights were experienced. Across the Great Plains and the Rockies hot, sunny weather was the rule. Local showers and thunderstorms fell in Oklahoma and Missouri, and showers in Minnesota and the eastern Dakotas left some heavy rainfall totals, but in the western Great Plains and along the lee slope of the Rockies little effective precipitation was observed while brisk, hot, dry winds rapidly depleted surface moisture. Continued cool, cloudy, and showery weather covered the Pacific Northwest. Rainfall totals ranged from over 2 inches along the coast to $\frac{1}{4}$ to 1 inch in northern Idaho. In the Southwest scattered light showers fell during the weekend, but no significant amounts were recorded outside the mountain areas. Temperatures pushed well above the 100° mark in the desert areas throughout the week. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - CALIFORNIA - Melanoplus devastator causing considerable damage to permanent pastures in areas of Madera County where migrations from soil bank wheat stubble occurring. In Arvin area of Kern County, nymphs, predominately M. devastator, being killed by the fungus, Entomophthora grylli. Heavy infestation of Oedaleonotus sp. and Melanoplus sp. in dry fields in San Juan Capistrano area of Orange County. (Cal. Coop. Rpt.). UTAH - Grasshoppers hatching over large area of Iron County, large scale aircraft spraying program contemplated. (Knowlton, Sjoblom). COLORADO - M. bilituratus dominant species. Counts per square yard on conservation reserve land 1-150 in Weld County and 25-200 at Hoyt in Morgan County. Counts per square yard on rangeland, none northwest of Sterling in Logan County and northwest of Sedgwick in Sedgwick County, 0-1 at Briggsdale in Weld County and Buckingham in Logan County and 10-30 west of Fort Collins in Larimer County. Counts per square yard in wheat in Weld County 0-10 in field and 25-200 in field margins at Prospect Valley, 0 in field and 15 in field margins at Buckingham and 15 in field margins at New Raymer and Stoneham. (Exp. Sta., Ext. Serv., June 9). OKLAHOMA - Heavy, localized migratory flights of M. bilituratus observed June 10 in Sweetwater vicinity of Beckham County. (Burke, Carroll). Grasshopper counts per square yard ranged 1-5 on pastures and 2-15 in margins of fields and roadsides in Kiowa, Greer and Washita Counties (Hudson); 5-7 on rangeland areas and 11-25 on roadside areas in Beaver and Harper Counties (Owens); 0.2-0.3 on rangeland and 0.3-0.5 on field margin in Comanche County (Vinson, Hatfield); 3-10 in margins of alfalfa fields and along roadsides in Tulsa and Wagoner Counties (Robinson); and 0.2-0.7 in margins of alfalfa fields in Grady, Cleveland, Logan, Payne, Kay, Grant, Alfalfa and Major Counties (VanCleave, James). Dominant species M. bivittatus and M. differentialis in Tulsa and Wagoner Counties. (Robinson). TEXAS - Spotted infestations of undet. species in Lamb County and attacking feed and onions in Gaines County. Medium infestation of Melanoplus bilituratus reported on tasseling corn in Milam County; nymphs and adults going from corn to grass, 2-3 per host. (Tex. Coop. Rpt.).

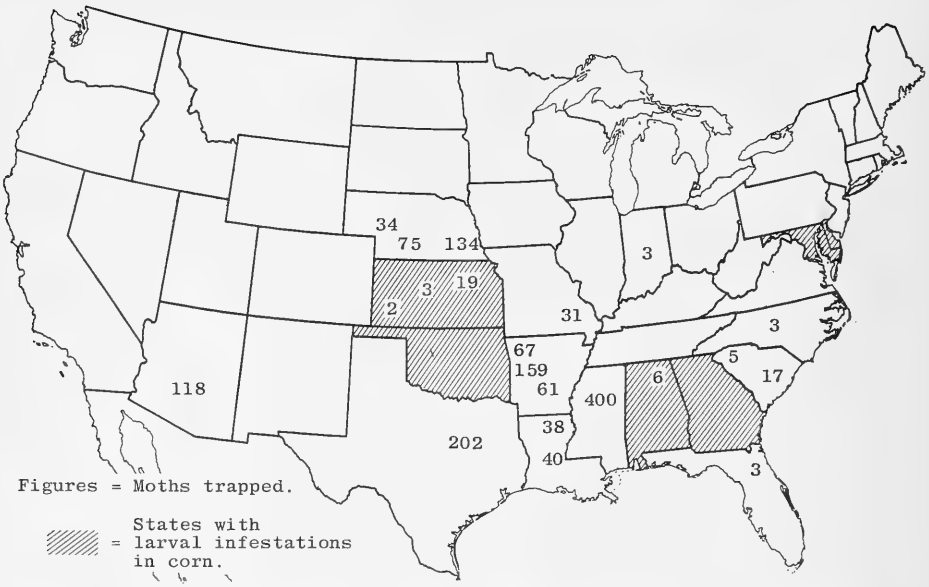
SOUTH DAKOTA - In Washabaugh and Bennett Counties, some areas averaged 5 grasshoppers per square yard along margins and roadsides. Parts of Lawrence, Meade, Pennington and Custer Counties have extremely heavy hatches of M. bilituratus. (Burge). Heavy hatch of M. differentialis, 500 per square yard, found along roadsides in Union, Clay and Yankton Counties. (Komanetsky). NORTH DAKOTA - Scattered hatch of grasshoppers continues in western counties. No serious outbreaks reported. Few M. femur-rubrum second and third-instar nymphs observed in Richland and Wells Counties. (N. D. Ins. Rpt.). MINNESOTA - Infestations of Camnula pellucida generally light in Blackberry area. In northwestern area, M. bivittatus and M. bilituratus nymphs very light and M. femur-rubrum hatching in ditch banks and fields. (Minn. Ins. Rpt.). WISCONSIN - Newly hatched nymphs of M. femur-rubrum found in older, sparse alfalfa-weed fields and along roadsides in Marquette County, about a week earlier than in 1958. (Wis. Coop.Sur.). ILLINOIS - Adults of M. bilituratus observed at Havana in central area. (Ill. Ins. Rpt.).

ARMYWORM (Pseudaletia unipuncta) - INDIANA - Continues to damage corn in many localized areas of State. Also found on small grain in localized areas. Controls being applied most areas. Larval counts in small grain ranged 0.2-6 per square foot. (Matthew). ILLINOIS - Small numbers present in oats in northern area. Few also found on corn. (Ill. Ins. Rpt.). DELAWARE - Infestations light on field corn throughout most of State. (Burbutis, Conrad). TEXAS - Light infestation in Jackson County on 18-inch sorghum and smaller. (Tex. Coop. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - KANSAS - Occasional early-instar larva feeding on corn in Shawnee County. (Burkhardt). Few larvae feeding on corn in northeastern area. (Peters).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ILLINOIS - Small larvae appeared on corn and oats in small numbers in northern half of State. (Ill. Ins. Rpt.).

Corn Earworm Situation, Week Ending June 12



CORN EARWORM (Heliothis zea) - OKLAHOMA - Populations 0.3-0.8 per sweep in alfalfa in Grady, Cleveland, Logan, Payne, Major, Alfalfa, Grant and Kay Counties (VanCleave, James); 8 per 100 stalks of corn in Yukon area (Pennington); 12-28 per 100 tassels in corn in Seminole, Okfuskee, Okmulgee and Wagoner Counties (Robinson); 3 per linear foot in corn in Muskogee County (Washum, Robinson); 0-3 per corn stalk in Johnston County (Vinson); 0-12 per stalk in 2 of 3 corn fields in Choctaw and Pushmataha Counties (Goin); and averaged 43 eggs per silk on early sweet corn in Payne County (Walton). KANSAS - Occasional early-instar larvae feeding on corn in Shawnee County. Some eggs observed. (Burkhardt). Budworms observed in few corn fields in eastern area, damage less than 1 percent. (Peters). MARYLAND - Light in whorls of field and sweet corn in Dorchester County. (U. Md., Ent. Dept.). DELAWARE - Present in corn in Kent and Sussex Counties. Also found on alfalfa in Sussex County. (Burbutis). ALABAMA - Damage to sweet corn increasing in south and central areas. (Grimes). GEORGIA - Moderate infestations on sweet corn in Spalding County. (Dupree).

EUROPEAN CORN BORER (Pyrausta nubilalis) - MASSACHUSETTS - Activity increased. (Crop Pest Cont. Mess.). NEW JERSEY - Moth flights very numerous June 1 in Burlington County. (Ins. Dis. Newsl.). PENNSYLVANIA - Feeding evident on corn in southeastern area. (Menusan). DELAWARE - Moderate to heavy infestations throughout most of State in early field corn. Adults and some fresh egg masses noted statewide. Second and third-instar larvae most common, few fourth instars present in Kent and Sussex Counties. (Burbutis). MARYLAND - Whorl infestations in field corn in Dorchester County averaged 29 percent; in sweet corn, 61 percent. Egg masses scarce. Heavy in wheat at Leonardtown, St. Marys County. (U. Md., Ent. Dept.). NORTH CAROLINA - Collected for first time in Duplin County (Brett) and moderate on sweet corn in Pamlico County (Stovall). OHIO - Light to moderate infestation on early sweet corn at Columbus. Some larvae in second instar with eggs in every stage of development. (Triplehorn). INDIANA - In Fountain County, egg masses 4 per 100 corn plants 24 inches high. In Posey County, winter mortality 37 percent, pupation 60 percent and emergence 40 percent. (Everly).

ILLINOIS - Emergence complete in southern area and approximately 50 percent in northern area. Counts in tallest corn in northern half of State vary 0-90 egg masses per 100 plants. Few eggs hatched in central area. (Ill. Ins. Rpt.). MISSOURI - Egg masses ranged 0 to 75 per 100 plants in larger corn in northern and north central areas. Some hatch evident, with 0-15 percent of plants showing feeding damage. (Kyd, Thomas, Munson). IOWA - Pupation complete and emergence 16 percent at Ankeny June 5. Egg masses averaged 1.2 per 100 plants on early corn. At same time in 1958, emergence was 42 percent and egg masses averaged 40 per 100 plants 25 inches tall. (Iowa Ins. Inf., June 8). MINNESOTA - Pupation essentially complete in southern counties and first emergence reported from Rock and Martin Counties. Pupation approximately 70 percent in west central district. (Minn. Ins. Rpt.). KANSAS - Hatch nearing completion. Mostly first and second-instar larvae, 6-15 per infested plant, in fields in Wabaunsee and Shawnee Counties, less than 50 percent of plants infested. (Burkhardt).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Second-instar larvae, 1-3 per stalk, found in corn field in Hempstead County. (Warren). LOUISIANA - Infestations in 9 corn fields by Z. grandiosella and Pyrausta nubilalis in Caddo and Bossier Parishes ranged 0-15 percent, with one field having a high of 52 percent of stalks infested. No evidence was found of a second generation of either species. (Spink).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ARIZONA - Heavy populations, with much apparent damage in young sorghum in Yuma County. Populations in 6-12-inch sorghum averaged almost 1 per plant in some areas of fields. Heavy in some Pinal County fields. (Ariz. Coop. Sur.).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - First-generation deadhearts found in 74 percent of sugarcane fields examined in northern area. Counts ranged 100-2,000 per acre. In southwestern area, deadhearts found in 58 percent of sugarcane fields and ranged 200-7,200 per acre. At least 500 deadhearts found in 32 percent of fields sampled in northern area, 38 percent in southwestern area. Newly hatched larvae of second generation beginning to appear. First treatments may be necessary within a week, some places. (Spink). Infestation counts 0, 8 and 10 per 100 stalks in 3 corn fields at Colfax. No evidence of pupae or moth emergence found in older corn. In Crowley, 25 percent of corn plants in experimental check plots showed evidence of damage. (Spink).

STALK BORER (Papaipema nebris) - DELAWARE - Larvae boring in field corn most areas. Generally, infestations very light. (Burbutis). KANSAS - Numerous in bromegrass, wheat and corn in Shawnee County, causing white head in bromegrass and wheat. (Burkhardt). Found in wheat, corn and oats in several fields in eastern area, damage averaged less than 1 percent. (Peters).

CUTWORMS - ILLINOIS - Damaging corn in widely scattered locations. (Ill. Ins. Rpt.). MISSOURI - Damage by cutworms evident in scattered areas throughout northern half of State. However, few larvae found. (Kyd, Thomas, Munson). WISCONSIN - Damage to corn continues in several southern counties. (Wis. Coop. Sur.). NORTH DAKOTA - Several severe infestations in small grains and corn in Turtle Mountain area of Bottineau County and in Orrin area in Pierce County. Some infestations averaged 4-5 larvae per linear foot of row. (N. D. Ins. Rpt.). KANSAS - Attacking corn as tall as 36 inches in Shawnee County. Larvae burrowing into stalks, causing them to break. In 2 fields examined, infestation was 10 and 40 percent. (Burkhardt). OREGON - Primarily Peridroma margaritosa and Agrotis ypsilon, increasing and requiring control in sweet corn in Willamette Valley. (Every).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Adults 2-5 per linear foot in corn fields in Seminole, Okfuskee and Wagoner Counties (Robinson); 4 per linear foot in corn field in Muskogee County (Washum, Robinson); 0-2 per stalk in corn field in Johnston County (Vinson); and 1-2 per stalk in 2 or 3 corn fields in Choctaw and Pushmataha Counties (Goin).

BILLBUGS - ILLINOIS - Damaging up to 60 percent of corn plants in some southwestern fields. (Ill. Ins. Rpt.).

CORN FLEA BEETLE (Chaetocnema pulicaria) - MARYLAND - Light to moderate on corn in Dorchester County. (U. Md., Ent. Dept.). DELAWARE - Rather abundant on field and sweet corn, but feeding injury light most places. (Burbutis). ILLINOIS - Abundant in southern area corn fields, as many as 25 per plant. (Ill. Ins. Rpt.). OKLAHOMA - Light in corn field in Yukon area (Pennington), averaged 1 per stalk in Johnston County (Vinson) and averaged 1 and 4 per stalk in grain sorghum and corn, respectively, in Choctaw County (Goin).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - IOWA - Adults abundant in corn fields, may be troublesome in 1959. (Iowa Ins. Inf., June 8). OKLAHOMA - Adults light to numerous some corn fields checked in Seminole, Okfuskee and Okmulgee Counties. (Robinson). ILLINOIS - Adults feeding on leaves of corn, 0-30 percent in northwestern area and 0-100 percent in western area. Adults averaged 7.6 per 100 plants. (Ill. Ins. Rpt.). SOUTH DAKOTA - Adults averaged 3 per 10 sweeps in Kingsbury County, 2 in Beadle County and 1 in Brown County. (Mast).

WIREWORMS - NORTH DAKOTA - Infestations injuring small grain and corn in Griggs, Pierce, Towner and Cavalier Counties. Crop damage in Pierce County quite extensive. (N. D. Ins. Rpt.). WISCONSIN - Damage to corn continues in several southern counties. (Wis. Coop. Sur.). ILLINOIS - Damaging corn in widely scattered locations. (Ill. Ins. Rpt.) MISSOURI - Damage by Melanotus spp. evident in areas throughout northern half of State. (Kyd, Thomas, Munson).

A GRAPE COLASPIS (Colaspis sp.) - ILLINOIS - Damage appearing in many corn fields in central and southern areas. Seventy percent of plants damaged some fields, with as many as 500 larvae per 100 plants. (Ill. Ins. Rpt.). LOUISIANA - Averaged 101 per 100 sweeps in lespedeza in Acadia Parish. (Spink).

GRASS THRIPS (Anaphothrips obscurus) - DELAWARE - Remains abundant on corn throughout State. (Burbutis, Conrad).

SOUTHERN GREEN STINK BUG (Nezara viridula) - ALABAMA - Activity continues to increase in corn in Mobile and Baldwin Counties. (Grimes).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light to heavy in some corn fields in Seminole, Okfuskee and Okmulgee Counties (Robinson) and ranged 20-50 per stalk in 2 corn fields and sorghum field in Choctaw and Pushmataha Counties. (Goin). UTAH - Causing some damage to barley and other small grains. (Knowlton).

GREENBUG (Toxoptera graminum) - COLORADO - Scattered infestations on wheat, 0-200 per linear foot in Logan and Yuma Counties. Some control applied. (Ext. Serv., June 9). MINNESOTA - Scattered and light north of U. S. Highway 10. High temperatures during week favorable for development of predators. Increase in predator populations encouraging, buildup of greenbug lessened most areas. (Minn. Ins. Rpt.). WISCONSIN - Number of small grain fields showing injury increased, but damaged fields localized. Some treatments being applied. Natural enemies have reduced likelihood of major outbreak, especially in southern counties. Red leaf disease appears more prevalent than for nearly a decade. Probably associated with high greenbug populations. (Wis. Coop. Sur.). INDIANA - Damaged oats found nearly all oat fields examined in Carroll, Cass, Fulton, Marshall, St. Joseph and La Porte Counties. Counts ranged to high of 600 per linear foot of row. Parasitism found in infested fields. (Matthew). ILLINOIS - Abundant on oats in northern area and severe damage beginning to appear. Relatively scarce in southern two-thirds of State, but red leaf disease severe many fields. (Ill. Ins. Rpt.). SOUTH DAKOTA - Counts down considerably compared with previous week. Infestations generally seem to be local. Some fields plowed up in Brookings County. In Deuel and Grant Counties, counts up to 15 per leaf blade. (Mast). NORTH DAKOTA - Present only in trace amount in scattered small grain fields. Predators, high temperatures and heavy rain appear responsible for reduction. (N. D. Ins. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - UTAH - Light to moderate in northern wheat fields. (Knowlton). NORTH DAKOTA - Trace present. (N. D. Ins. Rpt.). WYOMING - Population small in grains in Laramie County, averaged 1 per 50 sweeps. (Davison).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Present in many wheat fields in eastern area, very little damage evident. (Peters).

A PLANT BUG (Trigonotylus brevipes) - DELAWARE - Fairly common on corn and grains throughout State. (Burbutis).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Counts per 100 sweeps were 2-10 on small grain in west central district, 0-12 on small grain in northwest and 0-5 on small grain and alfalfa in southeast and east central districts. (Minn. Ins. Rpt.). SOUTH DAKOTA - Averaged 5 per 10 sweeps on wheat in northeast area of State. (Mast). NORTH DAKOTA - Counts declined some in small grains and flax in southeastern area. Populations range 1-100 per 100 sweeps which are comparable to counts at same time in 1958. (N. D. Ins. Rpt.).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Causing moderate damage to wheat in Flat Canyon, Sanpete County. (Knowlton, Funk).

WHEAT CURL MITE (Aceria tulipae) - WYOMING - Degree of infection by western wheat streak mosaic, carried by this mite, ranges from less than 1 percent to 100 percent in Laramie, Goshen and Platte Counties. Disease also suspected of being present in Campbell County. (Davison).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - LOUISIANA - Twelve larvae per 5 plants found in 12 rice fields examined in Acadia Parish. (Spink).

RICE STINK BUG (Oebalus pugnax) - LOUISIANA - Averaged 49 adults and 20 nymphs per 25 sweeps on Vasey grass, Paspalum urvillei, bordering 47 rice fields in Acadia and St. Landry Parishes. (Spink).

A RICE DELPHACID (Sogata orizicola) - FLORIDA - Sweepings made in Manatee, Sarasota, Hillsborough and Bay Counties, and inspections in previously known infested area in Palm Beach County during May were all negative. Treatments being applied to volunteer rice in Belle Glade area. (Fla. Coop. Rpt.). LOUISIANA - Survey of 30 rice fields in Acadia and St. Landry Parishes was negative. (Spink).

A CHINCH BUG (Blissus leucopterus insularis) - LOUISIANA - Continues severe on St. Augustine grass in southern area. (Spink).

SPIDER MITES - NEW MEXICO - Severely damaging Bermuda grass lawns in Las Cruces, Dona Ana County. (N. M. Coop. Rpt.).

A SHIELD BEARER CRICKET (Platycleis tessellata) - CALIFORNIA - Counts up to 25 per square yard found in area southeast of Plymouth, Amador County. (Cal. Coop. Rpt.).

PLAINS FALSE WIREWORM (Eleodes opaca) - TEXAS - Adults and larvae reported in Scurry County. (Tex. Coop. Rpt.).

THRIPS (undetermined) - MARYLAND - Medium to heavy on lower leaves and in whorls of corn on Eastern Shore. Medium to heavy on young soybeans in Dorchester County. (U. Md., Ent. Dept.). NORTH CAROLINA - Infestations in peanut fields in Bertie and Robeson Counties. (Woodall, Thompson, Farrier). SOUTH CAROLINA - Infesting peanuts in Sumter County. (Nettles et al.). GEORGIA - Light to moderate infestations on peanuts in 18 counties. (Johnson). ILLINOIS - Abundant on corn in southern area. (Ill. Ins. Rpt.). NORTH DAKOTA - Adults infesting rye and barley at numerous locations. Rye fields near Westhope in Bottineau County had 2-10

thrips per plant. Migration to barley observed in southeastern counties; however, infestations confined to field margins. (N. D. Ins. Rpt.). ARIZONA - Heavy, 20-30 per plant, in young sorghum in Yuma County. (Ariz. Coop. Rpt.).

PEA APHID (Macrosiphum pisi) - ARIZONA - Increased in Yuma County, some fields with medium infestations. Populations low elsewhere in State. (Ariz. Coop. Sur.). NEW MEXICO - Severely damaged alfalfa in San Juan County. Light to moderate throughout most of State. (N. M Coop. Rpt.). COLORADO - Counts per 100 sweeps on alfalfa 1,000 in Morgan County, 2,500 in Larimer County and 50-80 in Mesa County. (Exp. Sta., June 9). UTAH - Populations spotted, local damage in Salt Lake and Weber Counties in alfalfa. (Knowlton). IDAHO - Generally low in alfalfa between Moscow and Troy. (Foote). KANSAS - Found all alfalfa fields in eastern area, counts from less than 1 to about 100 per sweep. (Peters). SOUTH DAKOTA - Averaged 7 per 10 sweeps in alfalfa generally in northeast area. (Mast). OKLAHOMA - Slight increase in alfalfa in Grady, Cleveland, Logan, Payne, Kay, Grant, Alfalfa and Major Counties (VanCleave, James); averaged 30 per sweep in alfalfa field in Chickasha area (Pennington); light in alfalfa in Tulsa, Wagoner and Muskogee Counties (Robinson, Washum); ranged 20-80 per sweep in legumes in Johnston and Marshall Counties (Vinson); and averaged 4 and 25 per sweep in 2 alfalfa fields checked in Choctaw County (Goin). MINNESOTA - Counts generally low in all districts on alfalfa. (Minn. Ins. Rpt.). WISCONSIN - Counts reduced in alfalfa in Lafayette, Grant, Richland and Sauk Counties, but in central and northwestern counties numbers not reduced. (Wis. Coop. Sur.). MARYLAND - Averaged 10 per sweep on second-growth alfalfa at Cambridge, Dorchester County. Populations declining over previous weeks. (U. Md., Ent. Dept.). DELAWARE - Common to abundant on alfalfa throughout State. (Burbutis).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARIZONA - Continues very low throughout State. Average number per trifoliate leaf in Maricopa County alfalfa fields during first 5 months of year is as follows: Jan. - 0.33; Feb. - 0.27; Mar. - 0.18; Apr. - 0.56; May - 0.004. (Ariz.Coop. Sur.). NEW MEXICO - Many heavy infestations on alfalfa in southern counties. Building up in San Juan County; mostly winged. (N. M. Coop.Rpt.). UTAH - Populations low to moderate in Washington and Kane Counties. (Knowlton). COLORADO - Not found in Fruita, Loma, Mack and Clifton areas of Mesa County. (Exp. Sta., June 9). OKLAHOMA - Light on alfalfa in several central, north central and northwestern counties. (VanCleave, James). Counts 10 per sweep in alfalfa field in Chickasha area (Pennington); 0-5 per sweep in Tulsa, Wagoner and Muskogee Counties (Robinson, Washum); 200 per sweep in alfalfa field in Madill area and 50 per sweep in field in Tillman County (Vinson, Hatfield); and averaged 0.25 and 30 in two fields in Choctaw County (Goin). KANSAS - Found in alfalfa in Greenwood, Elk, Montgomery, Labette, Cherokee, Crawford, Allen, Bourbon and Linn Counties. Counts less than 1 per 10 sweeps. (Peters). WEST VIRGINIA - Surveys in 1959 all negative. (W. Va. Ins. Sur.).

SWEETCLOVER APHID (Myzocallidium riehmi) - MINNESOTA - Abundant many old sweetclover stands in Ada area and present many old stands in Norman and western Polk Counties. No serious infestations noted on new seedlings. (Minn. Ins. Rpt.). NORTH DAKOTA - Infesting 80 percent of sweetclover plants in southern Cass County field. Averaged 3 per infested plant. (N. D. Ins. Rpt.).

CLOVER APHID (Anuraphis bakeri) - CALIFORNIA - Heavy on alsike clover in Tulelake area of Siskiyou County. (Cal. Coop. Rpt.).

ALFALFA WEEVIL (Hypera postica) - RHODE ISLAND - First-generation adults emerged week of June 9. (Keer, Hansen). COLORADO - Larval counts in untreated fields 100-120 in Morgan County, 2,000 in Larimer County and 50-80 in Montrose County. (Exp. Sta., June 9). SOUTH DAKOTA - Larval counts up to 100 per 10 sweeps on alfalfa in Lawrence County. (Hantsbarger). IDAHO - Larvae and adults generally low in alfalfa between Moscow and Troy, adults averaged 1 per 20 sweeps. (Foote). WYOMING - Many farmers plan to spray after first cutting, in 1 or 2 weeks, in Goshen County. (Davison).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - UTAH - Injury common on some Davis and Cache County sweetclover. (Knowlton). SOUTH DAKOTA - Averaged 12 per 10 sweeps in sweetclover in Grant County. (Mast). NORTH DAKOTA - Notching of leaves 100 percent in several southeastern sweetclover plantings; however, plant injury very light. (N. D. Ins. Rpt.). IDAHO - Roadside sweetclover between Moscow and Troy largely outgrown adult feeding damage. (Foote).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Adults and nymphs averaged 10 per 25 sweeps on alfalfa at Cambridge, Dorchester County. (U. Md., Ent. Dept.). DELAWARE - Fairly common on alfalfa throughout State. (Burbutis).

LEAFHOPPERS - ARIZONA - Seventeen species identified from collections in Maricopa County alfalfa; most abundant species Ollarianus strictus and Aceratagallia curvata. (Ariz. Coop. Sur.). SOUTH DAKOTA - Small numbers of Aceratagallia sanguinolenta on legumes. (Mast).

A FALSE CHINCH BUG (Nysius sp.) - MISSOURI - Appearing in heavy numbers in alfalfa and grassy areas throughout State. In southeast area, counts range up to several hundred per square yard. (Kyd, Thomas, Munson). SOUTH DAKOTA - Few N. ericae found in northeast area of State. Counts less than 2 per 10 sweeps. (Mast).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - RHODE ISLAND - Nymphs abundant on legumes and grasses, June 4. (Hansen). WISCONSIN - Populations heavy many eastern and southern counties and moderate as far north as Trempealeau and Eau Claire Counties. (Wis. Coop. Sur.). DELAWARE - Adults fairly abundant on alfalfa in New Castle County and common most fields in Kent and Sussex Counties. (Burbutis, Conrad).

SPITTLEBUGS (undetermined) - IOWA - Spittle masses 10 times more numerous in hay fields than 2 weeks ago in Wright and Story Counties. (Iowa Ins. Inf., June 8). IDAHO - Few egg masses found on red clover on outskirts of Moscow. (Foote).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Counts 24-67 per 100 sweeps in alfalfa fields in Caddo and Bossier Parishes.(Spink). ALABAMA - Averaged 8 per 100 sweeps in pasture grasses in Wilcox County. (Grimes).

PLANT BUGS (Adelphocoris spp.) - MINNESOTA - A. lineolatus and A. rapidus ranged 30-50 per 10 sweeps in southeast and east central districts, 1-12 in west central district and 1-30 in northwestern and north central districts. (Minn. Ins. Rpt.). WISCONSIN - Nymphs of A. lineolatus predominate on alfalfa as far north as Brown County. (Wis. Coop. Sur.). DELAWARE - Adults of A. rapidus common on alfalfa in New Castle and Kent Counties and present some alfalfa fields in Sussex County. (Burbutis, Conrad). SOUTH DAKOTA - Few A. rapidus found in northeast area on forage crops, too few for valid count. A. lineolatus averaged 3 per 10 sweeps in north central area. (Mast).

LYGUS BUGS (Lygus spp.) - COLORADO - Counts per 100 sweeps in alfalfa 40-60 in Mesa County, 20-40 in Montrose County, 100-300 in Larimer County and 200-300 in Morgan County. (Exp. Sta., June 9). MINNESOTA - L. lineolaris hatching in high numbers in southeast and east central districts. Counts 3-75 per 10 sweeps. (Minn. Ins. Rpt.). NEW MEXICO - Heavy on alfalfa in San Juan County, often averaging 8-10 adults and 30-70 nymphs per sweep. (N. M Coop. Rpt.). OKLAHOMA - Counts 0.2-1.0 per sweep in alfalfa in Grady, Cleveland, Logan, Payne, Kay, Grant, Alfalfa and Major Counties (VanCleave, James) and up to 1 per sweep in 2 alfalfa fields in Choctaw County (Goin). DELAWARE - Adults and nymphs of L. lineolaris common on alfalfa. (Burbutis).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Present in alfalfa and clover throughout State. Feeding apparently very light and spotty. (Burbutis). OKLAHOMA - Very light in alfalfa in several central, north central and northwestern counties. (VanCleave, James). Counts 1.5 per sweep in alfalfa field in Tillman County and 2.0 per sweep in clover field in Marshall County. None found in other fields in areas. (Vinson, Hatfield).

ASH-GRAY BLISTER BEETLE (Epicauta fabricii) - SOUTH DAKOTA - Averaged 3 per 10 sweeps in northeast, 24 per 10 sweeps in north central and 25 per 10 sweeps in Lawrence County, west central area. (Mast).

RED-NECKED PEANUTWORM (Stegasta basqueella) - OKLAHOMA - Light, 3 per 100 terminals, in peanuts in Payne County. One larva found feeding on alfalfa. First record on alfalfa in State. (Walton).

PALE-STRIPED FLEA BEETLE (Systena blanda) - DELAWARE - Common on alfalfa most areas and present on soybeans in Kent and Sussex Counties. (Burbutis).

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - Adults and eggs numerous on soybeans in Sussex County. Feeding injury increased noticeably. (Burbutis).

BEAN LEAF BEETLE (Cerotoma trifurcata) - DELAWARE - Feeding injury increased on soybeans throughout most of State, heaviest in Sussex County. (Burbutis, Conrad). ILLINOIS - Adults vary 0 - 2 per foot of row in soybeans in southern half of State. (Ill. Ins. Rpt.).

WHITE-FRINGED BEETLES (Graphognathus spp.) - NORTH CAROLINA - First adults of season emerged June 3 in Duplin County. (PPC). FLORIDA - Inspections during May in northwestern area did not reveal any newly infested acreage. (Fla. Coop. Sur.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW JERSEY - Entries in apples increasing. (Ins. Dis. Newsl.). MASSACHUSETTS - Oviposition and hatching increased due to high temperatures. (Crop Pest Cont. Mess.). PENNSYLVANIA - Moths still emerging in south central area and larvae entering apples. (Pepper). INDIANA - Half-grown larvae appearing in Orleans area apple orchards. Emergence from packing houses has definitely passed the peak which occurred between May 29 and June 2. (Marshall). Overwintering brood still emerging in Vincennes area. (Hamilton). MISSOURI - Past peak attack in central area. (Wkly. Rpt. Fr. Grs.). MINNESOTA - Larvae just beginning to enter fruit in untreated Twin City orchards. (Minn. Ins. Rpt.). UTAH - Heaviest flight of season at Bountiful, June 3. Flight continued all week at Bountiful and Logan. (Davis). IDAHO - First adult of season collected on June 8 in Moscow. (Portman).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - PENNSYLVANIA - Some larvae, but mostly pupae, in south central apple orchards with second generation starting to emerge. (Pepper). OHIO - Light on plums in Wooster area. (Rings). INDIANA - Full-grown larvae present where not controlled and pupae easily found in Vincennes area. Adults from first-brood larvae now being trapped. (Hamilton). MISSOURI - Between broods in southern and central areas but some larvae still present in northwest area. (Wkly. Rpt. Fr. Grs.).

ROSE CHAFER (Macrodactylus subspinosus) - MASSACHUSETTS - Attacking grapes and other plants. (Crop Pest Cont. Mess.). IOWA - Attacking grape and apple in Bellevue area of Jackson County. (Iowa Ins. Inf., June 8). PENNSYLVANIA - Adults feeding on peach foliage in Perry County. (Pepper).

APPLE MAGGOT (Rhagoletis pomonella) - MASSACHUSETTS - First of season collected in South Amherst, June 8. (Crop Pest Cont. Mess.)

APPLE APHID (Aphis pomi) - NEW JERSEY - Increasing in apple orchards. (Ins. Dis. Newsl.). MASSACHUSETTS - Increasing on apple terminals and water sprouts. (Crop Pest Cont. Mess.). PENNSYLVANIA - Large numbers appearing on terminals of apple trees in south central area. (Pepper).

ROSY APPLE APHID (Anuraphis roseus) - NEW JERSEY - Increasing in apple orchards. (Ins. Dis. Newsl.). UTAH - Population above normal in many central and southern areas this spring. (Knowlton).

WOOLLY APPLE APHID (Eriosoma lanigerum) - OKLAHOMA - Heaviest infestation in recent years on apple trees at Perkins Experiment Station. In some instances, soil under trees has white coat. (Bieberdorf).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Migration to summer host complete. Damage to peach terminals moderate to heavy. (Ext. Ser., Exp. Sta., June 9). UTAH - Extremely numerous, curling foliage of peach trees at Manti. (Knowlton).

ORCHARD MITES - NEW JERSEY - Panonychus ulmi increased in apple orchards some areas during 3-week dry period. (Ins. Dis. Newsl.). PENNSYLVANIA - P. ulmi heavy in orchard in York County, foliage bronzed, and most pear trees in south central area showing some injury by Eriophyes pyri. (Pepper). INDIANA - Spider mites continue to increase rapidly in Orleans area apple orchards with continuation of high temperatures and little rain. (Marshall). UTAH - Damage by E. pyri less severe in Utah and Weber County pear orchards than in 1958. (Knowlton). NEW MEXICO - Bryobia rubrioculus heavy and damaging apple foliage in orchards in San Juan County, but Tetranychus sp. light, with occasional infestation. (N. M. Coop.Rpt.).

EUROPEAN FRUIT LECANIUM (Lecanium corni) - PENNSYLVANIA - Eggs starting to hatch in Perry County peach orchards. (Pepper). OHIO - First hatch about June 10. Thirty-eight percent of eggs hatched by June 12 at Wooster. (Rings).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - NEW JERSEY - Small larvae of first summer brood observed in central area, June 6. (Ins. Dis. Newsl.). OHIO - First-brood populations much higher than normal in northern area. (Rings). INDIANA - New brood hatching in Orleans area peach orchards. Emergence from packing houses very low. (Marshall). Injury from first-brood larvae generally light in Vincennes area orchards. (Hamilton). CALIFORNIA - Heavy on peaches in Modesto area of Stanislaus County and light to heavy in Gridley area of Butte County. (Cal. Coop. Rpt.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - OHIO - In the Doylestown area during the period June 5-11, 25 adults emerged from 36 trees. (Rings).

PEACH TREE BORER (Sanninoidea exitiosa) - INDIANA - Adult female collected at Lafayette, Tippecanoe County, June 12. (Matthew).

PEACH TWIG BORER (Anarsia lineatella) - UTAH - Moderate damage to peach trees in Holden to Meadow area, eastern Millard County. (Knowlton).

A LEAF ROLLER (Platynota stultana) - CALIFORNIA - Medium on peaches and bush-berries in Sanger area, Fresno County. (Cal. Coop. Rpt.).

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - Heavy emergence of new adults from soil in Ft. Valley area during last 4 days in May and in June, especially first week of June. Second-generation eggs expected to be deposited in peaches any time after June 8 at Ft. Valley. (Snapp). OHIO - Larval infestations in plums higher than at any time since 1948 in northern area. (Rings).

MEALY PLUM APHID (Hyalopterus arundinis) - CALIFORNIA - Heavy on plums in Auburn area of Placer County. (Cal. Coop. Rpt.).

PERIODICAL CICADA (Magicicada septendecim) - MISSOURI - Heavy oviposition in progress near Boonville, June 10. Terminals of cherry trees being severely damaged. (Wkly. Rpt. Fr. Grs.).

BLACK CHERRY APHID (Myzus cerasi) - COLORADO - Problem in some orchards. Control fair to poor in Delta County. (Ext. Ser., Exp. Sta.).

WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - IDAHO - First adults of season taken in cherry orchards in Twin Falls area. (Hunt, Day).

BLACK SCALE (Saissetia oleae) - CALIFORNIA - Heavy on olives in Ukiah, Mendocino County. (Cal.Coop.Rpt.).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Ten percent of nut clusters of pecans infested in Stillwater orchard. Eggs being laid. (Bieberdorf).

FALL WEBWORM (Hyphantria cunea) - ALABAMA - Increasing on pecan and persimmon trees throughout central and southern areas. Extensive webbing in Escambia, Baldwin and Mobile Counties. (Grimes).

FALL CANKERWORM (Alsophila pometaria) - CALIFORNIA - Heavy on walnut in Upper Lake, Lake County. (Cal. Coop. Rpt.).

A HICKORY APHID (Longistigma caryae) - OKLAHOMA - Very light in a pecan orchard in Stillwater area. (Bieberdorf).

FALSE CHINCH BUG (Nysius ericae) - CALIFORNIA - Damaging young walnut trees in Patterson-Crows Landing area of Stanislaus County. (Cal. Coop. Rpt.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Heavy on yard grapes in Maricopa County. (Ariz. Coop. Sur.).

MEALYBUGS - MISSOURI - Moderate on grapevines in few vineyards around Rosati. (Wkly. Rpt. Fr. Grs.).

GRAPE PHYLLOXERA (Phylloxera vitifoliae) - CALIFORNIA - A heavy infestation on grape roots in Madera area, Madera County. (Cal. Coop. Rpt.).

GALL MIDGES - RHODE ISLAND - Itonida sp. and Lasioptera vitis common, locally, on grape in South Kingstown. (Hansen).

DEVASTATING GRASSHOPPER (Melanoplus devastator) - CALIFORNIA - Considerable damage to young grape plantings in Madera County, moving in from wheat stubble. (Cal. Coop. Rpt.).

BUFFALO TREEHOPPER (Stictocephala bubalus) - IOWA - Nymphs caused leaf damage on grape in Page County. (Iowa Ins. Inf., June 8).

BEET ARMYWORM (Laphygma exigua) - CALIFORNIA - Medium on grapevines in Cucamonga area of San Bernardino County. (Cal. Coop.Rpt.).

ORANGE TORTRIX (Argyrotaenia citrana) - CALIFORNIA - Medium on bushberries in Watsonville area, Santa Cruz County. (Cal. Coop. Rpt.).

A BORER (Obera sp.) - NORTH CAROLINA - Boring in blueberry plants in Bladen County, May 8. (Hudson, Anderson).

AN APHID (Amphorophora davidsoni) - CALIFORNIA - Heavy on bushberries in Watsonville area of Santa Cruz County. (Cal. Coop.Rpt.).

TRUCK CROP INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - Second, third and fourth-instar larvae common in some fields of potatoes. Second and third-instar larvae causing heavy damage to one field of lettuce in Kent County. (Burbutis). MARYLAND - Moderate in large acreage of potatoes at Cambridge, Dorchester County. (U. Md., Ent. Dept.). NORTH CAROLINA - Infestation in potato vines in Carteret County. (Williams, Venters, Farrier).

TOMATO FRUITWORM (Heliothis zea) - GEORGIA - Moderate to heavy on tomatoes in Crisp, Colquitt, Mitchell, Thomas and Tattnall Counties. (Johnson). CALIFORNIA - Few eggs and few infested tomatoes observed in Orange County fields. (Campbell). NEW MEXICO - Damaging lettuce in Eddy County. (N. M. Coop. Rpt.).

POTATO TUBERWORM (Gnorimoschema operculella)- CALIFORNIA - Moderate to heavy in Chino area, San Bernardino County. (Campbell).

STALK BORER (Papaipema nebris) - KANSAS - Infesting tomatoes and potatoes in Crawford and Allen Counties. (Peters).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - RHODE ISLAND - Ovipositing but no hatch as of June 10. (Hansen). DELAWARE - Adults and larvae present on potatoes throughout State but generally under control in most large commercial plantings. Heavy in many small fields of potatoes and tomatoes where little control applied. (Burbutis). MARYLAND - Moderate to heavy on unprotected potatoes and tomatoes in southern sections. (U. Md., Ent. Dept.). IOWA - Present at Ankeny, Ames and Woodbine. (Iowa Ins. Inf.).

FLEA BEETLES - NEW MEXICO - Problem in some Luna County tomato fields. (N. M. Coop. Rpt.). UTAH - Damaging young sugar beets, radishes and turnips in Gunnison Valley area, Sanpete County. (Knowlton). DELAWARE - Systena blanda on potatoes in New Castle County and caused moderate damage to a Sussex County pepper field. (Burbutis). IOWA - Epitrix cucumeris present throughout State. (Iowa Ins. Inf., June 8). MICHIGAN - E. cucumeris becoming noticeable on potatoes and tomatoes at Bay City, St. Johns, Lansing, Jackson and Grand Rapids. (Hutson).

THREE-LINED POTATO BEETLE (Lema trilineata) - RHODE ISLAND - Adults common on potato in southern area. Many eggs present. (Hansen).

POTATO APHID (Macrosiphum solanifolii) - NEW JERSEY - Reports of this pest in tomatoes increasing. (Ins. Dis. Newsl.). MARYLAND - Light to medium on tomatoes and potatoes in Dorchester County. (U. Md., Ent. Dept.). DELAWARE - Present on potatoes in most areas and fairly common on tomatoes. (Burbutis).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Light on young pepper plants at Hurlock, Dorchester County. (U. Md., Ent. Dept.).

APHIDS - MASSACHUSETTS - Increasing on eggplant, peppers and tomatoes. (Crop Pest Cont. Mess.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Decreased in Larimer County due to high temperatures. Also decrease in lycium host. (Ext. Ser., Exp. Sta., June 9). WYOMING - Counts per 100 sweeps on matrimonyvine averaged 1.25 in Pine Bluffs, Laramie County; 6.67 at Torrington, Goshen County; and 2 in Medicine Bow, Carbon County. (Davison, Bakke, Blakemore).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - LOUISIANA - Averaged 60 per 100 sweeps in tomatoes in Plaquemines Parish. (Spink).

GARDEN FLEAHOPPER (Halticus bracteatus) - MARYLAND - Common on beans, tomatoes and potatoes at Bushwood, St. Marys County. (U. Md., Ent. Dept.).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Light on potatoes and beans on the Eastern Shore. (U. Md., Ent. Dept.). DELAWARE - Continues to increase on potatoes in most areas. (Burbutis, Conrad). IOWA - Present throughout State. (Iowa Ins. Inf., June 8). NORTH DAKOTA - First of season collected at Fargo, June 12. (N. D. Ins. Rpt.).

CUTWORMS - OREGON - Agrotis ypsilon and Peridroma margaritosa increasing in bean fields in Willamette Valley. (Every).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MARYLAND - Heavy on snap beans in Talbot and Dorchester Counties. (U. Md., Ent. Dept.).

COWPEA CURCULIO (Chalcodermus aeneus) - GEORGIA - Moderate on peas in Cook County. (Johnson).

MEXICAN BEAN BEETLE (Epilachna varivestis) - DELAWARE - Adults abundant on small plantings of beans in Sussex County and common on beans in Kent County.(Burbutis).

BEAN APHID (Aphis fabae) - OREGON - Becoming abundant on beans in Willamette Valley, requiring control. Infestations appearing much earlier than usual. (Every).

PEA APHID (Macrosiphum pisi) - WISCONSIN - Averaged 2.3 per sweep in Dane County; 2.4 in Dodge; 4.2 in Green Lake; 2.1 in Fond du Lac; 3.5 in Winnebago; and 3.9 in Outagamie pea fields. Counts highest in later plantings. (Wis. Coop. Sur.). UTAH - No damage yet to canning peas in northern area. (Knowlton). IDAHO - Generally low in pea fields between Moscow and Troy. (Foote).

YELLOW WOOLLYBEAR (Diacrisia virginica) - DELAWARE - Causing light damage to lettuce in Kent County. (Burbutis).

IMPORTED CABBAGEWORM (Pieris rapae) - MARYLAND - Larvae heavy on cabbage at Trappe, Talbot County. (U. Md., Ent. Dept.). DELAWARE - Adults and larvae causing light injury to cabbage in Kent and Sussex Counties and present on horseradish in Kent County. (Burbutis).

STRIPED FLEA BEETLE (Phyllotreta striolata) - MICHIGAN - On cabbage in Grand Rapids and Howell. (Hutson).

CABBAGE MAGGOT (Hylemya brassicae) - MICHIGAN - Widespread over State, numerous calls of inquiry from Traverse City area. (Hutson).

THRIPS - NEW MEXICO - Onions in Luna and Dona Ana Counties heavily infested. Untreated fields averaged 3-10 adults and 6-55 nymphs per plant. (N. M. Coop. Rpt.). MARYLAND - Moderate to heavy on beans, cucumbers, onions and peppers in Talbot and Dorchester Counties. (U. Md., Ent. Dept.).

ONION MAGGOT (Hylemya antiqua) - MICHIGAN - In the third instar and pupating at Stockbridge, Hooper, Bath and Grant. (Hutson).

SEED-CORN MAGGOT (Hylemya cilicrura) - COLORADO - Ranged 6-21 per trap with a total of 63 in Weld County and 8-132 per trap on the western slope,with a total of 430. (Ext. Ser., Exp. Sta., June 9).

ASPARAGUS BEETLES (Crioceris spp.) - MARYLAND - C. asparagi and C.duodecimpunctata common on wild asparagus at Secretary, Dorchester County. (U. Md., Ent. Dept.).

BEET WEBWORM (Loxostege sticticalis) - WYOMING - Adults abundant in weeds along roadside near Pine Bluffs, Laramie County. No larvae found to date. (Davison).

SPINACH LEAF MINER (Pegomya hyoscyami) - MICHIGAN - Pupae in spinach and Swiss chard at Kalamazoo. (Hutson). MASSACHUSETTS - Oviposition for second brood on beets and chard heavy during past week. (Crop Pest Cont. Mess.).

DIAMONDBACK MOTH (Plutella maculipennis) - DELAWARE - Becoming more common on horseradish in Kent County and fairly common in one large planting of cabbage. (Burbutis).

HARLEQUIN BUG (Murgantia histrionica) - OKLAHOMA - Heavy on horseradish in Stillwater area. (Flora). Most nymphs found on crucifers in Payne County area. (Walton). Still causing extensive damage to gardens in many parts of State. (Howell).

A LEAFHOPPER - ARIZONA - Heavy on cantaloups in Yuma County. (Ariz. Coop. Sur.).

HOP APHID (Phorodon humuli) - OREGON - Increasing in Willamette Valley hop yards. (Morrison).

SPIDER MITES - NORTH CAROLINA - Severe on dewberries in Forsyth County. (Harmon, Farrier). Tetranychus sp. infesting strawberries in Haywood County. (Bass, Farrier).

TOBACCO INSECTS

TOBACCO BUDWORMS (Heliothis spp.) - NORTH CAROLINA - Generally light on tobacco in Granville County. (Chamberlin). GEORGIA - Light to moderate on tobacco in 16 tobacco-growing counties. (Johnson).

TOBACCO HORNWORMS (Protoparce spp.) - NORTH CAROLINA - Generally light on tobacco in Granville County. (Chamberlin). MARYLAND - Eggs being deposited on tobacco at Barstow, Calvert County. (U. Md., Ent. Dept.).

CUTWORMS - NORTH CAROLINA - Generally light on tobacco in Granville County. (Chamberlin).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Continuing to trouble newly set tobacco in southern counties, though populations declining somewhat. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Light on young tobacco in St. Marys and Calvert Counties. (U. Md., Ent. Dept.).

STINK BUGS - GEORGIA - Nezara viridula and Euschistus servus light on tobacco in 16 counties. (Johnson).

THRIPS - MARYLAND - Moderate to heavy on newly set tobacco in Prince Georges County. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Number of adults declined in Florence area. Survivors attacked squares freely, some egg punctures found. Treatments being applied at regular intervals. (Fye et al.). Being reported from every section of State. (Cott. Lett.). GEORGIA - Square counts made in 40 southern cotton fields ranged 6-39 percent punctured squares; averaged 18 percent. (Johnson). ALABAMA - Activity increasing most sections of State. In fields where cotton is beginning to square, percentage of punctured squares high. (Rawson, Grimes).

TENNESSEE - No weevils found in Henderson County fields. (Locke). MISSISSIPPI - Remain light in delta area. One heavily infested field found in Yazoo County. Weevils averaged 72 per acre in 30 fields examined. Infestations heavy in hill sections of State. (Merkl et al.). LOUISIANA - No weevils found in 2 fields examined in Rapides Parish; 160 per acre found in St. Landry Parish. (Spink). Averaged 105 weevils per acre in 53 fields examined in Madison Parish. Average square infestation 28 percent in 6 fields. Percent survival 2.80 in hibernation cages compared with 3.90 at same time in 1958. (Smith et al.). ARKANSAS - Overwintered weevils very low in southeast area. High count, 700 per acre, one field in Chicot County. One field in Miller County, southwestern area, has 900 per acre. (Ark. Ins. Rpt.). OKLAHOMA - Counts 2 per 100 feet of row in cotton field in Choctaw County. (Goin). TEXAS - Overwintering weevils attacking older, squaring cotton in central area rather heavily. (Gaines). Averaged 150 per acre in untreated fields and 62 per acre in treated fields in McLennan and Falls Counties. At same time in 1958, weevils averaged 41 per acre in untreated fields and 45 per acre in treated fields. (Parencia et al.).

BOLLWORMS (Heliothis spp., et al.) - SOUTH CAROLINA - Occasional punctured square found in Florence area. Light trap catches on increase, a potential threat. (Fye et al.). GEORGIA - Counts made in 40 southern cotton fields. Eggs ranged 0-46 per 100 terminals; average 9 per 100 terminals. Larval counts ranged 0-5 per 100 terminals; average 2 per 100 terminals. (Johnson). ALABAMA - Activity continues to increase in central area. In several fields, egg counts range 15-138 per 100 terminals. Few small larvae observed. (Rawson, Grimes). MISSISSIPPI - General infestations over delta area. Damaged terminals common many fields older cotton. Square damage reported many fields. Eggs common and larvae present. Control needed if early set of squares is desired. (Merkl et al.). LOUISIANA - Square infestations averaged 3 percent in 6 fields examined in Madison Parish. Eggs and small larvae general in most older cotton. (Smith et al.). ARKANSAS - Eggs vary considerably on cotton. Some fields show 0-4 per 100 terminals, highest reported was 18. Larval counts zero to very low. Beneficial insects destroying eggs and young larvae. (Ark. Ins. Rpt.). TEXAS - Infestations generally light, some high egg counts in cotton treated for fleahoppers. (Gaines). Eggs averaged 0.2 and larvae 0.1 per 100 terminals in McLennan and Falls Counties. (Parencia et al.). ARIZONA - Larvae averaged 4-6 per 100 squares in Yuma and Gila Valleys of Yuma County. Light on the Yuma Mesa. Many larvae in squares in late instars, while those on terminals showed many first and second instars present also. (Ariz. Coop. Sur.). CALIFORNIA - Active in many stub fields, but generally diminishing in Imperial County. Some treatment required. (G. D. Peterson).

THRIPS - SOUTH CAROLINA - Some damage noticeable in Florence area. (Fye et al.). TENNESSEE - Complex of thrips and flea beetles continue to hinder growth in young cotton in western area, controls justified in many cases. (Locke). MISSISSIPPI - Younger cotton being damaged in delta area; counts in experimental plots ranged 0.29 to 14.02 per plant. (Merkl et al.). LOUISIANA - Some infestations still present in Madison Parish, especially in very late cotton. Older fields rapidly recovering from damage. (Smith et al.). TEXAS - Continues to be a problem over much of the State because so much cotton has been replanted. (Gaines). Injurious in late-planted, untreated fields in McLennan and Falls Counties. (Parencia et al.). OKLAHOMA - Very light in 2 fields in Muskogee County, none found in several other fields checked in east central and central counties. (Washum, Robinson). Counts per 100 plants were 2 in Stephens County and 6 in Grady County. (Pennington). Averaged 6 per leaf on small cotton in field in Choctaw County. (Goin). NEW MEXICO - Many cotton fields in Dona Ana, Luna and Eddy Counties heavily infested. Some growers treated. (N. M. Coop. Rpt.). CALIFORNIA - Populations declining in southern part of San Joaquin Valley. (Leigh, Beards).

APHIDS - MISSISSIPPI - Light in several fields in delta area. (Merkl et al.). TENNESSEE - Present most fields in western area, but damage light. (Locke). ARKANSAS - Aphis gossypii extremely hard to find on cotton in southeastern area. Beneficial insects keeping under control. (Ark. Ins. Rpt.). GEORGIA - Light infestations of A. gossypii on cotton in Colquitt and Cook Counties. (Johnson).

ALABAMA - Moderate infestation of A. gossypii on cotton in Lowndes County. (Grimes). OKLAHOMA - Light infestations of A. gossypii in several east central and central fields. (Washum, Robinson). Light in Stephens, Grady, Tillman and Choctaw Counties. (Pennington, Vinson, Hatfield, Goin). TEXAS - Light in McLennan and Falls Counties. (Parencia et al.). NEW MEXICO - Occasionally light to moderate infestations of A. medicaginis and A. gossypii in cotton fields in Dona Ana, Luna, Hidalgo, Chaves and Eddy Counties. (N. M. Coop. Rpt.).

LYGUS BUGS (Lygus spp.) - LOUISIANA - Averaged 5 adults per 100 sweeps in 4 cotton fields in St. Landry and Rapides Parishes. (Spink). L. lineolaris present in nearly all old cotton in Madison Parish, considerable damage occurring. Counts averaged 19 per 100 sweeps. (Smith et al.). MISSISSIPPI - L. lineolaris prevalent over delta area. Damage to young squares excessive some fields. Counts ranged 1-43 per 50 sweeps. (Merkl et al.). ARIZONA - Continue to increase over State, particularly in fields near alfalfa; averaging 10-15 per 100 sweeps in Pinal County. (Ariz. Coop. Sur.). CALIFORNIA - Injury to blooms in stub fields increasing to damaging levels in Imperial County. (G. D. Peterson).

FLEA BEETLES - SOUTH CAROLINA - Damage to seedling cotton not as severe as a week ago. (Cott. Lett.). MISSISSIPPI - Undetermined species damaging cotton in Bolivar and Quitman Counties. (Merkl et al.). TENNESSEE - Continue to be a pest in slow-growing cotton in western area. Older cotton shows little damage to new growth. (Locke).

SPIDER MITES - MISSOURI - Counts of Tetranychus spp. range 8-30 per leaf on cotton around margins of fields. (Kyd, Thomas, Munson). ALABAMA - Moderate infestation of undetermined species in cotton in Lawrence County. (Arant). MISSISSIPPI - Undetermined species light in several fields in delta area. (Merkl et al.). TENNESSEE - At least 2 species found in Henderson County. Infestations starting along margin of fields, usually where infestations were heavy previous year. (Locke). CALIFORNIA - Populations of undetermined species variable, some fields requiring treatments in Tulare County. (A. G. George). Tetranychus atlanticus present in Kings County. (O. D. McClutcheon).

FLEAHOPPERS - OKLAHOMA - Psallus seriatus common, but averaged less than 1 per linear foot in cotton in several east central and central fields. (Washum, Robinson). Counts 0-4 per linear foot in Madill area. (Vinson). TEXAS - Infestations of fleahoppers damaging in many places, but variable throughout State. There was still a large reservoir of infestation in the weed hosts which were maturing irregularly because of unusual weather conditions. (Gaines). Infestation averaged 10.7 per 100 terminals in McLennan and Falls Counties, compared with average of 32.3 per 100 terminals at same time in 1958. (Parencia et al.). ARIZONA - Spanogonicus albofasciatus continues heavy in central counties, averaging 12-15 per 100 sweeps in Pinal County. Medium in Yuma County and in southeast counties. (Ariz. Coop. Sur.).

GRASSHOPPERS - ALABAMA - Several species causing considerable damage to cotton, locally, in areas of Wilcox County. (Grimes).

LEAFHOPPERS (Empoasca spp.) - ARIZONA - Heavy on cotton in Yuma County, averaging 50-70 per 10 sweeps. (Ariz. Coop. Sur.). CALIFORNIA - Beginning to move into cotton in areas where sugar beets are being harvested in Imperial County. (G. D. Peterson).

A LEAF ROLLER (Platynota stultana)- ARIZONA - Becoming numerous in Maricopa County cotton fields. (Ariz. Coop. Sur.). CALIFORNIA - Light damage to plants and blossoms in Calipatria area, Imperial County. (Cal. Coop. Rpt.).

FALSE CHINCH BUG (Nysius ericae) - CALIFORNIA - Some present, but rapidly disappearing in Shafter area of Kern County. (Seigh, Beards).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - CALIFORNIA - General in stub cotton and nearby spring-planted fields, with many predators present in Imperial County. (G. D. Peterson).

SALT-MARSH CATERPILLAR (Estigmene acrea) - CALIFORNIA - Light damage to cotton plants and blossoms in Calipatria area, Imperial County. (Cal. Coop.Rpt.).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Medium infestations in cotton in Calipatria area, Imperial County. (Cal. Coop. Rpt.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Light population remains in Oneida County and larvae are scarce in Marinette County. Third-instar larvae much less numerous than at same time in 1958, near Millston. (Wis. Coop. Sur.).

SPRUCE BUDWORM (Choristoneura fumiferana) - MONTANA - Approximately 100,000 acres of Douglas-fir on Bitterroot National Forest will be aerial sprayed for this pest this season. (Missoula For. Ins. Lab.). MINNESOTA - Cooperative spray project underway in International Falls area, with 5,300 acres of 7,200 acres treated. Now in peak of fifth instar, with some sixth-instar larvae present. Pre-spray counts averaged 10-22 larvae per 15-inch branch sample. Population high throughout Koochiching County and defoliation becoming noticeable. Larvae in peak of fourth instar in Cascade River area and in fifth instar around Caribou Lake. Pre-spray population averaged 10-23 larvae per 15-inch sample. (Minn. Ins. Rpt.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - MARYLAND - Larvae infesting Scotch pines at Harmans, Anne Arundel County. (U. Md., Ent. Dept.).

NANTUCKET PINE MOTH (Rhyacionia frustrana) - OKLAHOMA - About 90 percent of first generation in pupal stage, Stillwater area, and 10 percent of first-generation adults have emerged. (Bieberdorf).

A PINE TIP MOTH (Rhyacionia sp.) - CALIFORNIA - Damaged ponderosa pines in Amador County. Caused considerable tip damage on natural pine reproduction and planted trees in Plumas, El Dorado and Stanislaus National Forests in 1958. (Eaton).

A TORTRICID (Tortrix pallorana) - INDIANA - Common in pine plantings throughout the State. Infestation averages about 5 percent. (Schuder).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - ALABAMA - Activity increasing in several areas of State, including Calhoun and Jefferson Counties. (Grimes).

WESTERN PINE BEETLE (Dendroctonus brevicomis) - MONTANA - Killing occasional large, weakened ponderosa pines, but frequently found infesting lower halves of groups of trees top-killed by Ips spp. Some trees as small as six inches in diameter. Most infested groups of trees scattered throughout pine stands on Lolo National Forest. One infestation detected within Kootenai National Forest near Rexford, Lincoln County. (Missoula For. Ins. Lab.). IDAHO - Found in trunks of some ponderosa pines top-killed by Ips spp. (Tunnock). CALIFORNIA - Killing ponderosa pines in local area of Rarie Gulch, Shasta County. (Rappley).

BARK BEETLES (Ips spp.) - ALABAMA - Activity increasing in 100-acre tracts of loblolly, shortleaf and Virginia pines in Calhoun County. (Fisher). Activity also increasing in Jefferson County. (Brickman). MONTANA - I. oregonis top-killing and completely killing groups of ponderosa pines, 6-18 inches in diameter, in many stands in Lolo National Forest. I. integer and I. emarginatus occasionally found in trunks of trees infested with I. oregonis. Slash or damage from fires dectected in vicinity of most infestations probably served as host material for population buildup of Ips spp. (Missoula For. Ins. Lab.). IDAHO - Groups of 5 to over 200 ponderosa pines, 3-14 inches in diameter, along margins of farm woodlots attacked by I. oregonis and I. integer near Potlatch, Moscow and Deary. (Tunnock). CALIFORNIA - Causing top kill in 2-3 Jeffrey and Coulter pines per acre in a 160-acre area in Cleveland National Forest, San Diego County. (Heilman).

DOUGLAS-FIR ENGRAVER (Scolytus unispinosus) - CALIFORNIA - This species and Cylindrocopturus furnissi severely damaged several thousand Douglas-fir trees on north side of Rockpile Ridge, Mendocino County, by causing top, lateral and complete kill. (Spharler).

FIR ENGRAVER (Scolytus ventralis) - CALIFORNIA - Serious local epidemic killing about 200 white firs per acre in a 20-acre infestation on private land in Bear Valley, Mariposa County. Control planned by owners. (P. G. & E.).

PALES WEEVIL (Hylobius pales) - PENNSYLVANIA - Larvae on Scotch and red pine nearly mature in northwest section, with up to 30 per stump. (Adams).

ENGELMANN SPRUCE WEEVIL (Pissodes engelmanni) - IDAHO - Adults mating and depositing eggs at Hudlow Camp, Bonner County. (Clark).

WHITE-PINE WEEVIL (Pissodes strobi) - PENNSYLVANIA - Light on Scotch pine in Venango County, but white pine 10 percent infested. (Adams).

BALSAM TWIG APHID (Mindarus abietinus) - CALIFORNIA - Heavy infestation on spruce trees in Niles, Alameda County. (Cal. Coop. Rpt.).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - IDAHO - Feeding on Dougla-fir foliage near Coeur d'Alene, Kootenai County. (Tunnock). Newly-formed galls fairly abundant on spruces in woodlands north of Troy, Latah County. (Foote).

EASTERN SPRUCE GALL APHID (Chermes abietis) - MICHIGAN - Becoming noticeable at Ann Arbor, Lansing, Battle Creek and Kalamazoo. (Hutson).

PINE SPITTLEBUG (Aphrophora parallela) - PENNSYLVANIA - Much heavier than usual on fir and Austrian, red and Scotch pines in northwestern part of State. Range 5-300 on 6-foot trees. (Adams).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - MONTANA - Feeding on ornamental pines on Montana State University campus, lodgepole pines near Plains, Sanders County, and blue spruce in Missoula, Missoula County. (Missoula For. Ins. Lab.). IDAHO - Heavy infestation on a lodgepole pine near Hayden Lake. (Tunnock).

PINE SAWFLIES - WISCONSIN - Nearly-mature Neodiprion nanulus larvae present in light numbers on red and jack pine in west central counties on June 2. (Wis. Coop. Sur.). PENNSYLVANIA - N. sertifer light on Scotch pine in Venango County. (Adams).

A SAWFLY - KANSAS - Damaging foliage of evergreens in Bourbon County. (Peters).

LARCH SAWFLY (Pristiphora erichsonii) - MONTANA - Cocoons collected from duff under western larch trees in several areas along Blackfoot River, Missoula County. (Missoula For. Ins. Lab.). WISCONSIN - Laying eggs in new shoots in Oneida and Lincoln Counties. (Wis. Coop. Sur.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - IOWA - Dutch elm disease, transmitted by this species, was recently discovered in Des Moines. (Iowa Ins. Inf., June 8). WISCONSIN - Peak adult emergence from dead elm wood expected week of June 12. Adults presently attacking cut elm logs and dying elm trees. Total of 116 positive cases of Dutch elm disease diagnosed this year from 22 municipalities in 7 southeastern counties. No new counties listed. (Wis. Coop. Sur.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - DELAWARE - Larvae very common and causing moderately heavy injury to some elms in Sussex County. (Burbutis). MARYLAND - Larvae abundant on Chinese elm at Arnold, Anne Arundel County. (U. Md., Ent. Dept.). ALABAMA - Heavy larval infestation on American elms in Chilton County. (Helms). ILLINOIS - Feeding heavily on elm leaves in Clinton, De Witt County. (Ill. Ins. Rpt.). OKLAHOMA - First-generation adults emerging in large numbers in Stillwater area by June 5 and ovipositing by June 10. (Bieberdorf). Pupation heavy on elms in McAlister. Development ranged from young larvae to pupae, with no adults noted. Elms showing light to medium damage. (Flora).

WOOLLY ELM APHID (Eriosoma americanum) - CALIFORNIA - Heavy on American elms in Contra Costa County. (Cal. Coop. Rpt.).

ELM LEAF MINER (Fenusa ulmi) - WISCONSIN - Internal tunnels in elm leaves quite prevalent throughout the State. (Wis. Coop. Sur.).

A CANKERWORM (Paleacrita sp.) - SOUTH DAKOTA - Defoliated nearly all American elms in a small area north of Sioux Falls, Minnehaha County. (Mast).

CALIFORNIA OAKWORM (Phryganidia californica) - CALIFORNIA - Heaviest infestation in several years completely defoliated live oaks over wide area of Mendocino County. Moths numerous. (Cal. Coop. Rpt.).

WOOLLY ALDER APHID (Prociphilus tessellatus) - MARYLAND - Reported infesting silver maple in 6 counties. (U. Md., Ent. Dept.). DELAWARE - Extremely abundant on several silver maples in New Castle and Sussex Counties, causing severe leaf curl. (Burbutis).

LEAFHOPPERS (undetermined) - NEW JERSEY - Very numerous on red maple, dogwood, beech and other trees. Some leaf-drop has been reported. (Ins. Dis. Newsl.).

A SHIELD BEARER (Coptodisca sp.) - ARIZONA - Heavy infestations on poplars in Yuma County, with as many as 24 larvae observed on one leaf. Pupation just beginning. (Ariz. Coop. Sur.).

A MIRID (Labopidea ainsliei) - NORTH CAROLINA - Abundant on Moraine locust and causing defoliation in Wake County, June 6. This is the first report of this species from the State. (Gast, Ashton).

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) - MARYLAND - Adults and larvae destructive to willow at Greenbelt, Prince Georges County. (U. Md., Ent. Dept.). DELAWARE - Present on most willows in many areas of State, causing moderate feeding injury. (Burbutis).

FLEA BEETLES - IDAHO - Altica sp. adults relatively uncommon on willows north of Troy. Populations considerably below those of 1958. Adults of an undetermined species abundant and causing considerable feeding damage to streamside and marshland willows in same locality. (Foote).

WILLOW SAWFLY (Nematus ventralis) - DELAWARE - Larvae very abundant and causing almost complete defoliation to many willows at Milton, Sussex County, and are present in other areas of the county. (Burbutis).

BIRCH LEAF MINER (Fenusa pusilla) - RHODE ISLAND - Very heavy statewide. (Mathewson, June 4). WISCONSIN - Adults began laying eggs about June 1 and mined leaves espected to be conspicuous soon. (Wis. Coop. Sur.).

TENT CATERPILLARS (Malacosoma spp.) - RHODE ISLAND - M. americanum pupating June 5. (Mathewson, Hansen). DELAWARE - M. americanum adults numerous in Kent and New Castle Counties. (Burbutis). PENNSYLVANIA - Flights of M. americanum heavy in southwestern area. (Udine). WEST VIRGINIA - Heavy emergence of M. americanum adults. Oviposition begun. Many larvae in various areas apparently killed by disease. M. disstria pupae abundant. (W. Va. Ins. Sur.). MINNESOTA - M. disstria in fifth instar near International Falls and fourth instar in Cloquet area. Spotty, light defoliation around Duluth. (Minn. Ins. Rpt.). WISCONSIN - M. disstria larvae in third instar and the large numbers in Langlade County were unaffected by cold weather following hatching. (Wis. Coop. Sur.). COLORADO - M. fragilis infesting ornamentals and native shrubs in Larimer County. Defoliation severe in some areas. (Exp. Sta., June 9). CALIFORNIA - M. constricta defoliated live, black and white oaks in long strip at 1,600-2,000 feet elevation, Covelo area, Mendocino County. (Weddle). M. pluviale heavy on ceanothus in Chester area of Plumas County. (Cal. Coop. Rpt.).

UGLY-NEST CATERPILLAR (Archips cerasivorana) - RHODE ISLAND - Heavy concentration with almost continuous webbing (10 by 150 feet) on roadside wild cherry at Scituate, May 4, 5. (Mathewson).

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - Larvae on arborvitae and juniper in first, second and possible third instars in Stillwater area. (Bieberdorf). Occasional small larvae on baldcypress in same area. (Drew).

ARBORVITAE WEEVIL (Phyllobius intrusus) - RHODE ISLAND - First observed at Cranston, May 5. Locally common over the State, June 5. (Mathewson).

IRIS BORER (Macronoctua onusta) - NEW JERSEY - This pest has been very bad this season. (Ins. Dis. Newsl.).

SCALE INSECTS - MAINE - Probably Lecanium corni, has been especially abundant on street elms this spring and has caused considerable nuisance because of secretion of honeydew. (Simpson, June 8). PENNSYLVANIA - Pulvinaria ericicola heavy on azalea in Centre County and hatching. (Udine). P. innumerabilis eggs on maple in Franklin County beginning to hatch. (Pepper). MARYLAND - Physokermes piceae crawlers present on spruce at College Park, Prince Georges County. (U. Md., Ent. Dept.). WISCONSIN - Population exceptionally high on a variety of woody hosts. Species are chiefly Gossyparia spuria on elm, P. innumerabilis on silver maple and elm, Lecanium fletcheri on yews, and at least two Lecanium spp. on a wide range of hosts. Numerous eggs present and expected to hatch soon. (Wis. Coop. Sur.). INDIANA - P. innumerabilis common on silver maples throughout the State. Hatching began June 10. L. fletcheri hatching at Gary June 9. Lecanium spp., especially L. corni, abundant on shade trees throughout the State, being found on elm, honeylocust, sweetgum, persimmon, oak and ash. (Schuder). OKLAHOMA - L. corni occasional on ash trees in Stillwater area. (Price). Kermes pubescens very heavy on post oaks in Le Flore, Pittsburg and Choctaw Counties, causing terminals to drop. (Flora, Washum). UTAH - G. spuria very troublesome on elms at Ephriam, Manti and Mt. Pleasant. (Funk).

ROSE CHAFER (Macrodactylus subspinosus) - RHODE ISLAND - First adults noted at Usquepaug, June 4, and Providence, June 10. (Hansen, Mathewson). PENNSYLVANIA - Appearing on roses in Venango County. (Adams). MICHIGAN - Prevalent in rather large numbers in southern areas, including Detroit, Benton Harbor, Jackson, Lansing, Grand Rapids and Bay City. (Hutson). ILLINOIS - Damaging some ornamentals in northeastern areas and a few have been observed in northwest. (Ill. Ins. Rpt.). IOWA - Large numbers reported in the Bellevue area, Jackson County. (Iowa Ins. Inf.).

A ROYAL PALM BUG (Xylastodoris luteolus) - FLORIDA - Nymphs collected on royal palm (Roystonea sp.) at Ft. Lauderdale, Broward County, June 3. (Soowal). This is first report of the season. Approximately 25 percent of royal palms in Ft. Lauderdale are infested. (Fla. Coop. Sur.).

SPITTLEBUGS - INDIANA - Clastoptera proteus nigricollis infesting Cornus obliqua at West Lafayette; adults emerged June 9. C. obtusa heavy on ironwood at same location, but adults emerged June 10. (Schuder).

THRIPS - MINNESOTA - Have been especially serious on several ornamentals this spring. Caused very serious damage to lilacs and found on terminal growth of apple trees in Twin City area. (Minn. Ins. Rpt.). PENNSYLVANIA - Quite numerous on all roses in south central part of State. (Pepper).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - MARYLAND - Heavy on American boxwood at Prince Frederick, Calvert County. (U. Md., Ent. Dept.).

CHRYSANTHEMUM GALL MIDGE (Diathronomyia chrysanthemi) - CALIFORNIA - Heavy on chrysanthemum plants in Napa, Napa County. (Cal. Coop. Rpt.).

SPIDER MITES - MARYLAND - Oligonychus ununguis heavy on hemlock at Reisterstown, Baltimore County, and Tetranychus spp. building up on maple at Glenridge, Prince Georges County. (U. Md., Ent. Dept.). OKLAHOMA - Undetermined species heavy on nursery stock in fields in east central area. (Washum). Heavy on evergreens in Oklahoma City area. (Bower). MINNESOTA - Tetranychus telarius populations building up since advent of hot weather. Especially serious where evergreens were previously damaged by winter injury. (Minn. Ins. Rpt.). WASHINGTON - O. ununguis feeding on ornamental spruce in a yard in Spokane. (Tunnock).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES (Aedes spp.) - NORTH CAROLINA - Adult population of A. sollicitans low along coastal areas. (Ashton). IDAHO - Adults fairly common in marshy areas north of Troy, Latah County, but not too annoying. (Foote).

MOSQUITOES (undetermined) - LOUISIANA - Extremely numerous throughout the State. (Spink). OKLAHOMA - Heavy in the Ravia area of Johnston County. (Vinson). WISCONSIN - Keeping cattle from grazing at night in some areas. (Wis. Coop. Sur.). UTAH - Annoying in lower Blacksmith Fork and Logan Canyons, Cache County. (Knowlton). WYOMING - Becoming annoying in Albany County. (Davison). NEW MEXICO - A nuisance around homes at Artesia, Eddy County. (N. M. Coop. Rpt.).

BLACK FLIES - WISCONSIN - Undetermined species attacking cattle in most sections. Noted attacking turkey poults for first time this season in Richland County. (Wis. Coop. Sur.). WASHINGTON - Simulium canadense annoyed people in limited localities near northern limits of Spokane during mid-May. (Davis). IDAHO - Adults of unidentified species abundant and annoying along fast-flowing streams north of Troy, Latah County. (Foote).

HORN FLY (Siphona irritans) - INDIANA - Ranged 50-300 per cow and over 1,000 per bull on beef cattle in southern areas. (Dobson). OKLAHOMA - Averaged 200 per animal on 52 cows checked in Latimer County, 450 on dairy cattle checked in Tulsa County and 200-300 on cattle checked in Osage County. (Goin, Taylor, Stiles). ALABAMA - Heavy on a small herd of cattle in Wilcox County. (Grimes).

STABLE FLY (Stomoxys calcitrans) - INDIANA - Counts ranged 25-75 per animal on dairy stock in southern part of State. (Dobson). OKLAHOMA - Averaged 3-4 per animal on 130 dairy cattle in Payne County. (Howell). LOUISIANA - Extremely numerous throughout State. (Spink).

TABANIDS - INDIANA - Tabanus spp. averaged 1-5 and Chrysops spp. 0-2 per animal on beef cattle in southern part of the State. (Dobson). LOUISIANA - Chrysops spp. and Tabanus spp. extremely numerous throughout the State. An average of 11.5 specimens of Tabanus sp. collected in 15-minute trapping periods in Caddo, Calcasieu and Tensas Parishes. (Spink). IDAHO - Chrysops sp. adults fairly common and annoying near Princeton, Latah County. (Henry).

CATTLE GRUBS (Hypoderma spp.) - UTAH - Adults annoying cattle in Nibley-Millville area, Cache County, and in areas of Box Elder and Rich Counties. (Knowlton). WYOMING - Adults continue to bother cattle in Goshen, Platte, Converse and Laramie Counties. (Davison).

HOUSE FLY (Musca domestica) - INDIANA - Very abundant around dairy barns and numerous within one-fourth mile, in southern part of State. (Dobson). OKLAHOMA - Ranged 3-37 per 5 grill counts in untreated barns in Stillwater area. (Howell).

TICKS - NORTH DAKOTA - Three severe farmstead infestations of Dermacentor variabilis reported from Northwood area, Grand Forks County. (N. D. Ins. Rpt.). UTAH - Otobius megnini occasionally numerous on range cattle in Iron County. (Sjoblom, Knowlton). OKLAHOMA - Amblyomma americanum very light (2 per animal) on 52 cows checked in Latimer County, treated regularly for 2 years. (Goin). D. variabilis averaged 12 feeding adults per animal on 22 dogs in Payne County. (Howell). TEXAS - Undetermined species heavy and annoying cattle, dogs and people in Smith County. Also reported on lawns. (Texas Coop. Rpt.).

STORED-PRODUCT INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - MICHIGAN - Extremely active in sealed corn storages throughout southern part of the State. One of worst infestations is at Sunfield, Eaton County. (Hutson).

GRANARY WEEVIL (Sitophilus granarius) - TEXAS - Adults light in milo in Crosby County. (Texas Coop. Rpt.).

FLAT GRAIN BEETLE (Laemophloeus pusillus) - TEXAS - Medium infestation of adults attacking milo in Crosby County. (Texas Coop. Rpt.).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - TEXAS - Adults medium and attacking milo in Crosby County. (Texas Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - ARKANSAS - Plentiful in cotton fields in southeastern part of State. Hippodamia convergens predominant species. (Ark. Ins. Sur.). OKLAHOMA - H. convergens counts variable on various crops in several areas of the State. (VanCleave et al.). LOUISIANA - H.convergens, Coleomegilla maculata and Scymnus sp. very numerous in cotton fields. (Spink). SOUTH DAKOTA - Large numbers of Hippodamia spp. present in all eastern areas. (Mast).

BIG-EYED BUGS (Geocoris spp.) - ALABAMA - G. punctipes plentiful in central cotton fields checked in Wilcox, Autauga and Lowndes Counties. (Grimes). LOUISIANA - Very numerous in cotton fields. (Spink). ARKANSAS - G. punctipes plentiful in southeastern cotton fields. (Ark. Ins. Sur.).

INSIDIOUS FLOWER BUG (Orius insidiosus) - ARKANSAS - Plentiful in cotton in southeastern part of State. (Ark. Ins. Sur.).

LACEWINGS (Chrysopa spp.) - OKLAHOMA - Light in alfalfa fields surveyed in 8 central, north central and northwestern counties (VanCleave, James), averaged 2 per sweep in a Johnston County alfalfa field (Vinson), ranged 1-2 per sweep in alfalfa fields checked in Choctaw County (Goin) and light in alfalfa fields in Muskogee area (Robinson, Washum). SOUTH DAKOTA - Small numbers taken in alfalfa in east central, northeastern and north central areas of State. (Mast).

NABIDS (Nabis spp.) - ARKANSAS - Plentiful in cotton fields in southeast area. (Ark. Ins. Sur.). OKLAHOMA - Counts ranged 0.5-1 per sweep in alfalfa fields checked in 8 central, north central and northwestern counties (VanCleave, James) and averaged 0.2 per sweep in a Choctaw County alfalfa field (Goin). SOUTH DAKOTA - Continue to increase in alfalfa fields in eastern part of State. (Mast). WYOMING - N. subcoleoptratus averaged 6 per 25 sweeps in alfalfa in Laramie County. These are the first specimens of the season. (Davison).

SYRPHIDS - OKLAHOMA - Larval populations ranged from occasional to 0.2 per sweep in alfalfa fields checked in 8 central, north central and northwestern counties. (Goin).

MISCELLANEOUS INSECTS

A TENEBRIONID (Corticeus parallelus) - MONTANA - Abundant under bark of ponderosa pines infested with Dendroctonus brevicomis, probably feeding on fungi. (Missoula For. Ins. Lab.).

A COLYDIID (Aulonium longum) - MONTANA - Very numerous scavenger in ponderosa pines attacked by Ips spp. and Dendroctonus brevicomis. Found in association with Corticeus parallelus. (Missoula For. Ins. Lab.).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - Adults emerged about June 6 in Craven, Pamlico and Wilson Counties (Jones), and first seen in Duplin County week of June 11 (Farrier). MARYLAND - First adults of season noted at Wheaton, Montgomery County, and at Baltimore. (U. Md., Ent. Dept.). DELAWARE - First adults of season noted in New Castle County. (Burbutis).

NORTHERN MASKED CHAFER (Cyclocephala borealis) - MARYLAND - Adults appearing at lights in Hyattsville, Prince Georges County. (U. Md., Ent. Dept.).

PERIODICAL CICADA (Magacicada septendecim) - ILLINOIS - Observed in many localities throughout southern two-thirds of the State. (Ill. Ins. Rpt.).

FLIES (Hylemya platura and Fannia spp.) - CALIFORNIA - Thousands of flies collecting on trees, shrubs and clothes lines and dying. The flies remain attached after death. Death is caused by the fungus Entomophthora muscae. This condition has been widespread over the State and has occasioned many inquiries. (Cal. Coop. Rpt.).

CORRECTION

CEIR 9(24):501 - GRASSHOPPERS - WISCONSIN - Camula pellucida should read Camnula pellucida.

ADDITIONAL NOTES

NEBRASKA - GRASSHOPPERS - Hatch well underway over State. Noneconomic to light in eastern third of State and somewhat higher in the west. Dominant species in margins are Melanoplus bivittatus and M. differentialis. Range species are Ageneotettix deorum, Aulocara elliotti, Boopedon nubilium and Phlibostroma quadrimaculatum. EUROPEAN CORN BORER emergence now 100 percent in eastern area. Early May corn has 200 or more egg masses per 100 plants. Oviposition on weed hosts common. PEA APHID averaged 25-100 per 10 sweeps in alfalfa in eastern area. HORN FLY counts ranged 50-400 per side of cattle on sandhill ranges June 8-9. MOSQUITOES continue to increase in central area. TWO-SPOTTED SPIDER MITE moderate to severe on juniper in central and eastern counties. (Bell, Rosell).

NEVADA - SPOTTED ALFALFA APHID was 0-15 per stem in Fish Lake Valley, Esmeralda County. Averaged 5 per sweep in Moapa Valley, Clark County, 5 in southern Smoky Valley, Nye County, and 1 in Schurz, Mineral County, and increased from 1 to 3 per sweep in Douglas County. None found in Virgin Valley or Las Vegas, Clark County. Parasites of this pest, Praon palitans and Trioxys utilis, were recovered in the field in Fish Lake Valley, Esmeralda County. They have been very effective in controlling spotted alfalfa aphid. LYGUS BUGS averaged 1 adult and 3 nymphs per sweep in alfalfa seed fields in Pahrump Valley, Nye County. ALFALFA WEEVIL larvae averaged 25 per sweep in Schurz, Mineral County, and 4 in Smoky Valley, Nye County. PEA APHID populations declining in southern area though heavy locally. A GRASSHOPPER (Aeoloplides tenuipennis) averaged 25 per square yard in marginal weeds of alfalfa fields in Las Vegas, Clark County. CUTWORMS declining on sugar beets in Fallon, Churchill County,

after causing about 10 percent loss. A SPIDER MITE (Tetranychus sp.) was light to heavy on juniper in Las Vegas, Clark County, and Reno, Washoe County. BLACK-MARGINED APHID is light to medium on pecans in Moapa Valley, Clark County. MOSQUITOES - Numerous larvae and pupae of Aedes dorsalis and A. melanimon in Bunkerville, Clark County. Adults of A. nigromaculis increasing in Douglas County. Culex tarsalis larval populations heavy southeast of Las Vegas, Clark County. (Bechtel et al.).

IOWA - EUROPEAN CORN BORER egg mass average per 100 plants was 17 at Ankeny, 4-55 in Boone County, 300 at Amana, 20 at Fairfield and in Palo Alto County. PLUM CURCULIO adults still active. Untreated apple and plum fruits show 2-3 oviposition scars per fruit. WHITE-MARKED TUSSOCK MOTH defoliating untreated apple trees in northeast area. Thirteen-year variety of PERIODICAL CICADA found in Mahaska and Monroe Counties, new county records. Unprotected beef cattle in Story County had 1000 HORN FLIES per animal on June 11. (Iowa Ins. Inf.).

COLORADO - GRASSHOPPERS - On rangeland in foothills area west of Fort Collins, Larimer County, and south into Boulder County, counts 10-50 per square yard. In alfalfa, populations variable in Larimer, Weld, Boulder and Adams Counties. Counts 30-200 per square yard in margins and 0-150 in fields. In the Larimer-Weld-Boulder-Adams County area, ALFALFA WEEVIL larvae were 1,000-3,000 per 100 sweeps on first-growth alfalfa and 120-150 on second-growth alfalfa; PEA APHID was 3,000-5,000 per 100 sweeps on first-growth alfalfa and 400-500 on second-growth alfalfa; LYGUS BUGS were 2,500-5,000 per 100 sweeps; and ALFALFA CATERPILLAR was 10 per 100 sweeps. GREENBUG is present in wheat in widely scattered eastern areas. Necessity of control is reduced. BEET WEBWORM is depositing eggs in Larimer, Weld and Adams Counties, 10-15 per 10 plants. MEXICAN BEAN BEETLE starting to migrate from foothills to bean fields. ONION THRIPS number 7-14 per onion plant in Weld and Adams Counties. POTATO PSYLLID averaged 10 per 100 sweeps on lycium at Masonville, Larimer County. OYSTER-SHELL SCALE hatching at Fort Collins, Larimer County, and EUROPEAN ELM SCALE hatching in La Plata County. (Exp. Sta., Ext. Serv.).

NEW YORK - PEAR PSYLLA pupating in Oswego County and building up in Westchester County where proper control not applied. CODLING MOTH scarce in Wayne County, hatching in Monroe and Niagara Counties and hatch near completion in Orleans County. Entries noted in Westchester, Rockland, Ulster, Dutchess and Onondaga Counties. TWO-SPOTTED SPIDER MITE light in Onondaga County, building up in Westchester and Dutchess Counties and moving into trees from ground cover in Ulster County. ORIENTAL FRUIT MOTH heavy some home orchards in Westchester County and evident injury in many Niagara County orchards. ROSE CHAFER on apple trees in Clinton and Monroe Counties and on grapes in Niagara, Erie and Chautauqua Counties. EUROPEAN RED MITE building up rapidly in Rockland and Niagara Counties. APHIDS building up in orchards in Westchester and Clinton Counties. SIX-SPOTTED LEAFHOPPER heavy on lettuce in Madison, Oswego, Niagara, Orange, Nassau, Suffolk and Monroe Counties. ONION THRIPS increasing in Orange and Madison Counties. EUROPEAN CORN BORER caused considerable damage in early plantings of corn in Ulster County, feeding in Nassau and Westchester Counties and first noted in Rockland County June 8. IRIS BORER heavy one area Suffolk County. (N. Y. Wkly. Rpt.).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Protoparce quinq.	Protoparce sexta	Heliothis zea	Heliothis vires.
ALABAMA								
Crossville 6/5,9	1				17		6	
ARIZONA								
Mesa 6/3-9			38				118	
ARKANSAS								
Fayetteville 6/4-10	83	33					67	
Hope 6/4-10	28	23					159	
Kelso 6/4-10	8	6					61	
COLORADO								
Greeley 6/2	1							
Rocky Ford 5/22-28	2							
FLORIDA								
Gainesville 6/8						1	3	
ILLINOIS								
Urbana 6/5-11	169	27						
INDIANA (Counties)								
Lawrence 5/29-6/6	11	14			13	12	3	
Tippecanoe 6/5-10	121	26	9					
KANSAS								
Garden City 6/3,5	6	6			2		2	
Hays 6/4							3	
Manhattan 6/6-11	160	15	48			1	19	
LOUISIANA								
Baton Rouge 6/5-11	4	6	120	3			40	
Curtis 6/8	3		27				34	
Franklin 6/8,10		1	11				11	
Tallulah 6/5-12			26				38	3
MAINE								
Orono 5/31-6/5	3							
Presque Isle 5/31-6/5	2							
MISSISSIPPI								
*Stoneville 6/5-11	670	27	550			15	400	10
MISSOURI								
Sikeston 6/6-12	1057	24					31	
NEBRASKA								
Alliance 5/27-6/1	168	82						
Kearney 5/26-6/3	22	7	1	2	2		75	
Lincoln 5/30-6/9	957	154					134	
North Platte 6/2-8	191	30		3	3		34	
Scotts Bluff 5/22-6/4	38	42						
NORTH CAROLINA								
Clayton 6/11					2	4	3	
Faison 6/11		4	2.		1	1		
SOUTH CAROLINA								
Charleston 6/1-14	3	7	96			5	17	7
Clemson 6/5-12	26	3	11		15	14	23	5

*Three traps - Stoneville

LIGHT TRAP COLLECTIONS - Continued

	Pseud. unip.	Agrot. yps.	Prod. ornith.	Perid. marg.	Protoparce quinq. sexta	Heliothis zea	Heliothis vires.
SOUTH DAKOTA							
Brookings 6/10	85	20					
TEXAS							
Waco 6/6-12	7	9	32			202	1
WISCONSIN							
Arlington 5/30-6/9	2102	63					
La Crosse 6/3-9	620	51					
Middleton 6/4-10	218	14					
Platteville 6/2-6/4	433	20					
River Falls 6/2-9	27						
Stevens Point 5/26-6/8	566	23					
*Theresa 6/1-8	148						
Waterford 6/1-8	700						

*Two traps - Theresa

HAWAIIAN INSECT NOTES FOR APRIL AND MAY, 1959

A MIRID (Cyrtorhinus lividipennis) was reported established in Puna district of Hawaii in February. This egg-sucking species was introduced from Guam in 1939 for the control of CORN PLANTHOPPER (Peregrinus maidis). Subsequent importations were made and the first release for Hawaii was made at Kapoho in February 1954. C. lividipennis was observed at Kaneohe, Oahu, in July 1953. A LEAF MINER (Melanagromyza splendida) caused serious damage to celery plantings in Kaimuki during April. This species has been recorded from celery-lettuce, squash and sweetpotatoes on Hawaii and Oahu. GREENHOUSE ORTHEZIA (Orthezia insignis) was reported very heavy on Lippia in April in the Punahou area, migrating from the Lippia on to a patio and causing considerable nuisance. PEA APHID (Macrosiphum pisi) was indentified from alfalfa recently. NORTHERN CATTLE GRUB (Hypoderma bovis) larvae were recently received from several localities on Molokai and were determined by C. W. Sabrosky during April. Two adults of H. bovis were collected on Molokai in May, the first adults collected in Hawaii.

Nymphs and adults of an immigrant LEAFHOPPER (Scaphytopius loricatus) were plentiful on foliage of Pluchea odorata at Barbers Point, Oahu, on April 10. This is a new host record for S. loricatus. Adults of a SCIOMYZID FLY (Dictya abnormis) are the most recent introduction for the control of the liver fluke snail (Fossaria ollula). Two shipments were received in April. First generation flies have been obtained and this snail predator was recently approved for release. D. abnormis is a native of Mexico. Numerous reports of KOA SEEDWORM (Cryptophlebia illepida) damage to litchii were received. A SCARAB (Protaetia fusca) was causing considerable damage to maize in a garden near Wailuku, Maui, in April. It was found not only feeding on the tassles, but crawling into the ears and feeding on the kernels. P. fusca was also observed feeding on juices exuding from holes in litchii fruit made by C. illepida in May.

The NOCTUID MOTH (Hypena jussalis), another introduced insect enemy of lantana from East Africa, is well established on all major islands in the Territory. Heavy lantana insect populations were observed in the Ulupalukua Section of Maui on May 7. The area was approximately 24 square miles and included considerable rangeland. Most of the lantana bushes (98 percent) were completely defoliated, the remaining had a few terminal leaves left. One portion of a bush had 7 medium to large larvae on the bare branches. Lantana along the roadside and in isolated clumps up to and beyond Ulupalukua was also almost completely defoliated. H. jussalis activity during March in this area was very light and lantana was growing luxuriantly and blossoming heavily. Also during May, in a large area around Keokea, the lantana appeared to be defoliated in an area approximately 1.5 miles down the hillside to where the kiawe began. (Hawaiian Entomological Society).

STATUS OF SOME IMPORTANT INSECTS IN THE UNITED STATES

ARGENTINE ANT (Iridomyrmex humilis (Mayr))

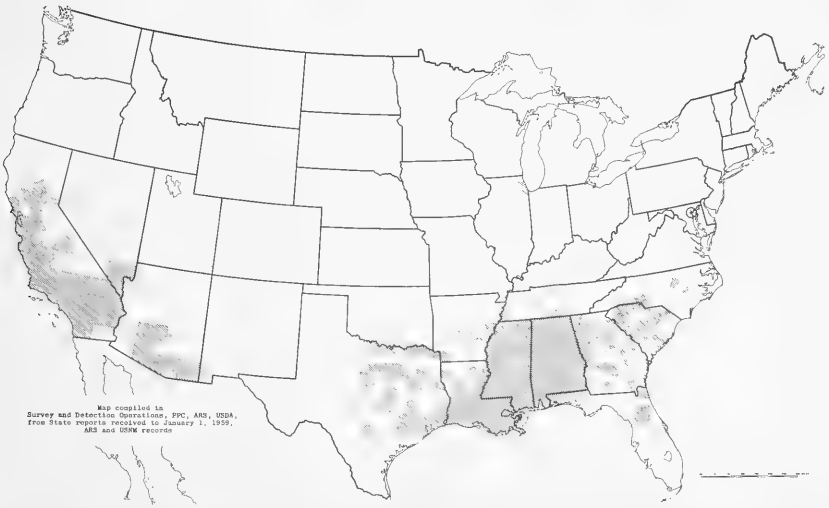
Economic importance: Sometime previous to 1891 this pest entered the United States at New Orleans, Louisiana. In about 70 years it spread over a large part of the Southern States and to areas of California, Nevada and Arizona as well as a few other isolated spots. This species is largely a household pest, being a nuisance in homes, hotels and other such establishments. It can, on occasion, assist in losses to orchardists by caring for mealybugs and aphids or by disturbing their predatory enemies. Infestations can be a serious problem in apiaries. In the South, the ant invades homes almost continuously throughout the year, even when temperatures are as low as 50° F.

Distribution: Occurs in France, Italy, Portugal, Spain, Azores, southern Africa, Australia, Brazil, Argentina, Uruguay, Chile, several Pacific Islands and the United States (see map).

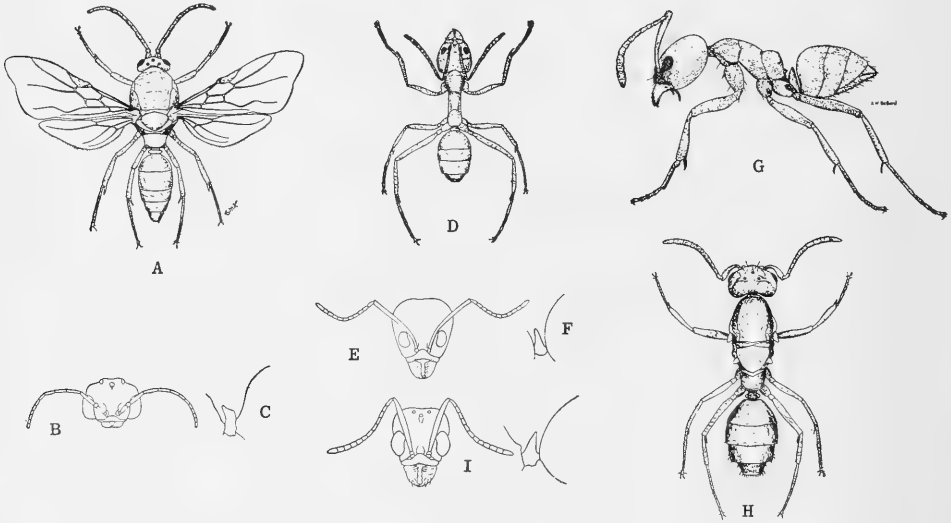
Hosts: Practically omnivorous.

Life History and Habits: Queens may live more than one year, laying about 30 eggs per day in warm weather and when the food supply is abundant. Fertile queens do not confine themselves to the formicaries, but may be found wandering. There is but one caste among workers, they labor, forage, nurse, excavate or do sanitary work. Workers are particularly long-lived, 6 to 9 months. Eggs hatch in 18 to 55 days. Larvae are fed and groomed by workers. The larval stage averages 31 days and the pupal stage 15 days. Newly emerged adults soon darken and become indistinguishable from the others. Total life history, from egg to adult, varies from 41 to 141 days, the average being 78 days. The males normally appear in the spring. When warm weather approaches, small colonies migrate from large over-wintering colonies and reestablish themselves.

DISTRIBUTION OF ARGENTINE ANT *(IRIDOMYRMEX HUMILIS)*



Description: WORKER - Head oval, broader behind than in front, posterior margin slightly concave in middle; eyes flattened, located in front of head. Antennal scapes extending about one-fourth their length beyond posterior corners of head; joints 1-5 and terminal joint of funiculus distinctly longer than broad, remaining joints nearly as broad as long. Thorax slender, narrower than head. Petiole small; its scale in profile, compressed, cuneate, inclined forward, flattened anterior and posterior surfaces and rather acute apex. Gaster small. Legs slender. Body minutely shagreened or leather-like, subopaque and glossy. Body brown; thorax, scapes and legs paler; mandibles yellowish. Length 2.2 to 2.6 mm. QUEEN - Fertile queen, 4.5 to 5.0 mm. long. Head little longer than broad, angular posterior corners, straight, subparallel sides, straight posterior border. Eyes large, rather convex. Thorax large, broad as head, elongate elliptical, nearly 3 times long as broad. Petiolar node erect. Gaster elliptical, somewhat shorter and little broader than thorax. Legs slender. Body dark brown; antennae, legs, posterior margins of gastric segments, reddish. MALE - Head very flattened, flattened eyes. Vertex and ocelli prominent. Cheeks short. Mandibles small. Thorax very robust, elliptical, broader than head. Petiole small, node with blunt margin, slightly inclined forward. Gaster very small. Legs slender. Sculpture, pilosity and pubescence as in worker, color more like female. I. analis, a common species in the Southern States, is shorter, has more robust thorax and much less constricted in mesoepinotal region than I. humilis. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies and the U. S. National Museum).



Argentine ant (Iridomyrmex humilis): A - Adult male. B - Head of male. C - Petiole of male. D - Dorsal view of worker. E - Head of worker. F - Petiole of worker. G - Lateral view worker. H - Fertile queen. I - Head and petiole of queen. (All figures greatly enlarged, views of worker are not the same scale.)

Figures (except map): Worker from Smith, M. R. 1936. U. S. Dept. Agr. Cir. 387, 40 pp. Male, worker, queen; heads and petioles from Newell, W. 1909. Jour. Econ. Ent. 2(2): 174-192.

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Cooperative ECONOMIC INSECT REPORT

Issued by

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

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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

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

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
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Volume 9 June 26, 1959 Number 26

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

RED-LEGGED GRASSHOPPER hatching in Minnesota and Wisconsin; treatments being advised in central Wisconsin counties. Nymphs of MIGRATORY GRASSHOPPER and other range species heavy in localized areas of the Black Hills in South Dakota. (p. 565). EUROPEAN CORN BORER larvae and egg masses present in many areas. (pp. 566, 589). CORN EARWORM larvae active in corn as far north as Kansas, Missouri, Illinois and New York. Eggs heavy in some instances. (p. 567). BLACK CUTWORM damage to corn severe in areas of Indiana and Illinois, and a CUTWORM has reduced stands of corn 10 to 70 percent in southeastern Nebraska. (p. 568). STINK BUGS damaging corn in Louisiana and in southwestern Alabama. (p. 568). WIREWORMS severely damaging corn in Franklin County, Idaho. (p. 569). CHINCH BUG abundant in wheat and barley in Republic County, Kansas, and damaging corn and sorghum in areas of several states. (p. 569).

GREENBUG populations decreasing generally in North Central States. (p. 569). St. Augustine grass continues to be damaged in Florida, Georgia and Louisiana by CHINCH BUGS. (p. 570).

SPOTTED ALFALFA APHID heavy in Hondo Valley, Lincoln County, New Mexico, and general in Lovelock area of Nevada. (p. 571). ALFALFA WEEVIL very heavy throughout upper Arkansas Valley of Colorado and damage serious in some fields in Carbon and Emery Counties, Utah. (p. 572). THRIPS damaging several crops in a number of states. Controls warranted in Indiana. (p. 573).

Fourth POTATO PSYLLID survey in Wyoming, Colorado and Utah. (p. 576). ONION MAGGOT severely damaged some fields in western Washington. (p. 578).

BOLL WEEVIL controls being applied in North and South Carolina. Punctured squares averaged 14 percent in southern Georgia, 20 percent in southeastern Alabama, 3 percent in delta of Mississippi and 18 percent in Madison Parish, Louisiana. First-generationadults appearing in Louisiana and Texas. (p. 580). BOLLWORMS continue to increase in Alabama and present a potential threat in Mississippi delta. (p. 580). THRIPS damage continues in younger cotton in several states. (pp. 580, 581). TARNISHED PLANT BUG causing heavy blasting of squares in Mississippi delta. (p. 581).

SCREW-WORM infesting livestock, June 17, near Lake Placid, Highlands County, Florida. This is first case reported in southeastern United States eradication area since February 19, 1959. (p. 587).

INSECT DETECTION: Southwestern corn borer found for first time in Richland Parish, Louisiana. (p. 569). Alfalfa weevil reported for first time in Clearfield, Cambria, Indiana and Washington Counties, Pennsylvania, and in Houston County, Alabama. Record in Alabama is first for State. (p. 572).

CORRECTION (p. 589). ADDITIONAL NOTES (p. 589).

INSECTS not known to occur in the United States. (p. 593).

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Reports in this issue are for the week ending June 19, unless otherwise designated.

WEATHER OF THE WEEK ENDING JUNE 22

Temperatures averaged below normal east of the Mississippi River, with average departures of 9° or more in New England, where snow was reported early in the week in the mountains of New Hampshire. Temperatures averaged above to much above normal in the western two-thirds of the Nation, with departures of as much as 9° over parts of the northern Great Plains and Arizona. Low pressure in the New England area produced cloudy and cool weather over the Northeast until Saturday, with minimum temperatures generally in the 40's and 50's. Precipitation was heavy in coastal areas of Maine, New Hampshire and Massachusetts. In the Middle and South Atlantic States and the Mississippi and Ohio Valleys, mild days and cool nights combined to bring temperatures below normal and only light, scattered precipitation. Most states in the area from the Carolinas and Delaware to the Great Lakes report some degree of soil-moisture shortage. Excessive rainfall was recorded over the Florida Peninsula, ranging from 6 inches generally in the southern half up to 15 inches at Ft. Myers, as a low pressure area moved across the State at midweek, resulting in considerable flooding of pastures and farmlands. A destructive tornado was reported at Miami on Wednesday evening, and over 11 inches of rain in 72 hours there raised the total amount this month to almost 20 inches, already a new record for June.

Generally hot and sunny, near normal, conditions prevailed over the southern Great Plains, and extreme heat in the northern Great Plains was replaced by cooler air late in the week. Showers and thunderstorms brought locally moderate to heavy precipitation to scattered areas throughout the region. Reports indicate that topsoil moisture is short in many localities from Kansas northward and the hot, dry weather has resulted in some pasture and crop deterioration. Unseasonably hot weather continued in the Rocky Mountain States and the Far Southwest. Maxima reached into the 90's as far north as eastern Washington and Idaho late in the week, while most stations in Arizona and the interior valleys of California reported temperatures well above 100°. Frequent and general thundershowers over Wyoming and Colorado left generally light rainfall totals and some hail damage, while widely scattered showers produced only light and spotty precipitation in the Far West. Ranges remain dry across the Southwest, while generally abundant moisture and favorable growing weather are reported in the Northwest. (Summary supplied by U. S. Weather Bureau.)

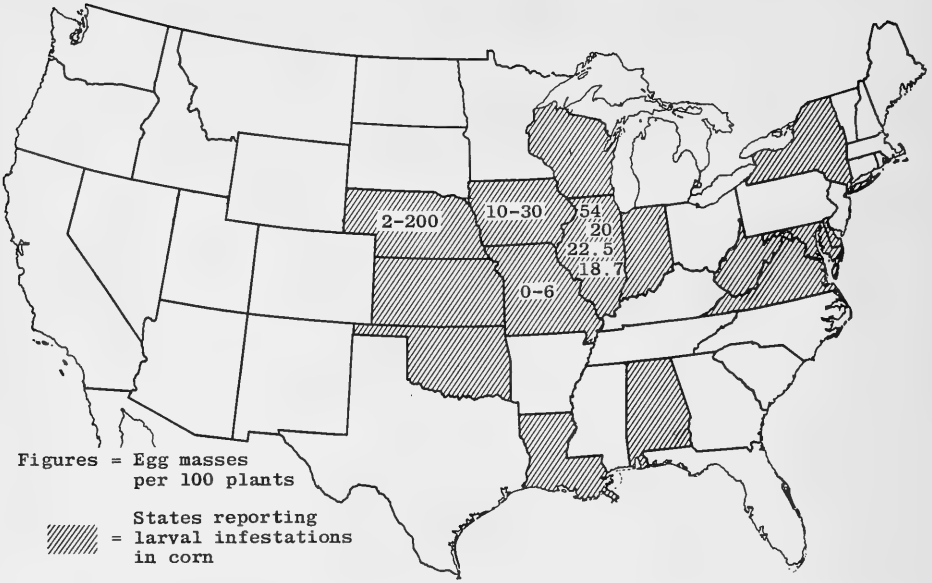
CEREAL AND FORAGE INSECTS

GRASSHOPPERS - ILLINOIS - Nymphs of undetermined species 0-2 per square yard in grass in northern area. (Ill. Ins. Rpt.). WISCONSIN - First and second-instar nymphs of Melanoplus femur-rubrum found in Burnett County roadsides and wastelands. Hatching of M. femur-rubrum occurred in thinner alfalfa stands in Dane, Sauk and Iowa Counties. Counts 1-3 per sweep in young, but thinly vegetated hay fields, in Green Lake, Marquette, Adams, Waupaca and Waushara Counties; but up to about 30 per yard in older fields. Hatching just beginning in more dense fields. Treatments advisable in many fields in central counties. (Wis. Coop. Sur.). MINNESOTA - Hatch of M. femur-rubrum general in south central and southeast districts, first and second instars averaged 3-7 per square yard in alfalfa. Fourth and fifth-instar M. bivittatus observed some fields in south central district. Light hatch reported in central and southwest districts. (Minn. Ins. Rpt.). SOUTH DAKOTA - Nymphs of M. bilituratus and range species, first to fourth instar, found in local areas in Black Hills. Infested areas small but numbers very high. Adults of M. confusus now present. (Burge). Nymphs of grasshoppers not numerous in areas of Clark, Spink, Faulk, Edmunds and Brown Counties checked. (Komanetsky). Young nymphs of M. bivittatus and M. femur-rubrum found in small numbers in alfalfa fields in Davison, Hutchinson, Miner, Minnehaha, Moody and Brookings Counties. (Mast). NEBRASKA - Infestations of grasshoppers in western range area mostly below economic levels. Marginal infestations may cause moderate to severe damage to late-maturing crops. Dominant species, M. bivittatus and M. bilituratus. Some wasteland and second-year sweetclover fields have populations in excess of 100 per square yard. Development ranges from second to fifth instar. (Bell). KANSAS - Complex of several species averages 3-7 per square yard on pastures in Riley County. (Arnett). M. bivittatus predominant species in roadside margins in east central and southeast areas. Counts as high as 15 per square yard. (Peters). OKLAHOMA - Grasshopper counts 1-30 per square yard on margins and from 1-8 per square yard on pastures in 7 areas checked in Caddo, Kiowa and Washita Counties (Hudson); averaged 10 per square yard on rangeland and 20 per square yard on roadsides in area of Ellis County (Owens); light on margins and pastures in 3 areas in Cotton and Stephen Counties (Hatfield); ranged 1-10 per square yard along roadsides and field margins in Carter, Stephens, Garvin and McClain Counties, with the dominant species being Mermiria spp. and Melanoplus spp. (Pela); and averaged 3 per sweep in alfalfa field in Choctaw County (Goin).

TEXAS - Heavy infestations of undetermined species in Bosque County, apparently increasing in corn. Infestations light to medium in scattered areas of county, still in fence rows and pastures. (Tex. Coop. Rpt.) LOUISIANA - M. differentialis nymphs averaged 220 per 100 sweeps in grass along roadsides at Newelton. Several species averaged 168 per 100 sweeps on alfalfa in Tensas Parish. (Spink). COLORADO - Situation very spotty, growers and county agents aware of problem spots. Control operations well in hand. (Col. Ins. Sur.). UTAH - Grasshopper hatch generally well progressed in Weber, Salt Lake, Emery, Carbon and Sanpete Counties. Low, but local areas have threatening populations. (Knowlton). IDAHO - Hatching in Dietrich Butte area. Few M. bilituratus nymphs in fourth instar. (Smith, Bishop). ALABAMA - Conocephalus fasciatus caused severe defoliation of alfalfa in Lee County. (Hays). DELAWARE - Nymphs feeding lightly on corn in Sussex County and becoming more common most alfalfa fields. (Burbutis). MARYLAND - Small nymphs, principally M. femur-rubrum, becoming abundant in red clover in different sections of State. Counts averaged 7 per sweep on red clover at Bushwood, St. Marys County. (U. Md., Ent. Dept.).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - NORTH CAROLINA - Injuring stalks and roots of corn in Duplin County and caused complete loss of 2-acre corn field in Robeson County. (Reynolds, Owens, Farrier).

European Corn Borer Situation, Week Ending June 19



EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW JERSEY - Flights dropped off considerably. Egg masses difficult to find on sweet corn in Cumberland County, June 15. Few egg masses found in central area. (Ins. Dis. Newsl.). DELAWARE - Heavy in wheat at Greenwood, high percent of stalks broken and many heads incompletely formed. Borers in wheat well advanced, mostly fifth instar, with few pupae present. Populations in early field corn and sweet corn very high. Larvae in corn range from first to fifth instar, third and fourth instars most common. (Burbutis). MARYLAND - Larvae moderate to heavy in whorls of early corn in Kent County. Whorl infestations in early corn in Talbot and Worcester Counties range from 10-50 percent. (U. Md., Ent. Dept.). VIRGINIA - Damaged wheat in practically all fields in Lancaster County and 10 percent damage one field (Rowell, McSwain); caused considerable damage to wheat in King George County (Rowell, Hall); damaged some wheat in Henrico County (Rowell, Davis); common in wheat in Prince Edward County (Peery); and damaged corn in Albemarle County (Amos, Smith). OHIO - Adult emergence and oviposition greatly delayed at Wooster by cool nights. In southern area, oviposition practically complete and in northern area about 50 percent complete. (Triplehorn). INDIANA - Hatching as far north as Warsaw. Whorl feeding up to 32 percent in infestations. (Matthew). ILLINOIS - Average number of egg masses per 100 plants was 54 in northwest, 20 in northeast, 22.5 in west and 18.7 in central area. Percent hatch was about 50 in northwest, 50-60 in northeast, 60-75 in west and 60-80 in central area. Percent of infested plants averaged 17.5 in northwest, 7.1 in northeast, 27.5 in west and 14.2 in central area. Larvae per infested plant averaged 4 in northwest, 1 in northeast, 5 in west and 3.3 in central. Moth emergence about complete except in northern area. An occasional field in central area may warrant treatment. (Ill. Ins. Rpt.). WISCONSIN - Eggs probably hatching most northwest, northeast and north central areas. Moth flights light and eggs scarce. Newly hatched larvae found in Dane and Grant Counties. Number of sweet corn ears infested with first-brood larvae expected to be less than 2 percent in corn planted before third week in May. (Wis. Coop. Sur.).

MINNESOTA - Emergence well underway in southern two-thirds of State, about 50 percent of pupae emerged. Emergence will be completed rapidly during warm weather and eggs should be appearing. (Minn. Ins. Rpt.). SOUTH DAKOTA - Pupation complete in southeast and nearly complete in east central area. Very small percent of emergence has taken place in southeastern area. (Mast). NEBRASKA - Adult flight in Lincoln County much lighter than in 1958. Emergence 100 percent in eastern area. Egg mass counts range from 2 to over 200 per 100 plants in ear corn; feeding signs, 0-57 percent. (Pruess, Roselle). MISSOURI - Egg laying complete in central and west central areas. Egg masses in northwest range 0-6 per 100 plants. In central and west central areas, percent of plants showing feeding damage ranged 0-65 percent. Larvae mostly fourth and fifth instar in southeast area. (Kyd, Thomas, Munson). KANSAS - All fields of corn 30 inches or more, in Republic County, infested. Some moths still laying eggs, but oviposition nearing completion and egg masses smaller than normal. Most larvae in early instars, feeding in whorls at present. Infestation ranged 5-90 percent, most fields averaged 20-61 percent infested plants. (Burkhardt). An average of 30 percent of corn plants in Johnson, Douglas and Jefferson Counties show evidence of leaf feeding. Oviposition virtually complete. (Burkhardt,Peters). OKLAHOMA - Extremely light in corn fields in Payne County. Larvae in third to fifth instar. (Arbuthnot). LOUISIANA - Infestations averaged less than 2 percent in corn fields examined in northeast area. Small larvae of second generation present. Most infestations were of first generation and confined to older corn. ALABAMA - Larval development reached third instar in Tennessee Valley area and is approximately 10 days behind in Sand Mountain area. (Eden, June 15).

STALK BORER (Papaipema nebris) - MISSOURI - Populations heavy in field margins, with damage to marginal rows of corn in southwest and west central areas. (Kyd, Thomas, Munson). KANSAS - Abundant on numerous crops in Brown County, entire small fields of corn and margins of other corn fields heavily infested. (Burkhardt). Found in corn plants in Chase, Jefferson and Douglas Counties along margins of fields. First 2 or 3 rows in several fields severely damaged. (Peters).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Larvae of second generation observed on corn stalks in southern area. Second generation feeding signs observed in 34 percent of all sugarcane fields, an average of 2.6 percent of plants infested with young second-generation larvae in fields where recent feeding observed. (Spink).

CORN EARWORM (Heliothis zea) - DELAWARE - Light in field corn in Sussex County. (Burbutis). VIRGINIA - Severe in corn in southern Cumberland County. (Morris, Seay). ALABAMA -Activity increasing in field corn in central and southern areas, both eggs and young larvae plentiful on developing ears. Larval infestation averaged 20 percent in southeastern counties checked. (Grimes). ILLINOIS - Eggs, 3-4 per silk, in early sweet corn field in southern area. Larvae also found in tassels. (Ill. Ins. Rpt.). MISSOURI - Budworm damage continuing in southwest area. Eggs being deposited in heavy numbers on silks of sweet corn in southwest. Between broods in southeast; eggs average 0.2 per silk. (Kyd, Thomas, Munson). KANSAS - Moths and eggs found most corn fields in Republic County; generally less than 5 percent larval damage. (Burkhardt). Damage observed in several corn fields in east central and southeastern areas. Damage less than 10 percent. (Peters). OKLAHOMA - Eggs heavy on corn silks in south central area, counts 1-25 per ear with over 90 percent of ears infested. Larvae light to medium in fields. Moths numerous and active on corn and alfalfa. (VanCleave). Approximately 60 percent of tassels infested in corn field in Garvin County (Pela), light to heavy egg counts in corn fields in Choctaw and Pushmataha Counties (Goin) and heavy on sweet corn in Warner area, with approximately 75 percent of stalks infested (Washum, Robinson). NEW MEXICO - Light to moderate in whorls of field corn in Dona Ana, Luna, Hidalgo, Eddy, Chaves, Lea, Roosevelt and Curry Counties. (N. M. Coop. Rpt.).

CUTWORMS - INDIANA - Severe in corn in northwest area, counts up to 3 per hill. Predominant species, Agrotis ypsilon. (Gould, Osmun). ILLINOIS - A. ypsilon seriously damaging corn fields from Ridgeway to Kankakee on east and from Chester to Morrison on west. Late-planted fields being ruined. In practically all cases where damage occurred, soil treatments not used. (Ill. Ins. Rpt.). NEBRASKA - A corn cutworm is present in moderate to severe numbers in corn in localized areas of most southeastern counties. Damage ranges 10-70 percent reduction of stands. Chorizagrotis auxiliaris emergence in western area passed 50 percent; moth flights reported in many western cities. Peridroma margaritosa infestations light in surveyed area. (Roselle, Pruess). MISSOURI - Damage continues to appear in areas throughout State in late-planted corn. Several species, including A. ypsilon, present. (Kyd, Thomas, Munson). KANSAS - Some corn will require replanting in Shawnee County. In Republic County, less than 5 percent of corn attacked by cutworms in few isolated fields. (Burkhardt). IDAHO - C. auxiliaris causing severe damage on approximately 200 acres of dry-land spring barley near Iona, Bonneville County. (Moss). Adults general and abundant in southwestern and northern areas and annoying around homes. Heaviest flights of adults seen in recent years. (Scott, Manis).

CORN ROOT WEBWORM (Crambus caliginosellus) - DELAWARE - Rather severe infestation found in New Castle County. Young plants greatly deformed, some plants completely destroyed. (Burbutis).

CORN LEAF APHID (Rhopalosiphum maidis) - NORTH DAKOTA - First specimen of season collected on barley in Traill County. (N. D. Ins. Rpt.). KANSAS - Sorghum plants in few fields in Johnson County had purple leaves caused by earlier infestation. Population now declining, with some plants having as many as 100 aphids; however, most had less than 5. (Peters). OKLAHOMA - Light to medium in sorghum and corn fields in south central area. Heaviest populations, 100 per plant, found on small sorghum plants in Murray County. (VanCleave, Meharg). Counts averaged 50 per stalk in corn field in Choctaw County (Goin) and 75 per tassel in corn field in Garvin County (Pela). NEVADA - Heavy in barley in Lovelock, Pershing County. Treatments being applied. (Snyder). General infestation varying from light to heavy in barley in Lyon County. (Batchelder). UTAH - Of concern on barley at Paradise. (Dorst, Davis).

STINK BUGS - LOUISIANA - Several species, including Euschistus servus, E. ictericus and Nezara viridula, damaging corn in early silking stage. In southern area, several species found feeding on corn interplanted with soybeans; counts 0-46 per 100 plants. Considerable damage observed in 2 fields. (Spink). ALABAMA - N. viridula continues to damage corn in southwestern area. (Eden). Very little activity in southeastern area. (Grimes). TEXAS - Medium infestation of undetermined species, averaging 2 per sweep, in Waller County and medium on rice in Colorado County. (McClung).

CORN FLEA BEETLE (Chaetocnema pulicaria) - OKLAHOMA - Counts 1-4 per stalk in corn and sorghum in Pushmataha and Choctaw Counties (Goin) and averaged 0.16 per stalk in sorghum field in Grady County (Pela). INDIANA - Very abundant in scattered areas of State on corn, necessitating some treatment. (Matthew). MARYLAND - Light to moderate on field and sweet corn most sections. (U. Md., Ent. Dept.).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - ILLINOIS - Adults averaged 5 per corn plant in northwestern area, 22.5 percent of plants infested. In northeast and central sections, corresponding figures were 4 adults per plant and 10 percent of plants infested. (Ill. Ins. Rpt.). DELAWARE - Present on alfalfa throughout State. (Burbutis).

DUSKY SAP BEETLE (Carpophilus lugubris) - DELAWARE - First adults of season present in several areas, especially in corn infested by European corn borer. (Burbutis).

BILLBUGS - ILLINOIS - Damaging 0-60 percent of corn in some southwestern fields. (Ill. Ins. Rpt.).

WIREWORMS - IDAHO - Severely damaging corn throughout Franklin County. Wireworms more general and severe than in any previous year. (Roberts). MISSOURI - Damage by Horistonotus uhlerii appearing in corn in sandy areas in southeast. Small spots in fields killed. (Kyd, Thomas, Munson).

THIEF ANT (Solenopsis molesta) - KANSAS - Damaging sorghums where seed not treated in Riley and Pottawatomie Counties. Few fields being replanted. (Burkhardt).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - LOUISIANA - Infestations in corn in northeast practically nonexistent; however, one larva found in northern Richland Parish which is a new Parish record. Infestations 0-4 percent in 7 fields in northwest area. Second-generation larvae observed on young corn. (Spink). OKLAHOMA - Infestations very light in corn field in Payne County. Larvae in third and sixth instars. (Arbuthnot).

A SPIDER MITE (Oligonychus stickneyi) - NEW MEXICO - Light infestations on field corn in Dona Ana County. (N. M. Coop. Rpt.).

SORGHUM MIDGE (Contarinia sorghicola) - LOUISIANA - Heavy infestations on sorghum in Caddo Parish. (Spink).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - Counts 12-35 per 10 sweeps on 2-3 inch flax in northwest district, 2-10 per 10 sweeps on alfalfa in west central district. (Minn. Ins. Rpt.).

CHINCH BUG (Blissus leucopterus) - MISSOURI - Migrations from small grain to corn and grain sorghum started in southwest. Some fields of small grain sorghum being taken out. (Kyd, Thomas, Munson). KANSAS - Abundant in wheat and barley in Republic County, counts as high as 300 per linear foot of row. Found in virtually all fields and now migrating to corn and sorghum. Damaging corn and sorghum where they border small grains. (Burkhardt). Found most corn and sorghum fields in east central and southeastern areas of State. (Peters). OKLAHOMA - Killing sorghum near Grove, Delaware County (Howell); ranged 0.1-10 per stalk in sorghum and corn fields in Choctaw and Pushmataha Counties (Goin); light in corn field in Garvin County and sorghum field in Grady County (Pela); and ranged 0-2 per stalk in corn field in Bryan County (Vinson). TEXAS - Heavy in Moore County, causing roasting ear corn to "fire" 2 feet above ground. Two fields treated. Also reported in sorghum in Moore County. (Tex. Coop. Rpt.).

GREENBUG (Toxoptera graminum) - WISCONSIN - Found as far north as Ashland County. Counts per sweep in oat fields in eastern counties that were noticeably affected were 45 in Ozaukee, 50 in Sheboygan, 36 in Manitowoc and 60 in Kewaunee. Problem is generally localized. (Wis. Coop. Sur.). MINNESOTA - Populations apparently declined nearly all areas of State. Many oat fields not recovering from previous feeding; red leaf disease may be responsible. (Minn. Ins. Rpt.). NORTH DAKOTA - Counts continue low in eastern area small grain fields. Predators continue to increase. (N. D. Ins. Rpt.). ILLINOIS - Only few left in northern area oat fields; 0-70 per 100 sweeps found. (Ill. Ins. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - MAINE - First spring migrant caught in wind vane traps at Presque Isle on June 6. (Simpson). ILLINOIS - Populations 0-200 per 100 sweeps in oats in northern area. (Ill. Ins. Rpt.).

HESSIAN FLY (Phytophaga destructor) - NEBRASKA - Heavy infestations of flax-seed stage present in many fields of south central and southeastern areas. Wheat 20-30 percent lodged in many fields. (Hill, Roselle). KANSAS - Light to heavy in Dickinson and Marion Counties (Painter, Maxwell, Posado, Peters) and present on some early wheat in Brown County (Burkhardt).

WHEAT JOINTWORM (Harmolita tritici) - VIRGINIA - Light to heavy damage to wheat in spotted areas of King and Queen County. (Sedivy).

RICE WATER WEEVIL (Lissorhoptrus oryzophilus) - TEXAS - Larvae ranged 40-99 per foot of row in test rice plots and 30-40 in large rice fields in Jefferson County. (Tex. Coop. Rpt.).

A RICE DELPHACID (Sogata orizicola) - LOUISIANA - Forty rice fields in St. Landry, Evangeline, Vermilion and Acadia Parishes were checked for presence of this vector of hoja blanca disease. One hundred sweeps made in each field with negative results. (Spink).

ARMYWORM (Pseudaletia unipuncta) - WISCONSIN - Few small larvae found in oats and alfalfa and one nearly mature larva found feeding on corn. (Wis. Coop.Sur.). NEW JERSEY - One moderate and several light infestations observed in Mercer County on June 12. (Ins. Dis. Newsl.). NORTH DAKOTA - Moderate to heavy moth flight occurred in eastern area. (N. D. Ins. Rpt.).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Larval counts 146 per 100 sweeps in young rice in Vermilion Parish. One corn field lightly infested at Houma. (Spink).

ARMYWORMS - FLORIDA - Building up on Johnson grass in east Pasco County. Damage severe on several lawns at Patrick Air Base at Cocoa. (Fla. St. Plt. Bd., May Rpt.).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Few adults, believed to be this species, observed flying in Brooklyn on May 28. On June 1, specimens were obtained for confirmation. A moderately heavy flight observed on night of June 3. Delimiting survey was discontinued after repeated negative soil sampling during May in territory surrounding infested area. Infestation known to cover 14 square miles, encompassing south Brooklyn, Prospect Park, Bay Ridge, Fort Hamilton and Bensonhurst sections of Brooklyn. Negative surveys were made in Queens, Bronx, Manhattan and Staten Island during May. (PPC, East. Reg.).

CHINCH BUGS (Blissus spp.) - NEW JERSEY - B. leucopterus hirtus appearing in lawns containing bentgrass. (Ins. Dis. Newsl.). FLORIDA - B. leucopterus insularis still heavy in St. Augustine grass throughout north central Dade County, especially in Miami Beach, where increase is noted. Activity apparently less since heavy rains in north Dade County and in Palm Beach County. (Fla. St. Plt. Brd., May Rpt.). GEORGIA - Heavy infestations on millet in Walton County. (Shores). Heavy infestations on St. Augustine grass in several southern counties. (Johnson). LOUISIANA - B. leucopterus insularis still severe on St. Augustine grass lawns in southern area. (Spink).

GROUND PEARLS - SOUTH CAROLINA - Many lawns being seriously damaged in Charleston and are plentiful in centipede lawns in areas of Hampton County. (Nettles et al.).

A SCALE (Odonaspis ruthae) - CALIFORNIA - Medium infestations of Bermuda grass roots in Santa Paula, Ventura County. (Cal.Coop. Rpt.).

A STRIPED BLISTER BEETLE (Epicauta sp.) - LOUISIANA - Fairly heavy, but localized, infestations observed on weeds in corn fields in Tensas Parish and on alfalfa in Caddo Parish. (Spink). MISSOURI - Spots within widely scattered fields in extreme southeast being defoliated. (Kyd, Thomas, Munson).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - First adults of season reported in Florala area on May 20. SOUTH CAROLINA - Treatments on all known infestations in State were completed during May. GEORGIA - Adults recovered in Coffee County on May 15; however, emergence very light throughout State. (PPC, So. Reg.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - KANSAS - Found in few alfalfa fields in Butler, Cowler, Elk and Greenwood Counties. Counts ranged from less than 1 to less than 10 per sweep. (Peters). OKLAHOMA - Extremely light most alfalfa fields in south central area. Heaviest counts in Murray County field which averaged 50 per sweep. (VanCleave, Meharg). Counts 2-24 per sweep in alfalfa fields in Johnston and Bryan Counties (Vinson), 0-2 per sweep in alfalfa in Choctaw County (Goin) and 10-100 per square foot in field in Payne County. (Stiles). COLORADO - Low in Arkansas Valley. None found in northeastern or western areas this year. (Colo. Ins. Sur.). NEW MEXICO - Heavy infestation in Hondo Valley of Lincoln County and Dexter-Hagerman area of Chaves County. (N. M. Coop. Rpt.). NEVADA - General infestation in Lovelock area, Pershing County. Counts varied from 5 per sweep to 75 or more per stem in heavily infested fields. Various predators present but not numerous enough to contain or reduce populations in many fields. (Bechtel, Snyder). Averaged 1 per sweep, mostly winged, in Smith and Mason Valleys, Lyon County. (Batchelder).

PEA APHID (Macrosiphum pisi) - NEVADA - Generally high in Lovelock area of Pershing County; averaged 50-100 per sweep in lightly infested fields to 400-500 per sweep in heavily infested fields. In majority of fields, both pea aphid and spotted alfalfa aphid present with former species predominating. (Bechtel,Snyder). WYOMING - Counts per 100 sweeps were 10 in Saratoga area, 60 in Burntfork area and 90 in Evanston area. (Davison). IDAHO - Infestations in alfalfa fields in Nez Perce, Latah, Lewis and Clearwater Counties remain low. (Manis). OKLAHOMA - Light most alfalfa fields in south central area. (VanCleave, Meharg). Light in alfalfa checked in Bryan, Johnston, Carter, Choctaw and Kiowa Counties. (Vinson, Pela, Goin, Hudson). KANSAS - Found all alfalfa fields in east central and southeastern areas. Counts ranged from less than 5 to 25 per sweep. (Peters). NEBRASKA - Averaged 9-20 per 20 sweeps in eastern area; decrease from previous week. (Roselle). SOUTH DAKOTA - Relatively low in east central area, counts up to 9 per 10 sweeps. (Mast). MINNESOTA - Generally light most areas. (Minn. Ins. Rpt.). WISCONSIN - Counts on alfalfa in Brown, Door and Kewaunee Counties decreasing. (Wis. Coop. Sur.). DELAWARE - Common to abundant in alfalfa most areas. (Burbutis).

CLOVER APHID (Aphis bakeri) - WASHINGTON - Light infestation in red clover seed fields near Quincy, Grant County. (Johansen). IDAHO - Infestation very widespread in southwestern area. Controls indicated most fields next few weeks. (Waters).

AN APHID (Myzus sp., prob. solani) - CALIFORNIA - Heavy infestations on Ladino clover in Red Bluff area, Tehama County. (Cal. Coop. Rpt.).

MEADOW SPITTLEBUG (Philaneus leucophthalmus) - WISCONSIN - Nymphs generally present in alfalfa in eastern and southern sections; adults noted some areas. There appears to be a greater than normal gap between first and last hatching. (Wis. Coop. Sur.). DELAWARE - Abundant in alfalfa in New Castle County and present in Kent and Sussex Counties. (Burbutis). ILLINOIS - Adults exceptionally abundant in old clover and alfalfa fields in northern area. Hay harvest now causing migrations to other plants; few nymphs still observed. (Ill. Ins. Rpt.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Nymphs and adults generally present in alfalfa; 12 per 25 sweeps found in alfalfa regrowth. Fields of untreated regrowth expected to show "yellowing" and decreased yields in many areas. (Wis. Coop. Sur.). NORTH DAKOTA - Counts in cereals and legumes range from 0-10 per 100 sweeps. (N. D. Ins. Rpt.). NEBRASKA - Counts 5-10 per 100 sweeps in western area and 5-20 per 25 sweeps in eastern area. (Pruess, Roselle). ILLINOIS - Adults 40-160 per 100 sweeps in northwestern area, 740 in one field in central area. Nymphs 0-100 per 100 sweeps in northwestern area, 860 in one field in central area. (Ill. Ins. Rpt.). MARYLAND - Averaged one per sweep on alfalfa in Howard County. Considerably less than one per sweep on alfalfa in Calvert County. (U. Md., Ent. Dept.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Averaged 148 per 100 sweeps on alfalfa in Tensas Parish and ranged 30-132 per 100 sweeps in Caddo Parish. (Spink). OKLAHOMA - Light, becoming more common in alfalfa in south central area. Counts 0-0.3 per sweep. (VanCleave, Meharg). NEW MEXICO - Average 2 per sweep in alfalfa in Chavez County. (N. M. Coop. Rpt.).

LYGUS BUGS (Lygus spp.) - OKLAHOMA - Counts 1-2.5 per sweep in alfalfa fields in south central area (VanCleave, Meharg), 0-6 per sweep in Bryan County (Vinson) and 2-6 per sweep in Choctaw County (Goin). WYOMING - Counts per 100 sweeps were 6 in Saratoga area, 20 in Burntfork area and 3-4 in Evanston area. (Davison). UTAH - All stages moderate to numerous in alfalfa in Carbon, Emery, Sanpete and Utah Counties. (Knowlton). ARIZONA - Continued to increase in alfalfa statewide; counts 200 per 100 sweeps. (Ariz. Coop. Sur.).

TARNISHED PLANT BUG (Lygus lineolaris) - NEBRASKA - Averaged 10 per 10 sweeps in alfalfa in eastern area. (Roselle). MINNESOTA - Counts per 10 sweeps were 3-10 in alfalfa in southeast and south central, 10-35 in west central, 5-10 in central and 10-50 in northwest. (Minn. Ins. Rpt.). ILLINOIS - Adults ranged 10-140 per 100 sweeps in clover and alfalfa in northern area, nymphs 0-100 per 100 sweeps. (Ill. Ins. Rpt.). LOUISIANA - Ranged 200-300 per 100 sweeps on alfalfa in Caddo Parish. (Spink). DELAWARE - Adults abundant on alfalfa throughout State and nymphs becoming more common in Kent and New Castle Counties. (Burbutis).

PLANT BUGS (Adelphocoris spp.) - MINNESOTA - Counts per 10 sweeps were 5-20 in southeast and south central areas, 5-30 in west central and 80-100 in central area. (Minn. Ins. Rpt.). SOUTH DAKOTA - A. lineolatus averaged 8 per 10 sweeps on alfalfa in east central area. Highest count per field was 20 per 10 sweeps. (Mast). NEBRASKA - A. lineolatus populations light, 1 per 10 sweeps, in eastern area. (Roselle).

ALFALFA WEEVIL (Hypera postica) - PENNSYLVANIA - Found for first time in Clearfield, Cambria, Indiana and Washington Counties. (Newton). ALABAMA - Larvae collected from alfalfa in Houston County on April 9. Extensive damage occurred. This is the first collection in the State. (Grimes). WYOMING - In 100-acre field south of Evanston, adults averaged 75 and larvae 100 per 100 sweeps; damage was 30-35 percent. (Davison). COLORADO - Very heavy throughout upper Arkansas Valley. Of concern since growers failed to realize seriousness of problem. Serious in Pueblo County. Spread during the past 3 years has been spectacular. Began in field near Rocky Ford, Otero County, and now well distributed. (Colo. Ins. Sur.). IDAHO - Larvae about half-grown in Parma area. Populations very light this year in southwestern area. (Waters). UTAH - Damage serious in numerous fields in Carbon County and some Emery County fields. Damage moderate generally in Sanpete and Salt Lake Counties where controls were neglected. (Knowlton).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - WASHINGTON - Larvae feeding on red clover buds near Quincy, Grant County. Infestation estimated at 10 percent in borders of fields. (Johansen). ILLINOIS - Counts 0-100 per 100 sweeps in northern half of State. (Ill. Ins. Rpt.).

CLOVER SEED CHALCID (Bruchus pisorum) - WASHINGTON - Building up in red clover seed fields in Grant County; 10-15 adults per 25 sweeps. (Johansen).

ASH-GRAY BLISTER BEETLE (Epicauta fabricii) - SOUTH DAKOTA - Averaged 4 per sweep in alfalfa in Davison County. (Mast).

A WEEVIL (Sitona flavescens) - CALIFORNIA - Medium infestation of Ladino clover in Galt area, Sacramento County. (Cal. Coop. Rpt.).

CLOVER ROOT CURCULIO (Sitona hispidula) - CALIFORNIA - Adults prevalent on alfalfa in Rio Vista area, Solano County. (Cal. Coop. Rpt.).

PALE-STRIPED FLEA BEETLE (Systena blanda) - MARYLAND - Adults averaged 5 per sweep on red clover at Bushwood, St. Marys County. (U. Md., Ent. Dept.).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - DELAWARE - Generally light on alfalfa. (Burbutis). OKLAHOMA - Light in alfalfa in south central area. (Van-Cleave, Meharg). NEW MEXICO - Generally light in alfalfa fields in Chavez and Eddy Counties. (N. M. Coop. Rpt.). UTAH - Moderately numerous at Nephi and north Ogden. (Knowlton).

ALFALFA LOOPER (Autographa californica) - OREGON - Infestations much less than during 1958 in Milton-Freewater area on June 15. (Hanna).

CLOVER HEAD CATERPILLAR (Grapholitha interstinctana) - ILLINOIS - Larvae infesting 0-20 percent of clover plants in new seedlings in northern half of State. Feeding in central bud and crown and killing new shoots. (Ill. Ins. Rpt.)

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Becoming more common in alfalfa in New Castle and Kent Counties. (Burbutis). ILLINOIS - Larvae 0-20 per 100 sweeps in clover fields in northern half of State. (Ill. Ins. Rpt.). SOUTH DAKOTA - Larval counts in alfalfa and clover fields in east central area as high as 1 per 10 sweeps. (Mast).

THRIPS (undetermined) - NORTH DAKOTA - In Grand Forks County, thrips more numerous than during the past 4 years. Counts average 3-4 adults per stem with 88 percent of stems infested in early-planted fields. In late-planted fields, counts averaged 2 per stem with 76 percent of plants infested. In other eastern areas, numerous barley fields with 60-100 percent of plants infested. An average of 1-7 adults present per infested barley stem in boot stage of development. (N. D. Ins. Rpt.). UTAH - Extremely numerous on fall wheat and alfalfa in Nephi-Mona area of Juab County. (Knowlton). KANSAS - Damaging corn and sorghum in Finney and Lane Counties. (DePew). INDIANA - Numerous enough on corn in scattered areas to warrant control. (Osmun). VIRGINIA - Damaged corn in fields in Lee and Caroline Counties. (Amos, Lyle, Eager). GEORGIA - Light to moderate infestations on peanuts in 19 peanut-growing counties. (Johnson).

THRIPS - ALABAMA - Frankliniella fusca continues to damage peanuts in southeastern area. Most early-planted peanuts damaged to some extent. Infestations increasing on late-planted crops. (Grimes). DELAWARE - Sericothrips variabilis remains common on soybeans throughout most of State, but apparently not building up. (Burbutis). OKLAHOMA - Frankliniella sp. heavy, 50 per linear foot, in peanut field in Bryan County. (Vinson). TEXAS - Frankliniella sp. reported in Randall County, migrating from cotton to sorghum and causing minor damage. (Daniels). ARIZONA - Frankliniella occidentalis very heavy on alfalfa in central and southeastern counties. (Ariz. Coop. Sur.).

SOYBEAN CYST NEMATODE (Heterodera glycines) - VIRGINIA - Ten additional infestations found during May in Nansemond County. Since beginning of program in State, 36 properties involving 1,881 acres have been found infested in Nansemond County. (PPC, East. Reg.). NORTH CAROLINA - In Gates County, 5 additional properties consisting of 70 acres found infested during May. (PPC, So. Reg.). MISSOURI - Two new infestations found in Dunklin County and 20 new infestations identified in Pemiscot County. Damage symptoms prevalent in regulated areas of Pemiscot County where rain has been deficient. (PPC, Cent. Reg., May Rpt.).

RED-NECKED PEANUTWORM (Stegasta basqueella) - OKLAHOMA - Essentially all peanut shoots in 5 fields in Caddo County damaged. All stages and instars present. (Walton, Manley).

A GRAPE COLASPIS (Colaspis sp.) - NORTH CAROLINA - Severe infestation of larvae on roots of soybeans in 5-acre field in Hyde County. (Baucom, Farrier). MISSOURI - Damage appearing in southwest area on corn that followed lespedeza and other legumes. (Kyd, Thomas, Munson).

A WEEVIL (Sitona sp.) - ILLINOIS - Damaging soybeans in Macoupin County, as many as 20-30 per linear foot of row. (Ill. Ins. Rpt.).

JAPANESE BEETLE (Popillia japonica) - DELAWARE - Present on soybeans in Kent County. (Burbutis). VIRGINIA - Heavy on corn in Middlesex County, June 5. (Boswell).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - MASSACHUSETTS - Activity split into two peaks due to low temperatures and rain. (Crop Pest Cont. Mess.). DELAWARE - Very low throughout State. (Kelsey). NEW JERSEY - Pupation complete in southern counties. No emergence observed. (Ins. Dis. Newsl.). INDIANA - Larval entries light in Vincennes area commercial orchards. (Hamilton). WISCONSIN - Adults emerged at end of first week of June in Door County and entries were earlier than expected in the Gays Mills area. (Wis. Coop. Sur.). MISSOURI - Very few in the northwest area and no evidence of activity from other areas of State. (Wkly. Rpt. Fr. Grs.).

ORCHARD MITES - INDIANA - Panonychus ulmi and Tetranychus telarius building up in northern area. (Matthew). WISCONSIN - P. ulmi first-generation eggs hatching June 12 in Door County. (Wis. Coop. Sur.). MISSOURI - Spider mites vary from very light to moderate over State. (Wkly. Rpt. Fr. Grs.). UTAH - Scattered injury by Bryobia rubrioculus to apple and peaches reported in central and northern areas. (Davis, Knowlton). SOUTH CAROLINA - P. ulmi and T. telarius appearing in some Piedmont orchards. (Nettles et al.).

APPLE APHID (Aphis pomi) - INDIANA - Several infestations in Vincennes are heavy enough to warrant control. (Hamilton). WISCONSIN - Light, but general, in Door County, June 12. (Wis. Coop. Sur.). PENNSYLVANIA - Moderate on new growth of apple trees most orchards in Snyder County. (Gesell). DELAWARE - Decreasing generally most areas. (Kelsey).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Building up on apple trees in Hondo Valley of Lincoln County. (N. M. Coop. Rpt.).

EUROPEAN APPLE SAWFLY (Hoplocampa testudinea) - RHODE ISLAND - Collected in North Scituate and Kingston. Larvae in fruit, June 18. (Hansen).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - INDIANA - Heavy twig injury in a few orchards, especially in Decker area. Light in most orchards in Vincennes area. (Hamilton). OHIO - First-brood moths emerging in northern area, June 17. (Rings). NORTH CAROLINA - Probably this species injuring twigs of peach trees in Washington and Alamance Counties. (Harris, Farrier).

LESSER PEACH TREE BORER (Synanthedon pictipes) - OHIO - Twenty-seven adults emerged from 31 trees in an orchard in Doylestown during June 12-18. (Rings).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Spring migrants leaving peach April 30 and continuing through June 10 in eastern area. (Landis).

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - First-generation adults began to deposit second-generation eggs in peaches, June 12. (Snapp).

WESTERN CHERRY FRUIT FLY (Rhagoletis cingulata indifferens) - IDAHO - First adult of season trapped in Weiser area, May 19. (Scott).

TENT CATERPILLARS (Malacasoma spp.) - MONTANA - Scattered over State on chokecherry and yellowberry currant. Not as abundant as last year. (Roemhild, June 1-15).

LESSER APPLEWORM (Grapholitha prunivora) - CALIFORNIA - Moderate on cherries in Delta area, Shasta County. (Cal. Coop. Rpt.).

BLACK CHERRY APHID (Myzus cerasi) - WASHINGTON - Moderate infestation continuing because of cool weather. Damage moderate and spotty at Wenatchee. (Anthon). UTAH - Causing concern throughout central and northern Utah. (Davis, Knowlton).

SCALES - FLORIDA - Pulvinaria innumerabilis heavy on plum at DeLeon Springs during May. (Fla. St. Plt. Brd.). OHIO - Lecanium corni 95 percent hatched by June 16 in Clyde area. (Rings). MISSOURI - Aspidiotus forbesi crawlers noted near Cape Girardeau, June 14. First of season. (Wkly. Rpt. Fr. Grs.). WISCONSIN - Lepidosaphes ulmi crawlers emerging first week in June in Door County. (Wis. Coop. Sur.).

FALL WEBWORM (Hyphantria cunea) - LOUISIANA - Light to moderate on pecans statewide. (Spink). TEXAS - Medium to heavy on pecan in Houston County. (Garner). NEW MEXICO - Heavy on native walnuts and pecans in Carlsbad, Hobbs and Hondo Valley. (N. M. Coop. Rpt.).

BLACK PECAN APHID (Melanocallis caryaefoliae) - NEW MEXICO - Heavy on pecan trees in Las Cruces. Honeydew becoming a nuisance. (N. M. Coop. Rpt.).

CITRUS BLACKFLY (Aleurocanthus woglumi) - TEXAS - Inspections made on 37,773 trees on 2,399 properties in Cameron, Hidalgo and Webb Counties during May. (PPC, Southern Reg.) MEXICO - At Sabinas Hidalgo, Nuevo Leon, the second light infestation of the year was found, consisting of 6 trees on one property. Eight trees lightly infested were located in the Municipio of Montemorelos. At Linares, 43 trees on one property were found infested and at Hualahuises, one infested tree was found. Two lightly infested trees on one property were found at Hidalgo, Tamaulipas. (PPC, Southern Reg., May Rpt.).

WHITEFLIES - FLORIDA - Very heavy on citrus in St. Petersburg area and in all citrus nurseries in East Hillsborough area during May. (Fla. St. Plt. Brd.).

MEALYBUGS - FLORIDA - General in citrus nurseries in East Hillsborough County and heavy at Tallavast during May. (Fla. St. Plt. Brd.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - Trap inspections of 56 traps in Baldwin, Houston and Mobile Counties, ALABAMA; 8,362 traps in FLORIDA and of traps in Beaufort and Charleston Counties, SOUTH CAROLINA, were negative during May. (PPC, So. Reg.).

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - Total of 3,199 trap inspections made during May. Five positive specimens, 4 nongravid females and one male found in 2 traps in Hidalgo County. (PPC, So. Reg.).

CITRUS RED MITE (Panonychus citri) - LOUISIANA - Heavily infesting citrus in Plaquemines Parish. Averaged 50 per leaf. (Spink).

Citrus Insect Situation, Lake Alfred, Florida, Second Week in June - PURPLE SCALE activity declined slightly this week. Will resume upward trend next week, but not greatly, from current low level. FLORIDA RED SCALE rose sharply this week. Further rise to very high level is expected during next two weeks. CITRUS RED MITE activity decreased this week. Will remain near current level through June and then decline. CITRUS RUST MITE increased in activity this week. Strong upward trend will take infestations to high level in July and August. BLACK SCALE activity increased this week and will continue high for several weeks. (Simanton, Thompson, Johnson).

A LEAFHOPPER (Erythroneura elegantula) - ARIZONA - Second generation appearing in commercial vineyards in Maricopa County. (Ariz. Coop. Sur.).

GRAPE SCALE (Aspidiotus uvae) - MISSOURI - Crawlers active in vineyards in Independence area. (Wkly. Rpt. Fr. Grs.).

TRUCK CROP INSECTS

SEED-CORN MAGGOT (Hylemya cilicrura) - WASHINGTON - Adults unusually abundant this spring on potato foliage, particularly at Satus, Yakima County. (Landis). CALIFORNIA - Probably this species moderate on green onions in Salinas area, Monterey County. (Cal. Coop. Rpt.). OREGON - Caused more than normal damage to sweet corn and bean seedlings in Willamette Valley. (Every). IDAHO - Heavy with considerable damage to potato seed pieces throughout Minidoka County. (Priest).

Potato Psyllid Survey - The fourth survey in the summer breeding area of Colorado, Wyoming and Utah was made the week of June 15-19. The weather was generally good and lycium was well developed in all areas. Psyllid populations per 100 sweeps averaged 2.5 in Salt Lake-Provo area of Utah; 49.3 in Ault-Greely, 21.1 in Pueblo-LaJunta, 1.6 in Salida and 0.27 in Grand Junction area of Colorado. Counts in Wyoming averaged 3.6 in Laramie and in Torrington and none in Green River-Rock Springs area. (PPC).

POTATO PSYLLID (Paratrioza cockerelli) - UTAH - Small numbers present generally on lycium. Two per 50 sweeps at Price, 7 per 50 sweeps at Gunnison and one per 50 sweeps at Spanish Fork and Sandy. (Knowlton). COLORADO - Adults and nymphs very high on lycium in Arkansas Valley counties, particularly Prowers and Bent. No strong movement to potatoes and tomatoes. Low in northeastern area. (Colo. Ins. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - NORTH DAKOTA - Small numbers in east central potato fields. (N. D. Ins. Rpt.). WISCONSIN - Nymphs and adults general on unsprayed potatoes. (Wis. Coop. Sur.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - NORTH DAKOTA - Light in east central potato fields. (N. D. Ins. Rpt.).

POTATO APHID (Macrosiphum solanifolii) - RHODE ISLAND - First activity of season noted in Kingston area, June 15. (McDowell, Veilleux).

GREEN PEACH APHID (Myzus persicae) - CALIFORNIA - Moderate on escaped lettuce along ditch banks in Watsonville area, Santa Cruz County. (Cal. Coop. Rpt.). WASHINGTON - Much heavier than last year. Now on potatoes, weeds, beets and other crops. (Landis).

BLISTER BEETLES (Epicauta spp.) - LOUISIANA - Fairly heavy but localized infestations on potatoes in Caddo Parish. (Spink). NEW MEXICO - Damaging tomatoes in Lea County. (N. M. Coop. Rpt.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - WASHINGTON - Injury to potatoes beginning at Othello, Yakima and Quincy. Adults abundant, eggs being deposited on solanaceous weeds as well as potatoes. (Landis). NORTH DAKOTA - Light, with a slight increase in numbers over last year, in Walhalla, Pembina County. (N. D. Ins. Rpt.). IDAHO - Adults abundant on weeds throughout Minidoka County. (Priest).

THREE-LINED POTATO BEETLE (Lema trilineata) - RHODE ISLAND - Eggs hatching in southern area. (Hansen).

CUCUMBER BEETLES (Acalymma vittata and Diabrotica undecimpunctata howardi) - DELAWARE - Common to prevalent on cucumbers and squash in Sussex County. (Burbutis). MARYLAND - Medium to heavy on cucumbers and canteloups on both sides of the Chesapeake Bay. (U. Md., Ent. Dept.).

POTATO FLEA BEETLE (Epitrix cucumeris) - NORTH DAKOTA - Light to moderate in east central area potato fields. Injury noticeable in field margins of many fields. (N. D. Ins. Rpt.). DELAWARE - Common in some potato fields in Kent County and prevalent on one field of beans in Sussex County. (Burbutis).

EUROPEAN CORN BORER (Pyrausta nubilalis) - VIRGINIA - Damaging potato vines locally in Charlotte and King and Queen Counties. (Barbour, Allen). MARYLAND - Numerous heavy infestations in potatoes in Worcester and Somerset Counties. (U. Md., Ent. Dept.).

POTATO TUBERWORM (Gnorimoschema operculella) - ARIZONA - Larvae infesting potatoes in Ligurta area of Yuma County. First known occuurence in potato tubers in State. (Ariz. Coop. Sur.).

TOMATO FRUITWORM (Heliothis zea) - LOUISIANA - Heavy on tomatoes in Plaquemines and St. Bernard Parishes. (Spink). NORTH CAROLINA - Light injury to bean pods in fields in Duplin County. (Farrier).

PEA WEEVIL (Bruchus pisorum) - WASHINGTON - Adults entering fields of peas during warm days in Whitman County, especially on June 11 and 12. An estimated 3,500 acres have been border treated (15-40 percent of total field area) by airplane plus lesser amount by ground rig. (Johansen). OREGON - Infestations normal in eastern area, except for fields at higher elevations, where they are heavier. (Hanna).

PEA APHID (Macrosiphum pisi) - WASHINGTON - Populations very low in most pea fields to date. (Johansen). OREGON - Building up slowly in eastern area. (Hanna). COLORADO - General through eastern counties and western area. (Colo. Ins. Sur.). MINNESOTA - Generally light on peas in most areas, the highest counts being found in north central district. (Minn. Ins. Rpt.). WISCONSIN - Expected to be more prevalent in peas in northeastern counties. (Wis. Coop. Sur.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - ALABAMA - Extensive damage to peas and beans in Houston, Geneva, Dale, Henry and Coffee Counties. (Grimes). COLORADO - Appearing in numbers along foothills area, Larimer and Boulder Counties. (Colo. Ins. Sur.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Severe damage to field peas at Pierson during May. (Fla. St. Plt. Brd.).

LEAF MINERS - FLORIDA - Did considerable damage to beans, okra and field peas in Marianna district during May. (Fla. St. Plt. Brd.).

BEAN LEAF BEETLE (Cerotoma trifurcata) - DELAWARE - Adults abundant on beans, causing moderately heavy injury in Sussex County. (Burbutis).

BEAN APHID (Aphis fabae) - OREGON - After early buildup, populations remaining static or reduced. (Every).

WIREWORMS - IDAHO - Severely damaging sugar beets throughout Franklin County. More general and severe than in any previous year. (Roberts).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - MONTANA - Scattered damage in Yellowstone Valley; one field entirely eliminated. (Roemhild, June 1-15).

BEET WEBWORM (Loxostege sticticalis) - NORTH DAKOTA - Adults numerous in eastern area and at other scattered locations over State. (N. D. Ins. Rpt.).

CABBAGEWORMS - PENNSYLVANIA - Pieris rapae adults numerous in Cumberland and Franklin Counties. (Negley). GEORGIA - Trichoplusia ni heavy on greens in Houston County. (Johnson).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - TENNESSEE - Heavy damage to sweetpotatoes in Knox County. (Bennett, June 15).

GOLDEN TORTOISE BEETLE (Metriona bicolor) - TENNESSEE - Heavy damage to sweetpotatoes in Knox County, June 15. (Bennett).

THRIPS (Frankliniella sp.) - TEXAS - Light to medium on onions in Deaf Smith County. (Texas Coop. Rpt.).

ONION MAGGOT (Hylemya antiqua) - WASHINGTON - Adults numerous in western area. Some fields severely damaged. (Howitt). OREGON - Active in eastern area during latter part of May and first of June. Activity extremely light in Willamette Valley. (Crowell). IDAHO - Heavy infestation in seed onion field near Buhl. First generation 70-80 percent pupated in southwestern area. About 7 percent emergence to date. Damage to fields lessening due to reduced populations. (Barr, Homan, Scott). MASSACHUSETTS - All stages in onion fields. Peak emergence and oviposition will occur during next 2-3 weeks. (Crop Pest. Cont. Mess.).

ASPARAGUS BEETLES (Crioceris spp.) - MONTANA - Causing damage near Billings. (Roemhild, June 1-15). UTAH - Caused moderate damage to asparagus in Davis, Weber and Cache Counties. (Knowlton).

A LOOPER (Rachiplusia ou) - INDIANA - First record from Jasper County, June 11. Beginning to occur on mint in northern area. (Gould).

HOP APHID (Phorodon humuli) - OREGON - Early season control necessary in some yards. (Morrison).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - NEW JERSEY - Heavy in widely separated fields, with serious damage to strawberries. (Ins. Dis. Newsl.). WASHINGTON - Light in margins of potato fields at Quincy, but heavier than usual for this time of year. (Landis).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - UTAH - Above normal, damage moderate in Salt Lake, Utah and Cache Counties. (Davis, Knowlton).

STALK BORER (Papaipema nebris) - VIRGINIA - Previously reported on strawberries. Det. by H. W. Capps. (Hofmaster). NORTH CAROLINA - Boring into stalks of tomato plants locally in Moore County. (Wood, Farrier).

SPITTLEBUGS - IDAHO - Nymphs becoming abundant on strawberries in Moscow area. (Barr).

SLUGS - WASHINGTON - Mostly Arion ater and Agriolimax agrestis extremely numerous in western area. Damage heavy to ripened strawberries. Losses up to 75 percent on first picking. (Howitt).

GARDEN CENTIPEDE (Scutigerella immaculata) - WASHINGTON - Widely scattered damage to several crops west of the Cascade Mountains. (Howitt).

TOBACCO INSECTS

BUDWORMS (Heliothis spp.) - VIRGINIA - Generally light on tobacco in Pittsylvania County. (Dominick). GEORGIA - Light to moderate on tobacco in 13 tobacco-growing counties. (Johnson). SOUTH CAROLINA - Found in all fields inspected. (Nettles et al.).

HORNWORMS (Protoparce spp.) - VIRGINIA - Light on tobacco in Pittsylvania County. (Dominick). MARYLAND - Eggs and larvae increasing on tobacco generally, throughout southern area. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - VIRGINIA - Increasing on tobacco in some Pittsylvania County fields. (Dominick). MARYLAND - Light on tobacco in northern Calvert County. (U. Md., Ent. Dept.).

THRIPS - VIRGINIA - Populations greatly decreased on tobacco during past week. (Dominick).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - VIRGINIA - Moderate on tobacco plants in some fields in Cumberland County. (Seay). GEORGIA - Light to moderate on tobacco in Ware, Tattnall and Bulloch Counties. (Johnson). MARYLAND - Generally light on tobacco in Prince Georges, Calvert and St. Marys Counties. (U. Md., Ent. Dept.).

WIREWORMS - SOUTH CAROLINA - Damage to tobacco very common in Marion County. Some damage reported in Marlboro County. (Nettles et al.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Punctured squares ranged as high as 30-50 percent in some untreated fields in lower southeastern area. Populations low and spotty in Piedmont, central and northern areas. Treatments being applied in southeast. (Cott. News Lett.). SOUTH CAROLINA - Activity curtailed by hot, dry weather in Florence. First-generation adults not yet emerging, but survivors very active. Controls still being applied. (Fye et al.). GEORGIA - Infestation counts made in 45 southern cotton fields. Percent punctured squares ranged 4-31, averaging 14 percent. (Johnson). ALABAMA - Increasing most sections of State. Infestations in several southeastern counties averaged 20.37 percent, ranging 8-55 percent. First-generation adults should begin emerging around June 28 or 29. (Grimes). MISSISSIPPI - Punctured squares ranged 0-13 percent with average of 3.6 percent in delta counties. Populations down from past two weeks. (Merkl et al.). LOUISIANA - Weevils ranged 0-2 per 100 feet of row in 4 cotton fields in Tensas Parish. In St. Martin Parish, 8 percent of squares found punctured. First-generation adults appearing in southern area. (Spink). In Madison Parish, square infestation averaged 18 percent. The average number of weevils per acre was 125 with a range of 0-1,250. Percent survival in hibernation cages to June 19 was 2.88 compared with 4.30 at same time in 1958. (Smith et al.). TENNESSEE - Two fields found infested of 50 surveyed in McNairy County, averaging 50 per acre. (Locke). ARKANSAS - Numbers low. (Ark. Ins. Rpt.). TEXAS - Activity increased over State with isolated "hot spots". (Gaines). Percent square infestation averaged 46 in untreated fields and 18.7 treated fields in McLennan and Falls Counties with an overall average of 21.6 percent. Very few fields producing enough squares for records. First-generation adults appearing in few early-planted fields. Adults averaged 45 per acre in treated and untreated fields. (Parencia et al.). OKLAHOMA - Averaged 2 per 100 terminals in 2 of 3 Choctaw County fields checked (Goin) and ranged 0-2 per plant, with 0-3 punctured squares per plant in a cotton field in Bryan County (Vinson).

BOLLWORMS (Heliothis spp., et al.) - SOUTH CAROLINA - Found occasionally in Florence area but no major damage reported. Moth flight increasing. (Fye et al.). GEORGIA - Egg counts made in 45 southern cotton fields. Counts ranged 2-20 per 100 terminals, averaging 8 per 100 terminals. Larval counts ranged 0-9 per 100 terminals, averaging 3 per 100 terminals. (Johnson). ALABAMA - Continue to increase most areas of State. Infestation averaged 9.95 percent in several southeastern counties, ranging 0-20 percent. Most larvae from one-fourth to one-half inch in length. Egg counts 0-64 per 100 terminals. (Grimes). MISSISSIPPI - Infestations present a potential threat to early-squaring cotton in delta counties. Eggs and small larvae general. Eggs ranged 1-27 and young larvae 1-13 per 100 terminals. (Merkl et al.). LOUISIANA - Eggs ranged 1-3 per 100 feet of row in cotton in terminals in 4 fields in Tensas Parish. (Spink). Square infestations averaged 3 percent in infested fields in Madison Parish. Eggs and small larvae rather general. (Smith et al.). ARKANSAS - Eggs and larvae present, but being controlled by treatments or beneficial insects. (Ark. Ins. Rpt.). OKLAHOMA - Populations 0.2 per linear foot in 1 of 3 fields in Choctaw County (Goin) and 0.06 per linear foot in field in Jefferson County (Hatfield). TEXAS - Eggs and young larvae observed in many areas with some controls being applied. (Gaines). Eggs averaged 1.1 and larvae 0.3 per 100 terminals in 79 fields in McLennan and Falls Counties. Square injury averaged 1.1 percent in 10 fields. (Parencia et al.). NEW MEXICO - Light infestation in Chaves and Eddy Counties. (N. M. Coop. Rpt.). ARIZONA - Continuing to increase in Yuma County, with heavy damage reported in some Yuma Valley fields. Also increasing some Pinal and Maricopa County fields. (Ariz. Coop. Rpt.). CALIFORNIA - Activity continues in stub and planted cotton. Egg counts low, few fields required treatments in Imperial County. (H. Schulback).

THRIPS - MISSOURI - Severe injury in Pemiscott, southern half of Dunklin and extreme southern New Madrid Counties. Counts 8-12 per plant early in week, but dropped to 3-4 by end of week. (Kyd, Thomas, Munson). TENNESSEE - Caused severe damage so far this season in western area, but damage tapering off. (Locke).

MISSISSIPPI - Populations remain heavy on young cotton in delta counties. (Merkl et al.). TEXAS - Continue to be a problem some sections of State, especially in north and south plains where heavy infestations were noted. (Gaines). OKLAHOMA - Several fields show medium to heavy damage in south central area (VanCleave) and light to heavy damage in Carter, Stephens, Garvin, McClain and Grady Counties (Pela). Counts 0-4 per plant in Bryan and Aoka Counties (Vinson), 3-10 per plant in Choctaw County (Goin), 2-10 in Caddo and Washita Counties (Hudson) and 0.3-1 per linear foot in Jefferson and Tillman Counties (Hatfield). ARIZONA - Heavy in many fields in southeast counties, particularly in Willcox area of Chochise County. (Ariz. Coop. Sur.).

FLEAHOPPERS - ALABAMA - Limited number of Psallus seriatus observed in Houston, Geneva and Pike Counties. (Grimes). TEXAS - P. seriatus populations continue to be variable in State with some heavy migrations occurring and some infestations leveling off due to weather conditions which slowed maturing of host plants. (Gaines). Infestation averaged 18.3 per 100 terminals in 25 untreated fields and 12.5 in 54 treated fields with overall average of 13.6 in McLennan and Falls Counties. (Parencia et al.). OKLAHOMA - P. seriatus averaged up to 5 percent infestations in cotton fields in south central area (VanCleave). None found in Carter, Stephens, Garvin, McClain and Grady Counties. (Pela). NEW MEXICO - Rhinacloa forticornis were light with occasional moderate to heavy infestations on cotton in Chaves and Luna Counties. (N. M. Coop. Rpt.). ARIZONA - Spanogonicus albofasciatus heavy in central and southeastern counties. Average number per 100 sweeps in some areas as follows: Cochise County - Kansas Settlement, 42; Stewart, 30; Bowie, 20; Graham County - 25; Greenlee County - 15; Maricopa County - 25; Pinal County - 25. (Ariz. Coop. Sur.).

PINK BOLLWORM (Pectinophora gossypiella) - MEXICO - In western area, bloom inspections initiated on approximately 30,000 acres of cotton in Mexicali, Baja California, and 300 acres in San Luis, Sonora. All results negative. Thirteen traps located in Mexicali and San Luis areas were operated during May; all trap inspections negative. (PPC, Mex. Reg., May Rpt.). TEXAS - Bloom inspections, which began in the lower Rio Grande Valley on May 13, indicate li ter infestations than for several years. (PPC,So. Reg., May Rpt.).

APHIDS - GEORGIA - Light infestations of Aphis gossypii in cotton Colquitt, Mitchell, Miller, Bulloch and Jenkins Counties. (Johnson). TENNESSEE - Severe infestation of a root aphid caused loss of stand in Dyer County with some spotted damage occurring in other fields in western area. (Locke). OKLAHOMA - Counts of A. gossypii were 10-30 per plant in 2 or 3 fields in Choctaw County (Goin), 0-6 per plant in 2 fields in Bryan County (Vinson) and light in fields checked in Carter, Stephens, Garvin, McClain and Grady Counties (Pela). NEW MEXICO - Heavy, spotty infestations of A. medicaginis on cotton in Chaves and Eddy Counties. (N. M. Coop. Rpt.).

TARNISHED PLANT BUG (Lygus lineolaris) - LOUISIANA - Ranged 2-6 per 100 feet of row in 4 fields in Tensas Parish. (Spink). Ranged 3-34 per 100 sweeps with average of 10 per 100 sweeps in Madison Parish. Some damage occurring and several growers treating. (Smith et al.). MISSISSIPPI - Number one problem to cotton in delta counties at present. Heavy blasting of early squares common in older cotton not treated. Counts range 1-30 per 100 sweeps with an average of 10.2 per 100 sweeps. Controls needed if early crop is to be set. (Merkl et al.).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Light in cotton in Luna, Dona Ana, Chaves and Eddy Counties. (N. M. Coop. Rpt.). ARIZONA - Continuing to increase across State in cotton with average counts of 15-20 per 100 sweeps. (Ariz. Coop. Rpt.) CALIFORNIA - Increasing many fields. Adults moving in from alfalfa fields in Imperial County (Schulback) and present but not economic in Tulare County (A. G. George).

SPIDER MITES - NORTH CAROLINA - Severe infestation of Tetranychus sp. in cotton field in Lincoln County. (Jones). MISSOURI - Marginal infestations by Tetranychus spp. very common throughout southeast. Counts range 15-95 per leaf. Some marginal defoliation present in heavily infested areas. (Kyd, Thomas, Munson). TENNESSEE - Spider mites found along edges of fields that had infestations in years past in western area. (Locke). ARIZONA - Heavy localized spots of spider mites in some cotton fields in Kansas Settlement area of Cochise County. (Ariz. Coop. Sur.). CALIFORNIA - Spider mites in general are light in Imperial County with considerable predator activity. In Tulare County, mite populations spreading in untreated fields. In Fresno County, mites are earlier this season and increasing sharply in several areas. (Schulback, Rudd).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - TENNESSEE - Larvae, all sizes, found in cotton in western area. Not heavy, but most fields infested. Damage very light at present. (Locke).

BEET ARMYWORM (Laphygma exigua) - ARIZONA - Populations increased some cotton fields in Marana area of Pima County. Counts average 3 larvae per 10 plants, some feeding damage heavy in spots. (Ariz. Coop. Sur.).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Infestations caused some concern in central area as ragging of leaves was observed. (Gaines). CALIFRONIA - Medium on cotton in Bard area of Imperial County. (Cal. Coop. Rpt.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - CALIFORNIA - Spotty, with occasional flareups. Occurrence primarily in north end of Imperial Valley, Imperial County. (H. Schulback).

GRASSHOPPERS - TEXAS - Continue to cause concern as many areas reported heavy infestations on or near margins of fields. (Gaines). NEW MEXICO - Damaging cotton in Lea and Quay Counties. (N. M. Coop. Rpt.).

A GRAPE COLASPIS (Colaspis sp.) - ARIZONA - Light infestations of adults in Greenlee County cotton. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - PENNSYLVANIA - Pupating on red pine in Fayette County, June 9. (Drooz). INDIANA - Adult emergence about 80 percent complete at Bristol, Elkhart County. (Schuder).

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Populations generally light. Larvae ranged from third to fifth instars in Burnett and Douglas Counties by June 9 and in fifth instar in Juneau and Jackson Counties by June 15. (Wis. Coop. Sur.). MINNESOTA - Now in third instar in Koochiching County. (Minn. Ins. Rpt.).

SPRUCE BUDWORM (Choristoneura fumiferana) - PENNSYLVANIA - Beginning to oviposite on Virginia pine in Perry County. (Drooz). MINNESOTA - Aerial spraying of 7,280 acres of spruce and balsam in International Falls area completed. Post-spray survey indicated good control. Now in sixth instar and some pupation begun by June 15. Heavy defoliation now apparent throughout much of infested areas appears comparable to that of 1958. (Minn. Ins. Rpt.).

ZIMMERMAN PINE MOTH (Dioryctria zimmermani) - INDIANA - Infestations in untreated pine plantings as high as 35 percent in La Porte County. Larvae in late stages and about 50 percent have entered first whorl. (Schuder).

AN OLETHREUTID (Eucosma gloriola) - PENNSYLVANIA - Lightly infesting Douglas-fir in Knauers area, Berks County. About 2 percent pupation on Scotch pine in same area. (Drooz).

DOUGLAS-FIR ENGRAVER (Scolytus unispinosus) - CALIFORNIA - Caused partial and complete kill of groups of 4-5 Douglas-firs in an 80-acre stand in Baechtel Creek area, Mendocino County. Damage associated with heavy logging in past two years. (P. G. Lowell).

BARK BEETLES - CALIFORNIA - Ips radiatae causing considerable damage in a 20-acre Monterey pine plantation in San Mateo County. Many trees dead and dying. Infestation decreasing. (J. C. Dowakin). WISCONSIN - Scattered individual jack pines heavily attacked by undetermined species in northwest area. Some trees have been killed. (Wis. Coop. Sur.). SOUTH CAROLINA - Dendroctonus frontalis killed several pines in the Hampton area. (Nettles et al.). TEXAS - D. frontalis population buildup was rapid in Hardin and Liberty Counties. Aerial surveys showed over 30 spots of infestation, some containing 50 brood trees. Control project was re-activated, effective June 1, with U. S. Forest Service participating. (Young).

WHITE-PINE WEEVIL (Pissodes strobi) - VIRGINIA - Larvae killed leaders of white pines on a lawn in Roanoke County (Amos, Oliver) and damaged some pines in Montgomery County (Amos).

PINE CHAFER (Anomola oblivia) - PENNSYLVANIA - Averaged 5 per tree on sparse growth of Scotch pine in Cambria County, surrounded by heavy plantings. Heavy plantings with only a few along adjacent margins. Terminals and upper laterals have lower two-thirds of needles on new growth destroyed. (Udine).

SPITTLEBUGS - WISCONSIN - Few fourth-instar Aphrophora parallela nymphs present in Burnett County, June 8. Some third-instar nymphs of A. saratogensis present in Burnett and Sawyer Counties, June 9. Hatching completed in all northeastern counties by same date. Most nymphs in third instar in Vilas County, June 18. Populations of latter species appear high in northeast areas. (Wis. Coop. Sur.).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - MONTANA - Common on spruce in ornamental plantings. (Roemhild, June 1-15). RHODE ISLAND - Unusually abundant in nursery stock in Wakefield, June 12. (Kerr).

PINE BARK APHID (Pineus strobi) - MINNESOTA - Infested several acres of red pine seedlings at a Willow River nursery. Infestations moderate but appeared to be building up. Controls have been applied. (Minn. Ins. Rpt.).

A WOOLLY APHID - MONTANA - Abundant on alpine fir in ornamental plantings in mountain region east of the Divide and observed on same host in Gallatin National Forest. (Roemhild, June 1-15).

BLACK PINE LEAF SCALE (Aspidiotus californicus) - CALIFORNIA - Causing serious damage to crowns of saw timber sugar pines in Mill Creek area, Mendocino National Forest, and in a 300-600-acre stand in Thompson Peak burn area, Shasta-Trinity National Forest. Mendocino infestation has increased in past 2 years. Apparently the species is potentially much more serious than published results indicate. (R. E. Lang, K. M. Estes, G. B. Eaton).

RED-PINE SAWFLY (Neodiprion nanulus) - WISCONSIN - Larvae a little over half-grown in northwest area, first week of June. Colonies appear smaller than in 1958 and apparently many eggs failed to hatch. Few scattered colonies reported in Langlade, Oconto and Marinette Counties. Larvae approaching cocoon stage in west central area. Cocooning occurred by first week in June in Jackson County and was completed in Adams, Juneau and Washara Counties by June 15. (Wis. Coop. Sur.).

YELLOW-HEADED SPRUCE SAWFLY (Pikonema alaskensis) - MINNESOTA - Common on spruce, especially in open-planted trees in Koochiching County. Defoliation light to moderate. (Minn. Ins. Rpt.).

BAGWORM (Thyridopteryx ephemeraeformis) - MARYLAND - Small larvae becoming noticeable on evergreens in central and southern sections. (U. Md., Ent. Dept.). NORTH CAROLINA - Early-instar larvae infesting junipers in Wake County. (Jones). ALABAMA - Severe defoliation of cedar reported in localized areas of Mobile County. (Lockhart, Seibels). OKLAHOMA - Heavy populations common in Stillwater area. Most larvae in second and third instars. (Price).

BAGWORMS - PENNSYLVANIA - Small bags of Eurukuttarus confederata on trees, rocks, fence posts and other objects in central area of State. This is first time this species has been noticed in this area. (Gesell). UTAH - Apterona crenulella lightly infesting range plants in Logan Canyon and at Laketown in northern part of State. (Knowlton).

CALIFORNIA OAKWORM (Phryganidia californica) - CALIFORNIA - Medium on oaks in Suisun, Solano County. (Cal. Coop. Rpt.).

A CANKERWORM (Paleacrita longiciliata) - CALIFORNIA - Causing severe defoliation of chamise in Lake County and considerable concern as this is principal deer browse, which would cause a serious fire hazard if killed out. (Cal. Coop. Rpt.).

FALL WEBWORM (Hyphantria cunea) - NEW MEXICO - Heavy on poplars in Carlsbad, Hobbs and Hondo Valley. (N. M. Coop. Rpt.).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Spraying was commenced on May 21 and by the end of the month 35,145 acres had been treated in the Oneonta area. (PPC).

MIMOSA WEBWORM (Homadaula albizziae) - ALABAMA - Caused heavy damage to mimosa trees in localized areas of Mobile County. (Lockhart, Seibels). INDIANA - First-generation adult emergence nearly complete at Indianapolis. (Schuder).

TENT CATERPILLARS (Malacosoma spp.) - PENNSYLVANIA - All unemerged M. americanum cocoons examined contained large parasitic larvae which may be Sarcophaga aldrichi. More than half of all cocoons are effected. (Udine). MINNESOTA - Very little evidence of defoliation by M. disstria north of Duluth. (Minn. Ins. Rpt.). WISCONSIN - High larval populations of M. disstria failed to materialize

in northwest Douglas and northern Ashland Counties. Few larvae examined in Ashland County varied from third instar to mature. Parasitism and adverse weather apparently responsible for much of reduction. (Wis. Coop. Sur.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - MARYLAND - Larvae injuring foliage of Chinese elms at University Hills, Prince Georges County. (U. Md., Ent. Dept.). NORTH CAROLINA - Defoliating elms in Craven and Beaufort Counties. (Jones). OKLAHOMA - Limited numbers of first-generation larvae in elms in Stillwater area. Most have reached pupal and adult stages. Second-generation eggs becoming more common in area and hatch has begun. (Price). Larvae ranged 50-75 and adults 75-100 per 100 leaves in elms in Chichasha area. (Pennington). UTAH - Larvae causing damage at Draper and elsewhere in Salt Lake County. (Knowlton). NEVADA - Larvae present in Lovelock, Pershing County. (Bechtel, Snyder).

IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora) - RHODE ISLAND - Pupae present in Kingston area, June 17. (Kerr).

A SCARABAEID - SOUTH DAKOTA - Causing considerable damage to Salix spp. and Populus spp. in the north Sioux Falls area of Minnehaha County. (Mast).

ELM LEAF MINER (Fenusa ulmi) - DELAWARE - Most larvae have completed development and adults have emerged. Injury noticeable but not very heavy in most areas. (Burbutis).

EUROPEAN ELM SCALE (Gossyparia spuria) - WISCONSIN - Egg laying continuing and hatching has begun, but crawlers have not emerged in Dane-Jefferson County area. (Wis. Coop. Sur.). UTAH - Damaging at Manti, Ephraim and other localities in Sanpete County. (Knowlton). IDAHO - Extremely heavy on elm in Twin Falls area. Large numbers of gravid females present containing fully-developed eggs. No crawlers present. (Gibson).

LACE BUGS (Corythuca spp.) - MARYLAND - C. arcuata moderate to heavy on white oaks in central Prince Georges County. (U. Md., Ent. Dept.). OKLAHOMA - C. ciliata heavy (up to 25 per leaf) on some sycamore and hackberry trees at Woodward (James), ranged up to 6 per leaf on a sycamore at Stillwater (Bieberdorf) and very light on a few sycamores in Sulphur area of Murray County (VanCleave, Meharg).

WOOLLY ALDER APHID (Prociphilus tessellatus) - NEW JERSEY - Abundant on maples in certain areas of Gloucester County. (Ins. Dis. Newsl.). MARYLAND - Infesting silver maples in Prince Georges, Calvert, Caroline and Howard Counties. (U. Md., Ent. Dept.). VIRGINIA - Extremely heavy on silver maple trees in all parts of the State. (Morris). NORTH CAROLINA - Infesting maple leaves in Randolph County. (Scott, Farrier). TENNESSEE - Heavy on maple in Knox and adjoining counties. (Stanley).

SAWFLIES - WISCONSIN - An undetermined species caused almost complete defoliation of a locust tree windbreak in Juneau County by second week of June. Locust in vicinity of Portage, Columbia County, also defoliated. Newly hatched larvae of Pristophora erichsonii present in Juneau County June 11, ranged to third instar at Wisconsin Rapids by June 17, but had cocooned by June 18 at Middleton. (Wis. Coop. Sur.).

FULLER ROSE BEETLE (Pantomorus godmani) - CALIFORNIA - Heavy populations damaging hibiscus in Santa Barbara, Santa Barbara County. (Cal. Coop. Rpt.).

AN AZALEA LEAF MINER (probably Gracilaria azaleella) - NORTH CAROLINA - Injuring Formosa variety azaleas in Duplin County. (Farrier).

APHIDS - DELAWARE - Several large colonies of Longistigma caryae on sycamores in New Castle County. (Bray). MARYLAND - Undetermined species curling leaves of black oak at Takoma Park, Montgomery County. Prociphilus fraxinifolii infesting ash at College Park, Prince Georges County. (U. Md., Ent. Dept.). PENNSYLVANIA - Drepanaphis monelli on horse chestnut in Dauphin County, turning leaves yellow.

(Drooz). Macrosiphum sanbornii fairly abundant on most chrysanthemum plants in south central part of State. (Pepper). FLORIDA - Unspecified species heavy on crapemyrtle in the Monticello district. Also heavy on ixora, viburnum and hibiscus in many nurseries in the Palm Beach district. (Fla. St. Plt. Brd., May Rpt.). UTAH - P. fraxinifolii has damaged a number of trees at Price, Helper, Castle Dale, Ferron, Manti and Spanish Fork. (Knowlton). NEVADA - Heavy infestation of Myzocallis robiniae on locust trees with defoliation occurring in Las Vegas, Clark County. (Zoller). WASHINGTON - Pterocomma bicolor unusually abundant on willow at Othello, Adams County. (Landis).

SCALES - NORTH CAROLINA - Diaspis carueli light on ornamental juniper planting in Wake County. (Scott, Farrier). SOUTH CAROLINA - Pseudaonidia paeoniae heavy on azaleas and camellias in Spartanburg County. (Nettles et al.). FLORIDA - Fiorinia theae numbers somewhat less than usual in the Monticello district; widespread on camellias and some hollies in the Marianna district; built up on camellias in the Ocala district; appeared to be on the decline in the Jacksonville district; and were light to medium on camellias in the Macclenny district. (Fla. St. Plt. Brd., May Rpt.). OKLAHOMA - Heavy populations of Kermes pubescens killing terminal growth on many post oaks throughout south central area. Crawlers active. (VanCleave, Meharg). Medium on oaks in Muskogee County (Washum) and heavy on post oaks in Delaware County (Flora). IDAHO - Abundant general infestation of Lepidosaphes ulmi on ash trees in Preston, with heavy damage. (Roberts).

THRIPS - CALIFORNIA - Frankliniella sp. heavy on peony flowers in Julian, Solano County. (Cal. Coop. Rpt.). FLORIDA - Unspecified species reappearing on crotons after being scarce for several years on these plants in the north Dade district. Heavily infested crotons in Tarpon Springs and St. Petersburg. (Fla. St. Plt. Brd., May Rpt.).

SPIDER MITES - MARYLAND - Oligonychus ununguis infesting hemlock and juniper in Garrett County and arborvitae in Baltimore County. (U. Md., Ent. Dept.). VIRGINIA - Undetermined species heavy on hemlocks in Roanoke, Pulaski and Frederick Counties and on holly bush in Prince Edward County. (Amos et al.). NORTH CAROLINA - Tetranychus sp. infesting roses locally in Orange County and causing severe leaf injury to hydrangea locally in Pasquotank County (Lowery, Farrier). TENNESSEE - Tetranychus sp. heavy on nursery stock in Knox and Blount Counties. (Hammett). MISSOURI - Considerable trouble being experienced on various evergreens in southeast part of State from undetermined species. (Wkly. Rpt. Fr. Gr.). LOUISIANA - Undetermined species heavy on dwarf holly in St. Tammany Parish. (Spink).

EASTERN LUBBER GRASSHOPPER - ALABAMA - Caused considerable damage to amaryllis in southern Mobile County. Infestations increasing. (Seibels).

GYPSY MOTH (Porthetria dispar) - MICHIGAN - During May 1-13, following number of acres treated in following counties: Clinton - 14,177; Eaton - 2,957; Ingham - 2,957. Average coverage was 69.4 percent. (PPC, Cent. Reg.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - CALIFORNIA - Culex tarsalis generally exceptionally light over the State. Populations of 1-9 females taken in traps in Butte and Colusa Counties. (Pub. Hlth. Vec. Cont.). MINNESOTA - Aedes vexans comprised 97.5 percent of all specimens in light trap collections and 93 percent of all biting collections in period of June 7-13. Of 310 larval collections during the same period, 108 contained A. vexans, 100 Culiseta inornata, 81 Culex territans, 75 C. restuans and 45 C. tarsalis. (Minn. Ins. Rpt.).

MOSQUITOES (undetermined) - FLORIDA - Very annoying in the Monticello district and heavy in unsprayed areas of Brevard County. Populations also high in Oak Hill area. Populations were again heavy in the Indian River district, but were very light along the coast in Palm Beach County. Numbers increased in Hillsborough and Pasco Counties. (Fla. St. Plt. Brd., May Rpt.). LOUISIANA - Remain a severe problem throughout the State. (Spink). TEXAS - Heavy and annoying in Hale County. (Texas Coop. Rpt.). WISCONSIN - Extremely annoying in wooded areas in most west central counties. Several species of mosquitoes all but prohibited outside activity after 9. P. M. on north side of Lake Mendota. Complaints numerous on east side of lake, with a few on west side. Most breeding locations are now dry. Outlook is for lower mosquito numbers, but locally troublesome. (Wis. Coop. Sur.). MINNESOTA - During period March 20-June 17, 101,000 acres of confirmed breeding sites have been treated, compared to 99,000 acres for the entire 1958 season. Thirty-one species have been identified this season from light trap, biting and larval collections. (Minn. Ins. Rpt.). WYOMING - Very numerous in Saratoga Valley and Uinta County. (Davison). UTAH - Troublesome to livestock in meadows west of Ephraim, and in the Manti-Freedom area of Sanpete County. Extremely annoying in alfalfa and grain fields in Huntington, Castle Dale and Ferron areas of Emery County and moderate to numerous in Price, Helper and Wellington areas of Carbon County. One horse has died of mosquito-transmitted encephalitis at Panguitch, Garfield County. (Knowlton). CALIFORNIA - Populations expected to be considerably below the 1958 level. (Pub. Hlth. Vec. Cont.).

A SARCOPHAGID (Wohlfahrtia vigil) - MINNESOTA - Immature larvae removed from "reddened elevated bumps" on neck and shoulders of an infant in the St. Peter area, Nicollett County, tentatively identified as this species. This is the third report of this species in man from the State in the past 5-6 years, the last being from a child in the Twin City area in August 1957. (Minn. Ins. Rpt.).

SCREW-WORM (Callitroga hominivorax) - FLORIDA - Infesting livestock June 17 near Lake Placid in Highlands County. This is the first case reported in the southeastern United States eradication area since February 19, 1959. Eradication program leaders emphasized that occurrence of this case points up the necessity for livestock producers in the Southeast to be on the alert for any suspected infestations and to report such cases immediately. (ARS Inf. Serv.).

CATTLE GRUBS (Hypoderma spp.) - WYOMING - Adults bothering cattle in Uinta County. (Davison).

HORN FLY (Siphona irritans) - NEW MEXICO - Averaged 350 per head in one herd prior to spraying. (N. M. Coop. Rpt.). OKLAHOMA - Ranged 250-500 per animal on cattle checked in McCurtain and Pushmataha Counties (Goin), up to 150 per animal in south central area of State (VanCleave), averaged 450 per animal in Tulsa area (Taylor) and averaged 250 per animal in a herd of milking cows in Stillwater area (Henderson, Mount).

STABLE FLY (Stomoxys calcitrans) - OKLAHOMA - Averaged 7 per animal on cattle in the Tulsa area (Taylor) and 3 per animal on milking cows in Stillwater area (Henderson, Mount).

TABANIDS - LOUISIANA - Chrysops spp. remain a severe problem throughout the State. Tabanus sp. averaged 16 per 15-minute collection period in St. Landry, Calcasieu, Caddo and Tensas Parishes. Counts ranged from 204 in St. Landry Parish to 27 in Caddo Parish, per 90 minutes. (Spink). UTAH - Unspecified species troublesome to livestock in meadow areas west of Ephraim and in the Manti- Freedom area of Sanpete County. (Knowlton).

TICKS - OKLAHOMA - Mainly Amblyomma americanum, ranged 15-35 per animal on cattle checked in McCurtain and Pushmataha Counties. (Goin).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - MEXICO - One infested property was found in Colonia Coahuila, in the state of Sonora. (PPC, Mex. Reg., May Rpt.).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - ILLINOIS - Adults average 0-10 on surface of 1958 ear corn in Gallatin County. Adult counts ranged 10-100 in Massac, Johnson, Union and Alexander Counties. (Ill. Ins. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - LOUISIANA - Several species averaged 1,300 per acre of cotton in 4 fields examined in Tensas Parish. (Spink). ILLINOIS - Adults of unspecified species ranged 0-20 per 100 sweeps of clover and alfalfa in northern half of State. (Ill. Ins. Rpt.). SOUTH DAKOTA - Large numbers of Hippodamia spp. adults and larvae in most east central area fields. (Mast). OKLAHOMA - Counts of undetermined species variable in various crops in several areas of State. (VanCleave et al.). COLORADO - Unspecified species building up and reported in numbers in all stages. (Colo. Ins. Sur.). WYOMING - Undetermined species averaged 3 per 100 sweeps of alfalfa in the Saratoga Valley, 4 in the Burntfork area and 3-12 in the Evanston area. (Davison).

BIG-EYED BUGS (Geocoris spp.) - LOUISIANA - Averaged 520 per acre of cotton in 4 fields examined in Tensas Parish. (Spink).

LACEWINGS - ILLINOIS - Larvae of undetermined species ranged 0-80 per 100 sweeps in northern half of the State on clover and alfalfa. (Ill. Ins. Rpt.). SOUTH DAKOTA - Adults and larvae of Chrysopa spp. present in east central area. (Mast). OKLAHOMA - Populations of Chrysopa spp. variable on several crops in various areas of the State. (VanCleave et al.).

NABIDS (Nabis spp.) - ILLINOIS - Averaged 0-40 per 100 sweeps in clover and alfalfa in northern half of State. (Ill. Ins. Rpt.). OKLAHOMA - Populations ranged 0.2-1 per sweep in alfalfa in south central area. (VanCleave, Meharg). WYOMING - In alfalfa, averaged 6 per 100 sweeps in Saratoga Valley, 4 in Burntfork area and 4-10 in Evanston area. (Davison).

AN ALKALI BEE (Nomia melanderi) - WASHINGTON - First pupae found May 28 and first adults June 11, at Gardena, Walla Walla County. This is about one and one-half weeks later than usual. Emergence of first-cutting alfalfa well-timed to coincide with maximum bloom and maximum nesting. (Frick). IDAHO - Males began to emerge June 9 in Homedale area. Emergence more general but light in Homedale and Marsing areas during period, June 15-19. (Homan, Waters).

AN EUROPEAN CORN BORER PARASITE (Lydella grisescens) - DELAWARE - Over 3,400 adults released in several areas of State in an attempt to recolonize the species in the field. Observations over past few years show the species has greatly deminished. (Burbutis, VanDenburgh).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - DELAWARE - Adults present on mimosa trees in Sussex County. (Burbutis). MARYLAND - Adults becoming common on roses and other ornamentals in most sections of Prince Georges and Montgomery Counties. (U. Md., Ent. Dept.). VIRGINIA - Reported for the first time this season on weeds in northern and central Cumberland County June 9 (Seay) and on fig trees in the vicinity of Axton, Henry County, June 10 (Cofer). NORTH CAROLINA - Adults trapped in Castle Hayne May 20. (PPC, So. Reg.). GEORGIA - Adults were trapped in Atlanta on May 19. (PPC, So. Reg.). OKLAHOMA - Examination of 12 traps near

an airfield in Oklahoma County on June 15 and 18 gave negative results. (Pela). INDIANA - No adults have been found in Newton County. Pupation about 25 percent. (Gould, Bills).

NORTHERN MASKED CHAFER (Cyclocephala borealis) - MARYLAND - Adults unusually abundant at dusk around homes in Hyattsville, Prince Georges County. (U. Md., Ent. Dept.).

SCARABAEIDS - MAINE - Considerable numbers of May beetles taken in light traps at Presque Isle, Aroostook County, and at Orono, Penobscot County. (Simpson). WISCONSIN - Heavy flights of June beetles observed in Washburn County, June 8-9. Fairly heavy flights also occurred in northeastern counties about same dates. (Wis. Coop. Sur.).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - Found for the first time in Worth County, GEORGIA. Acreages treated during May were: ALABAMA - 15,065; ARKANSAS - 6,606; FLORIDA - 40,538; GEORGIA - 30,480; LOUISIANA - 37,322; MISSISSIPPI - 7,542; and TEXAS - 5,307. (PPC, So. Reg.).

EUROPEAN EARWIG (Forficula auricularia) - WASHINGTON - Adults swept from rose planting at Winchester, Grant County, 2 miles from nearest house, in dry, arid cheatgrass habitat. This is unusual habitat for this species. (Landis).

CORRECTION

CEIR 9 (25): 542 - A BORER (Obera sp.) should read A BORER (Oberea sp.).

ADDITIONAL NOTES

WEST VIRGINIA - CODLING MOTH entries in apples noticed since June 15. TARNISHED PLANT BUG numerous and damaging peaches. JAPANESE BEETLE - First emergence of season June 11, Kanawha County. EUROPEAN CORN BORER heavy in various locations in Berkeley County. Of 258 collections made for stored-grain pests on farms on 176 properties in 26 counties, the following pests predominated: CADELLE, SAW-TOOTHED GRAIN BEETLE, BOOKLOUSE, GRANARY WEEVIL, BLACK CARPET BEETLE, FLAT GRAIN BEETLE and PREDACEOUS MITES. (W. Va. Ins. Sur.).

IOWA - BLACK CUTWORM heavy in Grundy, Story, Jasper, Mahaska, and counties east of these. Moderate in Mills, Union, Fremont and Page Counties. No EUROPEAN CORN BORER egg masses have been found at Ankeny since June 17. In the southwestern area, 30-inch corn had 10-60 percent of plants showing leaf feeding with 10-30 new egg masses per 100 plants on June 17-18. Situation is similar in the Marengo area. DIFFERENTIAL GRASSHOPPER averaged 3-5 per square yard along roadsides and fencerows in southwestern area. Heavy damage to wheat by HESSIAN FLY reported in southwestern area. (Iowa Ins. Inf.).

NEW YORK - APPLE APHID is building up in some Saratoga County apple orchards and PLUM CURCULIO has been the hardest insect to control in Saratoga County. More damage can be noticed from curculio than any other insect. CHERRY FRUIT FLY present in most Orleans County cherry orchards. Two fifth-instar CORN EARWORM larvae collected at Wawarsing in the Hudson Valley on June 15 and it appears that EUROPEAN CORN BORER hatching will be ended by July 1 in the Hudson Valley. ONION MAGGOT destroyed 90 percent of untreated onions in Orange County and CUTWORMS are working on corn, pepper and tomatoes in Niagara County. STRIPED CUCUMBER BEETLE caused some damage to melons, squash and cucumbers and COLORADO POTATO BEETLES are abundant in unsprayed fields in Niagara County. (N. Y. Wkly. Rpt.).

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Laphyg. frug.	Perid. marg.	Protoparce quinq.	Protoparce sexta	Heliothis zea	Heliothis vires.
ALABAMA								
Auburn 6/12,17	2	3	2	7	2		12	1
Crossville 6/16				3	9		4	
ARIZONA								
Mesa 6/10-16				12			84	
ARKANSAS								
Fayetteville 615-17	86	13					129	
Hope 6/15-17	21	12		65			134	
Kelso 6/15-17	2	4		12			20	
*Morrilton 6/15-17	11	78	30				130	
FLORIDA								
Gainesville 6/16						2		
Quincy 6/8, 15						2	8	5
ILLINOIS								
Urbana 6/12-18		7		55			97	1
INDIANA (Counties)								
Lawrence 6/7-16	37	10		20	10	24		
Tippecanoe 6/11-17	312	5		59			2	
KANSAS								
Garden City 6/8,10 12-14	17	9		8	11		2	
Hays 6/3, 5-7, 16	56	13			1		4	
Manhattan 6/12-19	214	17		10	1	3	44	
Wathena 6/7,8, 10-17	78	39		6	1	33	7	
LOUISIANA								
Baton Rouge 6/12-18		5	4	1			12	
Tallulah 6/13-19							11	5
MISSISSIPPI								
*Stoneville 6/12-18	24	23		48		6	84	2
MISSOURI								
Columbia 5/30-6/18	251	134		31	10		31	
Sikeston 6/13-19	3			22			6	
NEBRASKA								
Alliance 6/2-10	580	58		129				
Concord 6/3-12	272	3		5				
Kearney 6/4-8	9	2	3	2			19	
North Platte 6/8-14	337	44	2	99	19		58	7
Scotts Bluff 6/5-11	171	71		112	1			
NORTH CAROLINA								
Faison 6/18		1						
SOUTH CAROLINA								
Charleston 6/15-21		1	1	1		1	4	2
Clemson 6/13-19	2	3		2	3	8	23	1
TENNESSEE (County)								
Blount 6/9-15	5	6		2		4	8	

Two traps - Morrilton; 3 traps - Stoneville

LIGHT TRAP COLLECTIONS - Continued

	Pseud. unip.	Agrot. yps.	Laphyg. frug.	Perid. marg.	Protoparce quinq. sexta	Heliothis zea	Heliothis vires.
TEXAS							
Brownsville 6/6-12		54	42			51	
Waco 6/13-19	13	4		61		401	2
WISCONSIN							
*Arlington 6/8-15	552	9		6		1	
Green Lake 6/9-15	49						
Middleton 6/11-18	98	16		7			
Platteville 6/5-17	3900	161		112			
River Falls 6/10-16	71	5		1			
Rosendale 6/9-15	70						
Stevens Point 6/9-15	71	5					
*Theresa 6/9-15	498						
Waterford 6/8-15	390						

*Two traps - Arlington; 3 traps - Theresa

INSECTS NOT KNOWN TO OCCUR IN THE UNITED STATES

CITRUS PSYLLA (Diaphorina citri Kuwayama)

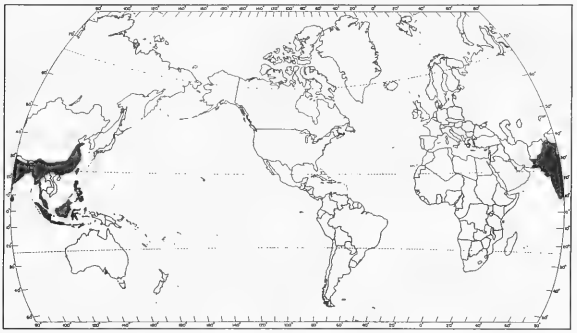
Economic Importance: This citrus pest is widespread in tropical and subtropical Asia. It has been called one of the most important citrus insects in India, particularly in the Punjab, where infestations have been especially damaging. Valuable orchards have been reduced to unproductive levels within two or three years in that country. Damage from the psyllid results from the withdrawal of large quantities of sap from the foliage, heavy development of sooty mold on honeydew-covered leaves, and possibly from a toxic substance injected into the plant tissue. The insect feeds on new growth and heavy, continued feeding leads to loss of fruit production, defoliation, and death of the tree.

Damage to Citrus Tree

Distribution: Tropical and subtropical Asia, including China, India, Burma, Formosa, Philippine Islands, Malaya, Indonesia, Ceylon and Pakistan.

Hosts: Citrus spp. and other Rutaceae.

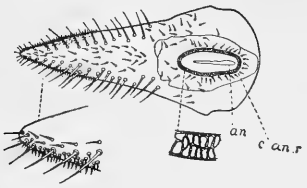
Life History and Habits: Eggs are laid only on tender shoots or other new growth, usually in crevices. The egg stalk is embedded in the plant tissue. In heavy infestations, the eggs are so numerous that terminal foliage has an orange appearance. The female may lay as many as 800 eggs over a period of 2 months. The eggs hatch in 4 to 6 days in the summer. There are five nymphal instars. Total life cycle requires from 15 to 47 days depending on the season, and the adult may live several months. There is no diapause but populations are low in the winter. As many as nine



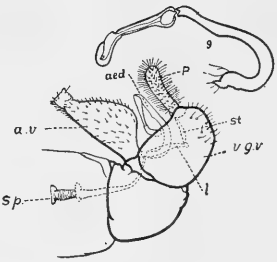
General Distribution of Diaphorina citri

generations a year have been recorded in India. In heavy outbreaks, the foliage is shiny and sticky from honeydew, and soon becomes black from sooty molds. The ground beneath the trees may appear white from honeydew deposits. Nymphs, which are always found on new growth, move in a slow, steady manner when disturbed. The adults leap when disturbed and may fly a short distance. They are usually found in large numbers on the lower sides of the leaves, with heads almost touching the surface and the body raised almost to a 30 degree angle. The period of greatest activity of the psyllid corresponds with the periods of new growth of citrus.

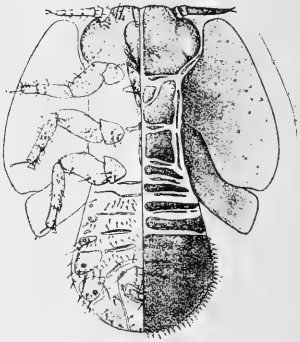
Description: EGG almond-shaped with slender stalk; 0.3 mm. long without stalk. Color, pale yellow at first, becoming orange. Nymph (fifth instar) generally light yellow with orange tinge in region of abdomen. In full-grown nymph antennae, tips of tarsi, and tip of rostrum dark; eyes dark red. Length of body, excluding spines, 1.6 to 1.7 mm. Margin of apical plate has series of lanceolate setae which are covered with waxy secretion. ADULT - Body 2.4 mm. long, forewing 2.4 mm. by 1.0 mm. (greatest width). General color brown, but not uniformly so. Antennae black at tip, tibia light; head, prothorax and abdomen sometimes light-whitish or yellowish. Abdomen usually grayish-brown, but orange in gravid female. Forewing with brown spots. The living insect is covered with a whitish waxy secretion and appears dusty. Male genital segment conspicuous, claspers long and slender. Female genital segment short, small, acute at tip. (Prepared in Survey and Detection Operations in cooperation with other ARS agencies). CEIR 9 (26); 6-26-59.



Female Genitalia

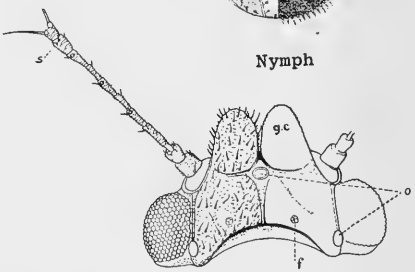


Male Genitalia



Nymph

Adult



Head of Adult

Figures of Diaphorina citri

Figures (except map) from Husain, M. A. and Nath, D. 1927. Dept. Agr. in India Mem. (Ent. Ser.) 10(2), 27 pp.

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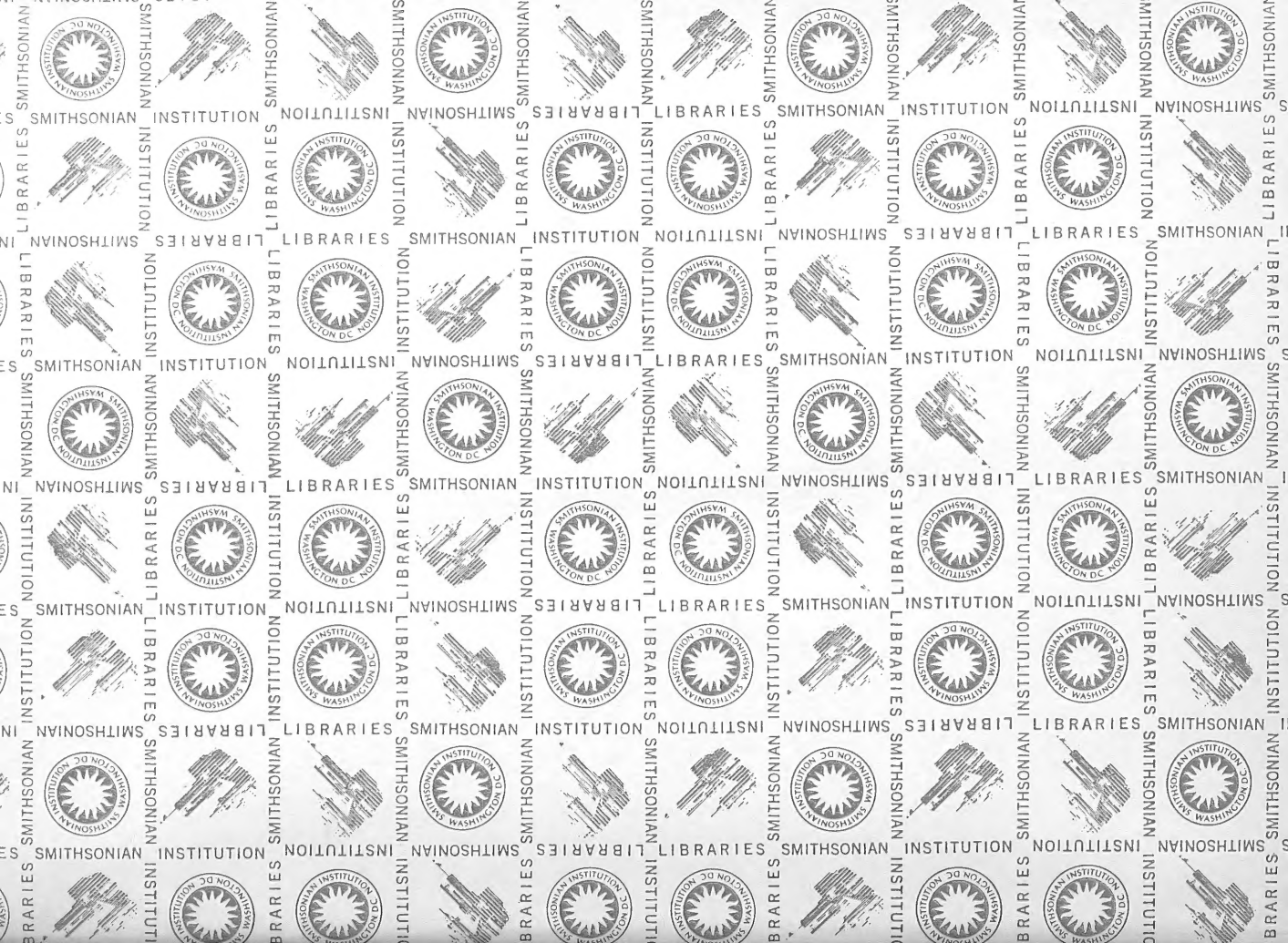
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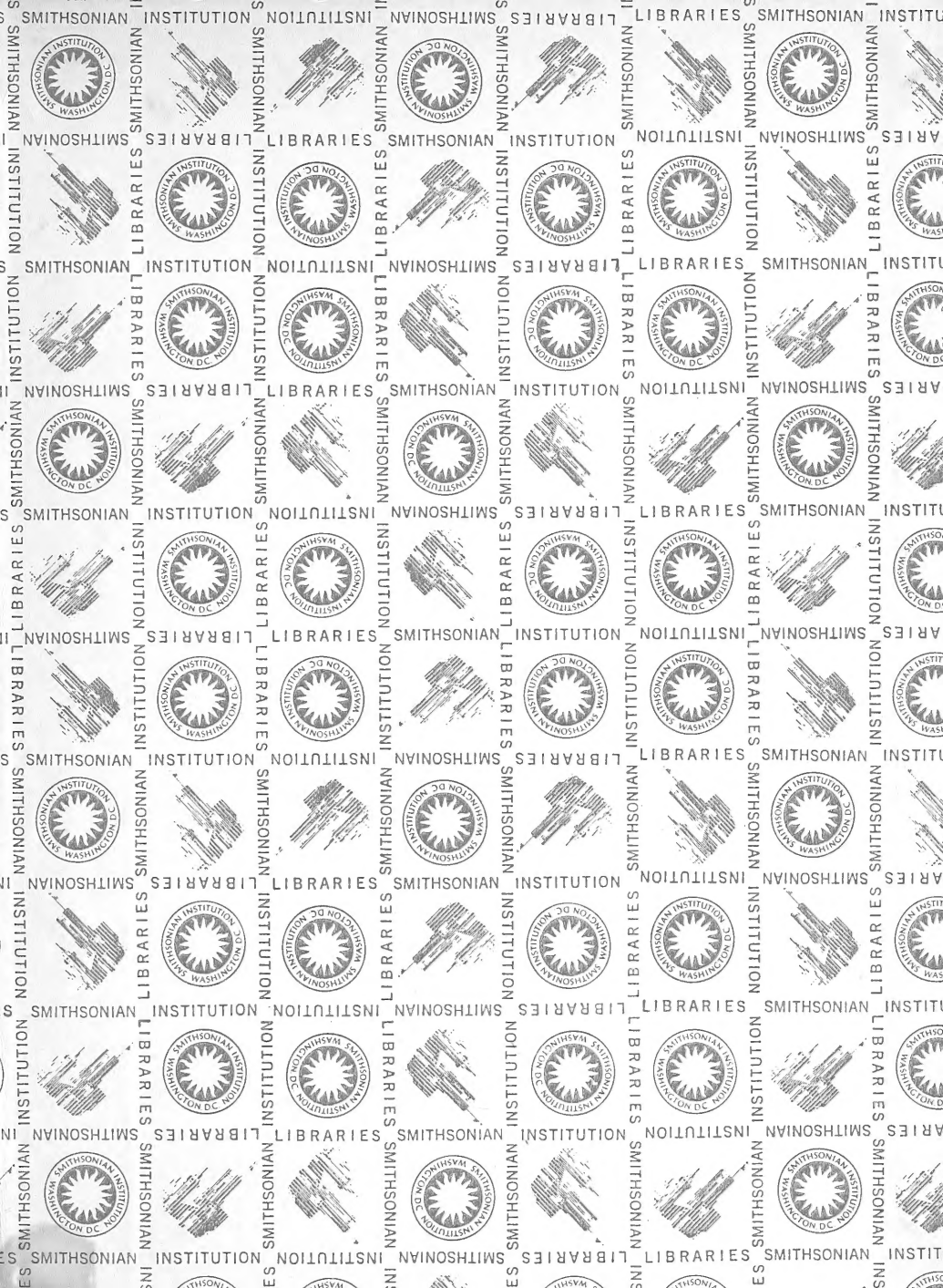
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