

VOL. 6 No. 27

JULY 6, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

EUROPEAN CORN BORER unusually abundant in Massachusetts and eastern New York. Infestations heavy in areas of Maryland and Delaware. Egg-laying passed peak in Minnesota and hatch complete in south and south central Illinois. First-generation damage lighter than expected in Nebraska and infestation lower than last year in southeastern South Dakota. (pp. 631, 652). High second brood expected in Iowa. (p. 652).

GRASSHOPPER oviposition underway in Comanche County, Kansas. Damage may be severe in Missouri if weather is favorable in July and August. Heavy infestations reported in Minnesota and build-ups occurring in scattered areas of South Dakota. (p. 631). Continue outstanding pest problem in Iowa. (p. 652).

CHINCH BUG destructive to corn and sorghums in eastern Kansas and severe on corn in southern Nebraska. Also becoming problem over much of Missouri. (p. 632). EUROPEAN CHAFER damage to winter grain reported from western New York. Adult flights occurring in this area. (p. 632). ASIATIC GARDEN BEETLE caused widespread injury to pastures in western North Carolina. (p. 634).

SPOTTED ALFALFA APHID increasing in Prowers and Bent Counties, Colorado and Finney County, Kansas. Light infestations continue in Oklahoma. Heavy infestations in Dallas County, Texas, moderate in some areas of Louisiana but continue light in Oklahoma. (p. 634). Large population of PEA APHID continues in alfalfa in Colorado and Wisconsin. (p. 636). POTATO LEAFHOPPER very numerous on alfalfa in Wisconsin. Numerous in Minnesota and continues to increase. Also increasing in south central Pennsylvania. (pp. 636, 640).

APPLE MAGGOT emerging in Massachusetts and New York. (p. 638, 652). Several CITRUS PESTS including purple scale, Florida red scale, citrus red mite and citrus rust mite at high levels in Florida. (p. 639). MEDITERRANEAN FRUIT FLY Federal quarantine extended to additional counties in Florida. (p. 639).

TOMATO FRUITWORM unusually heavy in Cullman area of Alabama, eggs more abundant than at this time last year at Las Animas, Colorado. (p. 639). POTATO PSYLLID eggs and nymphs common in areas of Colorado. (p. 639). ALFALFA LOOPER causing considerable defoliation on peas in some areas of Washington. (p. 641).

First-generation BOLL WEEVILS emerging as far north as North Carolina. Most fields in southeastern area of this State showing infestation and activity is increasing in South Carolina and upper coastal and eastern Texas. High infestations in some fields of Georgia, Alabama, Louisiana, and Mississippi but percent of damaged squares dropped in delta area of the latter State. (p. 644). BOLLWORMS are locally heavy in eastern North and South Carolina. Requiring control at Florence, South Carolina, which is unusual for

time of year. Infestation increasing on cotton in Texas and another generation of moths active in Louisiana. (p. 644).

HORN FLY numerous in Connecticut. (p. 648). HORSE FLIES very numerous in Wisconsin. (p. 648). BLACK FLIES abundant in northeastern Minnesota. (p. 648).

CLOVER MITE more numerous than for several years in Michigan. (p. 650).

WEATHER summary. (p. 649).

ADDITIONAL NOTES. (p. 652).

STATES reporting this week - 37.

Reports in this issue are for the week ending June 29 unless otherwise designated.

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis) - MASSACHUSETTS - Eggs more abundant than any time during past 8 years. Averaged nearly one egg mass per plant in Plymouth County. Pin-hole feeding on leaves. Moths abundant. (Crop Pest Cont. Mess.). MARYLAND - Damage to wheat heavy in some Eastern Shore fields. Moderate to heavy damage to corn continues in some counties. (U. Md., Ent. Dept.). VIRGINIA - Entering midrib of leaves in Augusta County. (Woodside). Damage to wheat in New Kent County. (Rowell, Perry). DELAWARE - Heavy in sweet corn in several areas. Conspicuous leaf injury to tallest field corn. (Milliron). PENNSYLVANIA - Stalks heavily infested in Lancaster County seed field corn, eggs being laid in sweet corn in Erie County. (Pepper, Adams). ALABAMA - Fifth instars in northern area. (Eden). NORTH DAKOTA - Egg-laying underway; 0-2 masses per 100 plants in a few early fields. (N. D. Ins. Rept.). MICHIGAN - Eggs and larvae in tassels of corn at Sodus. (Hutson). WISCONSIN - Most advanced borers in second instar. Sixty-four egg masses per 100 plants in one field in Grant County. Egg masses not easy to find in central and northeastern areas. (Wis. Ins. Bul). ILLINOIS - Hatch complete in south and south central areas. Egg-laying practically complete in central area and declining rapidly in north central area. Occasional larva entering stalks in more mature corn in central section. From 2-4 egg masses per plant on corn 57 inches tall (maximum) in northeastern area. (Ill. Ins. Rept.). MINNESOTA - Moth emergence probably complete in most areas by June 30. Peak moth flight and oviposition reached. Egg counts per 100 plants by districts: south central 16, southwest 60, west central 4, central 3. Some leaf feeding in southern districts. It appears July 4-14 will be optimum period for control of first generation. (Minn. Ins. Rept.). NEBRASKA - First-generation damage light, much lighter than expected. Not much change over last week. In eastern Platte Valley 20-48 percent of early-planted corn shows feeding activity. (Andersen). SOUTH DAKOTA - Infestations in southeastern area where corn 37 inches tall much reduced over last year, especially in drought areas. Eleven percent of plants infested with emergence complete. Hatch is nearly complete in southern-most counties, 55 percent of borers in second instar in southeast. (Hantsbarger).

GRASSHOPPERS - COLORADO - Mixed population, Aulocara elliotti dominant, in Las Animas County; 45,000 acres sprayed. Range infestation about 10 per square yard in Phillips and Yuma Counties. (ARS). UTAH - Becoming more conspicuous and causing increased injury to small grains and range, largely Melanoplus spp. and Aulocara elliotti. (Knowlton). KANSAS - Cooperative control project continued in Comanche County where 77,000 acres of rangeland sprayed in past two weeks. Grasshoppers in this area predominantly adult and oviposition has begun. Elsewhere adults are moving into crops. (Matthew). OKLAHOMA - M. bivittatus and M. femur-rubrum most abundant species on roadsides in Osage, Washington, Nowata and Mayes Counties. Slight damage to alfalfa and lespedeza in many northeastern areas. (Coppock). NORTH DAKOTA - Local scattered infestations in many areas. Drought conditions contributing to problem in some sections. (N. D. Ins. Rept.). MISSOURI - Northwestern quarter of State most heavily infested and numbers uniformly high. In other sections,

infestation is more spotted, although some communities have large numbers. If weather is favorable in July and August, damage will almost certainly be severe. (Kyd, Thomas). MINNESOTA - Ten to 50 small nymphs per square yard in alfalfa, roadsides and field margins in southwest area. Numerous reports of heavy infestations from over State. Hatching nearly complete in southern half of State. (Minn. Ins. Rept.). WISCONSIN - Weather retarding hatching of M. femur-rubrum in many sections. (Wis. Ins. Bul.). ILLINOIS - Large numbers in some fencerows, roadsides and ditch banks in northwestern area. (Ill. Ins. Rept.). SOUTH CAROLINA - Unusually abundant on some pastures near Clemson. (Nettles, Bonnette). DELAWARE - Small nymphs unusually abundant in alfalfa south of Dover. (Milliron). SOUTH DAKOTA - Building up in scattered local areas. Eight nymphs per square yard in alfalfa field in Union County. M. femur-rubrum dominant species. (Hantsbarger).

CHINCH BUG (Blissus leucopterus) - NORTH CAROLINA - Moving into corn in Sampson and Durham Counties. (Jones, Farrier et al.). MISSOURI - Becoming problem over much of State. High populations in some sections of southeast Missouri. (Kyd, Thomas). NEBRASKA - Severe infestation in southern area, 155-240 per corn stalk. Infestation extends 2-3 rods into fields. (Andersen). KANSAS - Has moved into corn and milo fields and in most cases barrier controls too late. Destructive populations as far west as Ellsworth County in central area. Very heavy populations in Labette County. (Matthew).

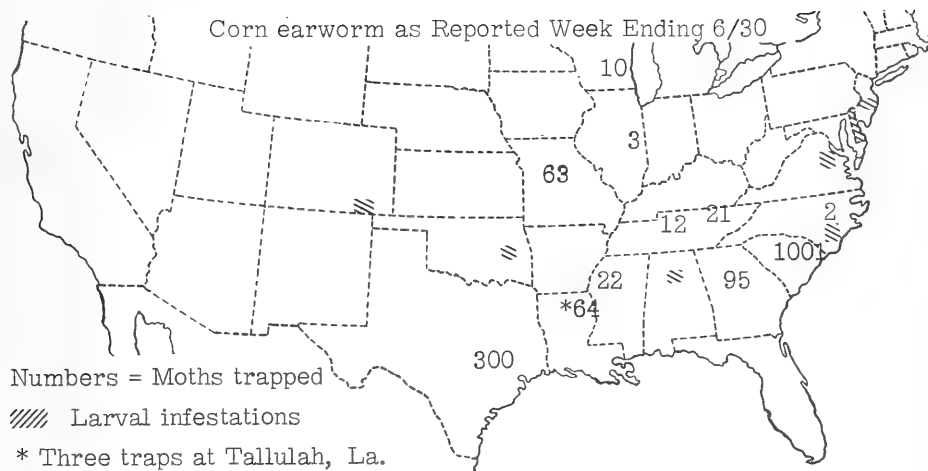
BILLBUGS - MINNESOTA - Injury to corn on lowlands along Minnesota River common; 10-20 percent of plants show damage in many fields. (Minn. Ins. Rept.).

BLACK GRAIN STEM SAWFLY (Cephus tabidus) - NORTH CAROLINA - Scattered infestation of 1-25 percent of stalks in some wheat fields in Duplin, Iredell and Scotland Counties. (Jones, Kulash).

BROWN WHEAT MITE (Petrobia latens) COLORADO - Increasing and doing some damage to barley in San Luis Valley. (Ext. Serv.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Heavy isolated populations on corn and sorghums in eastern section but being reduced. (Coppock). MISSOURI - Large numbers showing up in northern area. (Kyd, Thomas).

EUROPEAN CHAFER (Amphimallon majalis) - NEW YORK - Larvae were extremely destructive to winter grain this past year and main cause for reduction in yields. Most fields of winter grain in Ontario and Wayne Counties showed some damage and about 20 percent of the fields had 15-25 percent of grain totally lost. In other fields, 2-3 percent, 40-60 percent of grain was destroyed. In a few fields damage was so severe that they were replanted to oats, beans or corn. (Gyriscó). Light flights quite general in western New York week of June 25. With normal temperatures peak flights expected during next two weeks. (Tashiro).



CORN EARWORM (Heliothis zea) - NEW JERSEY - Mature larvae found in small numbers in Burlington County. (Ins.-Dis. News.). DELAWARE - Small to nearly full-grown larvae in whorls of sweet corn. (Milliron). VIRGINIA - Heavily damaging corn in one field in Spotsylvania County. (Kash). NORTH CAROLINA - Unusually low at Faison, 0.2 egg per silk. (Farrier). OKLAHOMA - Twenty-four percent whorl infestation in Cherokee County field corn. (Coppock).

A GRASS PLANT BUG (Trigonotylus dohertyi) - DELAWARE - Very numerous on corn and causing speckling of leaves. (Milliron).

SAP BEETLES - DELAWARE - Carpophilus lugubris adults numerous in corn whorls and tassels infested with European corn borer and corn earworm from Dover southward. Considerable numbers of C. antiquus adults and adults of a related species in same plantings. (Milliron).

SEED-CORN MAGGOT (Hylemya ciliatura) - COLORADO - Where sweet corn not treated, 25 percent loss of stand in some fields. (Ext. Serv.).

WHEAT HEAD ARMYWORM (Faronta diffusa) - NEBRASKA - Very light, much lower than last year, on wheat in eastern area; 1-2 larvae per 50 sweeps. (Andersen).

WHITE FRINGED BEETLES (Graphognathus spp.) - NORTH CAROLINA - First adult emergence this season in New Hanover County June 8, in Wilson County June 26. (Kelley).

ASIATIC GARDEN BEETLE (Autoserica castanea) - NORTH CAROLINA - A particular problem in pasture land. Injury widespread in Haywood County, mostly at high elevations and on north slopes. Where larvae particularly abundant complete kill of vegetation occurs. Peak larval population past and many adults emerging. (Turnipseed).

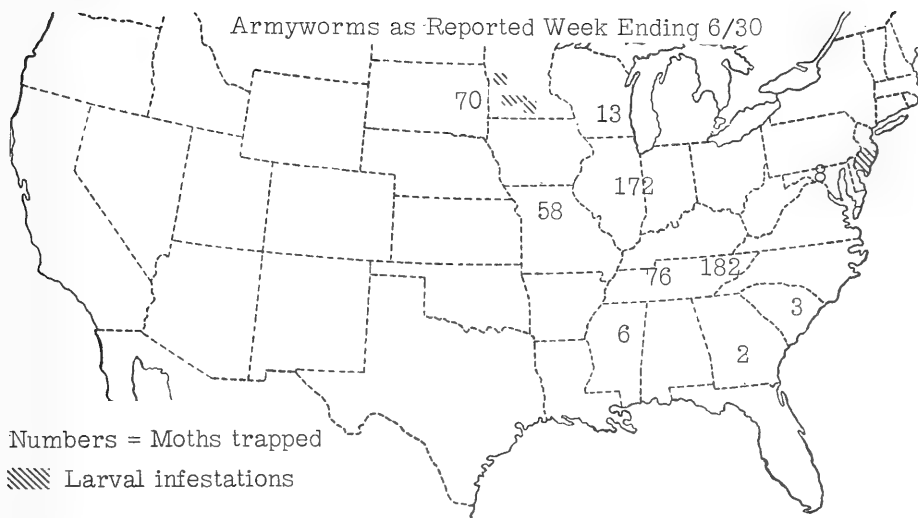
SPOTTED ALFALFA APHID - CALIFORNIA - General in most southern counties and southern parts of San Joaquin Valley. Populations in central and northern counties light in May and in Sacramento Valley no aphids found in many fields where populations first found in late 1955. Infestation general, slight to severe, in Tulare County. General in alfalfa areas in Riverside County, heavy in desert areas and light to medium in other areas. Also general in Imperial Valley and fairly heavy. Populations in coastal counties very much lower; Santa Barbara light; San Diego, present in all districts with light populations and no treatment; Orange County, light to medium in some localities. Natural enemies increased with aphid control apparent early as May 15th. (Cal. Coop. Rept., May report). COLORADO - Populations increasing in Prowers and Bent Counties. One per 25 sweeps in Pueblo, Crowley and Otero Counties. No visible damage. Highest populations about 25 per sweep in Prowers County. (Expt. Sta., Ext. Serv.). UTAH - Populations low throughout Millard County. (Rickenbach, Goodarzy). NEBRASKA - None found. (Andersen). OKLAHOMA - Continuing light, general infestations in northeastern and eastern areas. Predators remain high. (Coppock). Aphid very low in McCurtain, Carter and Bryan Counties. (Flora). TEXAS - Heavy widespread on alfalfa in Dallas County. (Milikien). KANSAS - Building up in western Finney County, southwest area, where counts in local areas up to 1,000 per sweep. Lady beetle population low. Counts in Comanche County from 5-200 per sweep. (Matthew). LOUISIANA - Moderate infestation in 3 alfalfa fields in Bossier Parish, one in Red River Parish and 2 in Natchitoches Parish. (Oliver).

GREEN CLOVERWORM (Plathypena scabra) - MARYLAND - Three per sweep on alfalfa in Dorchester County. (U. Md., Ent. Dept.).

A LOOPER (Autographa sp.) - WASHINGTON - Up to 31 larvae per 25 sweeps in red clover grown for seed near Quincy, considerable damage. Unusually abundant on alfalfa leaves in Spokane, Lincoln, Douglas Counties; average 4-6 larvae per 25 sweeps. (Johansen, Kamal).

PLANT BUGS - WISCONSIN - Adelphocoris lineolatus, A. rapidus and Lygus lineolaris have built up to heavy populations in first crop alfalfa. (Wis. Ins. Bul.). LOUISIANA - From 20-125 L. lineolaris per 100 sweeps in alfalfa in 5 parishes. (Oliver). NEBRASKA - From 25-30 A. lineolatus per sweep in eastern third of State. (Andersen). MINNESOTA - From 1-4 Lygus sp. and Adelphocoris sp. per sweep in alfalfa in south central and southwest districts. (Minn. Ins. Rept.). SOUTH DAKOTA - Eighteen L. lineolaris per 50 sweeps and 8-16 A. lineolatus per 50 sweeps. All adults. (Hantsbarger). WASHINGTON - Lygus bugs, mainly L. elisus, averaging 16 adults per 25 sweeps in Ladino clover grown for seed near Quincy. (Johansen).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MINNESOTA - Injury to soybeans in Blue Earth County. (Minn. Ins. Rept.).



ARMYWORMS - NEW JERSEY - Causing concern in southern areas. Controls effective. (Ins.-Dis. News). NEBRASKA - New generation of Pseudaletia unipuncta appearing; 41 moths in light trap at Lincoln June 29. (Andersen). MINNESOTA - A heavy infestation of P. unipuncta in Waseca County controlled. Other infestations in Nicollet, Brown and Stevens Counties. (Minn. Ins. Rept.).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Very heavy, 2500 per 100 sweeps, one field of millet in East Baton Rouge Parish. Attacking 100 percent of sorghum plants in one field in Acadia Parish and 3000 per 100 sweeps in two pastures. (Oliver).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - WISCONSIN - Large numbers in many eastern and southern alfalfa fields. Appears a heavier population covered a greater area this year. (Wis. Ins. Bul.). PENNSYLVANIA - Adults very abundant in south central area on alfalfa and clover. (Pepper). Appearing in numbers in McKean County and southwest area. (Adams, Udine).

ALFALFA WEEVIL (Hypera postica) - UTAH - Damage severe in many alfalfa fields not cut. (Knowlton). VIRGINIA - Larvae and adults still active on alfalfa in Fluvanna and Albemarle Counties. Some damage continues in central and northern areas. (Morris). DELAWARE - Continues active on second-growth alfalfa generally. (Milliron).

BLISTER BEETLES - PENNSYLVANIA - Numbers on alfalfa in Perry County. (Pepper).

PEA APHID (Macrosiphum pisi) - WASHINGTON - From 350-450 per sweep on patch of hairy vetch at Wawawai. Eight to 10 per sweep in alfalfa field in Lincoln County. (Kamal, Johansen). COLORADO - Large populations in most counties. Moving to higher altitudes in Eagle, Rio Blanco, Moffat and Garfield Counties. Predators and parasites numerous and reducing populations in lower elevations. (Ext. Serv.). NEBRASKA - Light, 39 per sweep, in legumes in eastern third of State. (Andersen). OKLAHOMA - From 3.5 to 10.5 per sweep in alfalfa in Muskogee County. (Coppock). KANSAS - Still persists in some alfalfa fields in Finney County. Counts, associated with spotted alfalfa aphid infestations, ranged from 10-20 to as high as 300 per sweep. (Matthew). WISCONSIN - Populations very large in many hay fields. (Wis. Ins. Bul.). LOUISIANA - From 400-1000 per 100 sweeps on alfalfa in Bossier and Natchitoches Parishes. (Oliver). SOUTH DAKOTA - Increasing in southeastern area, 75 per 50 sweeps in one alfalfa field in Union County. (Hantsbarger).

POTATO LEAFHOPPER (Empoasca fabae) - DELAWARE - Moderately abundant in alfalfa. (Milliron). PENNSYLVANIA - Adults increasing in south central area but no damage. (Pepper). MARYLAND - One to 10 adults and nymphs per sweep on alfalfa in central counties, light damage some fields. Ten to 13 on alfalfa in Dorchester County, damage moderate to heavy. (U. Md., Ent. Dept.). NORTH CAROLINA - Occurring in most peanut fields but little damage. (Dogger). WISCONSIN - Very numerous on alfalfa in nearly all sections. (Wis. Ins. Bul.). MINNESOTA - Continues to increase. Adults numerous on alfalfa and potatoes and nymphs hatching in increasing numbers. (Minn. Ins. Rept.).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - NEBRASKA - From 5-8 per 25 sweeps in alfalfa in eastern third of Platte Valley. (Andersen). DELAWARE - Numerous many places. (Milliron).

CUTWORMS - MICHIGAN - Outbreak occurred on mucklands in Ingham, Shiawassee, Newaygo, Allegan and Ottawa Counties. (Hutson, June 16). GEORGIA - Moderate on peanuts in Sumter County. (Snodgrass). PENNSYLVANIA - Agrotis ypsilon causing considerable damage on 12-inch corn in Bedford County. (Udine). COLORADO - A. orthogonia causing damage in sorghums in local areas of Phillips County. (Ext. Serv.).

THRIPS - GEORGIA - Moderate to heavy on peanuts in southwest area. (Johnson). NORTH CAROLINA - Frankliniella fusca general and locally severe on peanuts in northeastern counties. (Dogger). SOUTH DAKOTA - Frankliniella sp. very abundant on barley in Brookings area, some damage. (Hantsbarger).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - From 32-250 per 100 sweeps on alfalfa in 4 parishes. (Oliver).

ZEBRA CATERPILLAR (Ceramica picta) - WASHINGTON - Defoliating some red and Ladino clover near Quincy. (Johansen).

FRUIT INSECTS

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - VIRGINIA - Scarce in apple orchards in Piedmont area. Second brood expected in mid to late July. (Bobb). Moderate in some Augusta County apple orchards. (Woodside).

PLUM CURCULIO (Conotrachelus nenuphar) - GEORGIA - No second-generation eggs deposited to June 22. No reports of larvae in harvested peaches to June 25. (Snapp). VIRGINIA - Second generation emerging in peach orchards in Piedmont area. Infestations may be expected to continue light. In eastern area populations may be higher. (Bobb). MINNESOTA - Damage severe in most neglected orchards. (Minn. Ins. Rept.).

PEAR PSYLLA (Psylla pyricola) - CALIFORNIA - Light infestation on pear in Napa, Napa County, June 14. First record for county. (Harper, June 22).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - CONNECTICUT - Very few moths in bait pails at Storrs. First brood activity apparently over. (Tunis). VIRGINIA - Damaging trees in some untreated young orchards but not a problem in treated ones. (Bobb). PENNSYLVANIA - Light on peach in Erie County, June 22. Larvae in last instars. (Adams). INDIANA - Injury extremely light on peach in southern Indiana area. (Hamilton).

PEACH TREE BORER (Sanninoidea exitiosa) - VIRGINIA - Adults emerging over State but expected to be light in commercial orchards (Bobb), larvae light in cherry trees locally in Norfolk County (Harrell).

CURCULIOS - MINNESOTA - Damage to untreated apples and stone fruits worst since 1953. In some cases 90 to 100 percent of fruit on neglected backyard trees damaged by feeding and oviposition punctures. (Minn. Ins. Rept.).

CODLING MOTH (Carpocapsa pomonella) - CONNECTICUT - Eggs still hatching. Larval entries common some orchards. (Tunis). VIRGINIA - Light in Piedmont area and Augusta County. Second brood expected late in July in former area. Retarded spring brood may damage some Augusta County apple orchards. (Bobb, Woodside). DELAWARE - Larval attack on unsprayed apples has been heavy recently. (Stearns). INDIANA - Early second-brood entries expected in Vincennes area by July 4. Peak activity likely about middle of July. (Hamilton). Second-brood moths expected about August 6 in Orleans area. (Marshall). MINNESOTA - Larvae in apples. Second-generation moths expected during latter part of July. (Minn. Ins. Rept.). MISSOURI - New entries still reported in western apple regions from St. Joseph to Marionville. Low in other areas. Second-brood entries expected by July 7. (Wkly. Rept. Fr. Grow.). WASHINGTON - Larvae entering apple fruit in Yakima Valley. Much lower peak than that which occurred in late May. (Luce).

ORCHARD MITES - NEW JERSEY - Some orchards have bronzed foliage. (Ins. - Dis. News.). MISSOURI - In considerable abundance over State. (Wkly. Rept. Fr. Grow.). VIRGINIA - Light to moderate in eastern peach orchards but infestations beginning to develop and control may be needed soon. In Piedmont area not a problem as yet in peach orchards, but heavy in apple orchards and control applied. (Bobb). INDIANA - Metatetranychus ulmi predominant species in Vincennes area. Numbers vary extensively with orchards. Control used. (Hamilton). Developing rapidly in Orleans area. (Marshall).

APPLE MAGGOT (Rhagoletis pomonella) - MASSACHUSETTS - First emergence in cages at Waltham June 26. Five days later than usual. (Crop Pest Cont. Mess.).

APPLE APHID (Aphis pomi) - CONNECTICUT - Very heavy populations on apples over State. (Tunis).

ROSY APPLE APHID (Anuraphis roseus) - CONNECTICUT - Still very numerous in some orchards. (Tunis).

BLACK PEACH APHID (Anuraphis persicae-niger) - OREGON - Spotty infestations appeared on roots of young prune trees in orchards where winter-killed trees were removed. Ten percent of these trees show damage in Milton-Freewater area. (Brown, June 22).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - WISCONSIN. - Adults emerging and ovipositing on cranberry blossoms and newly-formed berries. (Wis. Ins. Bul.).

FORBES SCALE (Aspidiotus forbesi) - PENNSYLVANIA - Moderate to heavy on several sour cherry orchards, June 22. (Adams).

FALL WEBWORM (Hyphantria cunea) - MISSISSIPPI - Generally present over State. (Hutchins). LOUISIANA - Heavily infesting pecan, persimmon, wild cherry and willow over State and threatening complete defoliation in several areas in extreme southern portion. (Oliver).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Of 700 pecan clusters observed in 5 counties percent larval damage ranged from 14 to 32 percent during week of June 25. (Coppock). Damaged nut clusters in 3 counties ranged as high as 60 percent. (Hinrichs).

WALNUT CATERPILLAR (Datana integerrima) - MISSISSIPPI - Heavy on pecan trees in Jackson County. (Bond). OKLAHOMA - Larvae defoliating pecan trees in Payne County. Feeding confined to lower branches. Three and 4 clusters per tree not uncommon. (Bieberdorf). Slight infestations in pecans in Washington, Nowata, Wagoner and Tulsa Counties. (Coppock).

ROSE CHAFER (Macrodactylus subspinosus) - PENNSYLVANIA - Light to moderate infestation on grape in Erie County, June 22. (Adams).

VIRGINIA-CREEPER LEAFHOPPER (*Erythroneura ziczac*) - WASHINGTON - Spotty infestation on grapes in lower Yakima Valley. Moderate to severe damage to foliage of Virginia creeper and Boston ivy in Wenatchee residential area. (Wolf, Kamal).

Citrus Insect Situation in Lake Alfred Area, Florida, June 22.
Purple scale, Florida red scale, citrus red mite and citrus rust mite activity increased to a new record high level. (Pratt, Thompson, Johnson).

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - FLORIDA - The number of infestations in Lee County in Ft. Myers vicinity is such as to warrant extension of regulated area under Federal quarantine to include Lee County. For practical quarantine enforcement purposes Collier and Hendry Counties which lie between Lee and the three Federally regulated counties on the East Coast have been included. Counties under Federal regulation as of July 7 will include Broward, Collier, Dade, Hendry, Lee and Palm Beach. Since action was taken to include the three additional counties a rather general infestation of Mediterranean fruit fly has developed along the coast of Pinellas County. As soon as this general infestation developed the State Plant Board acted promptly to "bottle-up" this area by placing road blocks on the five highways leaving the county and steps are being taken to amend the Federal quarantine to include Pinellas County. Infestation has been found in forty localities in the eleven counties not now under, or being placed under, Federal regulations. These outlying spot infestations included from 1-16 properties for a total of less than 100. The fly has been found on approximately 700 properties in the generally infested counties. (P. P. C.).

TRUCK CROP INSECTS

TOMATO FRUITWORM (*Heliothis zea*) - COLORADO - Twenty-six eggs per 100 tomato leaves at Las Animas, June 23. In 1955 this number not reached until first part of September. (Exp. Sta.). SOUTH CAROLINA - Some heavy damage to tomatoes at Saint George. (Nettles, Miley). MISSOURI - Troublesome in the Cape Girardeau area. (Wkly. Rept. Fruit Grow.). ALABAMA - Heaviest damage in recent years to tomatoes in Cullman area. (Blake).

STINK BUGS - SOUTH CAROLINA - Extremely numerous on tomatoes at Darlington. (Newton). TEXAS - Medium to heavy widespread populations on vegetables in Cockran County. (Thompson).

POTATO PSYLLID (*Paratrioza cockerelli*) - COLORADO - Adults per 100 sweeps are 100 to 120 on matrimonyvine and 40 to 220 on bindweed in Larimer County. Eggs and nymphs readily found. (Exp. Sta.).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Adults and nymphs heavy on snap beans in Somerset County. Some burn on potatoes in Somerset County. (U. Md., Ent. Dept.). WISCONSIN - Heavy migration observed in Kenosha light trap on June 18. (Wis. Ins. Bul.). VIRGINIA - On older planting of beans in eastern area. (Brubaker, Greenwood, Hofmaster). PENNSYLVANIA - Adults increasing on potatoes in south central area. No injury. (Pepper). MINNESOTA - Adults numerous on potatoes and alfalfa and nymphs hatching in increasing numbers. Counts on potatoes at Castle Rock were 35 to 60 adults per 20 sweeps and 20 adults per 20 sweeps on green beans at Hollandale. (Minn. Ins. Rept.).

LEAFHOPPERS - PENNSYLVANIA - Ten to fifty on undersides of leaves of beans in Erie County. (Adams, June 22).

POTATO APHIDS - VIRGINIA - On increase in tomato fields in eastern area. Control needed in many cases. (Brubaker, Greenwood, Hofmaster).

HORNWORMS (Protoparce spp.) - NEW JERSEY - Becoming active in vegetable-growing areas. (Ins.-Dis.News.). MARYLAND - Light numbers of eggs and larvae on tomatoes in Somerset County. (U. Md., Ent. Dept.). VIRGINIA - Infestations on tomato plants averaged from 4 to 12 larvae per plant in Northumberland County. (Saville). Heavy on tomatoes in Westmoreland County. (Dawson).

BLISTER BEETLES - SOUTH CAROLINA - Extremely numerous on tomatoes at Darlington. (Newton). OKLAHOMA - Several species abundant in gardens on tomatoes, potatoes and beans in eastern and central area. Most prevalent was Epicauta immaculata. (Howell).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - RHODE ISLAND - Adults and larvae actively feeding on tomato plants in Portsmouth. (Steve). VIRGINIA - First-brood adults in considerable numbers on some potato and tomato fields on Eastern Shore. (Brubaker, Greenwood, Hofmaster). PENNSYLVANIA - Two to 10 larvae on 5 percent of tomato plants in Erie County. (Adams, June 22). DELAWARE - Injurious to tomatoes at Harrington and Georgetown. (Milliron). MICHIGAN - Active in tomato fields at Sodus. (Hutson). NORTH DAKOTA - All stages in potato fields in upper Red River valley. (N. D. Ins. Rept.). IDAHO - Infestations general in potato fields in Twin Falls area. (Gibson).

GRASSHOPPERS (Melanoplus spp.) - DELAWARE - Nymphs destructive to potatoes and tomatoes at several localities and to peppers near Bridgeville. (Milliron).

POTATO FLEA BEETLE (Epitrix cucumeris) - WISCONSIN - Heavy populations on potatoes. (Wis. Ins. Bul.). RHODE ISLAND - Primary insect problem on potatoes. Control programs being employed. (Steve). PENNSYLVANIA - Moderate to very heavy on few fields of potatoes and tomatoes in Erie County. (Adams, June 22).

SPIDER MITES - VIRGINIA - Causing varying amounts of injury to beans in Norfolk and Eastern Shore areas. (Brubaker, Greenwood, Hofmaster).

PEA APHID (Macrosiphum pisi) - WISCONSIN - Noticeable number of aphids on peas affected by fungus disease. Aphids per sweep on late peas in several counties were Iowa 37, Washington 48, Fon du Lac 44, and Dodge 56. Higher populations than previous week in northwestern and northern counties. (Wis. Ins. Bul).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Heavy infestations and considerable defoliation of peas near Quincy, Ephrata, Tekoa, Oakesdale, Hartline and Pullman. Building up to high numbers in Spokane and Lincoln Counties with populations averaging 6-8 larvae per 20 sweeps. (Johansen, Harwood, Kamal).

MEXICAN BEAN BEETLE (Epilancha varivestis) - SOUTH CAROLINA - Unusually abundant on beans at Florence. (Rogers). GEORGIA - General throughout the State with infestations ranging from light to heavy. (Johnson). VIRGINIA - Heavy and causing concern in Carroll and Grayson Counties. (Matheny). Adults numerous and larval damage severe in some untreated fields on Eastern Shore. (Brubaker, Greenwood, Hofmaster). NORTH CAROLINA - Damaging soybeans locally in Beaufort County. (Barnes, Scott). Active on lima bean at Faison. (Reid). MICHIGAN - Adults and eggs at Sodus, June 26. (Hutson).

COWPEA CURCULIO (Chalcodermus aeneus) - NORTH CAROLINA - Numerous punctures on snap beans. General over Sampson County. (Boney, Jones, Farrier). ALABAMA - Damaged beans in Cullman area. (Blake).

BEAN APHID (Aphis fabae) - PENNSYLVANIA - Ten percent infestation on early-planted beans in Erie County. (Adams, June 22).

AN INTRODUCED FLEA BEETLE (Phyllotreta cruciferae) - DELAWARE - Abundant on cabbage north of Georgetown. (Milliron).

CABBAGE LOOPER (Tricoplusia ni) - RHODE ISLAND - Small number of larvae actively feeding on cabbage in Johnston and Portsmouth. (Steve).

CABBAGE APHID (Brevicoryne brassicae) - PENNSYLVANIA - Light to moderate on early-planted cabbage in Erie County. (Adams, June 22).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - WISCONSIN - Heavy populations on cucumbers in Waushara County. Lesser populations in northeastern and southeastern area. (Wis. Ins. Bul.). RHODE ISLAND - Abundant, 2 per plant, on squash and cucumbers in Kingston and Johnston. (Steve). OKLAHOMA - Seriously damaged 50 percent of cucumbers in two fields in McCurtain County area. (Walton).

SQUASH BEETLE (Epilachna borealis) - DELAWARE - Adults active on squash and cucumber in Georgetown-Bridgeville area. (Milliron).

HORNED SQUASH BUG (Anasa armigera) - DELAWARE - Present on squash and cucumber near Georgetown. (Milliron).

SQUASH BUG (Anasa tristis) - FLORIDA - Adults averaging 10 per leaf collected on watermelon at Chipley, Washington County. (Baker). OKLAHOMA - Adults and nymphs common on cucurbits over State. (Walton). DELAWARE - Adults and numerous eggs present on squash in Georgetown-Bridgeville area. (Milliron).

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) - WISCONSIN - Very heavy populations in lettuce and carrots. (Wis. Ins. Bul.).

RHUBARB CURCULIO (Lixus concavus) - NEW JERSEY - Damaged 15 to 20 percent of stalks in a commerical rhubarb planting. (Ins.-Dis. News.).

ASPARAGUS BEETLES - RHODE ISLAND - Adults and larvae of Crioceris duodecimpunctata and C. asparagi actively feeding on asparagus in some areas. (Steve). MISSOURI - Heavy infestation in Columbia. (Wkly. Rept. Fruit Grow.).

MAGGOTS - WISCONSIN - Light to moderate populations of possibly Hylemya cilicrura on radishes in southeastern area. (Wis. Ins. Bul.).

HARLEQUIN BUG (Murgantia histrionica) - TEXAS - Medium to heavy widespread populations on vegetables in Cochran County. (Thompson).

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - NORTH DAKOTA - Eggs hatching in Grafton area on June 26. (N. D. Ins. Rept.).

BEE WEBWORM (Loxostege sticticalis) - SOUTH DAKOTA - Outbreaks in Butte County. Treatments underway. (Hantsbarger).

TORTOISE BEETLES - ALABAMA - Extensive damage to sweetpotatoes in Cullman area. (Blake).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - VIRGINIA - Injury on Eastern Shore. (Brubaker, Greenwood, Hofmaster). LOUISIANA - Infesting sweetpotatoes at 150-200 per 100 sweeps in St. Landry Parish. (Oliver).

STALK BORER (Papaipema nebris) - CONNECTICUT - Severe infestation in strawberries in Tolland County. (Tunis).

ROSE CHAFER (Macrodactylus subspinosus) - WISCONSIN - Very heavy in most light soil sections. Damage reported on strawberries, raspberries, peonies, grapes and roses. Difficult to control because of migrations. (Wis. Ins. Bul.). MINNESOTA - Destructive to strawberries and garden flowers in some areas. (Minn. Ins. Rept.).

RED-NECKED CANE BORER (Agrilus ruficollis) - WISCONSIN - Generally present and laying eggs on raspberry throughout State. (Wis. Ins. Bul.).

RASPBERRY CANE BORER (Oberea bimaculata) - WISCONSIN - Girdled new raspberry canes in most sections of State. (Wis. Ins. Bul.).

TOBACCO INSECTS

FLEA BEETLES - SOUTH CAROLINA - Heavy emergence in many tobacco fields. In few instances severe damage on lower leaves. (Nettles et al.). NORTH CAROLINA - Severe damage by Epitrix hirtipennis to a field in Caswell County. (Perkins, Scott).

FOUR-SPOTTED TREE CRICKET (Oecanthus nigricornis quadripunctatus) - NORTH CAROLINA - Damaging some tobacco fields in Granville County. (Chamberlin). On tobacco in Nash and Franklin Counties. (Farrier, Fulton).

BUDWORMS (Heliothis spp.) - VIRGINIA - Damaged an average of 12 of every 100 plants in four fields in southern Pittsylvania County. Infestations controlled. (Dominick, Morris). NORTH CAROLINA - Very light to moderate infestations in most fields of young tobacco in Granville County. (Chamberlin). Very few eggs but every third to fourth plant damaged two to three weeks ago in many fields in Sampson County. (Jones, Farrier). Difficult to control in Onslow County with conventional methods. (Bryan). Average count of larvae per 25 plants: Randolph County, 6.6; Martin County, 10; Watauga County, 0.6. (Brandon, Tuckwiller, Young).

HORNWORMS (Protoparce spp.). - MARYLAND - Infestations on tobacco general. (U. Md., Ent. Dept.). VIRGINIA - Damaged an average of 22 of every 100 plants in four fields in southern Pittsylvania County. Infestations in area controlled. (Morris, Dominick). NORTH CAROLINA - First brood infestation light in Granville County. (Chamberlin). General in Pender County. (Honeycut). Average per 25 plants: Randolph County, 8.3 eggs, 2.2 small and 2 large larvae; Martin County, 2.6 eggs, 3.2 small and 2.6 large larvae; none in Watauga County. (Brandon, Tuckwiller, Young).

CUTWORMS - WISCONSIN - Attacking tobacco in Vernon County. (Wis. Ins. Bul.).

LOOPERS - SOUTH CAROLINA - Most leaf injury to tobacco caused by loopers rather than hornworms or grasshoppers. (Nettles et al.).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - NORTH CAROLINA - In lower southeastern counties untreated fields have 2-32 percent squares punctured with most fields showing infestation. Piedmont and northeastern counties with numerous fields not infested and average square infestation of 0-8 percent. (Jones, et al.). First-generation field weevils emerging from squares June 22. (Cott. News Lett.). **SOUTH CAROLINA** - Average infestation in 35 counties was 8 percent in treated fields and 24 in untreated. Activity continues to increase, first-generation field weevils appearing. (Cott. Lett., June 25). Survival to June 29 at Florence was 6.7 percent. Average of 14 percent square infestation in 9 untreated fields in Florence County; 3 percent in 10 treated fields. Twelve percent infestation in 48 treated fields in Darlington County. (Walker, et al.). **GEORGIA** - Square infestation from 8-76 percent in treated fields in 8 counties; 20-62 percent in untreated fields in 3 counties. (Johnson). First-generation field adults emerging in Tift County, June 26. (Morgan). Average of 158 weevils per acre in 6 Piedmont Counties. (Beckham, et al.). **MISSISSIPPI** - Numerous in cotton fields as far north as Grenada County. Some fields have rather high infestations. (Hutchins, et al.). Percent of infested squares in delta counties has dropped markedly in most fields. Average infestation was 4.2 percent. Hot dry weather has resulted in more optimistic outlook for insect control. (Merk, Furr et al.). **TENNESSEE** - Weather favorable for build-up and damage occurring in southwestern counties. Average square infestation was 17 percent in fields having enough squares for counts. Controls underway. (Locke). **ALABAMA** - Forty-three fields examined in 9 central counties and all found infested at rate of 26 percent punctured squares. (Tyus). Infestations 18-75 percent in experimental areas in Elmore and Autauga Counties. (Robertson). **LOUISIANA** - Total of 27 fields examined in 10 parishes and square infestation percentages were as follows: Rapides 15, Natchitoches 37, Bossier 56, Webster 67, Red River 16, Ouachita 49, Richland 74, Franklin 10, St. Landry 40, Acadia 1. (Oliver). Fifty-one fields examined in Tallulah area and all were infested at rate of 26 percent punctured squares. First-generation field weevils emerging. (Gaines, Pfrimmer et al.). **TEXAS** - Increasing in upper coastal and east areas. A few overwintering weevils continue to emerge from hibernation in extreme northeast. (Turney, Martin, June 26). Average of 16.4 percent punctured squares in 16 untreated fields and 4.7 in 20 early-treated fields in McLennan and Falls Counties. (Parenia et al.). Boll weevil of principal concern in lower Rio Grande Valley where migration is underway. (Deer). **OKLAHOMA** - Punctured squares 2.7 percent in Muskogee County, 2 percent in Wagoner and 10 percent in Sequoyah County. Most fields sprayed twice. One unsprayed field had 88 percent punctured squares. (Coppock). Counties reporting most weevils are LeFlore and Pittsburg. (Stiles).

BOLLWORMS (*Heliothis* spp. et al.) - NORTH CAROLINA - A few farms in southeast area have large numbers. (Cott. News Lett.). Five percent of squares injured in Scotland County. Very few eggs. (Mistrick, Spyhalski). **SOUTH CAROLINA** - Locally serious in some fields in Coastal Plains area. (Cott. Lett., June 25). Average of 1.1 eggs per 100 terminals in 4 fields in Florence County and 6 percent square damage in 21 fields. Population

requiring control in some fields which is unusual for time of year. (Walker, et al.). TENNESSEE - Only light infestations in west Tennessee. (Locke). MISSISSIPPI - Not so numerous June 29 but another generation expected early in July. (Guice, Smith). ALABAMA - Eggs found in 38 of 43 fields checked in 9 central counties at rate of 4-7 per 100 terminals. (Tyus). LOUISIANA - Average of 3.2 eggs and 2.3 larvae per 100 terminals in Tallulah area. Light trap catches indicate another generation of moths emerging. (Gaines, Pfrimmer et al.). In other areas very light and decline in population continues. (Oliver). TEXAS - Increasing on cotton in some areas as corn matures. (Turney, Martin, June 26). Average of 1.9 eggs and .7 larva per 100 terminals in 40 fields in McLennan and Falls Counties. (Parencia et al.). OKLAHOMA - Remain light. (Stiles).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Increasing in some areas. (Turney, Martin, June 26).

FLEAHOPPERS - TEXAS - Damage in young cotton in north and south plains continued. (Turney, Martin, June 26). Cotton fleahopper infestation averaged 14.4 per 100 terminals in 18 untreated fields and 2.8 in 22 early-treated fields in McLennan and Falls Counties. (Parencia et al.). OKLAHOMA - Generally light in eastern area, 0-2 nymphs per plant in all fields checked. (Coppock). Seem to be increasing in Caddo County, 0-49 per 100 terminals. From 4-50 per 100 in Tillman County. (Stiles). LOUISIANA - Found in 36 of 37 fields examined in Tallulah area at rate of 7.6 per 100 terminals for infested fields. (Gaines, Pfrimmer et al.). Psallus seriatus declining but nymphs still appear in cotton. (Oliver). ALABAMA - Heavy population of P. seriatus in 150 acres of cotton in Autauga County. (Rbtson). TENN - Widespread in west Tennessee but very little damage. (Locke).

THRIPS - SOUTH CAROLINA - Attack on late-planted cotton continues. (Cott. Lett., June 25). TEXAS - Damage to young cotton in north and south plains areas continues. (Turney, Martin, June 26). NORTH CAROLINA - From 42-82 per 5 plants in untreated plots with heavy damage in late plantings in Union County, June 21. (Spyhalski). OKLAHOMA - Light, 0-3 per terminal in eastern area. (Coppock).

COTTON APHID (Aphis gossypii) - GEORGIA - Moderate to heavy in Terr ell County. (Johnson). LOUISIANA - Two moderate populations in Acadia and St. Landry Parishes. (Oliver).

SPIDER MITES - TEXAS - Increased in southwest area. (Turney, Martin, June 26). NORTH CAROLINA - Light infestations in many counties. (Cott. News Lett.). GEORGIA - Light on cotton in Peach County. (Jordan, June 22). Moderate in Irwin County. (Brooks, June 21).

BROWN COTTON LEAFWORM (Acontia dacia) - TEXAS - Damage in Waller, Robertson and Grimes Counties. (Turney, Martin, June 26).

GRASSHOPPERS - OKLAHOMA - Marginal damage to cotton continues. (Stiles).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

HEMLOCK SCALE (Aspidiotus ithacae) - WASHINGTON - Causing severe damage to hundreds of acres of pine in Chelan County. (Kamal, O'Neill).

JACK-PINE BUDWORM (Choristoneura pinus) - MINNESOTA - Heavy damage to Jack pine from Pine River to Fort Ripley. In Bemidji area there is no apparent damage this year where heavy defoliation occurred last year. (Minn. Ins. Rept.).

SPRUCE BUDWORM (Choristoneura fumiferana) - MINNESOTA - Surveys in roadless area indicate population increasing over 1955. Defoliation not noticeable from air except on an island in Wind Lake where defoliation is 100 percent. Some mortality showing on island. (Minn. Ins. Rept.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - MINNESOTA - Larval feeding essentially completed. (Minn. Ins. Rept.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - WISCONSIN - Emergence over 80 percent in Rock County. (Wis. Ins. Bul.).

PINE BARK APHID (Pineus strobi) - RHODE ISLAND - Trunks of numerous trees in white pine stand heavily infested. (Steve).

PINE SPITTLEBUG (Aphrophora parallela) - MICHIGAN - Very apparent about Traverse City and Beulah. (Hutson, June 8).

PINE NEEDLE MINER (Exoteleia pinifoliella) - MICHIGAN - Very noticeable about Beulah, Tranverse City and Empire. (Hutson, June 8).

PINE CHAFER (Anomala oblivia) - PENNSYLVANIA - Large numbers on Scotch pine, cutting needles on 2 plantations in Cambria County. (Udine).

ASIATIC OAK WEEVIL (Cyrtepestomus castaneus) - DELAWARE - Injury by adults common on various oaks and chinquapin in Redden State Forest. (Milliron).

PERIODICAL CICADA (Magicicada septendecim) - WISCONSIN - Additional reports from Sauk, Rock and Walworth Counties. Flagging of bur oak and hickory branches caused by oviposition beginning to show up. (Wis. Ins. Bul.). MINNESOTA - Several specimens, tentatively identified as this species, reported from Houston County, by T. T. Aamodt. (Minn. Ins. Rept.).

APHIDS - NEW JERSEY - Abnormally abundant in Norway maple, tulip poplar and oaks. (Ins.-Dis. News.). DELAWARE - Calaphis betulella very abundant on birch at Petersburg. (Milliron). MINNESOTA - High populations of Cinara strobi requiring control in pine plantations in Basswood Lake and LaCroix District. (Minn. Ins. Rept.). WASHINGTON - Extremely heavy on a chokecherry and Lomatium sp. near Wenatchee. (Kamal, Wolf).

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) - VIRGINIA - Feeding on maple leaves in areas of Southampton and Nansemond Counties. (Clark).

SPIDER MITES - KANSAS - Very heavy populations from many areas of State. (Matthew). MINNESOTA - Populations increasing on foundation planting evergreens. (Minn. Ins. Rept.). MARYLAND - Damaging cypress trees along highway in Wicomico County. (U. Md., Ent. Dept.). VIRGINIA - Damaging twigs of pines in Halifax County. (Hall).

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) - WISCONSIN - On Sheboygan shade trees. (Wis. Ins. Bul.). RHODE ISLAND - Occurring in small numbers in Kingston. First report this season of larval activity. (Steve).

ELM LEAF BEETLE (Galerucella xanthomelaena) - PENNSYLVANIA - Elms almost defoliated in most cases in south central area. (Pepper). MARYLAND - Damage to foliage in Montgomery and Frederick Counties. (U. Md., Ent. Dept.). VIRGINIA - Feeding on elm leaves in Lee County (Lyle, Rowell) and in Blacksburg area (Morris). IDAHO - Damaging leaves of some elms in Twin Falls. (Gibson).

RED-HEADED ASH BORER (Neoclytus acuminatus) - RHODE ISLAND - Emerging in large numbers from Norway maple in Providence. (Mathewson).

LARGE ASPEN TORTRIX (Archips conflictana) - MICHIGAN - Common throughout Upper Peninsula; defoliation in local areas. (Hutson, June 19).

EUROPEAN ELM SCALE (Gossyparia spuria) - COLORADO - Crawlers averaging 14 to 30 per 3 1/2 inch leaf in Larimer County. (Exp. Sta., June 22). SOUTH DAKOTA - Eggs hatching and crawlers active on American elm in western region. (Hantsbarger).

IMPORTED WILLOW LEAF BEETLE (Plagioderma versicolora) - CONNECTICUT - Moderate infestation on willows in Tolland County. (Tunis).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - Large numbers of adults on shrubs in Pender County. (Honeycutt). MARYLAND - On roses and other ornamentals, causing concern in central and southern counties. (U. Md., Ent. Dept.). DELAWARE - Few adults on ornamentals and oak. (Milliron).

BAGWORM (Thyridopteryx ephemeraeformis) - TEXAS - Heavy widespread on shade trees in Collins County. (Turney). Heavy on hackberry and sycamore trees in Denton County. (Cowan). KANSAS - Very active on ornamentals in area of State generally from highway U. S. 81 eastward. (Matthew). MISSISSIPPI - Damaging cedars and roses in Webster County. (Hutchins).

CYCLAMEN MITE (Steneotarsonemus pallidus) - WISCONSIN - Damaging

blossom spikes of delphinium in several localities. (Wis. Ins. Bul.).

NATIVE HOLLY LEAF MINER (Phytomyza illicicola) - DELAWARE - Injury at Petersburg and Redden State Forest. (Milliron).

SCALES - WISCONSIN - Arborvitae heavily infested with scales (apparently Lecanium fletcheri) in Lincoln and Oneida Counties. (Wis. Ins. Bul.).

INSECTS AFFECTING MAN AND ANIMALS

HORN FLY (Siphona irritans) - CONNECTICUT - Very numerous on beef and dairy cattle in Tolland and Windham Counties. (Tunis). PENNSYLVANIA - Infesting cattle at 25 to 150 per animal in Clarendon County (Adams, June 20), and 150 per animal in several herds in Bedford County. (Udine). OKLAHOMA - Averaged 300 per cow in one pasture in southern Osage County. (Coppock). Five to 10,000 on bull, 1,000 to 3,000 on cows in Camp Gruber area of Muskogee County. (Howell). KANSAS - Populations on range cattle in Comanche County ranged from 20 to 180 per head on infested stock. (Matthew).

FLEAS (Ctenocephalides spp.) - OKLAHOMA - Heavy infestations in lawns in Tulsa. (Griffin).

HOUSE FLY (Musca domestica) - VIRGINIA - Populations in Montgomery County light to moderate. (Turner). CONNECTICUT - Not as numerous as 1955 in dairy barns. (Tunis).

TABANIDS - WISCONSIN - Very numerous over large sections of State. (Wis. Ins. Bul.). PENNSYLVANIA - Horse flies infesting cattle at 5 to 10 per animal in Clarendon County and deer flies infesting cattle at 1 to 5 per animal in Erie County. (Adams, June 20-21). Horse flies and deer flies very severe on cattle in some sections of Bedford County. (Udine). OKLAHOMA - Tabanus molestus, T. atratus and T. mularis populations average less than one per animal in Camp Gruber area. This is less than usual. (Howell).

BLACK FLIES - MINNESOTA - Populations very high in northeastern area. (Minn. Ins. Rept.).

MOSQUITOES - UTAH - Troublesome to man and livestock in many northern and central localities. Especially serious in Rich County. (Knowlton). MARYLAND - Extremely annoying in sections on the lower Eastern Shore. (U. Md., Ent. Dept.). MINNESOTA - Marked increase in Twin City area. Very high populations in northeast area. (Minn. Ins. Rept.).

SAND FLIES - RHODE ISLAND - Considerable annoyance to shore residents in Narragansett and Jamestown. (Steve).

WEATHER FOR THE WEEK ENDING JULY 2, 1956

Weather conditions were generally similar to those of the past several weeks. Temperatures reached far into the 90's to above 100° on most days in the central and southern Great Plains and the Southwest, while considerably cooler weather was experienced in the extreme Northwest Eastward along the Canadian border maximums in the high 70's and low 80's prevailed under the influence of continental polar air which occasionally extended as far as the central Atlantic coast, breaking heat spells during which maximums above 90° were recorded. Precipitations continued to fall in the form of showers mainly along frontal boundaries and often accompanied by thunderstorm activities.

Weekly temperature averages were within 3° of normal except in the center of the country and along the southern Pacific coast where departures were as much as 6° above; also along the northern Pacific coast where they departed by -6°. Needles, California was the hottest reporting location on two days with a maximum of 112° on June 26 and 117° on June 27. Temperatures also exceeded the 100° mark on one or more days in Colorado, Oklahoma, Iowa, Missouri, Nebraska, South Dakota and Illinois. In contrast, freezing temperatures of 29° were reported in the north central cranberry bog of Wisconsin on June 28, and a record low of 49° for the day of the 29th at Hartford, Connecticut.

Weekly precipitation amounts were moderate to heavy in parts of Florida, along the south Atlantic coast, the upper and lower Mississippi Valley, the upper Great Lakes region and in central North Carolina. West of the Continental Divide little or no precipitation fell except for local showers in northwest Washington. Also no rain was recorded in the west-east band through central Texas or interior sections of Alabama or Mississippi. Showers brought significant falls of 3.48 inches to Weyanega, Wisconsin; 2.37 inches to Texarkana, Arkansas; 3.22 inches to Norfolk, Nebraska and 3.38 inches to Rapidan, Minnesota. On the last day of the month Athens, Georgia reported 1.69 inches which exceeded the total received there on all preceding days in June.

Tornadoes were reported in Gratiot County, Michigan on June 26 and Laverne, Minnesota on June 29, and tornado clouds were sighted in several Wisconsin locations on July 1. Minor hail, wind and thunderstorm damage occurred in several north central states with \$100,000 damage at Ivanhoe, Minnesota. Two persons were killed by lightning at Hollandale, Minnesota, one death occurred at Gary, South Dakota and four persons drowned at Lake Winnebago, Wisconsin. (Sum. Suppl. by U. S. Weather Bureau).

WEATHER BUREAU'S 30-DAY OUTLOOK

July

The Weather Bureau's 30-day outlook for July calls for temperatures to average above seasonal normals in the eastern half of the country, except near normal along the Gulf Coast and upper Great Lakes and below normal in the northern Atlantic states. In the western half of the nation below

(Continued p. 650)

BENEFICIAL INSECTS

LADY BEETLES - NORTH CAROLINA - About 4 times as abundant as 1955 in cotton fields. (Misticic). Particularly abundant in Sampson County. (Jones, Farrier).

WHEEL BUG (Arilus cristatus) - OKLAHOMA - Numerous (15-20 per tree) in Garvin County pecans. (Flora).

A ERYTHRAEID MITE - UTAH - Prevented economic injury to fall wheat by Petrobia latens in one field at Clarkston. (Lieberman).

MISCELLANEOUS INSECTS

AN ALKALI BEE (Nomia nortoni) - OKLAHOMA - Abundant in one area near Pauls Valley. (Fenton).

SOUTHERN ARMYWORM (Prodenia eridania) - FLORIDA - Larvae heavily infesting jute in Palm Beach County. (Denmark, June 21).

EUROPEAN HORNET (Vespa crabro germana) - NORTH CAROLINA - Survey indicated pest within 100 miles of coast but not seen in most western counties. (Stephen).

EUROPEAN EARWIG (Forficula auricularia) - RHODE ISLAND - Very abundant around buildings and gardens in Portsmouth and Middletown. (Steve).

WHITE-LINED SPHINX (Celerio lineata) - COLORADO - Very heavy localized infestation in roadside vegetation in Larimer County. (Exp. Sta.).

CLOVER MITE (Bryobia praetiosa) - MICHIGAN - More numerous than for several years. Jackson, Wayne and Benton Harbor heavily infested. (Hutson, June 19).

*** *****

WEATHER continued from page 649

normal temperatures are anticipated, except above in Southern and Central Plains. Precipitation is expected to exceed normal in the northwest, North Plains and western Great Lakes. Sub-normal amounts are predicted in the southwest and southeast, except Florida, with near normal elsewhere.

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 for six months.

LIGHT TRAP COLLECTIONS	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea viresc.	Protoparce sexta quinq.	Laphyg. frugip.
TEXAS								
College Station 6/22-29		1	74	6		300		80
Waco 6/23-29	1			3	4	44		
ARKANSAS								
Hope 6/22-28	2	2				27		
Stuttgart 6/21-27	1							
Van Buren 6/21-27				1		8		
Vanner 6/21-27		16				12		
Fayetteville 6/23-29	25	16		16		76		
LOUISIANA								
Curtis 6/19-24		1	4		8	1		
Baton Rouge 6/23-29		18	48		128	11		20
Franklin 6/21-27			38		6			14
*Tallulah 6/22-27	2	15	150	1	117	64	11	71
MISSISSIPPI (Counties)								
*Washington 6/22-28	1		86	2	6	22	1	
Coahoma 6/23-29	3	1	42	1		5		
Humphreys			11		1	5		
Lauderdale			4	1		3		
Marshall			54	1	15	5	3	
Oktibbeha	6							
TENNESSEE (Counties)								
Shelby 6/19-25	6	2	8			2	2	
Maury	76		8	12		8	10	4
Robertson	45		6	18		12	16	11
Cumberland	8		8	4			5	5
Knox	33	9	15	21		21	3	
Greene	182	40	8	152		12	8	4
Blount	48		24	24			3	2
Johnson	11	22		17		5	2	1
GEORGIA (Counties)								
Spalding 6/16-28	1	4	33	20	43	95	6	4
Tift 6/22-28	2	37	5		111	8		6
Clarke 6/16-22		1						8
FLORIDA								
Belle Glade 6/19			1		2			
Gainesville 6/21			7		23	2		1
Homestead 6/15, 6/23					11	6		1
Quincy 6/18								
SOUTH CAROLINA (County)								
Florence 6/16-22	3	15	125	13	184	1001	330	14
NORTH CAROLINA (Counties)								
Johnson	1	2	5		5	2		5
Duplin	1	1	23		1			2
VIRGINIA (County)								
*Pittsylvania 6/17-23							74	265
MARYLAND (County)								
Montgomery 6/22-29	8	5		7				1
ILLINOIS								
Urbana 6/22-28	172	20	18	139		3		6
WISCONSIN								
DeForest 6/23-26	13					10		
SOUTH DAKOTA								
Brookings 6/26-27	70			2				
MISSOURI (County)								
Boone 6/23-29	58	14		21		63		6

Other Collections: Maryland (Montgomery Co., June 6/22-29): *Empoasca fabae* 161

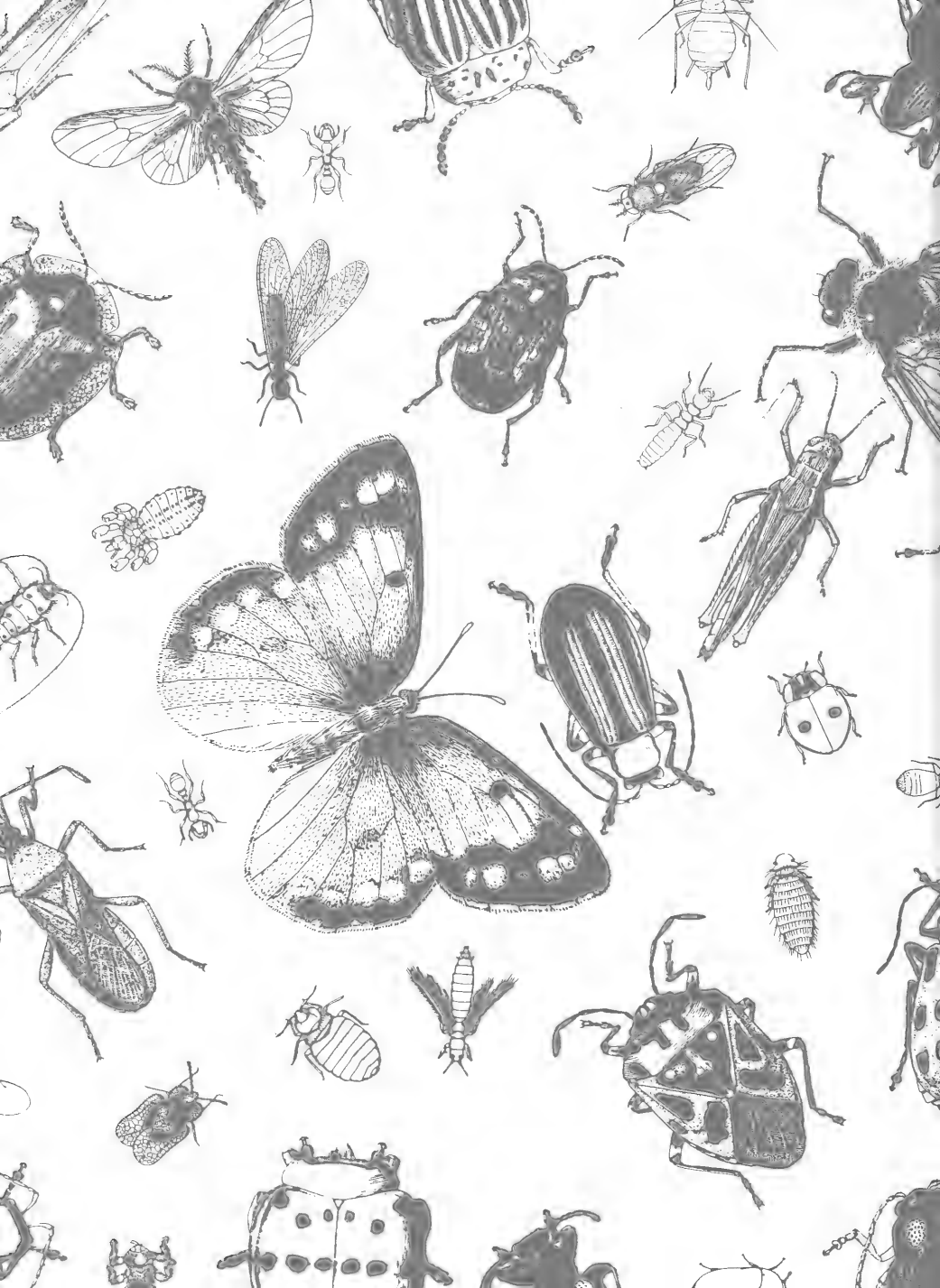
*Three traps Tallulah, La. and Pittsylvania Co., Va.; Two traps Washington Co., Mississippi.

ADDITIONAL NOTES

ARKANSAS - First-generation EUROPEAN CORN BORER pupating, 17.6 percent infestation in five northeast counties. First time borer appeared in such numbers so early in season. Found in Lonoke County for first time. SPOTTED ALFALFA APHID medium to light in Independence and Jackson Counties. Five to 35 percent damage in whorls of corn by CORN EARWORM in northeast counties. Locally heavy on soybeans. GRASS-HOPPERS locally heavy, up to 50 per square yard, in northeast. FALL WEBWORM general over State. ELM LEAF BEETLE caused extensive damage to elm in wide areas. Emergence of first-generation BOLL WEEVIL expected to be general by July 12 and may have heavy infestations in local areas. BOLLWORM infestations are variable. (Warren, Harrendorf, Barnes).

NEW YORK - First APPLE MAGGOT emergence at Poughkeepsie June 25. Apple drop from EUROPEAN APPLE SAWFLY heavy in some unsprayed orchards in Suffolk County. Considerable damage in improperly treated orchards in Onondaga County from RED-BANDED LEAF ROLLER. APPLE APHID increasing in some orchards in Onondaga, Niagara, Orleans Counties. CORN EARWORM in mid-Hudson area June 28. EUROPEAN CORN BORER seems to be about five times heavier than last year in Hudson Valley. CABBAGE LOOPER eggs appearing in Poughkeepsie area. GRASS THRIPS severe in many sweet corn plantings in Suffolk County. ELM LEAF BEETLE unusually light, no severe injury. DUTCH ELM DISEASE prevalent in eastern, central and western areas. BIRCH LEAF MINER has spread and increased in intensity in much of the State where it was not a problem a few years ago. This year's infestations severe in eastern and central areas. (N. Y. Wkly. Rept.).

IOWA - EUROPEAN CORN BORER moth flight over in south and central areas. Larvae range from newly-hatched to full-grown. Infestation general but in few instances attain high potential indicated by winter carry-over. Severe drought conditions over part of State will materially reduce borer activity, though expectation is for a high second brood and much loss where effective control is not carried out. GRASSHOPPERS continue to dominate pest picture in Iowa. The Office of the State Entomologist instituted an emergency control program involving spraying of right of ways on all primary highways and county roads in southern Iowa where grasshopper populations warrant treatment. The State will make available insecticide for this application program. Treatment on cultivated land is progressing satisfactorily as farmers meet the emergency in the drought-stricken area. A WEEVIL (*Calomycterus setarius*) was found abundant and damaging on vetch at Hamburg, first record in that portion of State. Also present in some numbers on chrysanthemums at Ames. (Harris).



VOL. 6 / No. 28

JULY 13, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

EUROPEAN CORN BORER infestation heavy in Massachusetts, and in some areas of Pennsylvania, Delaware, New York and Maryland. Hatch about complete in Minnesota and South Dakota. Moths for second generation emerging in Missouri. (pp. 655, 673).

GRASSHOPPERS heavy in several counties of California, damaging in some eastern Colorado counties and in Utah. These pests continue greatest insect threat in Missouri and populations are extremely high in agricultural areas of Minnesota. Damaging infestations in Oklahoma and areas of Kansas. Becoming numerous in northeast South Dakota. (pp. 655, 673).

CORN EARWORM widespread in Arkansas River Valley of Colorado, Milton-Freewater area of Oregon and eastern South Dakota. (p. 657). CHINCH BUG migration becoming general in southeastern Nebraska. Very heavy numbers continue in Missouri. (p. 657).

CORN ROOTWORM damage appearing in Illinois. (p. 658). WHEAT STEM MAGGOT injury conspicuous in southeastern North Dakota, damage reported from Caldwell, Idaho. (p. 658). LESSER CORNSTALK BORER continues to cause damage in Alabama. (p. 658). ALFALFA CATERPILLAR adults abundant in areas of Idaho and Nebraska. (p. 658). Unusually heavy build-up of PLANT BUGS on alfalfa in Sacramento Valley, California. Very high counts in Morgan County, Colorado and generally abundant in southwest Idaho. Above normal in Missouri and increasing in Wisconsin. (p. 659).

POTATO LEAFHOPPER abundant in South Dakota, Wisconsin and Delaware. Heavier than last year in Maryland. (p. 659). PEA APHID caused heavy loss in yield of alfalfa in some Colorado counties. (p. 660).

SPOTTED ALFALFA APHID reported for first time from Georgia. Build-up in southern and central Kansas and Millard County, Utah. (pp. 660, 673).

APPLE APHIDS increasing in Yakima Valley, Washington, and appearing in numbers in areas of Michigan. Generally severe in Connecticut. (p. 660, 674). ORIENTAL FRUIT MOTH heavy in twigs of peaches in areas of Michigan and New York. Unusual amount of injury in Massachusetts. (pp. 661, 673). First heavy infestation of PEAR PSYLLA in southern Idaho. (p. 661). MEDITERRANEAN FRUIT FLY reported from three additional Florida counties. (p. 663).

POTATO PSYLLID infestation general in some areas of Colorado, yellows appearing. (p. 663). STRIPED CUCUMBER BEETLE heavy on cucumbers in Wisconsin. (p. 664). ONION MAGGOT abundant in southwestern Idaho. (p. 666).

HORNWORMS generally abundant on tobacco in central Kentucky and widespread in southern Maryland. (p. 666). CABBAGE LOOPER heavy on tobacco in Tift County, Georgia; outbreak in Johnston County, North Carolina. (p. 666).

BOLL WEEVIL continues spotty in North Carolina, heaviest in south central counties; causing damage in west Tennessee and continues heavy in Louisiana. Twenty-eight percent punctured squares in 15 counties in Georgia, 31 percent in northeastern Alabama, 23 percent at Waco, Texas. (p. 667). BOLLWORM of more concern in some areas of South Carolina than boll weevil. Activity increasing in Arkansas and in south central, central and east areas of Texas. Adults increasing in Arizona. (p. 668).

JAPANESE BEETLE of concern in several Northeastern States. (pp. 657, 671).

ADDITIONAL NOTES. (p. 673).

CORRECTIONS. (p. 673).

STATES reporting - 43.

WEATHER summary. (p. 674).

SURVEY METHOD - Intensity of Sampling (Forest Insects). (p. 675).

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

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis) - MASSACHUSETTS - Infestation heavy. Judging from egg masses heaviest population of early brood in years. Moths plentiful July 3. (Bourne). PENNSYLVANIA - Heavy in some fields in southeast, especially early-planted corn. (Mensusan). Some damage to corn and pods of beans in south central area but not serious. (Pepper). MARYLAND - Heavy on sweet corn in Frederick County. Average of 43 percent infestation in 13 fields. (U. Md., Ent. Dept.). DELAWARE - Abundant in corn. (Milliron). OHIO - Emergence over 80 percent in Wooster area. Forty egg masses per 100 plants and 8 percent hatched. (Guthrie, June 27). ALABAMA - Pupation of first-generation about complete and some moths emerging in northern area. (Eden). MISSISSIPPI - Several infestations found in Grenada, Leflore, Tallahatchie, Yalobusha and Panola Counties. (Ingram, Henderson). ILLINOIS - Maximum egg mass counts were 20 unhatched per 100 plants in northeastern and northern areas. Oviposition nearing completion. (Ill. Ins. Rept.). MINNESOTA - Average percentages by districts of corn plants showing leaf feeding: south central 20, southwest 26, central 12, west central 8. Hatch considered complete and borers from first to third instars. (Minn. Ins. Rept.). MISSOURI - In northwest 17 percent of plants show injury and average 30 larvae per 100 plants. First-generation pupation underway in central area with some emergence in southeast area. (Burdett). WISCONSIN - Third instars in southern area. One to 12 egg masses per 25 plants of corn 36 to 56 inches tall in 10 counties. Few egg masses June 28-29 in some northwestern counties. (Wis. Ins. Bul.). NEBRASKA - Extremely low in comparison with last year in southeast and east central areas. (Andersen). NORTH DAKOTA - Light infestation in Richland and Cass Counties, 4 egg masses per 100 plants. (N. D. Ins. Rept.). SOUTH DAKOTA - Twenty percent of plants of corn averaging 42 inches infested in northeastern counties. Hatch about complete and 40 percent of borers in second instar. (Hantsbarger).

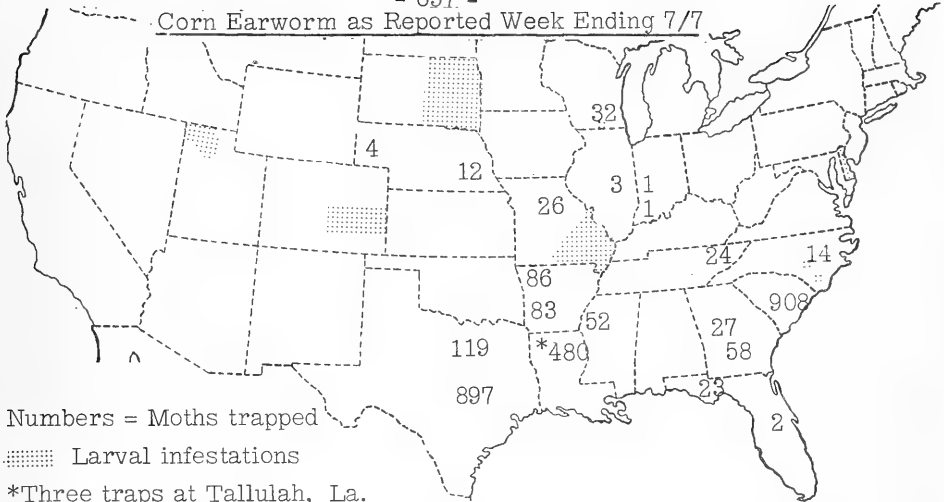
GRASSHOPPERS - CALIFORNIA - Migration of Oedaleonotus enigma from 75,000 acres in Kern County threatened cotton and seed alfalfa; approximately 12,000 acres constituting a protective strip sprayed and migration stopped. Heavy infestations of Melanoplus devastator and some of O. enigma in Tehama County. Possibly 75,000 acres infested in Shasta County. Control underway in these counties and in areas of Nevada County. Heavy infestation appearing in coastal counties of Marin, Sonoma and Humboldt, areas not usually subject to damage. M. devastator and O. enigma infesting about 25,000 acres in Marin County, M. devastator about 50,000 acres of sheep land in Sonoma County. Large areas, many mountainous, infested in Humboldt County. (Cal. Coop. Rept., June 29). COLORADO - New damaging infestation on rangelands in Logan and Yuma Counties and on croplands in Cheyenne and Kiowa Counties. (ARS, Ext. Serv., Colo. Dept. Agr.). Total of 130,558 acres treated in Douglas and Las Animas-Baca Counties area to June 29. (GHC Proj.). NEVADA - Camnula pellucida, second instar to adults, causing severe damage to heads of crested wheatgrass in Elko County. Control underway. (Galloway). IDAHO - Late instars, mostly M. mexicanus, spotted, seldom over 15 per square yard, in roadsides and ditchbanks in Canyon and Owyhee Counties. (Gittins). UTAH -

Serious concern on cultivated lands in Weber County. Ten to 50 per square yard on 1,800 acres rangeland in Beaver County, 50 per square yard on 1,100 acres in Sevier County. Economic injury to crops in several counties. (Chinn, Knowlton). NEW MEXICO - To June 29 - 9,970 acres treated in Cuba area and in Rosebud-Amistad area. (GHC Proj.). WYOMING - To June 29 - 73,277 acres treated in Johnson, Platte and Hot Springs Counties. (GHC Proj.). OKLAHOMA - Damaging crops, especially corn, alfalfa and sorghums, over State, more pronounced in western area. Infestations in rangeland in northern and west central counties average 4-15 per square yard, damage light. (Coppock). Total of 125,644 acres treated in Major, Ellis, Woodward and Woods Counties to June 29. (GHC Proj.). TEXAS - Medium to heavy on crops in Palo Pinto and Jack Counties. (Lindsey, Hulsey). To June 29 - 33,994 acres treated in Gray, Deaf Smith and Briscoe Counties. (GHC Proj.). SOUTH DAKOTA - Numerous in hay meadows of Black Hills area with C. pellucida averaging 60 per square yard in some localities. Eighteen M. bivittatus per square yard in some areas also. (Bell). Grasshoppers, mostly M. femur-rubrum, becoming numerous in northeast area legumes; 12 nymphs per square yard in alfalfa. Many newly-hatched nymphs. (Hantsbarger). NORTH DAKOTA - Local scattered infestation. Some leaf stripping in margins of small grain. (N. D. Ins. Rept.). NEBRASKA - Severe in many eastern counties and sections of southwestern area. Movement into alfalfa and corn under way. From 9-36 per square yard in alfalfa and 12-81 in margins of legume and row crops. M. mexicanus mainly adults in southern two-thirds of State. M. bivittatus mainly fifth instar but some adult. M. femur-rubrum and M. differentialis from second to fourth instars. (Andersen). MINNESOTA - Extremely high levels throughout most agricultural areas. Grasshoppers only one-third to two-thirds grown and still around hatching beds. (Minn. Ins. Rept.). WISCONSIN - M. femur-rubrum still hatching. Heavy in some fields in most counties. Grasshoppers damaging several soybean fields in Dunn and Pepin Counties. (Wis. Ins. Bul.). MISSOURI - Continue greatest insect threat over most of State. Twelve to 65 per square yard causing heavy damage to pastures, red clover and alfalfa in southwest and over northern two-thirds of State. Fifteen to over 150 per square yard in margins causing considerable marginal damage to row crops. M. bivittatus and M. mexicanus adult and egg-laying under way. M. differentialis from second to last instar. (Kyd, Thomas). KANSAS - Total of 85,270 acres treated in Comanche County to June 29. (GHC Proj.). ILLINOIS - Hatch practically complete in northwestern area. Some fields of alfalfa have overall count of 4 nymphs per square yard. (Ill. Ins. Rept.). SOUTH CAROLINA - Warrant control in pastures in McCormick County, June 27. (Bonnette, Nettles). MARYLAND - Five small nymphs per sweep on alfalfa in Queen Annes County. (U. Md., Ent. Dept.). DELAWARE - Destructive to corn and alfalfa in many locations. (Milliron).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - OKLAHOMA - Mostly pupal stage in western counties but a few moths have emerged. Stalk infestation 3-10 percent in Major and Dewey Counties. (Coppock).

SUGARCANE BORER (Diatraea saccharalis) - LOUISIANA - Heavy moth flights at Franklin. Application of insecticides underway in many plantations in southern area of cane belt. (Oliver).

Corn Earworm as Reported Week Ending 7/7



Numbers = Moths trapped

▨ Larval infestations

*Three traps at Tallulah, La.

CORN EARWORM (*Heliothis zea*) - COLORADO - Widespread infestation on corn in Prowers, Bent, Otero and Pueblo Counties, June 30. (Exp. Sta.). UTAH - Infesting five percent of early sweet corn in Davis and Box Elder Counties. (Dorst). OREGON - Infestation general in Milton-Freewater area. Eggs and larvae on approximately 1 percent of tassels June 25. (Brown). SOUTH DAKOTA - Larvae prevalent in corn in eastern areas. (Hantsbarger). MISSOURI - Very few larvae in whorls of corn and 0-2 eggs per silk on sweet corn. Moth activity increasing in southeast area. (Kyd, Thomas). WISCONSIN - One second-instar larva in corn June 29 in Rock County. (Wis. Ins. Bul.). NORTH CAROLINA - Averaged .4 eggs per silk at Clayton and .3 at Faison, unusually low for time of season. (Farrier). DELAWARE - Infesting corn in some areas. (Milliron).

CHINCH BUG (*Blissus leucopterus*) - OKLAHOMA - One to 5 per plant on young sorghums in Payne, Noble and surrounding counties, damage only in margins. (Coppock). NEBRASKA - Migrations into corn and sorghum becoming general in southeastern area. Counts very high, 25-350 per stalk. (Andersen). MISSOURI - Very heavy numbers continue to injure corn, sorghums and Sudangrass over much of State. Migration from small grains continued in northern third. Many fields in extreme southeast have 10-30 bugs per plant while about 40 percent of corn in north half of State has average of 10-55 bugs per plant. Many fields of corn have marginal rows destroyed. (Kyd, Thomas). GEORGIA - Moderate on corn in Forsyth County. (Rucker).

JAPANESE BEETLE (*Popillia japonica*) - VIRGINIA - Medium on corn in Spotsylvania County but heavier than last year. (Kash). Heavy on corn in areas of Charlotte and Amherst Counties. (Morton, Morris). DELAWARE - Unusually prevalent in alfalfa and corn in Sussex County. (Milliron).

ENGLISH GRAIN APHID (Macrosiphum granarium) - IDAHO - Very abundant in 30-acres of wheat near Caldwell. No damage. (Bechtolt). UTAH - Moderate damage to wheat in some areas. (Knowlton). WASHINGTON - Light to medium in 150 acres of barley near Rock Island. (Kamal). Five to 8 per head on winter wheat near Ephrata. (Brannon).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Between 25-50 per young sorghum plant in Payne County, less farther west. (Coppock). NEBRASKA - Light, 20 of 25 corn plants show colonies beginning in whorls. (Andersen). ALABAMA - Attacking corn in some northern areas. (Arant).

CORN ROOT APHID (Anuraphis maidi-radicis) - NEBRASKA - Light localized infestations in Custer, Nemaha, Cass and Otoe Counties. (Andersen). ILLINOIS - Much more noticeable than usual in western area as are cornfield ants. (Ill. Ins. Rept.).

CORN ROOTWORMS - ILLINOIS - Many cornfields have damage. Maximum count one field was 26 per stalk. (Ill. Ins. Rept.).

WHEAT STEM MAGGOT (Meromyza americana) - NORTH DAKOTA - Infestations conspicuous in spring wheat in southeastern area. (N. D. Ins. Rept.). IDAHO - Estimated 50 percent damage in 20-acre wheat field near Caldwell. (Scott, Gittins).

DUSKY SAP BEETLE (Carpophilus lugubris) - DELAWARE - Increasing in injured corn whorls in Kent and Sussex Counties. (Milliron).

SOD WEBWORMS - OREGON - Crambus sp. adults in grass fields in Union County in greater numbers than last year. Damage has also been greater. (Every).

MORMON CRICKET (Anabrus simplex) - NEVADA - Light infestation on six square miles White Pine County. (Galloway, Del Curto). Total of 35,064 acres baited in Utah, 2,464 acres in Colorado, 8,624 acres in Nevada, 4,158 acres in Idaho. Grand total to June 29 was 50,310. (GHC Proj.).

ARMYWORM (Pseudaletia unipuncta) - TEXAS - Heavy on young rice in Jefferson County. (Bowling).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Continues to cause damage in various areas. Approximately 100 acres of grain sorghum destroyed in Lowndes County. Also damaging this crop, field peas and peanuts in other sections. (Arant).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - IDAHO - Adults abundant in Grandview and Bruneau areas. (Gittins). NEBRASKA - Adults very abundant in alfalfa in eastern third of State. From 2-4 larvae per sweep. (Andersen). DELAWARE - Prevalent some areas. (Milliron).

ALFALFA WEEVIL (Hypera postica) - IDAHO - Heavy damage at end for current season. (Gittins). OREGON - Adults and larvae collected in Wallowa County June 28. New county record. (Every). UTAH - Serious delay in second-growth alfalfa in severely infested fields. (Knowlton). DELAWARE - Very destructive on second-growth alfalfa at Middletown. (Milliron).

BLISTER BEETLES - OKLAHOMA - Epicauta spp. common in alfalfa, damaging blossoms in isolated fields. (Coppock). NORTH DAKOTA - Damaging soybeans in several areas. (N. D. Ins. Rept.). MISSOURI - Some injury to alfalfa, soybeans and gardens. (Kyd, Thomas).

CLOVER SEED CHALCID (Bruchophagus gibbus) - WEST VIRGINIA - Adults active on red clover and alfalfa over State. (Dorsey, Hansen, June 30).

CLOVER ROOT CURCULIO (Sitona hispidula) - IDAHO - Adults more abundant in alfalfa in Boise Valley than previously observed; 6 per sweep. Larval injury on all tap roots sampled. (Gittins).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Very abundant in alfalfa generally. (Milliron).

PLANT BUGS - CALIFORNIA - Unusually heavy build-up of lygus bugs in Sacramento Valley with greatest damage in seed crops. (Cal. Coop. Rept., June 29). COLORADO - Extremely high on alfalfa for seed in Morgan County, 700-800 per 100 sweeps. (Ext. Serv.). IDAHO - Generally abundant on alfalfa in Canyon, Owyhee and Elmore Counties, 3-4 per sweep in fields in northern Canyon County. (Scott, Gittins). NEBRASKA - Adelphocoris rapidus appearing in alfalfa in eastern area but counts low. (Andersen). MISSOURI - Lygus lineolaris above average in alfalfa. From .2 to 4.3 per sweep in southeast area. (Kyd, Thomas). WISCONSIN - Adelphocoris spp. and L. lineolaris in large and increasing populations in alfalfa. (Wis. Ins. Bul.). LOUISIANA - From 84-128 L. lineolaris per 100 sweeps in Rapides, Natchitoches and Bossier Parishes. (Oliver). DELAWARE - A. lineolatus adults numerous some areas. (Milliron).

POTATO LEAFHOPPER (Empoasca fabae) - SOUTH DAKOTA - Abundant in alfalfa in northeast area, up to 28 adults per 20 sweeps. (Hantsbarger). MISSOURI - From .3-5 per sweep on alfalfa in southeast areas; .5-3 per sweep over remainder of State. (Kyd, Thomas). WISCONSIN - Large and increasing populations. (Wis. Ins. Bul.). MARYLAND - From 1-15 adults and nymphs per sweep on alfalfa in Allegany, Frederick and Queen Annes Counties. Damage conspicuous in some fields. Heavier than last year at this time. (U. Md., Ent. Dept.). DELAWARE - Abundant in alfalfa generally. (Milliron).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - DELAWARE - Adults very abundant generally. (Milliron).

THRIPS - VIRGINIA - Problem on peanuts in Greensville County. (Rogers).

PEA APHID (Macrosiphum pisi) - COLORADO - Reduced yield 50 percent of first cutting of alfalfa in Montrose, Delta and Mesa Counties. Similar reduction in several other counties. Infestation building up on second cutting in some areas. (Exp. Sta., Ext. Serv.). IDAHO - Abundant in most alfalfa in Boise Valley area. Damage not severe. (Gittins, June 29). NEBRASKA - Continues lower than last year. (Andersen).

SPOTTED ALFALFA APHID - CALIFORNIA - Heavy in 70-acre field in Tehama County, June 22; first report of heavy infestation in Sacramento Valley in 1956. Very light in Santa Barbara County June 21. (Cal. Coop. Rept.). NEVADA - No development of infestation in White Pine County where infestation heavy in 1955. (Cook). COLORADO - Heaviest infestation in Prowers County, progressively lower through Bent, Otero to Pueblo Counties. Also collected in Delta and Montezuma Counties. (Exp. Sta.). IDAHO - Remains extremely low in Woodruff area. None found in fields checked in southwestern area. (Portman, Gittins). UTAH - Noticeable build-up in parts of Millard County. (Knowlton, Goodarzy). OKLAHOMA - Non-economic population in all areas. (Coppock). MISSOURI - Remains generally low. Can be found over southern half of State. (Kyd, Thomas). GEORGIA - Collected on alfalfa in Henry County. Determined Louise M. Russell. First record for State. (Johnson).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - IDAHO - Extremely abundant in 20-acre clover seed field near Parma, heavy damage to leaves. (Scott, Gittins).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW JERSEY - Moth flights in southern area essentially ceased. (Ins.-Dis. News.). DELAWARE - First moth new brood emerged July 2. (Stearns). INDIANA - Hatching of second-brood larvae expected throughout July in Vincennes area. (Hamilton). ILLINOIS - Hatching of second brood underway in Carbondale area. (Chandler). OHIO - First larvae taken under bands on June 30. Rapid increase since. (Cutright). WISCONSIN - First brood passed peak in southern area. (Wis. Ins. Bul.). COLORADO - Expect second-brood larvae between July 12 and 16 in Delta, Montrose and Garfield Counties. (Exp. Sta.). WASHINGTON - First-brood larvae pupated between June 21 and 26 in Yakima Valley. (Luce-Yakima Spray Bul.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - OHIO - Second-generation adults emerging. (Cutright). WISCONSIN - All stages in orchards in southern area. Possibility of late third brood which could be very important on apples at harvest. (Wis. Ins. Bul.).

A CASE-MAKING MOTH (Apterona crenulella) - UTAH - Infesting apple, peach, cherry, ornamentals and range plants in Cache County. (Knowlton, Thatcher).

APPLE APHID (Aphis pomi) - WASHINGTON - Increase on apple. (Luce, Yakima Spray Bul.). MICHIGAN - Appearing in numbers at Hart, Manistee,

Scottville, Grand Rapids, Traverse City and Empire. (Hutson, June 27).

APPLE MAGGOT (Rhagoletis pomonella) - NEW JERSEY - Ovipositing in Camden County, June 26. (Ins.-Dis. News.). MICHIGAN - Found in Lawton, Paw Paw, Bangor, Grand Rapids and Newaygo. (Hutson, June 28).

PLUM CURCULIO (Conotrachelus nenuphar) - ILLINOIS - Evidence of second brood on apples and peach. (Chandler). DELAWARE - First emergence summer brood, July 2. (Stearns). GEORGIA - Second-generation eggs in peaches on June 27. (Snapp). OHIO - First-brood larvae began emerging from drop peaches June 26. (Rings).

EUROPEAN EARWIG (Forficula auricularia) - IDAHO - Nuisance in some fruit orchards in southwestern area. In one peach orchard, earwigs found inside peaches. (Gittins).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MASSACHUSETTS - More than usual amount of early twig injury. (Wheeler). WASHINGTON - Second-brood larvae on peaches near Sawyer but no attack yet. (Luce-Yakima Spray Bul.). MICHIGAN - Second-brood larvae numerous in tips of young peach trees about Lawton, Sodus, Lawrence and Allegan. (Hutson, June 25).

CAT-FACING INSECTS - OHIO - Most abundant species of cat-facing plant bugs in northern area were Neolygus caryae and N. omnivagus. Populations of N. quercalbae light. (Rings, June 29). CALIFORNIA - Damaging peaches in Placer County. (Cal. Coop. Rept.).

LESSER PEACH TREE BORER (Synanthedon pictipes) - MICHIGAN - Adults numerous from New Buffalo to Suttons Bay. (Hutson, June 28).

CORN EARWORM (Heliothis zea) - SOUTH CAROLINA - Damage to peaches, Spartanburg. (Ferree, June 29).

PEAR-SLUG (Caliroa cerasi) - IDAHO - Abundant on pear trees north of Parma where regular spray schedule omitted. Population averaged one larva per four trees. Evident on cherry trees in same area. (Gittins). OREGON - Skeletonizing foliage of unprotected cherry and plum trees in Willamette Valley. (Capizzi). PENNSYLVANIA - Some small pear trees almost defoliated in Lancaster County. (Pepper). RHODE ISLAND - Found on pear stock in a Middletown nursery. (Mathewson).

PEAR PSYLLA (Psylla pyricola) - IDAHO - Heavy infestation found for first time in southern Idaho near Weiser. Occurred in northern part of State for number of years. All stages were found in the infestation. (Manis).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - IDAHO - Common throughout southwestern area. (Gittins).

A LEAF MIDGE (Dasyneura pyri) - OREGON - Preventing unrolling of new leaves in several pear orchards throughout the Willamette Valley, July 3. (Capizzi).

FALL WEBWORM (Hyphantria cunea) - LOUISIANA - Populations heavy generally over State with many pecan trees completely defoliated. (Oliver).

TORTRICIDS (Pandemis spp.) - IDAHO - Light infestation in cherries at Emmett. Some orchards showing 5 percent infestation of fruit. (Gittins).

ROSE CHAFER (Macrodactylus subspinosus) - MICHIGAN - Generally a nuisance on apples, cherries and roses in all areas south of Muskegon - Bay City line. (Hutson, June 26). PENNSYLVANIA - Fairly numerous, damage to young peaches in Warren County. Numerous on rose and grape in Crawford County. (Adams, June 25).

PERIODICAL CICADA (Magicicada septendecim) - WISCONSIN - Causing damage by laying eggs in branches. Very severe damage to young orchard trees with older trees having "flags" in Richland County. (Wis. Ins. Bul.).

ORCHARD MITES - INDIANA - Averaged 2.8 per leaf in Orleans area. (Marshall). Tetranychus spp. becoming predominant species in several orchards in Vincennes area. (Hamilton). OHIO - Populations of Metatetranychus ulmi generally increasing. (Cutright). WASHINGTON - Only species which is increasing on apples in Yakima Valley is Vasates schlechtendali. Exceptionally good control of Tetranychus spp. obtained. (Luce, Yakima Spray Bul.). MICHIGAN - M. ulmi quite noticeable on untreated apples and plums (Hutson, June 25).

APPLE LEAF SKELETONIZER (Psorosina hammondi) - ILLINOIS - In some places especially unsprayed trees, moderate to severe in Carbondale area. (Chandler).

A TWIG BORER (Oberea ruficollis) - NORTH CAROLINA - Local infestation in blueberry in Craven County. (Kolbe, Fulton).

CRANBERRY ROOTWORM (Rhabdopterus picipes) - NORTH CAROLINA - Adults damaging blueberry leaves locally in Craven County. (Kolbe, Fulton).

BLACK-HEADED FIREWORM (Rhopobota naevana) - WASHINGTON - Hatching expected during first two weeks July. Potential infestation of cranberry bogs in Pacific County appears moderate to serious. (Tidrick).

CHERRY FRUITWORM (Grapholitha packardi) - MICHIGAN - Numerous on blueberries in Lapeer area. Observed at South Haven and Breedsville. (Hutson, July 1).

MEXICAN FRUIT FLY (Anastrepha ludens) - CALIFORNIA - Adult trapped in a lush growth canyon 1/3 mile north of Mexican border and 1/2 mile east of San Ysidro gate. Area being treated. (Harper).

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - FLORIDA - Recent new infestations, reported between June 19 and July 11 include Monroe, Okeechobee and Lake Counties. This makes a total of 21 counties since the initial discovery, April 13 at Miami. (P. P. C.).

TRUCK CROP INSECTS

TOMATO FRUITWORM (*Heliothis zea*) - COLORADO - Some egg-laying on tomato. (Exp. Sta.). UTAH - Eggs 1 per 100 leaves in tomato fields in northern area. High count for season of year. (Dorst).

STINK BUGS - SOUTH CAROLINA - Injury to tomatoes in Beaufort County. Numerous and difficult to control. (Nettles, June 30).

STALK BORER (*Papaipema nebris*) - MASSACHUSETTS - Serious on peppers and tomatoes. (Bourne, June 22).

POTATO LEAFHOPPER (*Empoasca fabae*) - DELAWARE - Heavy on potatoes and black-eyed peas in several places and prevalent on lima beans in Sussex County. (Milliron). MARYLAND - Abundant on beans and potatoes in Allegany and Washington Counties. (U. Md., Ent. Dept.). PENNSYLVANIA - Adults and nymphs building up on potato in Lancaster County. (Pepper). VIRGINIA - Fairly numerous on snap beans in eastern area. (Brubaker, Greenwood, Hofmaster). WISCONSIN - Damaging snap and lima beans in many localities, 10-16 per plant in Columbia and Wood Counties. Damaging soybeans in Chippewa, Eau Claire and Pepin Counties. (Wis. Ins. Bul.). NORTH DAKOTA - Migrating into untreated potato fields of upper Red River Valley. Average of 17 per 25 sweeps. (N. D. Ins. Rept.).

POTATO PSYLID (*Paratrioza cockerelli*) - COLORADO - Infestations on potatoes and tomatoes in Prowers, Bent, Otero and Pueblo Counties in southeastern area; general infestation Rio Grande, Saguache, Alamosa, Conejos and Costilla Counties in San Luis Valley; and Larimer, Weld, Adams, and Morgan Counties in northeastern area. Populations on matrimonyvine and bindweed high. Yellows appearing in potatoes and tomatoes. Many fields treated. (Exp. Sta.).

POTATO FLEA BEETLE (*Epitrix cucumeris*) - DELAWARE - Injuring untreated potatoes at several places. (Milliron). MAINE - Populations and feeding injury generally light or very light in Presque Isle. (Shands).

BLISTER BEETLES - KANSAS - Heavy on commercial tomatoes in Kiowa County. Of concern on ornamentals and home gardens in some areas. (Matthew).

HORNWORMS (Protoparce spp.) - DELAWARE - Eggs and small larvae present on tomatoes generally. (Milliron). VIRGINIA - Infestation severe on tomato plants in northern neck counties. (Farmer). UTAH - Scattered damage to tomato and potato fields. (Knowlton).

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - Severe damage to potatoes west of Middletown with unusual amount of stalk breakage generally. Pupation noted west of Middletown. (Milliron). VIRGINIA - Irish potato stalks heavily infested on Eastern Shore. (Brubaker, Greenwood, Hofmaster). MASSACHUSETTS - Potatoes and other crops have heavy infestations in some areas. (Crop Pest Cont. Mess.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - NORTH DAKOTA - Larvae causing some foliage injury to unsprayed fields in upper Red River Valley. (N. D. Ins. Rept.). PENNSYLVANIA - Numerous tomato plants in commercial plantings completely defoliated in southeastern area. (Menusan).

WIREWORMS - SOUTH CAROLINA - Caused serious and extensive damage to commercial potato crop in Charleston County in the spring. Conoderus falli only species found in 12 of 15 fields under close observation. An average of 43.1 percent of tubers from untreated plots showed feeding injury. Control of C. falli by chlorinated hydrocarbon insecticides lower than before obtained locally. Evidence of considerable resistance to certain insecticides. (Reid). COLORADO - First emergence of Hemicrepidius memnonius in Boulder County June 21-29. Larvae caused serious damage to potatoes and sugar beets in recent years. (Exp. Sta.).

POTATO APHIDS - MAINE - Spring migration about 2 weeks late. Majority mature by July 7. Overall aphid populations on potatoes very light, considerably lighter than usual for period. Aphis abbreviata predominates followed by Macrosiphum solanifolii and Myzus solani. A single infestation of Myzus persicae found for first time on July 6. (Shands). WASHINGTON - Occurring in most potato fields in Grant County, 2-3 aphids per leaf. About 80 percent M. persicae with remainder M. solanifolii. (Kamal, Brannon, Landis).

SPIDER MITES - VIRGINIA - Injury showing on beans in eastern area. (Brubaker, Greenwood, Hofmaster).

PALE-STRIPED FLEA BEETLE (Systema blanda) - DELAWARE - Unusually abundant on lima beans near Slaughter Beach. (Milliron).

LEAFHOPPERS - NEW JERSEY - Greater numbers on beans than in 1955. Damaging in particular to snap beans. (Ins. -Dis. News.).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Feeding heavily on limas at Milford. (Milliron). VIRGINIA - Considerable feeding on snap beans in eastern area. (Brubaker, Greenwood, Hofmaster).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - WISCONSIN - Heavy on cucumbers in many sections. (Wis. Ins. Bul.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - CALIFORNIA - After nine and one-half years of intensive effort, the beetle has been eradicated from State's only known infestation in Ventura County. (Jacobson, Nov. 30, 1955). COLORADO - Damaging numbers in Larimer, Weld, Boulder, Montrose and Delta Counties. (Exp. Sta.). WISCONSIN - Eggs and larvae in one Dane County snap bean location. (Wis. Ins. Bul.). SOUTH CAROLINA - Damage to snap beans serious, Beaufort County. (Nettles, June 28). VIRGINIA - Severe on snap and lima beans in Hampton City area. (Adams). Numerous and defoliating untreated snap beans in eastern area. (Brubaker, Greenwood, Hofmaster).

ALFALFA WEEVIL (Hypera postica) - PENNSYLVANIA - Considerable feeding on the basal parts of pea and bean plants in Dauphin and Schuylkill Counties. (Menusan).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Two-hundred acres of peas in Coulee City area heavily infested, control effective. (Brannon).

BEEF WEBWORM (Loxostege sticticalis) - COLORADO - Moderate to heavy infestations in eastern areas. (Chem. Ind., Ext. Serv., Exp. Sta.).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Loss by curly top in tomatoes in San Diego County normal on June 20. Damage will probably not exceed 5 percent. Mapping of Russian-thistle in San Joaquin Valley showed approximately 250,000 acres which will probably be treated this fall. In Imperial County, 814 miles of roadsides were checked with an estimated 19 percent infested with beet leafhopper. (Cal. Coop. Rept., June 29). UTAH - Populations generally low over most of State. (Knowlton). IDAHO - Total of 12,912 acres in Elmore, Ada, Twin Falls, Jerome and Gooding Counties were sprayed by aircraft and ground equipment. All planned control work completed. (Grass. Cont. Proj.).

SQUASH VINE BORER (Melittia cucurbitae) - DELAWARE - Adults active on squash east of Georgetown. (Milliron).

CABBAGE LOOPER (Trichoplusia ni) - DELAWARE - Troublesome on crucifers generally. Feeding on tomato foliage at many places. (Milliron). SOUTH CAROLINA - Considerable feeding on tomatoes during June in Mt. Pleasant area. (Nettles).

CABBAGE CATERPILLARS - SOUTH CAROLINA - Infestations of cabbage looper, imported cabbageworm and diamondback moth caused 88 percent of untreated plants in late-spring cabbage planting in Charleston County to be ineligible to U. S. Grade No. 1. Cabbage looper quite difficult to control with insecticides now in common use. (Cuthbert et al.). VIRGINIA - Untreated cabbage in eastern area heavily infested with Trichoplusia ni, Pieris rapae, and Plutella maculipennis. (Brubaker, Greenwood, Hofmaster). PENNSYLVANIA - Imported cabbageworm heavy on early-planted cabbage in southeastern area. (Menusan). WISCONSIN - P. maculipennis on cabbage in Chippewa, Eau Claire and Portage Counties. (Wis. Ins. Bul). NORTH DAKOTA - Imported cabbageworm hatching July 4. (N. D. Ins. Rept.).

ONION MAGGOT (Hylemya antiqua) - IDAHO - Abundant in southwestern area. Bulbs 80 percent infested in some fields. Some fields previously treated for maggot control. Infestations increasing rapidly in commercial fields. Heavy populations of adults in all onion fields. (Gittins).

ONION THRIPS (Thrips tabaci) - IDAHO - Generally light populations in onion seed fields in Caldwell area. (Gittins). UTAH - Injury becoming more conspicuous in some localities. (Knowlton).

LEAF MINERS - MICHIGAN - Metallus rubi very numerous in unsprayed dewberry plantings in Millberg, Coloma and Watervliet. (Hutson, June 23).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - NEW JERSEY - Feeding damage to strawberries, particularly in southern area. (Ins. - Dis. News). WASHINGTON - Medium to severe in several raspberry fields in Snohomish County. (Kamal). MICHIGAN - General on strawberries at St. Joseph, Grand Rapids, Traverse City and Manistee. (Hutson, June 24).

STRAWBERRY CROWN MOTH (Ramosia bibionipennis) - OREGON - Adults began to emerge in Hillsboro area, June 25-30. (Rosenstiel).

CYCLAMEN MITE (Steneotarsonemus pallidus) - WASHINGTON - Heavy infestation of strawberry plantings at Prosser. (Frick).

TOBACCO INSECTS

HORNWORMS (Protoparce spp.) - KENTUCKY - Populations of principally P. quinquemaculata generally abundant on tobacco in central area. About 1 larva per 4 to 5 plants. (Boush). NORTH CAROLINA - General, very light infestations on tobacco averaged 3.4 eggs and 7 larvae per 25 plants in Martin County, June 29 and 1.2 eggs and 1.6 larvae per 25 plants in Johnston County June 22. (Brandon, Maxwell). MARYLAND - Infestation on tobacco general in southern area. Control being applied. (U. Md., Ent. Dept.). VIRGINIA - General and medium on tobacco in Greensville County. Seem to be heavier than usual. (Rogers). Light trap catches in Pittsylvania County continued to fall off. (Dominick).

BUDWORMS (Heliothis spp.) - NORTH CAROLINA - Light infestation on tobacco in Granville County (Chamberlin). Averaged 4.6 per 25 plants in Martin County on June 29. (Brandon, Maxwell). Spotted and less than 1 per 25 plants in east central counties. (Farrier). GEORGIA - H. virescens moderate to heavy on tobacco in Laurens, Dodge, Wheeler, Treutlen and Emanuel Counties. (Johnson).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Heavy infestations on tobacco in Tift County. (Morgan). NORTH CAROLINA - Local outbreak in Johnston County. (Maxwell, Farrier).

STINK BUGS - TENNESSEE - Local minor attacks on tobacco in State. (Mullett).

STALK BORER (Papaipema nebris) - MASSACHUSETTS - Numerous reports on tobacco. (Bourne). KENTUCKY - Infesting two fields in Fayette County. Injury most noticeable on field margins near ragweed. (Boush).

SNOWY TREE CRICKET (Oecanthus niveus) - TENNESSEE - Local minor attacks on tobacco. (Mullett).

SEED-CORN MAGGOT (Hylemya cilicrura) - MASSACHUSETTS - Tobacco field in north Amherst plowed up and reset after severe damage. (Bourne).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - KENTUCKY - Generally present on tobacco in central area. Infestation averages 5-10 per plant. (Boush).

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Heavy on tobacco in Laurens and Dodge; moderate in Wheeler, Treutlen and Emanuel Counties. (Johnson).

GRASSHOPPERS - NORTH CAROLINA - Becoming more numerous and causing some slight damage on tobacco in Granville County. (Chamberlin).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Average percentage infestation in 36 counties: treated fields 8 percent, untreated fields 27 percent. (Cott. Lett.). Three percent square infestation in 8 treated fields in Florence County. Untreated check areas in 6 fields had 24 percent infestation. Thirteen percent infestation in 40 treated fields in Darlington County. (Walker et al.). NORTH CAROLINA - Seems to be increasing in lower Piedmont region. Most counties have moderate infestation in many fields. (Cott. News Lett.). Infestations continue spotty with heaviest populations in south central counties. Light in northeastern counties. (Jones et al.). GEORGIA - Average infestation in 15 counties was 28 percent punctured squares. (Johnson, Hinton). TENNESSEE - Serious damage in southwestern counties in fields with squares old enough. Thirty-five percent infested squares this week compared with 17 last week and 2 percent at same time last year. Controls underway over area. (Locke). ALABAMA - Examinations in 32 fields in 7 northeastern counties showed square infestation of 31.5 percent. (Tyus). MISSISSIPPI - First-generation field weevils emerging in south delta and Stoneville area. Emergence lower than anticipated in most areas, hot dry weather important factor. Of 12 fields examined in south Washington, Sharkey and Issaquena Counties, 10 infested at rate of 9.3 percent. Twenty-seven fields in Stoneville had 7.1 percent compared with 6.3 last week and 4.1 at same time last year. (Merkl et al.). LOUISIANA - Continued high infestations with many fields having large numbers of first-generation weevils. Total of 17 fields examined in 6 parishes with infestation averaging 15-59 percent. (Oliver). Squares examined in 80 fields in Tallulah area and all were infested at rate of 22 percent compared to 26 percent last week. Emergence of first-generation weevils becoming more general. (Gaines, Pfrimmer et al.). TEXAS - Some increase in McLennan and Falls Counties but mostly

due to scarcity of squares in early fields. Average of 22.8 percent punctured squares in 17 untreated fields and 8 in 22 treated fields. (Parencia et al.). Large numbers in fields not mature in lower Rio Grande Valley. (Deer). Light to heavy in upper coastal, east and northeast areas. (Fuller, Martin). MISSOURI - Only 3 of 280 fields surveyed showed punctures ranging from 1 to 10 percent. Weevils emerging from squares at Sikeston July 3. (Adkisson). ARKANSAS - First-generation weevils emerging over State. Where conditions have been favorable, these weevils increasing rapidly. Average infestation: southeast area 8 percent compared with 6 last week, east central area 4.1 compared with 2.8, northeast 5.8 compared with 2.9, central 30.2 compared with 20.8, southwest 39.6 percent. (Warren, Harrendorf, Barnes).

BOLLWORMS (Heliothis spp. et al) - SOUTH CAROLINA - In many instances bollworm problem greater threat than boll weevil. Most high infestations in Coastal Plain counties. As high as 25 percent square infestation in some fields in Allendale County. (Cott, Lett.). Decrease of eggs in Florence County, .4 per 100 terminals in 6 fields. Average of 2.4 percent damaged squares in 12 fields in this county. (Walker et al.). NORTH CAROLINA - Very light and scattered in cotton in east central counties. (Farrier). GEORGIA - Average of 2 eggs and 2 larvae per 100 terminals in 12 counties. (Johnson, Hinton). TENNESSEE - Only small numbers in west Tennessee. (Locke). ALABAMA - Average infestation in 7 northeastern counties was 1.9 percent. (Tyus). MISSISSIPPI - Not a problem at present in delta counties. (Merkl et al.). LOUISIANA - Remain very light. (Oliver). Average of 2.7 eggs and 2.2 larvae per 100 terminals in infested fields in Tallulah area. (Gaines, Pfrimmer et al.). TEXAS - Injurious infestations in irrigated fields in McLennan and Falls Counties. Average of 5.5 eggs and .6 larva per 100 terminals in 34 fields. (Parencia et al.). Increased in south central, central and east areas. (Fuller, Martin). ARIZONA - Heliothis zea adults increasing and more widespread, June 29. Oviposition on cotton increasing. Severe infestation, 10 per 100 sweeps, in some fields in Pima County. (Ariz. Coop. Rept.). ARKANSAS - Activity increasing in many fields. (Warren, Harrendorf, Barnes). OKLAHOMA - Light in Caddo and McCurtain Counties. (Flora).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Bloom inspection in 42 central counties shows increase over 1955 in most counties. Averages for the 42 counties were 157 pink bollworms per 100,000 blooms in 1956 compared with 73 in 1955. Thirty-six percent of fields infested against 26 for 1955. (PBW Cont. Proj.).

PLANT BUGS - MISSOURI - Continue to slowly increase in cotton counties. From 1-23 per 100 terminals in 90 percent of fields surveyed. (Adkisson). TENNESSEE - Very light damage in west Tennessee. (Locke). MISSISSIPPI - Fleahoppers and tarnished plant bugs reported from many fields in delta counties not treated recently but little damage. (Merkl et al.). ARIZONA - Lygus increasing in cotton in Maricopa County, June 29, up to 15 per 100 sweeps. Two per 100 sweeps in Santa Cruz Valley. (Ariz. Coop. Rept.).

FLEAHOPPERS - ARIZONA - A black fleahopper (prob. Spanagonicus albofasciatus) taken at 12 per 100 sweeps in Santa Cruz Valley. (Ariz. Coop. Rept.). TEXAS - Light over most of State with a few injurious infestations in central and south plains areas. (Fuller, Martin). Decrease in cotton fleahopper in McLennan and Falls Counties. (Parenchia et al.). Still heavy in McCook area. (Deer). OKLAHOMA - From 0-39 per 100 terminals in Caddo County and 0-21 per 100 in Tillman and Washita Counties. (Flora). TENNESSEE - Widespread in west Tennessee, light damage. (Locke).

THRIPS - ARIZONA - High populations remain in late-planted cotton, June 29. Considerable loss of young fruiting structures and malformation of plants. (Ariz. Coop. Rept.).

APHIDS - GEORGIA - Aphis gossypii light on cotton in 5 counties. (Johnson). ARIZONA - Generally light but a few heavy infestations in Maricopa to Santa Cruz Counties, June 29. (Ariz. Coop. Rept.).

SPIDER MITES - NORTH CAROLINA - Reported in many counties, some fields have general infestation. (Cott. News Lett.). SOUTH CAROLINA - Continue to increase in a few counties. (Cott. Lett.). GEORGIA - Moderate on cotton in Pike (June 29) and Elbert Counties. (Beckham, Johnson). ARKANSAS - Appearing in local areas, heavy some spots. (Warren, Harrendorf, Barnes). ARIZONA - Generally light but a few heavy infestations in Maricopa to Santa Cruz Counties, June 29. (Ariz. Coop. Rept.).

WHITEFLIES - ARIZONA - Increasing on late-planted cotton June 29, some stunting. (Ariz. Coop. Rept.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

LARCH SAWFLY (Pristiphora erichsonii) - MICHIGAN - Hatching in Keweenaw County, June 29. (Hutson).

PINE SPITTLEBUG (Aphrophora parallela) - WISCONSIN - Heavy on 12-15 year old reproduction in Polk County. Some adults appearing. (Wis. Ins. Bul.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - MINNESOTA - Heavy defoliation in areas of St. Louis and Carlton Counties. Pupation underway. (Minn. Ins. Rept.).

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Pupation in Douglas and Polk Counties. Approximately 21,000 acres treated in northwestern area. (Wis. Ins. Bul.). MINNESOTA - Moderate to heavy defoliation in most jack pine stands around Brainerd, Park Rapids and Bemidji. (Minn. Ins. Rept.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) CALIFORNIA - Reported for first time in Marin County, June 19. (Cal. Coop. Rept.).

COTTONWOOD BORER (Plectrodera scalator) - OKLAHOMA - Reached peak of emergence in Payne County week of June 24-30. Ovipositing eggs of poplar. (Beiberdorf).

OAK LACE BUG (Corythucha arcuata) - DELAWARE - Very prevalent on white oak in Redden State Forest. (Milliron).

ELM LEAF BEETLE (Galerucella xanthomelaena) - ALABAMA - Serious damage to elm trees in Lee County. (Blake). IDAHO - Considerable skeletonizing of leaves on many unsprayed elm trees in Canyon and Owyhee Counties. (Gittins). VIRGINIA - Larvae heavy and causing some defoliation of elm trees in several areas. Pupation some areas. (Morris).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - MICHIGAN - Hatching in Otsego County, July 2. (Hutson).

BAGWORM (Thyridopteryx ephemeraeformis) - ILLINOIS - Heavy in places of Carbondale area. (Chandler). MISSOURI - Continues to heavily damage evergreens and other ornamentals around homes and have largely defoliated areas of cedar over southern two-thirds of State. Other trees damage include black locust, willows, sycamore and box elder. (Kyd, Thomas).

A TUSSOCK MOTH - PENNSYLVANIA - Outbreak on oak, maple and apple in southeast area. (Menusan).

MIMOSA WEBWORM (Homadaula albizziae) - MARYLAND - Conspicuous on mimosa trees in most sections. (U. Md., Ent. Dept.).

PENNSYLVANIA - Beginning to appear on honey locust in south central area. (Pepper).

LOCUST LEAF MINER (Chalepus dorsalis) - VIRGINIA - Larvae very heavy on locust trees in some areas of Charlotte County. (Morris).

MARYLAND - Moderate to heavy on black locust. (U. Md., Ent. Dept.).

WALNUT CATERPILLAR (Datana integerrima) - TEXAS - Heavy widespread on pecan, oak and other trees in Brazoria County. (Vaughan).

FALL WEBWORM (Hyphantria cunea) - MISSISSIPPI - Webs numerous and generally distributed. (Hunsucker).

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) - MISSOURI - Soft maples in central and northern thirds of State from 10-75 percent defoliated. (Kyd, Thomas). KANSAS - Many trees in northeast partially defoliated. (Gates).

LACE BUGS - VIRGINIA - Light to heavy on sycamore and oak trees in Franklin County. (Morris).

MITES - MASSACHUSETTS - Spruce mites increasing rapidly on spruce, red cedar, arborvitae and hemlock. (Crop Pest Cont. Mess.).

RHODE ISLAND - Oligonychus ununquus beginning to appear heavily in nurseries. (Mathewson). KANSAS - Light to heavy on shade trees and ornamentals in many areas. (Matthew).

RHODODENDRON LACE BUG (Stephanitis rhododendri) - RHODE ISLAND - Nymphs appearing heavily on rhododendron for first time this season. (Mathewson).

JAPANESE BEETLE (Popillia japonica) - MASSACHUSETTS - First emergence June 27-28. Large numbers now. (Bourne). MARYLAND Abundant on ornamentals in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.). PENNSYLVANIA - Adults becoming fairly abundant in south central area. (Pepper). WEST VIRGINIA - Heavy feeding on ornamentals in local areas of Monongalia County. (Dorsey, Hansen). NORTH CAROLINA - Occurring in Warren County. (Jones). OHIO - Emergence about ten days late. Appearing in numbers in southern area but seen only rarely in northern area. (Polivka, June 29).

AZALEA LEAF MINER (Gracilaria azaleella) - OHIO - Larvae abundant in leaves of azalea in Lake County during June. (R. B. Neiswander).

ROSE CHAFER (Macrodactylus subspinosus) - WISCONSIN - Still very abundant on light soils. (Wis. Ins. Bul.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Continue serious problem in many areas. (Fronk). MINNESOTA - General nuisance throughout State. (Minn. Ins. Rept.).

HORN FLY (Siphona irritans) - OKLAHOMA - Averaged 2,000 per cow in Noble County; 800 per cow in Major County. (Coppock). KANSAS - From 40-180 per animal on range cattle in Comanche and Barber Counties; not increasing. (Matthew).

FLIES - ARIZONA - Flies, mainly Musca domestica (population indices of 2 small towns in southeast Maricopa and northwest Pinal Counties): average of 5 highest grill counts in 9 blocks June 17-23 was 53, June 24-30 was 49.6. (Ariz. Coop. Rept.). MARYLAND - Fannia canicularis abundant around poultry pens in Queen Annes County. (U. Md., Ent. Dept.).

TABANIDS - RHODE ISLAND - Tabanus lasiophthalmus abundant on cattle at East Greenwich. (Steve).

SHEEP SCAB MITE (Psoroptes equi ovis) - VIRGINIA - Found on 147 head of 319 inspected in June; 264 were dipped to control the scabies; 93 were on two farms in Frederick County. (Va. Livestock Health Bull.).

CHIGGERS - WEST VIRGINIA - Much annoyance to man in Berkeley, Morgan and Jefferson Counties. (Dorsey, Hansen).

FLEAS - TENNESSEE - Large number in and around homes in State. (Mullett).

BENEFICIAL INSECTS

ARIZONA - Beneficial insects remained high in cotton fields June 29, Maricopa County to Santa Cruz County. Hippodamia convergens, Collops sp., Geocoris sp., and Chrysopa sp. very abundant in Santa Cruz Valley south of Tuscon July 5. (Ariz. Coop. Rept.).

AN ICHNEUMONID PARASITE (Campoletis perdinctus) - NORTH CAROLINA - Twenty to fifty percent of budworms on tobacco parasitized in east central counties. (Farrier, Bigornia).

MISCELLANEOUS INSECTS

EUROPEAN EARWIG (Forficula auricularia) - UTAH - Abundant and annoying in many areas. (Knowlton).

STORED PRODUCTS INSECTS

KHAPRA BEETLE (*Trogoderma granarium*) - WISCONSIN - Inspection of 139 commercial establishments showed no khapra beetle to be present. However, black carpet beetle was found in nearly all locations with heavy populations in many. (Wis. Ins. Bul.).

CORRECTIONS

CEIR 6(26):619 - Under TOBACCO HORNWORMS (*Protoparce* spp.) - NORTH CAROLINA - Averaged 1 larva and 1 egg per 25 plants in east central counties (Farrier).

ADDITIONAL NOTES

KANSAS - SPOTTED ALFALFA APHID appears to be building up in southern and central areas. Localized infestations with populations requiring controls in some areas of Barton, Pawnee, Ford, and Finney Counties. No aphids found in several northeast counties. (Gates, Matthew). GRASS-HOPPER control continued in Comanche County. Severe populations continue on rangeland of Comanche, Clark, Barber, and Kiowa Counties where control measures have not been applied. During week, there was light migration back into some of previously sprayed areas and populations increased to about 3 to 5 per square yard. Dominant range species in this area, *Philbostroma quadrimaculata* and *Aulocara elliotti*, laying eggs. Elsewhere in Kansas, adults moving into row crops, corn fields, soybeans, and into home gardens. (Matthew).

NEW YORK - ORIENTAL FRUIT MOTH heaviest in years in western area as indicated by infested terminals. APPLE MAGGOT flies began increasing at Geneva July 6. APHIDS numerous in orchards in Westchester, Columbia Counties and increasing in Orleans County. RED-BANDED LEAF ROLLER greatest potential threat to apple crop in Niagara County. PLANT BUGS damaging strawberry in Oswego County. CORN EARWORM about same as last year in Hudson Valley. Mature FALL ARMYWORM collected in Nassau County on corn. EUROPEAN CORN BORER very prevalent in Rockland County, much heavier than normal in Westchester County, very heavy in tassels in Dutchess County. (N. Y. Wkly. Rept.).

CONNECTICUT - EUROPEAN CORN BORER infestations in scattered potato fields in Hartford County. Moderate in untreated corn. POTATO LEAFHOPPER being found in alfalfa. Infestations of ARMYWORM localized in Hartford, New London, Tolland, and Windham Counties. Infestations of APPLE APHID generally severe on apples over State. First APPLE MAGGOT adults taken in traps at Storrs. EUROPEAN RED MITE numerous in few orchards in Hartford and Tolland Counties, and TWO-SPOTTED SPIDER MITE building up on apples in some orchards in Hartford and Windham Counties. APHIDS numerous on peppers, egg plant and tomatoes. CABBAGEWORMS are generally low. LEAFHOPPERS very

numerous on lettuce, beans and carrots. CORN FLEA BEETLE populations are lower than usual. STRIPED CUCUMBER BEETLE population rapidly declining. MEXICAN BEAN BEETLE lower than normal. (Tunis, Minnum).

WYOMING - COLORADO POTATO BEETLE larvae damaging potatoes in vicinity of Powell. Completed control measures on 189, 220 acres for GRASSHOPPERS and MORMON CRICKET and considerably more acreage still requires spraying. (Spackman).

WEATHER OF THE WEEK ENDING JULY 9, 1956

The predominate weather situation existing during the past week was one of low pressure and frontal activity, which extended in general from the southwestern Great Plains to south of the Great Lakes region then eastward to the Atlantic Coast, dividing areas of cooler air in the West and North from the warmer air in the South Central and Southeast. Heaviest precipitation occurred in showers along the frontal boundary. In addition weekly totals were moderate to heavy along the Gulf of Mexico eastward from Louisiana, in the northern Great Plains and Montana, and western Washington. Some excessive falls during the week were 5.03 inches in one shower at Hot Springs, Arkansas on July 8, and 1.23 inches at Unionville, Maryland, in an estimated period of one minute on July 4. In contrast, no precipitation of consequence was reported in the states of Oregon, California, Idaho, Montana, Utah, New Mexico, and Arizona. Texas fell in this group with the exception of a few isolated showers, one of which resulted in a weekly total of over 4 inches.

Weekly temperature avg. were near normal to slightly above south of the frontal border while to the west averages were below by as much as 6° from San Joaquin Valley, Calif., northward, and to the north along the Canadian Border by 9° in northeastern Montana and northern Maine. Temperatures were above 100° at one or more locations in Arizona and Texas on all days, while on July 6, Bridgeport and Hartford, Conn., reported maxima of only 60°, record lows of this value for the month at both locations.

Hail storms were reported in isolated areas in many states. Some damages were reported to uncut grain in Colorado, serious crop damage in Horry County, S. C., and some grape damage in Arkansas. On July 5, Payneville, Minn., reported damage to an area of 60 square miles with estimates of 80 percent to total loss for some fields. (Sum. Suppl. by U. S. Weather Bureau).

$$C = \frac{R}{(1 + \frac{P}{14}) M}$$

Example 1:

M = 8 cords per acre

R = 16 cords per acre

P = 56 percent

$$C = \frac{16}{(1 + 4) 8} = \frac{16}{40} = .40$$

Example 2:

M = 7 cords per acre

R = 16 cords per acre

P = 28 percent

$$C = \frac{16}{(1 + 2) 7} = \frac{16}{21} = .76$$

For a more accurate evaluation of C, a reconnaissance survey is required. In this reconnaissance, a few plots, well scattered over the area, can be taken as a sample to indicate the total variability involved. Later on, more plots can be obtained to complete the survey.

The coefficient of variation is the standard deviation expressed as a percent of the mean. Information on computation of the standard deviation and coefficient of variation can be found in more recent mensuration texts. Bruce and Schumacher "Forest Mensuration" and Girard and Gevorkiantz "Timber Cruising" have good descriptions of the procedure.

Example of computation of standard deviation and coefficient of variation for a small number of plots:

<u>Plot #</u>	<u>Vol/A</u>	<u>Deviation</u> (d)	<u>Deviation squared</u> (d ²)
		(Plot vol. - M)	
1	4	-2.9	8.41
2	3	- .9	.81
3	8	+1.1	1.21
4	5	-1.9	3.61
5	6	- .9	.81
6	12	+5.1	26.01
7	3	-3.9	15.21
8	0	-6.9	47.61
9	3	+1.1	1.21
10	7	+ .1	.01
11	4	-2.9	8.41
12	11	+4.1	16.81
13	3	+1.1	1.21
14	14	+7.1	50.41
15	6	- .9	.81
16	10	+3.1	9.61
17	8	+1.1	1.21
18	4	-2.9	8.41
19	6	- .9	.81
20	8	+1.1	1.21
	<u>138</u>	<u>-25.0</u>	<u>203.80</u>
		<u>+25.0</u>	
		<u>50.0</u>	

Total disregarding sign

$$\text{Average or Mean (M)} = \frac{138}{20} = 6.9$$

$$\text{Std. Deviation (S)} = \sqrt{\frac{\sum d^2}{n - 1}} = \sqrt{\frac{203.80}{19}} = \sqrt{10.72} = 3.27$$

\sum = Total or Sum of

n = Number of plots

$$\text{Coefficient of Variation (C)} = \frac{S}{M} =$$

$$\frac{3.27}{6.9} = .47 \quad (\text{expressed as a decimal})$$

For a large number of plots the computations by this method are laborious and can be shortened by setting up a frequency table. This method is particularly convenient for calculating the coefficient of variation after all data are collected. An example of this procedure, based on an assumed cruise in a pulpwood stand where 213 plots were taken, is given below:

Class limits	Midpoint class	No. of plots	Deviation from Assumed Mean (A)	d ²	nd	nd ²
(1)	x (2)	n (3)	d (4)	(5)	(6)	(7)
0- .99	.5	1	-8	64	- 8	64
1.0- 1.99	1.5	4	-7	49	- 28	196
2.0- 2.99	2.5	7	-6	36	- 42	252
3.0- 3.99	3.5	13	-5	25	- 65	325
4.0- 4.99	4.5	12	-4	16	- 48	192
5.0- 5.99	5.5	17	-3	9	- 51	153
6.0- 6.99	6.5	24	-2	4	- 48	96
7.0- 7.99	7.5	29	-1	1	- 29	29
8.0- 8.99	8.5	28	0	0	0	0
9.0- 9.99	9.5	21	+1	1	+ 21	21
10.0-10.99	10.5	18	+2	4	+ 36	72
11.0-11.99	11.5	15	+3	9	+ 45	135
12.0-12.99	12.5	12	+4	16	+ 48	192
13.0-13.99	13.5	6	+5	25	+ 30	150
14.0-14.99	14.5	4	+6	36	+ 24	144
15.0-15.99	15.5	2	+7	49	+ 14	98
Total		213			-319 +218 -101	2, 119

$$x = \frac{\sum (nd)}{\sum n} = \frac{-101}{213} = -.474$$

$$M = A + x$$

$$M = 8.5 + \frac{(-101)}{213} =$$

8.5 - .47 = 8.03 cords
Average volume per A.

$$C = \frac{S}{M} = \frac{3.13}{8.03} = .39$$

$$C^2 = (.39)^2 = .1521$$

$$S = \sqrt{\frac{\sum (nd^2)}{\sum n-1} - x^2}$$

$$S = \sqrt{\frac{2119}{212} - (-.474)^2}$$

$$S = \sqrt{9.995 - (.225)} = \sqrt{9.77}$$

$$S = 3.13 \text{ cords}$$

M = Mean or Average
A = Assumed Average
x = Correction to Assumed Average
n = Number of Plots
d = Deviation from Assumed Average
S = Std. Deviation
C = Coefficient of Variation

The procedure used is as follows:

1. When individual plot data have been collected, set data up in a frequency distribution table in columns 1, 2, and 3. That is, combine data into classes showing class limits in column 1, midpoint of class in column 2, and number of plots (n) in that class in column 3. Tabulate classes in order of size.

There is no definite rule as to the number of classes to use, but it should be between 5 and 30. As a guide, use 6 - 10 classes for less than 100 plots, 10 - 15 for 100 to 1,000 plots, and 15 - 25 for over 1,000 plots.

2. Assume an average or mean (A) - which should be near the center of the frequency distribution. In a normal distribution the class having the highest number of plots will be near the average.
3. Subtract the midpoint of each class from the assumed mean and enter in column 4. This is the deviation (d) from the assumed mean (A).
4. Square this deviation (d) and enter in column 5.
5. Multiply the number of plots (n) in each class from column 3 by the deviation (d) from column 4 and enter in column 6.
6. Multiply the deviation squared (d^2) from column 5 by the number of plots in each class (n) from column 3 and enter in column 7.
7. Total columns 3, 6, and 7.
8. Then the correction (x) for the assumed mean equals the total of column 6 divided by the total of column 3 or $\frac{\sum nd}{\sum n}$ where the symbol \sum means "total."
9. The Mean (M) or average equals the assumed Mean (A) plus the correction (x) from step 8. $M = A + x$.
10. The standard deviation (S) equals:

$$S = \sqrt{\frac{\sum nd^2}{\sum n-1} - x^2}$$

In estimating the intensity of sampling needed, special attention should also be given to the degree of accuracy (E) assumed for the job. Although it is well recognized that E should vary with the importance of the statistic involved, many mistakes are made in overlooking the fact that E should vary with the area covered by sampling. It is improper, for example, to assign the accuracy of 10 percent (E = .10) for the survey involving 40 acres as well as for the one involving 40,000 acres, unless an effort is made to expand the value of the coefficient of variation (C) to allow for the natural increase in variability as the area gets larger. Although there is no special rule which would set the value of E for all jobs, it is believed that the minimum number of plots should be in the neighborhood of

$$N = 20 \sqrt{A_0 C}$$

based on the assumption that percent sample (p) should be smaller than

$$p = \frac{20 a \sqrt{C}}{A_0}$$

- where A_0 = area of the tract in units of 100 acres
 C = coefficient of variation (decimals)
 a = area of sample plot in acres

Thus, with C = 1.0, one would need on the area comprising 400 acres about

$$N = 20 \sqrt{4 \times 1} = 40 \text{ plots.}$$

If it is anticipated that separate statistics will be needed by different subdivisions of the total area, the required number of plots should be computed for each subdivision under consideration. Simple random sampling has been assumed throughout. More efficiency can be attained by stratification of the area. Any stratification will reduce the error of sampling even with a considerably smaller total number of plots. Instead of taking random samples over the entire area, the area can be separated first into units or condition classes which differ widely from each other but are essentially uniform within. The next step then would be to take plots from each unit or stratum. Let us assume that in the example above the area was divided into three homogeneous parts, each having more or less uniform conditions, and only one-half as many plots were employed. If the stratification is really good, it means that the coefficient of variation within each stratum should be considerably below 1.0 which is the relative variability of all observed values from the grand average comprising widely different conditions.

Assuming the within variation to range only from 0.2 to 0.4 we get:

Subdivision	Proportion of area (p)	Coefficient of variation (c)	Number of plots (n)	Error of variance c^2/n	Product $c^2 p^2/n$
1	.4	.4	10	.016	.00256
2	.2	.3	5	.018	.00072
3	.4	.2	5	.008	.00128
	1.0		20		.00456

Here the sampling error is:

$$\sqrt{.00456} = .0675 \text{ or } 6.75 \text{ percent}$$

as compared to

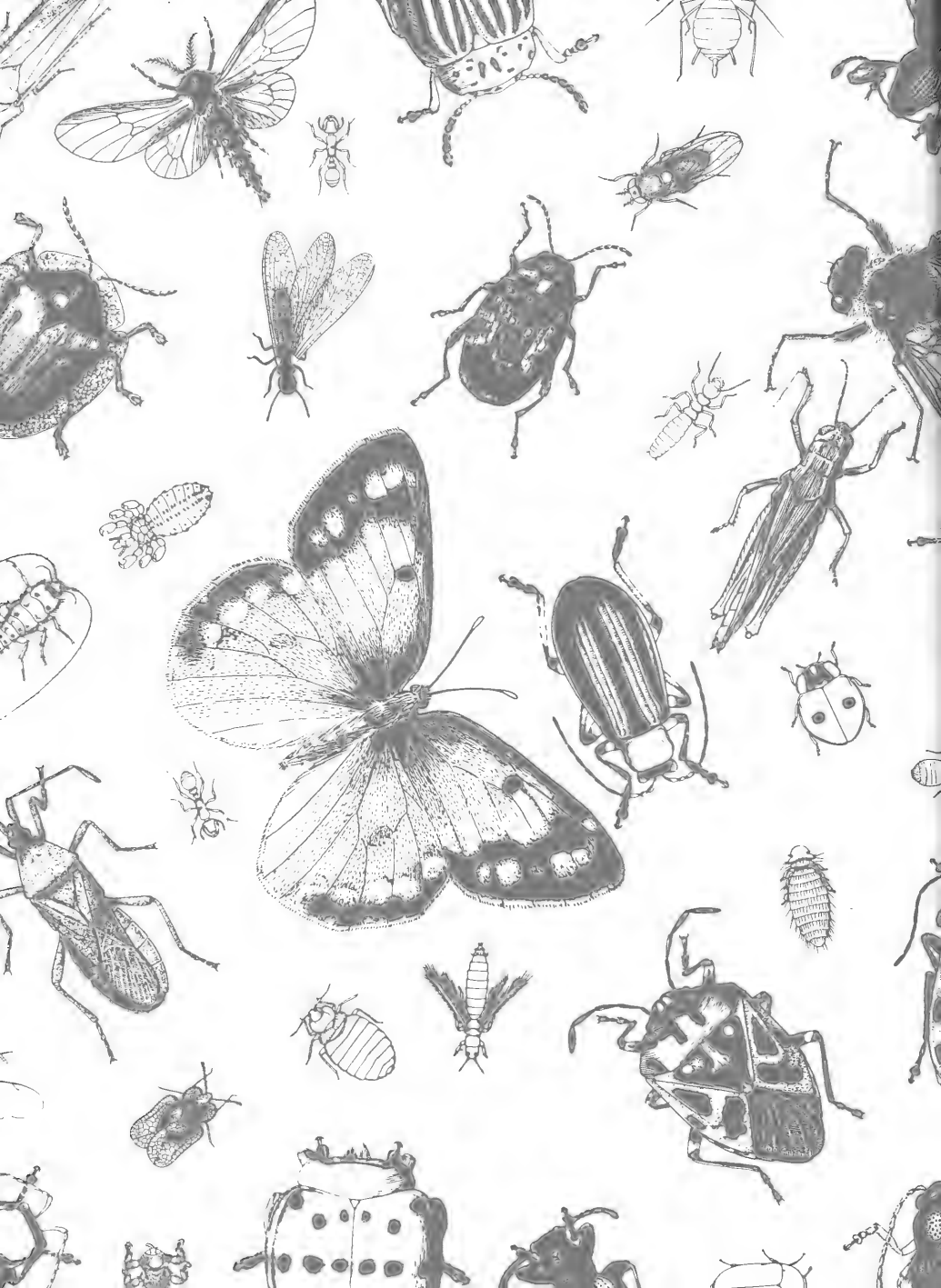
$$\sqrt{\frac{1.0}{40}} = .158 \text{ or } 15.8 \text{ percent obtained by simple random}$$

sampling employing twice as many plots. The example above, of course, assumes very sharp stratification characterized by very uniform conditions within each stratum. This would be difficult to obtain in actual practice. The main principle of the reduction of error, however, will hold in all cases employing proper stratification. Whenever possibilities for real stratification exist, they should be considered in every sampling plan.

LIGHT TRAP COLLECTIONS	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea viresc.	Protoparce sexta quinq.	Laphyg. frugip.
SOUTH DAKOTA								
Brookings 7/3, 7/5	105				5			
NEBRASKA (Counties)								
Lancaster 6/17-23		21		2		12		4
Lincoln 6/8-17		353		1681		1		20
Scotts Bluff 6/19-23		30		89		4		3
MINNESOTA (County)								
Ramsey 7/2, 4-5	49	5						
MISSOURI (County)								
Boone 6/30-7/6	53	23		28		26	11	
WISCONSIN								
DeForest 6/27-7/1	24					32		
ILLINOIS								
Urbana 6/29-7/5	249	15	24	108		3	11	
INDIANA (Counties)								
Lawrence 6/21-7/6	226	20	16	197		1	59	19
Tiptecanoe 6/22-7/6	336	15	22	48		1	1	3
OHIO (County)								
Athens 6/18-7/1	33	17						
VIRGINIA (County)								
*Pittsylvania 6/24-30							69	104
NORTH CAROLINA (Counties)								
Duplin 7/4-5	1	3	14	19	8	2	2	5
Johnston 7/4-5			19		13	14	1	4
SOUTH CAROLINA (Counties)								
Charleston 6/18-24			8		7	2		2
Florence 6/23-29	1	14	12	13	361	9.3	165	75
Oconee 6/24-30		4	17		43	13		1
GEORGIA (Counties)								
Clarke 6/23-7/3	2		10	10		2		19
Spalding 7/2-5	14	110	47		133			3
Tift 6/23-7/5								37
FLORIDA								
Quincy 6/26, 7/2	3		1		11	23	5	9
Monticello 6/28			1		3			3
Gainesville 6/27					2		1	
TENNESSEE (Counties)								
Madison 6/26-7/2	8	4	4	12				12
Lawrence	40		4	16				
Maury	12		26				6	
Robertson	152	16	4	8		16		19
Cumberland		2	6	4		4		23
Knox	10		14			24		4
Greene	110	22	45	163				33
Blount	38		24	52				5
Johnson	10	22	21	22			1	3
MISSISSIPPI (Counties)								
Cochaha 6/30-7/6	1		10	2		52		
Humphreys			10		3	56		
Lauderdale			7	4	2	3		
Marshall			17					
Oktibbeha	60	14	26	6	32	44		
LOUISIANA								
*Tallulah	43	14	167	2	197	490	16	171
Baton Rouge 6/30-7/6	6	7	67	1	63	12		31
Curtis 6/21-7/1		3			11	16		11
Franklin 6/28-7/4						1		
ARKANSAS								
Hope 6/23-7/5								23
Van Buren 6/28-7/5	1							22
Varner 6/28-7/4		23						14
Fayetteville 6/30-7/6	24	16		6		26		
Clarksville 6/9-7/2	42	4		16		24		
TEXAS								
College Station 7/1-2			8	1		27		12
Denton 6/16-30	1		6			11		2
Waco 6/30-7/6	1	2		13	13	61		
Winter Haven 6/16-29	1					41		2

Other Collections: Georgia (Tift Co., 6/29-7/5): Elasmopalpus lignosellus 16 Nebraska (Lancaster Co., 6/17-23): Empoasca fabae 438.

*Three traps Pittsylvania County, Virginia; Tallulah, Louisiana.



VOL. 6 No. 29

JULY 20, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS continue outstanding agricultural insect problem in Iowa and Minnesota, infestations generally heavy in Oklahoma and threatening to severe locally in some central Kansas counties. Damage continues to increase in Utah and populations still threaten crops in North Dakota. Counts decreased in Missouri but remain high in northern and western areas. South Dakota, Kentucky and some other areas also report abundance. (pp. 683, 703). EUROPEAN CORN BORER remains heavy in eastern areas. High populations in some early-planted corn in Ohio but populations have not developed as expected in areas of Wisconsin. First-generation moths out in Missouri and heavy in northern Alabama. Second-brood emergence will be drawn out in Iowa. (pp. 684, 703).

CHINCH BUG damage continues in central Kansas and areas of Missouri. Migrating into corn in Illinois. Light infestation in eastern Oklahoma. (p. 684). CORN EARWORM heavy on corn in Tennessee, moderate in eastern Nebraska and increasing in southern Missouri and northern Utah. (p. 685). CORN LEAF APHID damaging barley in some Utah counties and requiring control on this crop in Red River Valley, Minnesota. Heavy infestations on corn and/or sorghums in Kansas, Nebraska, Iowa, Missouri, Tennessee and Louisiana. (p. 686). CORN SAP BEETLES are numerous in Delaware, Maryland and northeastern Arkansas. Appearing in Tennessee. (p. 686).

FALL ARMYWORM heavy on young corn in Independence County area of Arkansas. Also infesting corn in Kansas, Delaware and New York. (pp. 687, 703). WHEAT STEM MAGGOT heavier than normal in Wisconsin. (p. 687). WESTERN YELLOW-STRIPED ARMYWORM widespread in northern California. (p. 687).

PEA APHID building up in alfalfa in southwest Idaho and continues problem in areas of Colorado, Utah and Wisconsin. (p. 688). SPOTTED ALFALFA APHID reported from Illinois for first time. Increasing in Sacramento Valley, California. Widespread in northeastern Arkansas. Light infestations in areas of Kansas, Texas Panhandle and very light populations appearing in southern Nebraska. (p. 688). ALFALFA CATERPILLAR becoming abundant in eastern South Dakota and adults prevalent in Loup Valley, Nebraska. (p. 688).

Second-brood CODLING MOTH active in Eastern States. (p. 691). ORCHARD MITES increasing in some counties of Indiana, Wisconsin and West Virginia. (pp. 691, 703). MEDITERRANEAN FRUIT FLY reported in additional county of Florida. (p. 692).

MEXICAN BEAN BEETLE damaging beans in Colorado and Utah areas; also troublesome in areas of North Carolina, Rhode Island and Delaware. (p. 693). TOMATO FRUITWORM heavy on tomatoes in Tennessee and Plaquemine Parish, Louisiana; some damage in southeastern Pennsylvania. (p. 693). POTATO LEAFHOPPER heavy on potatoes in Wisconsin and eastern Virginia. Building up in potatoes in southeastern Pennsylvania and on legumes in Iowa. (p. 693). POTATO PSYLLID higher than for several years in Colorado. (p. 694). BEET LEAFHOPPER collected for first time this year at East St. Louis, Illinois. Curly top as high as 20 percent in canning tomatoes in Weld and Adams Counties, Colorado. (p. 695).

HORNWORM infestations unusually heavy on tobacco in Maryland. (p. 696).

BOLL WEEVIL threatening in areas of North Carolina where little activity earlier in the season. High infestations and considerable damage in west Tennessee. High counts also in northeastern Alabama, northwest and southern Georgia and several Louisiana parishes. First-generation weevils increasing in Mississippi and central Texas and emergence underway in Arkansas. (p. 697). BOLLWORMS appearing in Arizona and increasing in Louisiana, Missouri, Texas and in Muskogee County, Oklahoma. Moths active in Louisiana and northern Mississippi. (p. 697). Texas reports first COTTON LEAFWORM this season. (p. 698).

FALL WEBWORM heavy in east central Oklahoma. Continues of concern in Georgia, Louisiana and some other areas. Appearing as far north as Wisconsin. (p. 698). JACK-PINE BUDWORM adults emerging in Minnesota, damage conspicuous in some Wisconsin counties. (p. 699). EUROPEAN ELM SCALE unusually heavy in some areas of Wisconsin, also heavy in Decatur County, Kansas. (p. 699).

HORSE FLIES above normal in southeastern Idaho and troublesome in areas of Utah. (p. 701).

WEATHER outlook and summary. (p. 690).

CORRECTION. (p. 692).

STATES reporting - 42.

ADDITIONAL NOTES. (p. 703).

SURVEY METHODS for JACK-PINE BUDWORM. (p. 705).

Distribution maps of RANGE GRASSHOPPERS. (p. 710).

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

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - NEVADA - Camnula pellucida developing very rapidly. From 6000-8000 acres infested in Elko, Eureka and Humboldt Counties. (Gallaway, July 7). IDAHO - Nymphs, third to fourth instars, congregating in green vegetation on roadsides and in creek bottoms in southwestern area. Populations very spotted, occasionally as high as 80 per square yard. Some control. (Portman). Average of 25 nymphs per square yard on roadsides in Downey area. In Shoshone area, populations low generally but spots have up to 10 per square yard. (Smith). UTAH - Damage continues to increase in many areas. Adults becoming noticeably abundant some places. (Knowlton). OKLAHOMA Heavy general infestation over State. Extensive damage to cotton, corn, sorghum, alfalfa, soybeans and rangeland. Melanoplus differentialis, M. bivittatus and M. femur-rubrum most abundant crop species; adults over State. (Coppock). SOUTH DAKOTA - Abundant in some local areas in southeast and east central regions. Most areas have 8 nymphs per square yard but some as many as 12. Dominant species M. femur-rubrum. (Hantsbarger). KANSAS - Threatening to severe in local areas of some central counties, 10-30 per square yard throughout some pastures and cropland. Dominant crop species are M. differentialis, M. bivittatus and M. mexicanus. Primary range species is Ageneotettix deorum. Reports of destructive infestation in row crops and gardens continue from most areas. (Matthew). MISSOURI - Nymph and adult counts remain high in margins, pastures and legumes over northern and western areas although count less than last week. Locally heavy rains have slowed migrations into crops. Adult M. differentialis found over State but most in late instars. M. bivittatus egg-laying continues but adults declining in southwest. (Kyd, Thomas). NEBRASKA - Migrating rapidly. Crop species range from 5-45 per square yard in margins to 4-10 in alfalfa fields. M. bivittatus and M. mexicanus mostly adults. A few adult M. differentialis but most in third and fourth instar. From 1-15 rangeland grasshoppers per square yard in Hooker, Blaine, McPherson, Logan, Lincoln and northwestern Custer Counties. A. deorum dominant species. (Andersen). NORTH DAKOTA - Continue to threaten crops in many areas, especially late crops. Thirty to 50 percent of grasshoppers adults. Major infestation in western area made up of M. bivittatus (60 percent), M. mexicanus (20 percent or less) and other species. (N. D. Ins. Rept.). MINNESOTA - Continue number one agricultural insect problem. (Minn. Ins. Rept.). TEXAS - Heavy locally on sorghums in Palo Pinto County. (Lindsey). KENTUCKY Second and third instars of Melanoplus sp. abundant in bluegrass and legume fields. (Thurston). ILLINOIS - Maximum population in southern area was 6 per square yard. Heavier in western and northwestern areas. (Ill. Ins. Rept.). FLORIDA - Schistocerca americana heavily infesting corn and tobacco at Bronson, Levy County. (Farrell, July 7). MARYLAND - Local damage to margins of soybean fields in Wicomico County; unusually severe in one large field. (U. Md., Ent. Dept.). DELAWARE - Melanoplus spp. injuring corn and soybeans some areas. (Milliron).

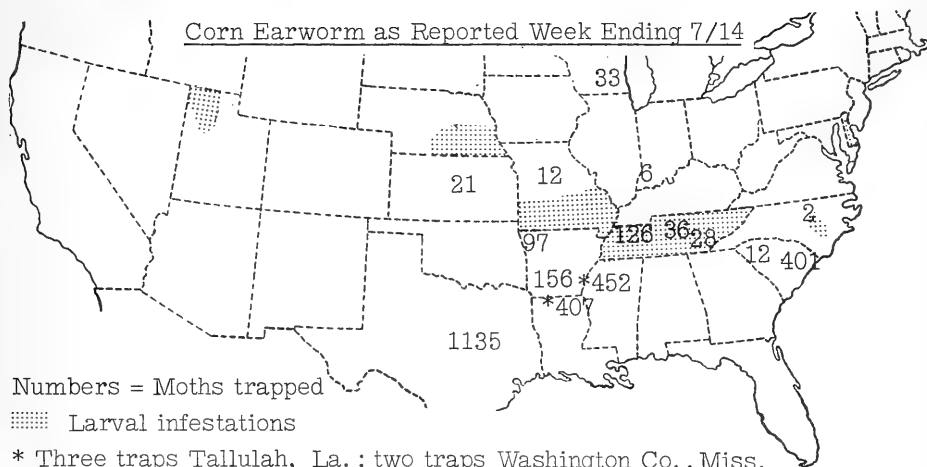
EUROPEAN CORN BORER (Pyrausta nubilalis) - NORTH DAKOTA - Only light infestation in northern Cass County, 10 egg masses per 100 plants. (N. D. Ins. Rept.). MINNESOTA - Borers per 100 plants: south central 132, southwest 128, southeast 37, central 49. (Minn. Ins. Rept.). SOUTH DAKOTA - Average percent of plants infested in southeast continues at 11 percent. Most borers third and fourth instars, some entering stalks. (Hantsbarger). WISCONSIN - Populations have not developed as expected in some areas. (Wis. Ins. Bul.). OHIO - Oviposition practically complete, most eggs hatched. Due to humid weather, relatively high larval establishment and many early-planted fields of susceptible strains show high populations of young larvae. (C. R. Neiswander). KANSAS - From 2-12 percent infestation in Doniphan and Jefferson Counties. One field in Jefferson County had 71 percent pupation. (Burkhardt). MISSOURI - First-generation moths 30 percent emerged in southeast; 7 borers and 4-8 egg masses per 100 plants. Mostly late instars in east central and northwest areas; 27 percent emerged in west central area. (Burdett). NEBRASKA - Light in Loup Valley, 0-60 plants of 100 show feeding. (Andersen). ARKANSAS - Pupation nearly complete in northeast, second brood adults about 80 percent emerged. Infestations heavier in Randolph County than in 1955. (Warren, Harrendorf, Barnes). ALABAMA - Pupation about complete in northern area, heavy moth flights. (Eden). MARYLAND - Eggs of second generation appearing on corn in Talbot and Dorchester Counties, 3 masses per 100 plants. First-generation damage to sweet corn light to moderate in Kent and Frederick Counties. (U. Md., Ent. Dept.). PENNSYLVANIA - More than for past several years on early corn in Snyder County. (Gesell). Generally abundant but many very heavy infestations, 15-20 borers per plant, in some fields in Juniata County. (Udine). Spotted infestations in southeast. (Menusan). NEW JERSEY - So heavy that continuous spray program warranted on sweet corn. (Ins. - Dis. Newsltr.). DELAWARE - Heavy in field corn, unusually prevalent in sweet corn. (Milliron).

CORN ROOTWORMS - KANSAS - Diabrotica sp. causing corn lodging in one location in Ottawa County. (Matthew). MISSOURI - Diabrotica longicornis adults in fields scattered over State, 1-2 per plant in most fields but a few fields in northwest and extreme southeast have 7-8 beetles per plant. Larval injury becoming evident. (Kyd, Thomas).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Light general infestation in eastern area, some marginal damage to corn and sorghum in isolated fields. (Coppock). KANSAS - Injury to milo continues in central area. Rains have decreased populations very little. (Matthew). MISSOURI - Continues problem over much of northern half of State and in scattered fields in central and southeast areas. Rains have slowed damage but heavy numbers persist in untreated fields. (Kyd, Thomas). ILLINOIS - Migrations to corn in several areas, particularly north sections. (Ill. Ins. Rept.).

SAND WIREWORM (Horistonotus uhlerii) - GEORGIA - Heavy on corn in Wayne County, June 19. (Blickenstaff).

Corn Earworm as Reported Week Ending 7/14



CORN EARWORM (*Heliothis zea*) - LOUISIANA - One to 20 per 100 sweeps on alfalfa in Natchitoches, Bossier and Caddo Parishes. (Oliver). TENNESSEE - Heavy on corn. (Mullett). MISSOURI - Moths increasing over southern half of State and in southeast from 75-100 percent of ears have 1-2 larvae per ear. About 3 eggs per silk on field corn. (Kyd, Thomas). NEBRASKA - Moderate in corn Loup Valley area and in southeast counties. Five to 30 plants of 100 infested. Damage in whorl and tassel. (Andersen). UTAH - Increasing in corn in Utah, Salt Lake, Davis and Box Elder Counties. (Knowlton). NORTH CAROLINA - Average of .5 egg per silk at Clayton. County-wide infestation in Duplin County; 100 percent infestation in untreated ears. (Farrier, Reid, Brett). MARYLAND - Remains light in most sections. (U. Md., Ent. Dept.). DELAWARE - Infesting tassels at Bridgeville. (Milliron).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - KANSAS - As high as 30 percent infestation near St. John, Stafford County. One to 4 percent infestation in Barton, Reno and Dickinson Counties. (Painter). ARKANSAS - Generally light in northwestern counties. First-generation larvae pupating July 5. (Warren, Harrendorf, Barnes).

BROWN WHEAT MITE (*Petrobia latens*) - IDAHO - General infestation with numerous eggs in Power County, June 29. Minor damage. (Schow). General on grasses and grains in southeastern area. (Portman, Gittins).

RICE STINK BUG (*Solubea pugnax*) - LOUISIANA - Building up in grass turn rows and rice fields, 11-34 per 100 sweeps in St. Landry, Acadia and Vermillion Parishes. (Oliver).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Light to moderate feeding on soybeans in Wicomico and Dorchester Counties. (U. Md., Ent. Dept.). DELAWARE - Damage to corn and soybeans at several places. (Milliron). VIRGINIA - Medium infestation on corn in Cumberland and Fluvanna Counties. (Seay, Smith).

CORN LEAF APHID (Rhopalosiphum maidis) - UTAH - Damage to barley in parts of Uintah, Emery and Duchesne Counties. (Knowlton). KANSAS - Reported from many areas, particularly central and north central. Counts from less than 10 to over 2,000 per plant. Heavily infested plants showing damage. (Matthew). Severe in Washington and Marshall Counties. (Marvin). Found in nearly all fields of milo in Dickinson, Ottawa and McPherson Counties. (Painter). NEBRASKA Heavy on sorghum, light on corn in southeast, east central and Loup Valley areas. Lady beetles average 1 per plant on sorghum in Hall County area. (Hill, Andersen). OKLAHOMA - Light, 0-50 per plant, in eastern half of State. (Coppock). MISSOURI - Widely scattered heavy infestations on corn and grain sorghums. Leaf discoloration in fields having several thousand aphids per plant. Predators numerous but not controlling. (Kyd, Thomas). MINNESOTA - Necessitating control in some late barley in Red River Valley. (Minn. Ins. Rept.). TENNESSEE - Heavy populations infesting tassels of corn generally. (Mullett). LOUISIANA - Heavy on corn in Rapides and Pointe Coupee Parishes. (Oliver).

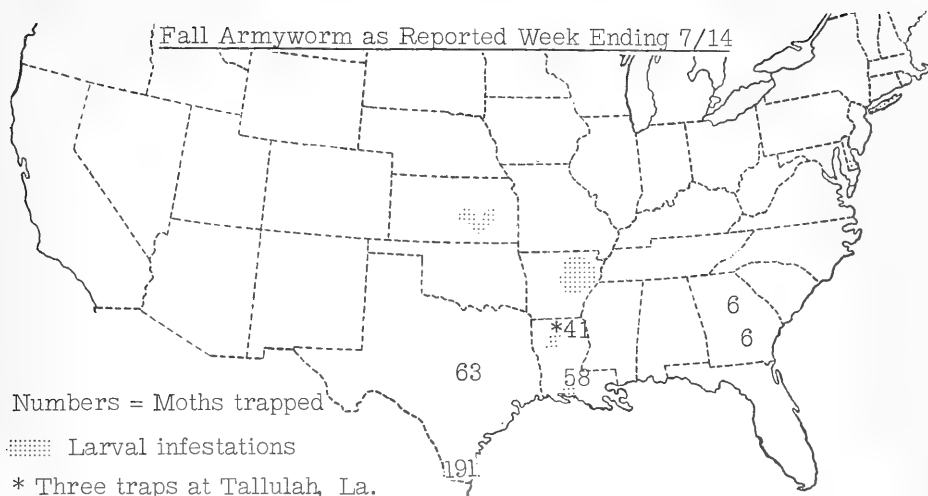
CORN SAP BEETLES - NEW JERSEY - Heavy damage by European corn borer encouraging sap beetles. (Ins. - Dis. Newsltr.). DELAWARE - Carpophilus lugubris abundant on corn, as a primary and secondary invader. Especially numerous in Bridgeville-Georgetown area on sweet corn, damaging silks. (Milliron). MARYLAND - Abundant following European corn borer or corn earworm damage. (U. Md., Ent. Dept.). TENNESSEE - Appearing on corn. (Mullett). ARKANSAS - Numerous in many corn fields in northeastern counties, some damage to silking corn. Colaspis sp. also involved. (Warren, Harrendorf, Barnes).

HESSIAN FLY (Phytophaga destructor) - PENNSYLVANIA - Considerable infestation in many wheat fields of Juniata County. One field 75 percent infested, 3-4 "flaxseeds" per stem. (Udine).

LEAF MINERS - TENNESSEE - Heavy populations of corn leaf miners occurring in Cumberland plateau area. (Mullett).

CRICKETS - NEVADA - An infestation, believed to be Plagiostira gillettei, on 400 acres of rangeland in western Humboldt County. Populations of 2-3 per square yard. (Gallaway). MINNESOTA - Injury to flax and small grains in some areas. (Minn. Ins. Rept.).

A BURROWING WEBWORM (Acrolophus sp.) NORTH CAROLINA - Lawns attacked in Iredell, Wake and Guilford Counties with almost total destruction in each instance. (Stamey, Wagner, Rabb).



FALL ARMYWORM (Laphygma frugiperda) - KANSAS - From 2-12 percent infestation in corn in Barber, Stafford, Reno and Harvey Counties. Many larvae in late instars. (Painter, Gates, Matthew). ARKANSAS Very heavy on young corn in Independence and adjacent counties. Up to 85 percent of stalks infested in some fields with as high as 5 larvae per stalk. (Warren, Harrendorf, Barnes). LOUISIANA - Populations declined, 6-20 per 100 sweeps in Acadia and Vermillion Parishes. Parasites and diseases aided in reduction. (Oliver). DELAWARE Attacking late corn at Smyrna. (Milliron).

WHEAT STEM MAGGOT (Meromyza americana) - WISCONSIN - Much heavier and more widespread than normal on small grains. (Wis. Ins. Bul.). PENNSYLVANIA - Two to three percent damage in wheat in Armstrong County. (Adams).

APHIDS - IDAHO - A clover aphid (unidentified) found generally infesting sweetclover in southeastern area. (Portman).

SWEETCLOVER APHID (Myzocallidium riehmii) - WASHINGTON - Populations low on sweetclover in Palouse and Columbia Basin regions, 0-17 per 25 sweeps. (Johansen).

CLOVER APHID (Anuraphis bakeri) - IDAHO - Beginning to build up on seed clover in Canyon County, control in several fields. (Scott).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - CALIFORNIA - Infestations common in alfalfa in widespread areas of northern California. (Cal. Coop. Rept.).

PEA APHID (Macrosiphum pisi) - COLORADO - Continues to overshadow spotted alfalfa aphid. (Exp. Sta.). UTAH - Some severe damage to alfalfa in Uintah and Emery Counties. (Knowlton). IDAHO - General in alfalfa in southeastern area, building up in some southwestern counties. (Portman, Gittins, Barr). NEBRASKA - Down due to second cutting of alfalfa, 23 per 10 sweeps in Loup Valley. (Andersen). MINNESOTA - Somewhat lower than last year, 1-40 per sweep in southeast, south central and central areas. (Minn. Ins. Rept.). WISCONSIN - Continues heavy on alfalfa in some counties. (Wis. Ins. Bul.).

SPOTTED ALFALFA APHID - CALIFORNIA - Increasing in Sacramento Valley as far north as Red Bluff. Common in a few fields in Tehama County. Infestations not known in Siskiyou, Modoc, Lassen, Sierra, Plumas or Colusa Counties nor north of Alameda County in coastal area. (Cal. Coop. Rept.). COLORADO - Heaviest population around Hartman, Prowers County. (Exp. Sta.). KANSAS - Non-economic to light in central and north central, 20-600 aphids per 25 sweeps. Same situation in northeast where counts run 50-125 per 25 sweeps generally. Some fields in Lyon County (east central) had as high as 750-2700 per 25 sweeps of 25-inch net. Predators low in most fields. (Matthew, Burkhardt). Heavy populations causing some damage in local areas of Barton County. (Gates). NEBRASKA - Very light infestations found in Dundy and Gage Counties. Up to 1 per sweep in Dundy and 2 per 100 sweeps in Gage. (Hamilton, Hill, Andersen). OKLAHOMA - Continues low in eastern area. One field in Cleveland County had 1500 per 10 sweeps but other fields in vicinity had low infestations. (Coppock). TEXAS - Light widespread on alfalfa in Castro, Reeves, Floyd and Bailey Counties. (Richardson). ARKANSAS - Widespread in northeastern area, up to 250 per sweep. (Warren, Harrendorf, Barnes). ILLINOIS - A few specimens collected in Jackson County. No damage. Determined M. W. Sanderson, confirmed L. M. Russell. (Ill. Ins. Rept.). First report for Illinois. LOUISIANA - Remains light in Caddo, Bossier, Red River and Natchitoches Parishes. (Oliver).

CUTWORMS - MICH. - Larvae, particularly Agrotis ypsilon and Actebia fennica, widespread on lowland from Indiana line to Traverse City. Several reports of armyworm trouble but none seen were true armyworm. (Hutson).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - SOUTH DAKOTA - Becoming abundant in alfalfa of east central and southeast regions. Six larvae per 10 sweeps. (Hantsbarger). IDAHO - General but light in Oneida, Bannock and Bingham Counties and south central area. (Gittins). NEBRASKA - Adults very prevalent in alfalfa in Loup Valley. Ten larvae per 10 sweeps. (Andersen).

BLISTER BEETLES - IDAHO - Spotted in alfalfa in Oneida, Bannock and Bingham Counties but not very abundant. (Gittins). KANSAS - Epicauta causing considerable damage to soybeans and alfalfa in Bourbon and Labette Counties. (Marvin). MISSOURI - Damage continues in scattered soybean and alfalfa fields. (Kyd, Thomas). OKLAHOMA - Epicauta spp. remain common in alfalfa, over one per sweep in isolated fields. (Coppock).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - SOUTH DAKOTA - Numerous in some alfalfa fields, up to 72 per 10 sweeps. (Hantsbarger).

CHALCIDS - OREGON - More than normal damage to crimson clover in Linn County. (Every). WASHINGTON - Bruchophagus gibbus adults active in several fields of red clover for seed in Columbia Basin, up to 65 per 25 sweeps in field near Quincy. (Johansen).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - MAINE - More numerous than for several years. Distribution of this insect now known to be Statewide. (Simpson).

PLANT BUGS - IDAHO - Lygus average 7 adults and 10 nymphs per sweep in untreated alfalfa seed fields in Oneida County. About 2 per sweep in alfalfa and red clover in Bingham County. (Portman, Gittins). UTAH - Lygus abundant generally. Damaging buds of untreated alfalfa in Duchesne and Uintah Counties. (Knowlton). KANSAS - Numerous in alfalfa in Geary, Riley, Dickinson and Ottawa Counties. Some seed alfalfa had 2-12 bugs per sweep. Dominant species are Adelphocoris lineolatus and L. lineolaris. (Matthew). NEBRASKA - From 10-25 L. lineolaris adults per 25 sweeps in alfalfa in 5 central counties. From 5-10 A. lineolatus adults per 25 sweeps in alfalfa in Loup Valley. (Andersen). MINNESOTA - Five to 6 Lygus per sweep in red clover in Roseau County. (Minn. Ins. Rept.). ARKANSAS - L. lineolaris heavy, averaging up to 10 per sweep in Independence and Jackson Counties. (Warren, Harrendorf, Barnes).

POTATO LEAFHOPPER (Empoasca fabae) - DELAWARE - Prevalent on soybeans and potatoes, (Milliron).

ALFALFA WEEVIL (Hypera postica) - CALIFORNIA - More injurious in Modoc County than for many years. (Cal. Coop. Rept.). IDAHO Adult populations generally above average in alfalfa in southeastern area. (Portman, Gittins, Scott).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - WASHINGTON Severe in heads of red clover at Elma. (Howitt).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NEVADA - Light infestation in Washoe County. First record for State. (Gallaway). IDAHO - Adult damage general on sweetclover in southeastern area, leaf damage about 30 percent. (Portman).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - WASHINGTON Moderate in some fields of red clover for seed in Columbia Basin, up to 1,430 per 25 leaflets in field near Quincy. (Johansen).

SPIDER MITES - MISSOURI - A very few fields of soybeans in extreme southeast showing considerable loss of foliage. (Kyd, Thomas).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Forty to 124 per 100 sweeps in legumes in 7 parishes. (Oliver). ALABAMA - Heavy infestations in Elmore County. (Arant). ARKANSAS - Increasing but continues light on alfalfa, 3 per 10 sweeps. (Warren, Harrendorf, Barnes).

GARDEN WEBWORM (Loxostege similalis) - KANSAS - Damage to alfalfa in Comanche and Osborne Counties. (Gates).

BEAN LEAF BEETLE (Cerotoma trifurcata) - MISSOURI - From 1-4 beetles per linear foot of row causing considerable leaf injury of soybeans in scattered fields in some areas. (Kyd, Thomas).

WEATHER BUREAU'S 30-DAY OUTLOOK

Mid-July to Mid-August 1956

The Weather Bureau's 30-day outlook for the period from mid-July to mid-August calls for temperatures to average below seasonal normals in the northeastern quarter of the United States. In the remainder of the country above normal temperatures are predicted except near normal along the northern and western borders and in the South Atlantic States. Precipitation is expected to exceed normal in the Great Lakes region and Mid-West. Subnormal amounts are indicated in the West Gulf States, the Far West, and the Northern Rocky Mountain States. Elsewhere near normal precipitation is anticipated.

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

WEATHER FOR THE WEEK ENDING JULY 16, 1956

A high pressure cell, located in the center of the country at the beginning of the period, which moved out over the Southeast by Friday was preceded and followed by rains and accompanied by generally cooler temperatures. Under the almost daily influence of cloudy skies and precipitation a large area surrounding the Great Lakes also experienced cool weather. Weekly temperature averages in this section were below normal by 6° at St. Louis, Mo., and 5° at Omaha, Nebr., Knoxville, Tenn., and Pittsburgh, Pa. Even slightly greater minus departures existed in a small western area with Winnemucca, Nev., averaging -9° and Red Bluff and Fresno, Calif. -7 and -6°, respectively. In the Northwest and the southern Plains States temperatures averaged near normal to slightly above with +4° to +5° reported in northern Texas. Maximum readings of over 100° continued to occur daily in California-Arizona desert areas and southwestern Texas. Precipitation was general over the eastern half of the Nation, falling (Weather continued on p.703)

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - RHODE ISLAND - Extensive and severe larval damage in neglected orchards. Control programs effective. (Steve). PENN - First generation emerged July 11 in Adams County. (Asquith). DELAWARE - New brood moths emerging daily. (Stearns). VIRGINIA - Hatching of second brood in northern area expected latter part of month. Injury to some apples will occur. (Hill). OHIO - No second brood at Wooster. (Cutright). INDIANA - New entries moderate but persistent in Orleans area. (Marshall). Second-brood larvae entering apples July 9 in Vincennes area. Adult activity high next ten days. (Hamilton). ILL. - Larvae plentiful; protection needed. (Chandler).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - WISCONSIN - Medium infestations on apple in Door County now pupating. May build higher populations. (Wis. Ins. Bul.). OHIO - Second-generation adults emerging. (Cutright). VIRGINIA - Light in apple orchards in northern area, but expected to increase by July 20. (Morris).

APPLE MAGGOT (Rhagoletis pomonella) - MICHIGAN - Adults at Beulah and Traverse City. (Hutson). OHIO - First fly on July 2; light emergence to July 13. (Cutright). RHODE ISLAND - Adults abundant and ovipositing in neglected orchards. (Steve).

ORCHARD MITES - INDIANA - Increasing rapidly on apples in Orleans area. (Marshall). Populations vary in Vincennes area. Moderate amount of mottling. (Hamilton). WISCONSIN - Populations of Metatetranychus ulmi increasing on apple in Door County. (Wis. Ins. Bul.). VIRGINIA - M. ulmi spotted in apple orchards in northern area and expected to decrease by end of month. Tetranychus schoeni just showing up and expected to get worse. (Hill). OREGON - Localized damage to cherry trees by Vasates fockeui in La Grande area, July 6. (Every).

APPLE APHID (Aphis pomi) - OHIO - Severe in a few orchards. (Cutright). VIRGINIA - Quite a problem in northern area orchards during June and still a problem in some untreated orchards. Not expected to get worse this year. (Hill).

ROSY APPLE APHID (Anuraphis roseus) - OHIO - Infestation generally light. (Cutright).

APHIDS - RHODE ISLAND - Abundant and building up in apple orchards. (Steve). CALIFORNIA - An aphid (Thoracaphis umbellulariae) found for first time in avocados in Santa Barbara County. Known to be widely scattered along southern coast to San Francisco Bay area. (Cal. Coop. Rept.).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - WISCONSIN - Heavily infesting pear trees in Milwaukee, Grant and other southern counties. (Wis. Ins. Bul.).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - ILLINOIS - First serious infestation in Carbondale area. Young larvae in mines and average of 1 adult per leaf. (Chandler). PENNSYLVANIA - Larvae infesting 80 percent of leaves in poorly-sprayed apple orchard in Juniata County. (Udine).

JAPANESE BEETLE (Popillia japonica) - VIRGINIA - Adults increased rapidly after rain and now moderate in northern area apple orchards. (Hill). Attacking plums and apples in Roanoke County. Very heavy in several locations. (Allen). Attacking grapes in Louisa County and populations increasing rapidly compared with 1955. (Andrews).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - PENNSYLVANIA - Larvae in peach tips in Adams County. (Asquith). ARKANSAS - Populations extremely light this year. Light infestation may occur in some orchards of late varieties. (Warren, Harrendorf, Barnes).

PEACH TREE BORER (Sanninoidea exitiosa) - MICHIGAN - First adult at Paw Paw July 2. (Hutson).

A BUD MOTH - MISSISSIPPI - A bud moth, probably Gretchena bolliana causing injury to young pecan trees in Smith County. (Hutchins).

CHERRY FRUIT FLY (Rhagoletis cingulata) - IDAHO - Found in Payette and Washington Counties. Infestations approached 5 percent in one orchard. (Scott).

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) - WISCONSIN - Larvae severely defoliating some fruit trees in Milwaukee County. (Wis. Ins. Bul.).

BLACK-HEADED FIREWORM (Rhopobota naevana) - Hatch nearing completion. Larvae feeding on new cranberry growth, blossoms and small berries. (Wis. Ins. Bul.).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - WISCONSIN - Adults laying eggs. Newly-hatched larvae observed feeding on small berries, July 7-8. (Wis. Ins. Bul.).

A TORTRICID (Sparganothis sp.) - NEW JERSEY - Large numbers of moths present, migrating into cranberry bogs. Trouble expected about July 10. (Ins. -Dis. Newsl.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - First find in St. Lucie County reported July 11. Pest has now been found in 22 counties. (P. P. C.).

CORRECTION: CEIR 6(28): 680. In checking past records of PEAR PSYLLA (Psylla pyricola) in Idaho, it was found that the species had been recorded in the southwestern area in 1953. (Hilfiker and Manis)-see CEIR 3(32):588, 1953.

TRUCK CROP INSECTS

MEXICAN BEAN BEETLE (Epilachna varivestis) - COLORADO - Heavy damage to beans in Larimer, Weld, Adams and Boulder Counties. Egg deposition heavy: larval development started. (Exp. Sta.). UTAH - Damaging in Uintah, Duchesne, Utah, Salt Lake, Weber and Box Elder Counties. (Knowlton). NORTH CAROLINA - General on lima beans in Duplin County. (Reid). RHODE ISLAND - Larvae feeding on beans in Johnston. Damage severe, but not extensive. (Steve). DELAWARE - Generally troublesome in small plantings. (Milliron).

SPIDER MITES - VIRGINIA - Infestations increasing on beans and foliage; injury apparent in Eastern area. (Brubaker, Greenwood, Hofmaster).

PALE-STRIPED FLEA BEETLE (Systema blanda) - MICHIGAN - Injuring lima beans at Allegan and Saginaw. (Hutson).

GREEN CLOVERWORM (Plathypena scabra) - VIRGINIA - Causing some injury to snap beans in eastern area. (Brubaker, Greenwood, Hofmaster). DELAWARE - Occurs on beans several places. (Milliron).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Spotted infestation with medium to severe damage to few pea and alfalfa fields in Grant, Yakima and Benton Counties. Light damage to mint in Benton County. Three to 4 larvae per sweep. (Kamal).

TOMATO FRUITWORM (Heliothis zea) - LOUISIANA - Severely damaging tomato fruits in Plaquemine Parish. (Oliver). PENNSYLVANIA - Some damage on early tomatoes in southeastern area. (Menusan). TENNESSEE - Heavy populations on tomatoes occurring in State. (Mullett).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Heavily infesting many potato fields. Infestations on snapbeans light in Sheboygan County. (Wis. Ins. Bul.). MINNESOTA - Adults active. Nymphs expected to be abundant. (Minn. Ins. Rept.). PENNSYLVANIA - Building up on potatoes in southeastern area. (Menusan). MARYLAND - Heavy on lima and snap beans in Wicomico County. (U. Md. Ent. Dept.). VIRGINIA - Heavy infestations on unharvested potatoes on Eastern Shore. (Brubaker, Greenwood, Hofmaster). DELAWARE - Prevalent on beans and potatoes. (Milliron).

POTATO FLEA BEETLE (Epitrix cucumeris) - WISCONSIN - Heavy infestation occurring in most sections on untreated potatoes. (Wis. Ins. Bul.). RHODE ISLAND - Numbers decreased markedly in potato fields. (Steve). MAINE - Populations of overwintered beetles very light on treated potatoes in Aroostook County. (Shands).

POTATO APHIDS - MAINE - Aphid populations on untreated potatoes very light in Aroostook County. Less than 5 percent as many plants infested as same period in 1955. (Shands).

LEAFHOPPERS - IDAHO - Empoasca filamenta populations about 10 to 15 adults per sweep in south central and southeastern areas. (Gittins). TEXAS - Medium widespread populations on tomatoes in Motley County. (Pallmeyer).

HORNWORMS (Protoparce spp.) - VIRGINIA - Severe on tomatoes in Northumberland County; over 500 acres sprayed. (Saville). DELAWARE - General on tomatoes but not very destructive. (Milliron).

FLEA BEETLES - PENNSYLVANIA - Becoming a problem on potatoes in southeastern area. (Menusan).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - WISCONSIN - Damage on untreated potato vines. (Wis. Ins. Bul.). RHODE ISLAND - Light infestations on tomato plants in Johnston - Exeter. (Steve). MINNESOTA - Fairly abundant but populations generally less than in 1955. (Minn. Ins. Rept.). MARYLAND - Light to moderate damage in some large tomat fields in Wicomico and Somerset Counties. (U. Md., Ent. Dept.). DELAWARE - Injurious to tomatoes many places. (Milliron).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW JERSEY - Severe in local areas in potatoes, as many as 9 borers per plant. (Ins. -Dis. Newsl.). VIRGINIA - Adults very numerous in potato fields in eastern area. (Brubaker, Greenwood, Hofmaster).

CABBAGEWORMS - NORTH DAKOTA - Larvae of Pieris rapae, 3 to 4 per plant, on cabbage in Fargo area. (N. D. Ins. Rept.). MARYLAND - Trichoplusia ni and P. rapae heavy on untreated cabbage in all sections. (U. Md., Ent. Dept.). VIRGINIA - P. rapae damaging broccoli, cauliflower and cabbage in Augusta County. (Woodside). DELAWARE - Conspicuous foliage injury to tomatoes generally. Heavy on kale at Ellendale. (Milliron). LOUISIANA - Several larvae of T. ni per plant damaging collards in Plaquemine Parish. (Oliver).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Feeding in potatoes and tomatoes in northeastern area. Populations much higher than for several years. (Exp. Sta.).

STINK BUGS - LOUISIANA - Nezara viridula and Euschistus sp. severely damaging tomato fruits in Plaquemine Parish. (Oliver).

BLISTER BEETLES - OKLAHOMA - Averaged 3 to 4 per tomato vine in Cowera area; some damage. (Coppock). VIRGINIA - Large numbers of Epicauta sp. damaging tomatoes in Crimora section of Augusta County. (Woodside). DELAWARE - E. pestifera appearing on potatoes at Middletown. (Milliron).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - DELAWARE - Destructive to peppers near Dover. (Milliron).

WESTERN BLACK FLEA BEETLE (Phyllotreta pusilla) - IDAHO - Moderate infestation in some potato fields in southwestern Bingham County. (Gittins).

WIREWORMS - MINNESOTA - A problem in sugar beets and potato fields in Red River Valley area. (Minn. Ins. Rept.).

BEET LEAFHOPPER (Circulifer tenellus) - ILLINOIS - Collected first time this year in East St. Louis on horseradish. (Ill. Ins. Rept.).

COLORADO - Curly top virus as high as 20 percent in canning tomatoes in Weld and Adams Counties. (Can. Ins.).

SQUASH BUG (Anasa tristis) - TEXAS - Heavy infestations noted in Cochran County. (Thompson). OKLAHOMA - Common on cucurbits over State. Isolated melon vines damaged in Purcell area. (Coppock). KENTUCKY - Egg laying commencing on squash in central area. (Thurston). DELAWARE - Abundant on squash in southern area. (Milliron). RHODE ISLAND - Adults and eggs on most cucurbit plantings. (Steve).

SQUASH VINE BORER (Melittia cucurbitae) - VIRGINIA - Infesting summer squash in Augusta County. (Woodside). DELAWARE - Injurious to squash in southern area. (Milliron).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - SOUTH CAROLINA - Numerous on cantaloups and cucumbers, Clemson area. (Purser). WISCONSIN - Heavy infestations of cucumbers most sections. (Wis. Ins. Bul.).

THRIPS - NEW JERSEY - Becoming more numerous on bulb onions in much areas of northern area. (Ins. -Dis. News.).

ONION MAGGOT (Hylemya antiqua) - IDAHO - Severe numbers in Parma area. (Scott).

ONION THRIPS (Thrips tabaci) - COLORADO - Damaging corn, beans and cucumbers in Adams County. (Ext. Serv.). NEVADA - Developing rapidly in most onion fields. (Gallaway, July 7). NORTH DAKOTA - In commercial field, 25 percent of plants infested with 2 thrips per plant. (N. D. Ins. Rept.).

HARLEQUIN BUG (Murgantia histrionica) - TENNESSEE - Large numbers on cole crops. (Mullett).

MELON APHID (Aphis gossypii) - OKLAHOMA - Populations on water-melons in Purcell-Pauls Valley area light to moderate. Some isolated damage. Most growers spraying. (Coppock).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - LOUISIANA - Populations average 25 adults per 100 sweeps in three fields in St. Landry Parish. (Oliver).

ORANGE TORTRIX (Argyrotaenia citrana) - OREGON - Very common on tender growth of boysenberries and blackberries in Polk and Marion Counties. Serious potential of damage later in bearing period. (Stephenson).

GRASSHOPPERS - TEXAS - Medium widespread populations on vegetables in Motley County. (Pallmeyer). Heavy local populations on gardens in Palo Pinto County. (Lindsey). VIRGINIA - Heavy on garden crops in some areas of Madison County. (McLearn, Wilkins). DELAWARE - Foliage damage to tomatoes and peppers some places. (Milliron).

FOUR-LINED PLANT BUG (Poecilopapsus lineatus) - PENNSYLVANIA - More abundant than past several years in Centre County. Infesting chrysanthemum and rhubarb. (Adams, July 2).

RASPBERRY CANE BORER (Oberea bimaculata) - WISCONSIN - Girdling new raspberry canes, week ending July 1 in Eau Claire, Chippewa, Barron, Iron and Douglas Counties. (Wis. Ins. Bul.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - WASHINGTON - Adults highly active and abundant on mint fields in Yakima and Benton Counties. Control not effective. (Kamal, Menke).

TOBACCO INSECTS

HORNWORMS (Protoparce spp.) - NORTH CAROLINA - Oviposition started in east central counties with as many as 4 eggs per 25 plants. (Farrier). Average of 1 percent eggs and 12 percent larvae on plants in Chowan County and general infestation in Hoke County. (Overman, Gilliam). GEORGIA - Moderate infestations on tobacco in Colquitt, Cook and Berrien Counties. (Johnson). MARYLAND - First brood one of most destructive on record. Unprotected fields from 90 to 100 percent damaged. Infestations general and heavy in all tobacco-growing counties. Treatment general. Principal species to date P. quinquemaculata. (U. Md., Ent. Dept.).

BUDWORMS (Heliothis spp.) - NORTH CAROLINA - Average of 25 percent of plants attacked in Chowan County. (Overman). General infestations Pamlico and Hoke Counties. (Stoval, Gilliam). Less than 0.5 percent examined in east central counties infested. (Farrier). MARYLAND - Light on tobacco in St. Marys County. (U. Md., Ent. Dept.).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Light to moderate infestations on tobacco in Colquitt, Cook and Berrien Counties. (Johnson).

GREEN PEACH APHID (Myzus persicae) - GEORGIA - Moderate infestations on tobacco in Colquitt and Cook Counties. Light infestation in Berrien County. (Johnson). MARYLAND - Very light on tobacco in Anne Arundel and Charles Counties. High temperatures caused considerable mortality. (U. Md., Ent. Dept.).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - GEORGIA - Light infestations on tobacco in Coffee, Jeff Davis, Toombs and Emanuel Counties. (Johnson).

STINK BUGS - TENNESSEE - Some injury on tobacco over State. (Mullett).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - NORTH CAROLINA - Twenty-two percent injured squares in Union County. (Spyhalski). Threatening in areas where little activity noted earlier. (Cott. News. Lett.). SOUTH CAROLINA - Average infestation in treated fields 8 percent, untreated 25 in 34 counties, July 9. (Cott. Lett.). Nine treated fields in Florence County had 7 percent infestation and untreated check areas in 7 fields had 23 percent. Fourteen percent infestation in 69 treated fields in Darlington County. (Walker, et al.). TENNESSEE - Considerable damage in heavily infested western counties. Counts made along Mississippi border showed 28 percent infestation against 35 last week and 5 at this time in 1955. Conditions continue favorable. (Locke). ALABAMA - Thirty-four fields examined in 8 northeastern counties and all found infested at rate of 21 percent. (Tyus). GEORGIA - Thirty-four percent infestation in 47 fields in northwest and southern areas. (Johnson). MISSISSIPPI - Generally present in cotton fields with first-generation weevils increasing. Apparently more difficult to control in some fields in south delta. Infestations still spotted in northern section. (Hutchins). Average infestation for all fields examined in delta counties was 16.2 percent compared with 10.1 at same time last year. Punctures increasing following emergence of first-generation weevil. (Merkl, Furr et al.). LOUISIANA - Generally declined some from last week. Percent infestation by parish: 33 in 10 fields in Tensas, 27 in 17 fields in Natchitoches, 45 in 13 fields in Bossier, 21 in 3 fields in Caddo, 52 in 5 fields in Ouachita Parish. (Oliver). Total of 120 fields examined in Tallulah area and all found infested at rate of 27 percent compared with 22 last week. Infestation increasing some fields. (Gaines, Pfrimmer, et al.). ARKANSAS - First-generation emergence underway. Average infestation by areas this week and last: southeast 6.5 percent and 8 percent, east central 3.9 and 4.1, northeast 4.5 and 5.8, central 20 and 30.2, southwest 20.5 and 39.6. (Warren, Harrendorf, Barnes). TEXAS - Still damaging young bolls in lower Rio Grande Valley. (Deer). Light to heavy in upper coastal area, east and northeast areas. Increasing in central areas. (Turney, Martin, July 10). MISSOURI - Remains very light. (Kyd, Thomas). OKLAHOMA - Treated fields in Tulsa, Wagoner, and Muskogee Counties had infestation of 2-5 percent. Average infestation of 3-9 percent in central counties. (Coppock).

BOLLWORMS (*Heliothis* spp. et al.) - NORTH CAROLINA - Appearing in many counties but not yet general threat to cotton crop. (Cott. New Lett.). SOUTH CAROLINA - Situation easing somewhat July 9. (Cott. Lett.). Less than 1 percent infestation in 6 fields in Florence County. (Walker, et al.). TENNESSEE - Some damage in scattered fields in west Tennessee. (Locke). ALABAMA - Three percent infestation found in 8 northeastern counties. (Tyus). GEORGIA - Average of 2 larvae per 100 terminals in 47 fields in northwest and southern counties. (Johnson). MISSISSIPPI - Light to medium infestations with moth flights increasing in northern area. (Bennett). Very few eggs or larvae reported in delta counties. (Merkl, Furr et al.). LOUISIANA - Remain low but considerable moth activity and larvae and eggs increasing. (Oliver). Average of 2.6 eggs per 100 terminals in 120 fields in Tallulah area and 2.1 larvae in 116 fields. (Gaines, Pfrimmer et al.). ARKANSAS - New brood of moths due. Some local spots heavily in-

fested. (Warren, Harrendorf, Barnes). TEXAS - Continued to increase, especially in fields where cotton is green and succulent. (Turney, Martin, July 10). ARIZONA - Appearing in Cochise and Maricopa Counties. (Roney). MISSOURI - Egg and larval counts rose sharply, from 0-17 eggs and 0-16 larvae per 100 terminals. (Kyd, Thomas). OKLAHOMA - Increasing in some fields in Muskogee County, 6 larvae per 100 squares. Low elsewhere. (Coppock).

SPIDER MITES - NORTH CAROLINA - Tetranychus atlanticus severe locally on cotton in Sampson County. (Jones, Farrier). Spotted in most areas. (Cott. News Lett.). SOUTH CAROLINA - Increasing in Lexington, Marlboro and York Counties. (Cott. Lett.). ARKANSAS - Local infestation appearing in several areas of eastern counties. (Warren, Harrendorf, Barnes). TEXAS - Increasing in most areas. (Turney, Martin, July 10). ARIZONA - Rather high in eastern Maricopa County. (Roney).

APHIDS - GEORGIA - Aphis gossypii light to moderate in 12 counties. Heavy in Washington County. (Johnson). MISSISSIPPI - Light in a few fields in delta counties. (Merkl, Furr et al.).

FLEAHOPPERS - OKLAHOMA - From 0-12 per 100 terminals for east central area. (Coppock). MISSOURI - About 11 per 100 terminals in 416 fields. (Kyd, Thomas). ALABAMA - Light in northeastern area. (Tyus). TEXAS - Injurious numbers in isolated fields. (Turney, Martin, July 10.).

LYGUS BUGS - ARIZONA - Building up in Pima and Graham Counties. Heavy numbers some fields of Maricopa County. (Roney).

COTTON LEAFWORM (Alabama argillacea) - TEXAS - Pupa collected from cotton in San Patricio County, June 21. First adult in light trap at Weslaco June 20. (Turney, Martin, July 10).

CABBAGE LOOPERS - TEXAS - Increasing in most areas and causing some leaf injury in south central and west areas. (Turney, Martin, July 10).

A WHITE GRUB (Phyllophaga ephilida) - NORTH CAROLINA - Completely destroyed 5 acres of cotton in Union County, 20 or more larvae per square foot. (Mistic, Dogger).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

FALL WEBWORM (Hyphantria cunea) - OKLAHOMA - Populations heavy in east central area. Damage to pecans in Sequoyah County light to moderate. From 5 to 45 large colonies per pecan tree in Asher-Konowa area. Some young persimmon trees in Pontotoc and Hughes Counties completely defoliated. (Coppock). LOUISIANA - Continues to attack and defoliate pecan, persimmon, wild cherry and ash trees over State. (Oliver). GEORGIA - General throughout State on pecan, hickory and cherry trees. (Johnson, Milner). MARYLAND - Webbing on boxelder and oaks on the lower Eastern Shore. (U. Md., Ent. Dept.). ALABAMA - Attacking pecan trees in Lee and Elmore Counties. (Robertson). ARKANSAS - Infestations locally heavy

in eastern edge of Ozark Plateau. Up to 30 colonies counted on infested trees. Some trees in southwest area completely defoliated. DELAWARE - Injurious to sweetgum, oaks and other trees generally. (Milliron). WISCONSIN - First report of year, Rock County. (Wis. Ins. Bul.).

FOREST TENT CATERPILLAR (Malacosoma disstria) - WIS. - Moderate to severe defoliation in Douglas, Bayfield, Ashland and Iron Counties. Most larvae pupated. Heavy parasitism in Ashland County. (Wis. Ins. Bul.).

JACK-PINE BUDWORM (Choristoneura pinus) - MINNESOTA - Adult emergence underway central, west-central and northwest areas. Populations down in areas where damage heaviest in 1954 and 1955. Some damage near Park Rapids and Bemidji. Most extensive damage between Jenkins and Brainerd in central area. (Minn. Ins. Rept.). WISCONSIN - Light to medium infestations in Marinette County. Pupation nearly complete in northwest. Damage conspicuous in heavily infested areas of Polk, Douglas, Washburn and Oneida Counties. (Wis. Ins. Bul.).

LARCH SAWFLY (Pristiphora erichsonii) - MINNESOTA - Defoliation noticeable in north-central area. (Minn. Ins. Rept.). WISCONSIN - Light infestations in Vilas and Oneida Counties. Defoliation light in northwest. Some larvae cocooned. (Wis. Ins. Rept.).

SARATOGA SPITTLEBUG (Aphrophora saratogensis) - WISCONSIN - Heavy infestations in Vilas County; light infestation in Langlade, Oneida and Marinette Counties. (Wis. Ins. Rept.).

PINE SPITTLEBUG (Aphrophora parallela) - MINNESOTA - Adults emerging in central area. (Minn. Ins. Rept.). WISCONSIN - Common in jack pine in Vilas, Shawano and Marinette Counties. (Wis. Ins. Bul.).

EUROPEAN ELM SCALE (Gossyparia spuria) - KANSAS - Heavy populations in Oberlin, Decatur County. (Brady, Long). WISCONSIN - Infestations appear heaviest for several years in Dane, Jefferson, Rock and Milwaukee Counties. (Wis. Ins. Bul.).

ENGRAVER BEETLES (Ips spp.) - ARKANSAS - Some build up beginning of July in southwest area. (Ark. State For. Comm.).

ENGLEMANN SPRUCE BEETLE (Dendroctonus engelmanni) - COLORADO - Peak emergence June 24-July 7. (For. Ent. Lab.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEW JERSEY - Considerable leaf injury in central area. Apparently not quite as heavy as in 1955. (Ins. -Dis. News.). RHODE ISLAND - Browning leaves of elms in Johnston. (Steve). ARKANSAS - Egg deposition heavy; third-generation larvae appearing. (Warren, Harrendorf, Barnes).

PINE GALL WEEVIL (Podapion gallicola) - DELAWARE - Injury prevalent on Virginia pine at Petersburg. (Milliron).

MITES - NORTH DAKOTA - Light to medium infestations on spruce and juniper nursery plantings through northwestern area. (N. D. Ins. Rept.). MINNESOTA - Damaging evergreens over State. (Minn. Ins. Rept.).

MIMOSA WEBWORM (Homadaula albizziae) - NEW JERSEY - Becoming active in southern areas. (Ins. -Dis. News.). MARYLAND - Generally heavy on mimosa. (U. Md., Ent. Dept.). MISSOURI - Heavy infestations general in southeast counties. (Kyd, Thomas). VIRGINIA - Heavy on mimosa trees in Keysville and locations in Lunenburg County. (Peery, Harding).

LOCUST LEAF MINER (Chalepus dorsalis) - MARYLAND - Heavy on locust in all sections. (U. Md., Ent. Dept.). VIRGINIA - Generally heavy in black locust along highway 11 from Roanoke to Winchester and in Page, Culpeper and Botetourt Counties. (Morris).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - ARKANSAS - Activity in every pine growing section of State. (Ark. State For. Comm., June Rept.).

BLACK HILLS BEETLE (Dendroctonus ponderosae) - COLORADO - Infestations low in San Isabel and Huerfano Counties in spite of early emergence. (For. Ent. Lab.).

ELM LEAF MINER (Fenusa ulmi) - WISCONSIN - Early populations quite heavy in Milwaukee County. (Wis. Ins. Bul.).

ELM LEAF APHID (Myzocallis ulmifolii) - DELAWARE - Very abundant and injurious on American elm near Smyrna. (Milliron). WISCONSIN - Populations moderate in Dane, Jefferson and Milwaukee Counties. (Wis. Ins. Bul.).

WALNUT CATERPILLAR (Datana integerrima) - VIRGINIA - Seriously damaging foliage of walnut trees in some areas of Prince Edward County. (Striplin).

A TENT CATERPILLAR (Malacosoma fragilis) - COLORADO - Heavy defoliation to aspen in Huerfano County in San Isabel National Forest. (For. Ent. Lab.).

WEBWORMS - TEXAS - Medium local populations on shade trees in Motley County. (Pallmeyer). DELAWARE - Salebria afflictella and Tetralopa melanogrammos causing severe injury to ornamental sweetgum several places. Less destructive in forest plantings. (Milliron).

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) - DELAWARE - Very abundant on sycamore at Smyrna. (Milliron).

STINK BUGS - TEXAS - Heavy widespread on mesquite and many ornamentals in Bailey County. (Adams).

SPIREA APHID (Aphis spiraeicola) - UTAH - Damage abundant in northern area. (Knowlton).

SADDLED PROMINENT (Heterocampa guttivitta) - DELAWARE - Numerous on white oak in Redden State Forest. (Milliron).

NORWAY MAPLE APHID (Periphyllus lyropictus) - PENNSYLVANIA - General and fairly heavy on maple in northeastern area. (Gesell).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Causing concern on ornamentals and shade trees in most sections. Particularly abundant in St. Marys County. (U. Md., Ent. Dept.).

IMPORTED WILLOW LEAF BEETLE (Plagioderia versicolora) - PENNSYLVANIA - Injury beginning to show at State College on willow. (Udine, July 8).

COTTONY-MAPLE SCALE (Pulvinaria innumerabilis) - IDAHO - Moderate to heavy infestations on ash trees in Parma area, Canyon County. (Scott).

BAGWORM (Thyridopteryx ephemeraeformis) - DELAWARE - Abundant on sycamore and evergreens some places. (Milliron). VA.-Heavy on evergreens in scattered areas of Bedford County. (Boone).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - DELAWARE - Adults abundant on oaks and chinquapin in several areas. (Milliron).

APHIDS - IDAHO - Generally above normal infestations throughout southeastern area on ornamentals. (Portman). UTAH - Bark and needle infestations conspicuous on yellow pine in Uintah mountains. (Knowlton).

CUTWORMS - WASHINGTON - Considerable injury and defoliation to Narcissus near Mount Lynden. (Karmal, Eide).

AN AZALEA CATERPILLAR (Datana major) - FLORIDA - Early instars causing partial defoliation of azalea plants at Gainesville, Alachua County. First report of year. (Hetrick).

INSECTS AFFECTING MAN AND ANIMALS

TABANIDS - UTAH - Horse and deer flies very troublesome in parts of Wellsville and Uintah Mountains. Apparently above normal populations in many localities. (Knowlton). IDAHO - Horse flies above average populations throughout southeastern area. (Portman).

HORN FLY (Siphona irritans) - OKLAHOMA - Populations vary from 500-1500 on untreated cows and steers; 2000 to 5000 on bulls in north central area. (Howell). UTAH - Becoming troublesome in many areas. (Knowlton). KANSAS - Infestations ranged from 200-300 per animal in herd in Geary County. Increase in this area. (Matthew). PENNSYLVANIA - Up to 500 per heifer on pasture in Wyoming County. (Gesell).

MOSQUITOES - IDAHO - Above average populations in southeastern area. (Portman). UTAH - Much annoyance in Rich, Daggett, Uintah, Duchesne, Summit and Morgan Counties. (Harmston, Ogden, Knowlton).

BOT FLIES - UTAH - Annoying cattle and horses in meadow areas. (Knowlton).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - From 3 to 5 replete ticks on cattle in Muskogee County; larvae and nymphs active. (Howell).

CHIGGERS - SOUTH CAROLINA - Extremely troublesome in Clemson area. (Nettles).

STORED PRODUCTS INSECTS

STORED GRAIN INSECTS - ARKANSAS - In Stuttgart-DeWitt area, 380 grain bins were examined in June. The number of bins infested and species concerned were as follows: Rice weevil - 4; flour beetles - 4; saw-toothed grain beetle - 69; flat grain beetle - 5; Angoumois grain moth - 8; Indian-meal moth - 2; lesser grain borer - 11; cadelle - 16; miscellaneous species - 100. (Warren, Harrendorf, Barnes).

BENEFICIAL INSECTS

A BRACONID (Helcon pedalis) - RHODE ISLAND - Emerging in spectacular numbers from cedar pole fence in Providence. Known as parasite of cerambycids. (Mathewson).

LADY BEETLES - IDAHO - General in fields and roadsides throughout southeastern area. Ratio of adults to larvae average about three to one. (Portman).

AN ALKALI BEE (Nomia melanderi) - IDAHO - First adults of season near Marsing. (Barr). OREGON - Greater than 90 percent parasiticism of Nomia melanderi by a bombyliid in Adrian area of Malheur County. (Stephen).

MISCELLANEOUS INSECTS

EUROPEAN EARWIG (Forficula auricularia) - IDAHO - General in Aberdeen area and heavy infestations in Parma area around homes and gardens. (Gittins, Scott).

YELLOW JACKETS - TENNESSEE - Unusual numbers in State. (Mullett).

ADDITIONAL NOTES

IOWA - GRASSHOPPERS dominant insect pest in Iowa. Adults in southern and central areas. Control activities progressing. EUROPEAN CORN BORER populations vary from 40 to 300 or more per 100 plants with highest infestation in east central area. Development furthest along in Ankeny area. Second brood emergence will be drawn out, but may be concentrated in local areas. NORTHERN CORN ROOTWORM adults evident in central area July 11. CORN LEAF APHID abundant in many tassels in some localities. POTATO LEAFHOPPER population building up in new legume seedlings and adult CLOVER LEAF WEEVIL present throughout southern half of State. GREEN-STRIPED MAPLEWORM defoliating maple trees in localized spots in central area. MOSQUITOES abundant over State and HORN FLY worst pest of livestock. (Harris).

WEST VIRGINIA - JAPANESE BEETLE feeding on various hosts over State. EUROPEAN RED MITE damage to apple in eastern panhandle evident, and SPIDER MITE populations on apple increasing in Hampshire County. APPLE APHID feeding injurious to apple in Jefferson County. (Dorsey, Hansen, Hamstead).

NEW YORK - TARNISHED PLANT BUG injury severe in a number of peach orchards in western area, and ORIENTAL FRUIT MOTH coming out in large numbers. Some FALL ARMYWORM damage to corn tassels in Suffolk and Nassau Counties. ARMYWORM moths sharply increased and some larvae on corn in Hudson Valley. Expecting something of an outbreak. EUROPEAN CORN BORER unusually heavy in Rockland County. Causing serious concern in Ulster County, and general heavy populations in southeastern area. Infestation severe in Erie County. STRIPED CUCUMBER BEETLE in large numbers Herkimer County. (N. Y. Wkly. Rept.).

MASSACHUSETTS - CORN EARWORM larvae feeding in whorls in Plymouth County. CABBAGE CATERPILLARS in all stages on cole crops. (Crop. Pest. Cont. Mess.).

Weather continued from p.690: mainly as showers with weekly amounts varying widely. In the West totals for the week were light except for much of California, Nevada, and Texas where no significant precipitation was reported, and in contrast, a few locations where local showers were extremely heavy. Throughout the week numerous destructive storms occurred. Nez Perce, Idaho reported a fall of 2 1/2 inches of rain and hail in one hour on July 13 with crop damage from Craigmont to Nez Perce estimated at \$1,000,000. Lightning storms resulted in small forest fires in eastern Oregon and parts of Idaho during the period. Crop damage by hail was widely scattered with near \$900,000 destruction reported in Woodbury County, Iowa on July 11. (Summary Supplied by U. S. Weather Bureau).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	zeala	Heliothis viresc.	Protoparce sexta	quinq.	Laphyg. frugip.
SOUTH DAKOTA										
Brookings 7/11-12	273	18		1						
MISSOURI (County)										
Boone 7/9-13	42	8		7		12		1		
KANSAS										
Manhattan 7/9-13	1		28			21		4	19	
TEXAS										
College Station 7/3-9		1	60	1		407	2			63
Weslaco 6/16-30	108	8	64	14		4391	221			191
Waco 7/7-13	1	9	2	15	3	1135				
ARKANSAS										
Hope 7/6-12						156				
Stuttgart 7/5-11	1	3		2		1				
Van Buren 7/5-11						94				
Vanner 7/5-11		22				94				
Fayetteville 7/7-13	43	11		13		97				
Clarksville 7/3-10	5	23		4		80				
LOUISIANA										
*Tallulah 7/6-12	36	10	354	1	258	407	19	96	2	41
Franklin 7/5-11	6		99		8	4				29
Eaton Rouge 7/7-13	17	3	180		90	25		36		58
Curtis 7/1-7			7		7	5		13		
MISSISSIPPI (Counties)										
*Washington 7/6-12	195	17		14		452				
Coahoma 7/7-13	8	34	198	7	13	267	3			
Humphreys		27	480	5	27	245	6			
Lauderdale		1	13			6				
Marshall	5	22	196	7	11	37				
Oktibbeha	19	17	604	5	42	11	2			
TENNESSEE (Counties)										
Shelby 7/3-9	14	3	51			10		14		
Madison	64	4	52	4		138		5		
Lawrence	56	12	20	26		20		5		
Maury	32	8	32	16		16		10		
Robertson	76	12	48	20		36		48	3	
Cumberland	32	8	24	16		6		15		
Knox	6	4	46	10		20		4		
Greene	32	8	48	48		8		52		
Blount	24	52	12	12		28		2		
Johnson	478	68	116	192		20		16		
ALABAMA										
Auburn 7/1-11			284							
GEORGIA (Counties)										
Clarke 7/4-10		27				4	2	6	18	
Spalding 7/6-12	8	1	65	12	92	23	4	5	2	6
Tift 7/6-12	16	66	81		69	405	7	68		6
FLORIDA										
Gainesville 7/5			1			7		5		
SOUTH CAROLINA (Counties)										
Florence 6/30-7/6	8	11	12	6	462	401	11	144	2	
Charleston 6/25-7/1	5	11	12		26	3	1			
Conce 7/1-7/7	15	1	99	1	75	12	2	6	2	
NORTH CAROLINA (Counties)										
Johnson 7/11-12		2	12		10	5	2	12	20	
Duplin 7/11-12	1		20		5	2	1	6	23	
VIRGINIA (County)										
*Pittsylvania								31	50	
OHIO (County)										
Athens 7/2-8	50	18								
INDIANA (Counties)										
Tippecanoe 7/7-12	22	1	9	12				1	1	
Lawrence 7/7-10	59	7	14	27		6		13	7	
ILLINOIS										
Urbana 7/6-12	183	6	25	73				5		
WISCONSIN										
DeForest 7/2-9	137					33				
MINNESOTA (County)										
Ramsey 7/6-8	63	13								

Other Collections: South Dakota (Brookings, 7/11-12) *Chorizagrotis auxiliaris* - 360. Texas (Weslaco, 6/16-30) *Alabama argillacea* - 8; *Trichoplusia ni* - 14,388.

*Three traps Tallulah, La. and Pittsylvania Co., Va., Two traps Washington Co., Miss.

Uniform Survey Procedure Approved By
The Lake States Forest Insect Survey Committee - 1956

JACK-PINE BUDWORM SURVEYS

PURPOSE:

The jack-pine budworm, Choristoneura pinus Freeman, is a serious problem in natural jack pine stands throughout the Lake States. Since its identification in 1923, it has caused the mortality of substantial volumes of merchantable jack pine and vast numbers of sapling and reproduction jack, red, and white pine growing in the understory. Outbreaks of this insect occur periodically at intervals of from 6 to 8 years and last for 2 to 4 years.

During the recent (1949-1952) budworm outbreak in the Lower Peninsula of Michigan, survey techniques were developed by the U. S. Bureau of Entomology and Plant Quarantine in cooperation with the Forest Service and the Michigan Conservation Department, for evaluating the infestation. Inasmuch as the insect was widely distributed and present in varying degrees of intensity throughout the jack-pine type, surveys to detect its presence or absence were not deemed necessary. Procedures to appraise the seriousness of infestations and to estimate loss of the forest resource were designed and field tested. The methods and procedures found satisfactory are presented here.

INSTRUCTIONS:Appraisal Survey

Appraisals of the seriousness of known jack-pine budworm infestations in Michigan and Wisconsin are conducted after defoliation is completed and before the damage (clipped) foliage has fallen from the trees. The following procedure is designed to enable the rapid evaluation of an infestation over a rather large area in a minimum of time. No attempt is made to collect information relative to stand composition or site quality.

A series of temporary roadside observation stations each located in jack-pine type at intervals of approximately 1 mile along the major transportation routes throughout the infestation area are established. The severity of budworm defoliation of the general stand is estimated at or beyond 200 feet from the road right-of-way. Criteria of defoliation employed are as follows:

1. None - No budworm defoliation evident on trees or reproduction. Crowns of canopy green. No budworm cast pupal skins on trees or reproduction.
2. Light - No budworm defoliation evident, or barely evident on trees. Crowns of canopy green. Budworm defoliation evident on understory reproduction. Leaders and laterals of understory trees not webbed together. Budworm cast pupal skins present on trees or reproduction.
3. Medium - Budworm defoliation evident on trees. Crowns of canopy predominantly green but with brownish to reddish background. Defoliation of understory reproduction evident. Leaders and laterals of understory trees webbed together. Cast pupal skins present on trees and understory reproduction.
4. Heavy - Budworm defoliation evident on trees to complete defoliation. Crowns of canopy predominantly reddish brown. Budworm defoliation of understory reproduction severe to complete. Leaders and laterals of understory trees webbed together. Cast pupal skins present on trees and understory reproduction.

The survey form below will be used to record the necessary data at each observation station.

The stations will be numbered consecutively and the mileage or distance from a landmark noted. Each station will be located by township, range, and section, and, if possible, by quarter section.

The degree of overstory and understory defoliation should be estimated and the presence of lateral-terminal webbing and cast pupal skins noted. The severity of general infestation should also be noted. Any other observations on stand conditions, etc., can be made in the space provided for remarks at the bottom of the form.

- b. Medium - Defoliation evident. Crowns predominantly green with brownish background.
 - c. Heavy - Defoliation evident. Crowns predominantly reddish brown.
3. Airplane. A single-engine, high-wing airplane, such as the Cessna 170-B or Cessna 180, gives very satisfactory performance, with ample room for two observers. The flight lines should be 1 - to 12 - mile grids, along north-south or east-west lines, and the altitude should be 500 to 1,000 feet.
 4. Mapping. County, Highway, Cover Type, or Aerial Navigation maps can be used--a scale of 1/2 inch or 1 inch per mile is preferable, if available. The general location of defoliation can be sketched in by foregoing criteria.
 5. Report. This should be incorporated with a ground survey.

Timber Drain Survey

An appraisal of the loss of timber caused by budworm feeding in Michigan and Wisconsin is conducted after defoliation is completed, generally in mid-August, or early September. The following general procedure is followed:

1. The area of infestation is determined from reconnaissance survey maps and the area of each category of severity of defoliation is computed.
2. The number of evaluation plots required is determined from the Intensity of Sampling statement prepared for the Lake States Forest Insect Survey Committee (see CEIR 6(28):675). This number is based on the standard of accuracy required, the density and uniformity of the stand, the value of the stand, and the acreage to be sampled.
3. Plot location and procedure.
 - a. Two or three men will comprise a crew. Note the mileage from a definite landmark: river, crossroad, or estimated distance if cruising or walking. If the survey is conducted by road the plots should be approximately 5 chains from the road right-of-way.
 - b. The plots should be 1/5 acre, with a convenient tree as the center. Plot examination should be by sectors, using two plastic ropes, each 52.7 feet long. Tree diameter will be taken by diameter tape or cruiser's stick. The number of logs can be determined by cruiser's stick or by estimation. Reproduction can be determined by actual tally.
4. Tree tally. Using the Cumulative Tree Tally Form 99-R9 (Rev. 6/17/47) record trees by species and diameter class--2-inch saplings, 4-inch saplings, 6-inch and over merchantable poles, and reproduction. A record of the health class should also be made by (a) living, (b) dead - budworm killed, and (c) dead - (suppressed) budworm killed).
5. A summary report should be prepared to show methods employed, area surveyed, summary of losses, general conclusions, and recommendations and predictions.

D. M. Benjamin, University of Wisconsin

CUMULATIVE 1/5 ACRE TALLY SHEET

Table with columns for DBH, ESTIMATOR, COURSE, PLOT, SEC, DATE, T, R, MAP TYPE, PLOT TYPE, NUMBER OF 8-FOOT BOLTS, NUMBER OF 16-FOOT LOGS, MORTALITY, VOLUME, SPECIES, CORDS, BD FT, AVERAGE PERCENT DEFECT, TOT. CORDS, M, BD FT, SPECIES, CORDS, M, BD FT, AVERAGE PERCENT DEFECT, SAWTIMBER, and VOLUME IN HUNDREDS OF BOARD FEET. The table is organized into rows for different diameters (DBH) and sections (A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z).

CEDAR TALLY

D. B. H.	7' Posts	8' Ties	Poles							Shingle Bolts
			20'	25'	30'	35'	40'	45'	50'	
6										
8										
10										
12										
14										
16										
18										
20										
22										
24										

SAMPLE TREE DATA

Tree No.	Dist. & bearing to tree	Spec.	DBH	Height		Tree Class	Age	Radial Gr.		Defect %
				Total	Merch			10 Yr.	20 Yr.	

Site Classification _____ Operability _____

*Supplementary Cruise Data

Type acreage _____ Cruise % _____ % Accuracy _____

Stand Description _____

Logging chance. Easy ___ Medium ___ Difficult ___ Winter ___ Summer ___ Yearlong ___

Accessibility: Miles of road to construct _____ Total road cost _____

Topography: Level ___ Rolling ___ Hilly ___ Rugged ___ Rocky ___

Recommended Silviculture: Marking _____ Species & % cut _____

Designating: Species & Method _____

Knutson-Vandenburg needs:

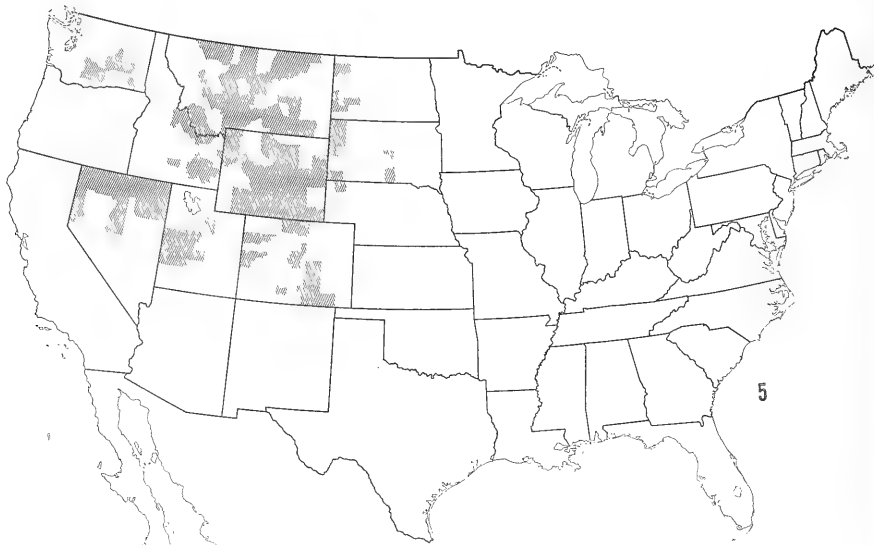
Planting: Acres _____ Species & Age Class _____ No. _____ Cost _____

T. S. I.: Acres _____ Kind _____ Cost _____

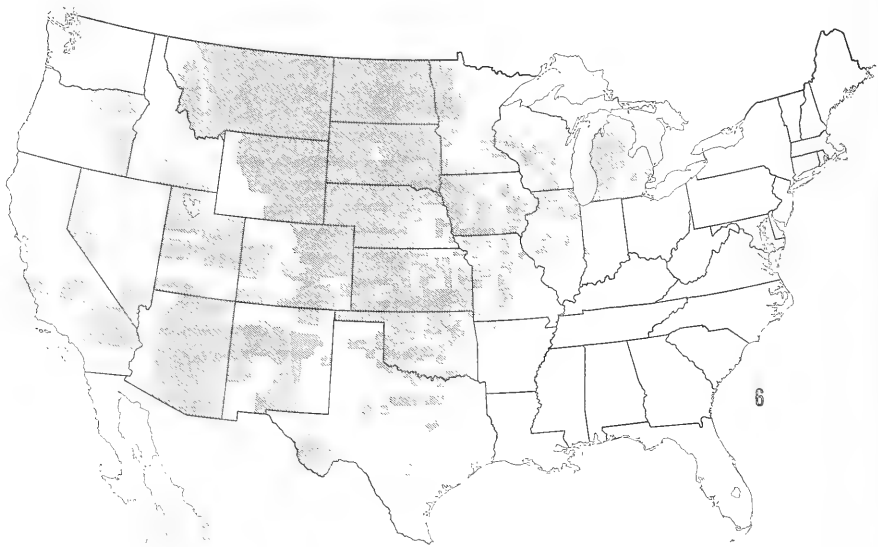
*To be filled in only when tally sheet is used in cruising for timber sale.

DISTRIBUTION OF RANGE GRASSHOPPERS

Aerochoreutes carlinianus (Thos.)

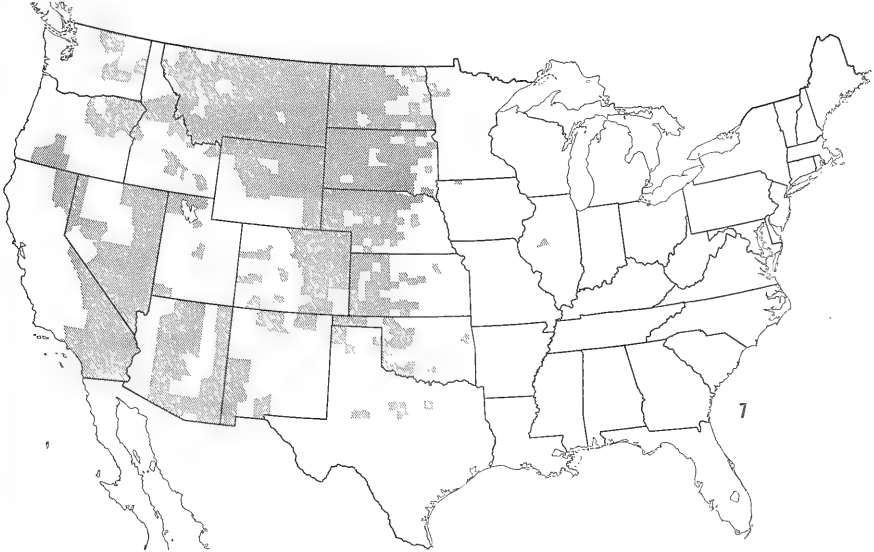


Ageneotettix deorum (Scudd.)

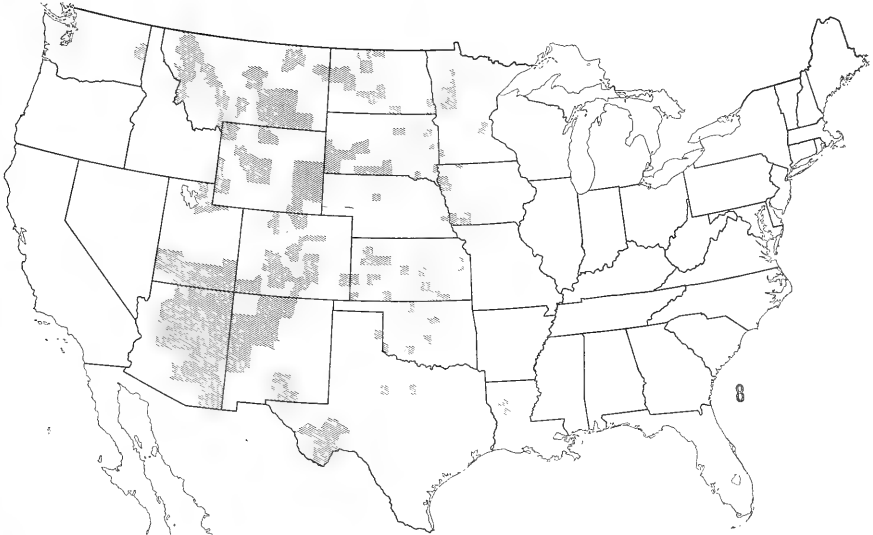


DISTRIBUTION OF RANGE GRASSHOPPERS

Amphitornus coloradus (Thos.)

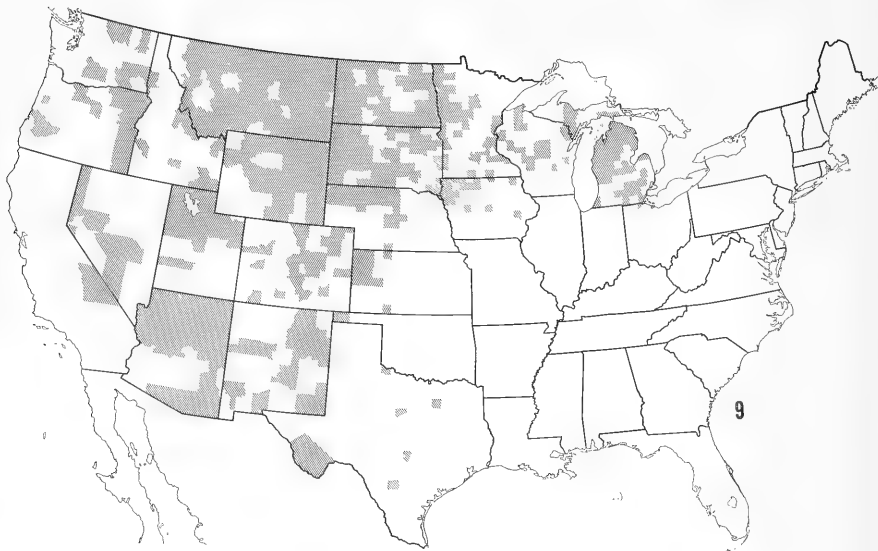


Arphia conspersa Scudd.

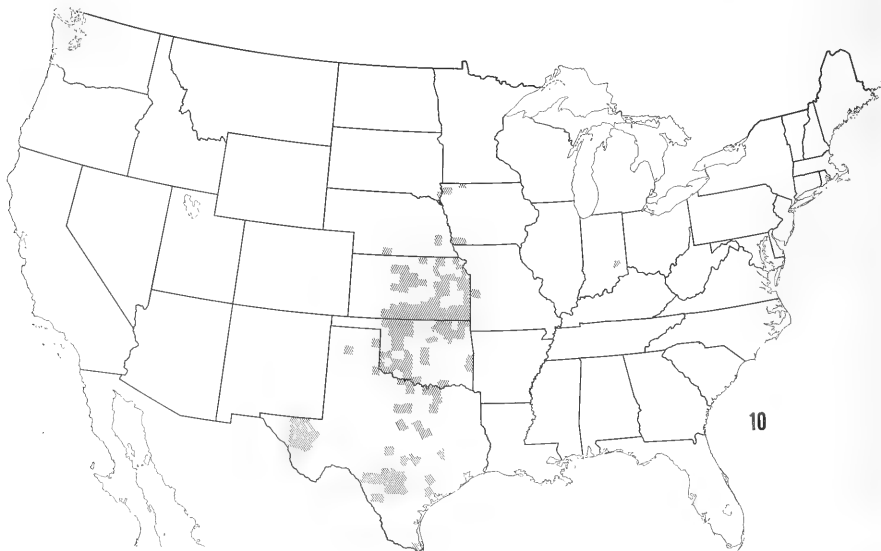


DISTRIBUTION OF RANGE GRASSHOPPERS

Arphia pseudonietana (Thos.)



Arphia simplex Scudd.





VOL. 6 No. 30

JULY 27, 1956

SB
823
C77
Ent,

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPER problem continues in several States. Heavy infestations reported from eastern and western Colorado, Oklahoma, southern Nebraska, northeast South Dakota, southern Minnesota, Wisconsin and Missouri. Continue major insect pests in North Dakota. (p. 715). Reports of heavy EUROPEAN CORN BORER infestations in the East continue. (p. 716). CHINCH BUG damage to corn in Kentucky unusual. (p. 716).

CORN ROOTWORMS damaging corn in Missouri and West Virginia. Adults abundant in some Kansas counties. (p. 717). CORN LEAF APHID heavy in southwest Missouri on sorghums and damage increasing on barley in Utah. Light infestations appearing in South Dakota and Wisconsin. (p. 718).

ARMYWORM infestations noted in west central Minnesota, southeastern North Dakota, and scattered areas of Wisconsin. (p. 718). CORN SAP BEETLES abundant on corn in Delaware, Maryland and Missouri. (p. 718). MITES damaging small grains in some Colorado counties, also appearing on corn in this State. (p. 718).

WESTERN YELLOW-STRIPED ARMYWORM has caused more widespread damage than for several years in California. Oregon also reports an outbreak of these pests. Damage to alfalfa in Washoe County, Nevada and Millard County, Utah. (p. 719). ALFALFA WEBWORM is very abundant in Republican Valley, Nebraska. (p. 719).

LEAF MINERS caused considerable damage in some alfalfa in Arizona. (p. 720). POTATO LEAFHOPPER damage to alfalfa noticeable in Delaware, Maryland and Wisconsin. (p. 720). THREE-CORNERED ALFALFA HOPPER heaviest in 5 years on Yuma Mesa, Arizona. (p. 720).

SPOTTED ALFALFA APHID has spread through eastern Colorado. Destructive populations in several counties of Utah and Arizona. Moderate to heavy in some fields of Kansas and increasing in some areas of Louisiana. (p. 721). PLANT BUGS abundant in alfalfa in several States including Idaho, Arizona, Kansas, Utah and Wisconsin. (p. 721).

ORCHARD MITES problem on apples in several Indiana counties. Also heavy in areas of Missouri, Oklahoma, New Jersey and Idaho. Increasing in southern Illinois, Ohio and in areas of Oregon. (p. 723). MEDITERRANEAN FRUIT FLY reported from Pasco and Orange Counties, Florida. (p. 726).

POTATO PSYLLID populations in epidemic proportions in Colorado; some damage in Washington County, Utah but populations low in western Nebraska. (p. 727). SQUASH BUG heavy in Tulsa area of Oklahoma. Also of concern in areas of Delaware and Utah. (p. 728). BEET WEBWORM severe in

truck crops in some Colorado counties. (p. 729).

LONGHORNED GRASSHOPPERS injuring tobacco in central Kentucky and threatening this crop in Dane County, Wisconsin. (p. 730).

BOLL WEEVIL damage increasing in untreated cotton in North Carolina. Activity increasing in South Carolina, Louisiana and areas of Arkansas and Texas. High infestations reported from Georgia, Louisiana and other areas. Situation critical in Alabama. (pp. 730, 738). BOLLWORMS building up in Arizona, South Carolina and Arkansas. Damaging numbers appearing in west Tennessee. Heavy infestation in some areas of Texas. (p. 731). PINK BOLLWORM increasing in south central Texas. (p. 732). LYGUS BUGS heavy in cotton in San Joaquin Valley, California. Rapid increase in several Arizona counties. (p. 732). COTTON LEAFWORM moth taken at Tallulah, Louisiana, July 19. (p. 733).

JAPANESE BEETLE abundant in some areas. (pp. 730, 735, 738).

ADDITIONAL NOTES. (p. 738).

WEATHER SUMMARY. (p. 722).

STATES reporting this week - 39.

LIGHT TRAP report. (p. 742).

SURVEY METHODS for LARCH SAWFLY. (p. 739).

Distribution maps of RANGE GRASSHOPPERS. (p. 743).

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

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - CALIFORNIA - Infestation in rangeland in Glenn County but no crop damage. Also 750 acres infested in Tulelake area. Medium to heavy on Santa Barbara County range; some damage to beans. Camnula pellucida caused heavy damage to 4,000 acres in San Diego County. Medium damage in Calaveras County. Flax and cantaloups infested in western Kings County. From 4 to 5 grasshoppers per square yard on 60,000 acres of rangeland in Shasta County July 17 but no migration to crops; Melanoplus devastator principal species. (Cal. Coop. Rept.). COLORADO - Heavy infestation in several eastern and western counties. Damaging agricultural crops and insecticides being applied. (Ext. Serv.) IDAHO - Common in alfalfa and clover in Fremont, Madison, Jefferson and Bonneville Counties, but seldom more than 3 per sweep. Populations, mainly C. pellucida, running 25-75 per square yard in Henry's Lake area. This species is causing considerable damage in several grain fields in Teton River Canyon area. (Gittins, Barr). UTAH - Damage increasing in local areas with migrations to crops. (Knowlton). TEXAS - Medium to Heavy on range and crops in Sherman County. (Goule). OKLAHOMA - Heavy in all untreated areas; 8-25 per square yard common in roadsides and field margins in eastern area. Sixty Aulocara sp. nymphs on one ranch in Tulsa County. (Coppock). KANSAS - Planned control complete in Comanche, Barber and Kiowa Counties but threatening to severe populations persist on unsprayed rangeland in these counties. Crop species continue injury in many local areas of central and eastern sections. Populations in northern areas largely adults with a few second-generation M. mexicanus nymphs. (Matthew). NEBRASKA - Counts of Melanoplus adults and nymphs remain high in southern tier of counties, particularly in margins of alfalfa. M. bivittatus and M. mexicanus are adult over southern part of State. Nymphs and adults of M. femur-rubrum and M. differentialis in same area. From 7-50 per square yard in alfalfa. (Andersen, Roselle). SOUTH DAKOTA - Threat continues, especially in northeast where 40 or more nymphs per square yard common. M. femur rubrum dominant species. (Hantsbarger). NORTH DAKOTA - Continue major insect pest in State. Approaching adult stage in many areas and moving into small grains and flax. Some fields severely damaged. Increased migration into late crops from harvested fields expected. (N. D. Ins. Rept.). MINNESOTA - Damaging populations in most southern counties with extensive spraying underway. Up to 200 per square yard reported in Brown County. Nymphs about one-half grown in southern counties but hatching continues in central and northern areas. (Minn. Ins. Rept.). MISSOURI - Continue problem over most of State especially on alfalfa, red clover, pastures and gardens. Damage to row crops confined to margins in southwest. Very heavy threat remains in northwest but slowed by rains. Second-generation M. mexicanus nymphs in southwest. Flights of M. mexicanus and M. differentialis observed near Springfield. (Shotwell, Thomas). WISCONSIN - M. femur-rubrum hatching has been erratic but large numbers are reported in margins of many fields. Heavy grasshopper populations reported from 15 counties. (Wis. Ins. Bul.). ILLINOIS - Maximum population (Melanoplus spp.) in fencerows was 30 per square yard in western area. Longhorn grasshoppers are very numerous

in this section, more than 5 per square yard in fencerows. (Ill. Ins. Rept.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - RHODE ISLAND - Very heavy throughout State. Infestations from 18-35 percent on sweet corn. Damage mostly in tassels. Indications second brood will be extremely abundant and damaging. (Steve). MASSACHUSETTS - Injury to tassels and stalks of early corn very severe; 70-90 percent infestation in many untreated fields. Egg-laying for second brood expected first week in August. (Crop Pest Cont. Mess.). MARYLAND - From 16-90 percent infestation in early sweet corn in Frederick and Carroll Counties; 2.4 per infested plant. (U. Md., Ent. Dept.). DELAWARE - Destructive to corn generally. New adults common. (Milliron). PENNSYLVANIA - Extremely heavy in field corn in Snyder County. In one case 3 acres destroyed. (Gesell). OHIO - Reports of severe leaf injury. Early-planted fields of dent corn have as high as 8-10 borers per stalk, mostly third and fourth instars. (Neiswander). ILLINOIS - Three percent pupation in central and eastern areas, 4 in western and none in northern. Many borers dying in some areas of eastern and western Illinois but decrease over State not determined. (Ill. Ins. Rept.). MINNESOTA - Percent infestation by areas: south central 40, southwest 61, southeast 33, central 28. Borers per 100 plants: south central 121, southwest 213, southeast 60, central 70. Mostly third instars. Development week to 10 days ahead of 1955. (Minn. Ins. Rept.). NORTH DAKOTA - Continues light in Cass and Richland Counties, 20 percent plants showing shot-holing. (N. D. Ins. Rept.). WISCONSIN - From third to fifth instars in southern area. (Wis. Ins. Bul.). MISSOURI - Peak egg-laying for second generation expected in southeast by August 1. From 24-52 egg masses per 100 plants and some third-instar larvae of second generation. Peak egg-laying in central area expected August 1-10. About 15 percent pupation and no emergence in northwest. (Burdett). ARKANSAS - Control may be needed on late corn in eastern area. (Warren, Harrendorf, Barnes). SOUTH DAKOTA - Fifteen percent of plants infested in northeast and east central areas. Twenty-three percent of borers in fourth instar. (Hantsbarger). KANSAS - Ten of 24 fields examined in Jefferson County found infested. Infestation ranged generally 7 percent or less. (Sherrod).

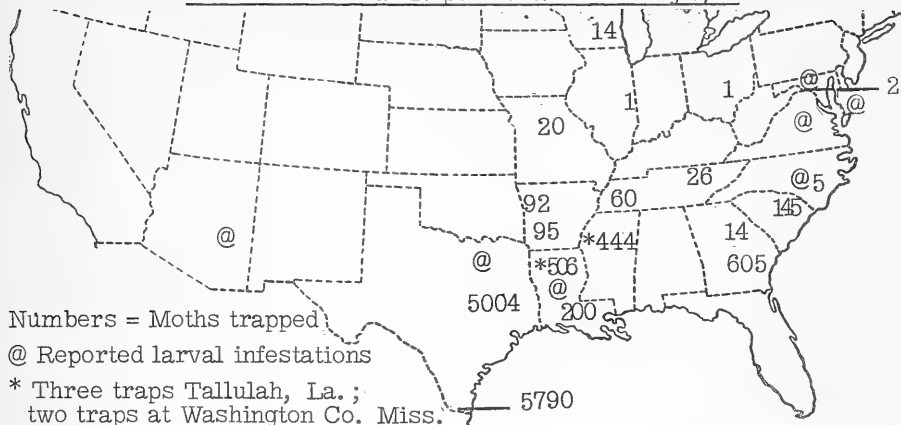
CHINCH BUGS- KENTUCKY - Found damaging corn in extreme western area, particularly in Paducah vicinity, in early July. First report of noticeable damage by this pest in Kentucky during past 27 years. (Price).

CHINCH BUG (Blissus leucopterus) - MISSOURI - Damage and populations declining in northern half of State due to rains. Considerable numbers of second-generation nymphs. (Kyd, Thomas).

HAIRY CHINCH BUG (Blissus leucopterus hirtus) - PENNSYLVANIA - Very common and causing considerable injury in turf in Allegheny County. (Udine).

APHIDS - NORTH CAROLINA - Severe on sorghum in Tyrrell County. (Scott).

Corn Earworm as Reported Week Ending 7/21



Numbers = Moths trapped

@ Reported larval infestations

* Three traps Tallulah, La. ;
two traps at Washington Co. Miss.

CORN EARWORM (*Heliothis zea*) - ARIZONIA - Heavy on 100 acres of corn in Graham County, July 18. (Ariz. Coop. Rept.). TEXAS - Light on grain sorghum in Kaufman County. (Hawkins). LOUISIANA - Eighty per 100 sweeps in alfalfa in Natchitoches Parish; 20 per 100 in 2 fields in Bossier Parish. (Oliver). NORTH CAROLINA - Average of .73 eggs per silk at Clayton. (Farrier). DELAWARE - Small larvae in sweet corn silks in Sussex County. (Milliron). MARYLAND - One of 3 silks in early sweet corn in Carroll County has eggs, 1.3 per silk. (U. Md., Ent. Dept.).

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) - GEORGIA - Moderate damage to soybeans in Burke County, July 13. (Morgan). MISSISSIPPI - Damage to small sorghum in Forrest County, a 50-acre field replanted 3 times. (Broome). ARIZONA - Light to moderate on 400 acres of sorghum at Phoenix. (Ariz. Coop. Rept.).

CORN FLEA BEETLES - ILLINOIS - Common in southern half of State. (Ill. Ins. Rept.). DELAWARE - *Chaetocnema pulicaria* prevalent in late corn. (Milliron). UTAH - Damaging corn in Washington County. (Knowlton).

CORN ROOTWORMS - MISSOURI - *Diabrotica longicornis* larval damage becoming more common in river bottom areas. Adults still feeding on silks. (Kyd, Thomas). WEST VIRGINIA - *D. undecimpunctata howardi* injury extensive on corn in local sites in Monongalia County. (Dorsey, Hansen). KANSAS - *D. virgifera* adults abundant in some corn fields in Smith and Dickinson Counties. (Gates).

SORGHUM WEBWORM (*Celama sorghiella*) - TEXAS - Widespread in grain sorghum in Calhoun and Kaufman Counties. (Cook, Hawkins).

A RICE LEAF MINER (*Hydrellia griseola*) - CALIFORNIA - Threatening last spring but did not develop; now of concern in most rice areas. (Cal. Coop. Rept.).

CORN LEAF APHID (Rhopalosiphum maidis) - UTAH - Damage to spring barley increasing in several counties. (Knowlton). MISSOURI - Heavy numbers declining in much of northern Missouri but continue on grain sorghums in southwest where leaf discoloration occurring, 1,000-2,500 aphids per plant. Lady beetles numerous but not controlling. (Kyd, Thomas). WISCONSIN - Infesting corn in Dane and Rock Counties. (Wis. Ins. Bul.). SOUTH DAKOTA - Very light infestations appearing on corn in northeast and east central areas. (Hantsbarger). KANSAS - Light infestations in sorghums in northwest and north central counties. (Painter Pathak).

ARMYWORM (Pseudaletia unipuncta) - MINNESOTA - Infestations in barley and oats in west central area. (Minn. Ins. Rept.). NORTH DAKOTA - Infestations, mostly light and non-economic, in small grains in south-eastern area. (N. D. Ins. Rept.). WISCONSIN - Small numbers of larvae in scattered locations over State. (Wis. Ins. Bul.).

STALK BORER (Papaipema nebris) - RHODE ISLAND - Extensive damage in margins of corn, as high as 40 percent infestations in outside rows. (Steve).

SAP BEETLES - DELAWARE - Adults abundant on corn. Larvae noted near Little Creek. (Milliron). MARYLAND - Heavy on sweet corn in Carroll County. (U. Md., Ent. Dept.). MISSOURI - Carpophilus sp. adults and larvae becoming common in ears of corn. (Kyd, Thomas).

MITES - COLORADO* - Tetranychus telarius and Petrobia latens damaging wheat, barley and grasses in Montezuma and Archuleta Counties. (ARS, Exp. Sta.). IDAHO - T. telarius caused severe damage on 200 acres of red clover and alfalfa in Canyon County. (Bechtolt). MARYLAND - Some moderate damage to soybeans in Wicomico and Worcester Counties but generally light. (U. Md., Ent. Dept.).

RICE STINK BUG (Solubea pugnax) - LOUISIANA - Twenty to 44 per 100 sweeps in Evangeline, Acadia and St. Landry Parishes. (Oliver).

MAY BEETLES (Phyllophaga spp.) - WISCONSIN - Heavy flights occurred in many sections. May be of concern in 1957. (Wis. Ins. Bul.).

A LEAFHOPPER (Dikraneura absenta) - NEVADA - Causing considerable damage to lawns and ornamental flowers adjacent to lawns in western area. (Galloway, July 14).

GREEN JUNE BEETLE (Cotinis nitida) - KENTUCKY - Adults abundant on tassels of corn and on ripe berries. (Thurston). DELAWARE - Conspicuous on corn in some places. (Milliron). NORTH CAROLINA - Large numbers in pastures in Gates and Pamlico Counties. (Scott).

A GRAPE COLASPIS (Colaspis sp.) - ILLINOIS - Maximum adult populations was 280 per 100 sweeps in red clover. (Ill. Ins. Rept.).

*T. telarius appearing in corn in several southeast counties. (Exp. Sta.).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - CALIFORNIA - More widespread damage than for several years. Increasing in crops, particularly alfalfa, from northern Siskiyou County into San Joaquin Valley. Greatest damage to seed crops. (Cal. Coop. Rept.). NEVADA - Reports of damage to alfalfa in northern Washoe County. (Galloway, July 14).

A YELLOW-STRIPED ARMYWORM (Prodenia sp.) - OREGON - Outbreak with damage to alfalfa, clover and potatoes in Klamath, Douglas, Jackson and central counties. Control measures underway. (Every). UTAH - Seriously infesting alfalfa in areas in Millard County. (Knowlton).

ALFALFA WEBWORM (Loxostege commixtalis) - NEBRASKA - Very abundant in Republican Valley, 5-26 per 10 sweeps. Webbing in most fields. (Andersen).

CUTWORMS - CALIFORNIA - Peridroma margaritosa damaging some alfalfa in Kern County. (Cal. Coop. Rept.). DELAWARE - Agrotis g'adiaria causing some damage to corn east of Georgetown. (Milliron).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - NEBRASKA - Adults very prevalent in alfalfa in Republican Valley and panhandle area; 8 larvae per 10 sweeps. (Andersen). ARIZONA - Becoming more numerous in alfalfa at Yuma, 30-50 larvae per 100 sweeps. (Ariz. Coop. Rept.). UTAH - Generally moderate. (Knowlton).

GARDEN WEBWORM (Loxostege similalis) - KANSAS - Numerous in some alfalfa in Comanche County. Some hay cut early. Moths numerous in central and north central areas. (Matthew).

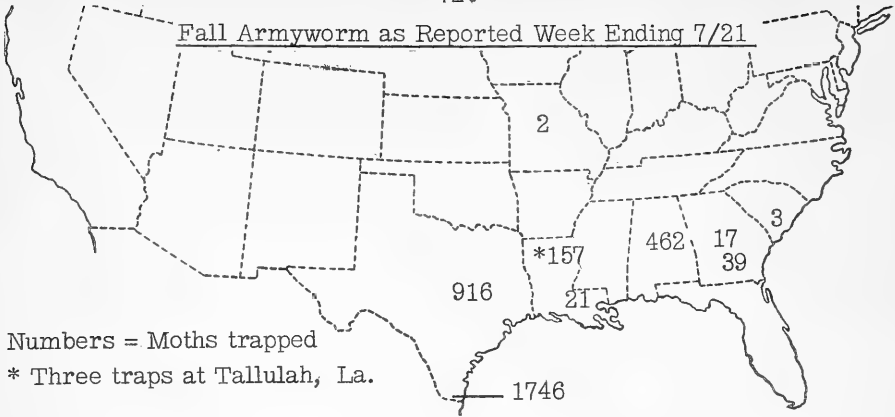
FALSE CHINCH BUG (Nysius ericae) - FLORIDA - Adults injuring cow-peas at Live Oak, Suwannee County, July 11. Det. A. N. Tissot. (Lundy).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Heavy general infestation in field of irrigated alfalfa near Guymon, May 15. About 40 nymphs and adults per 4-inch crown. As far as known, first record of this pest on alfalfa for Oklahoma. Determined by E. W. Baker. (Coppock).

BLISTER BEETLES - NEBRASKA - Epicauta spp. and Meloe spp. range from 5-8 per 10 sweeps in alfalfa in Republican Valley and panhandle area. (Andersen). KANSAS - Heavy populations in some alfalfa in Riley County. (Schesser).

ALFALFA WEEVIL (Hypera postica) - CALIFORNIA - Medium to heavy damage in Lassen County. (Cal. Coop. Rept.). IDAHO - Average of 3-10 larvae per sweep in alfalfa in Fremont, Shoshone and Gooding Counties. (Gittins). Three to 4 per sweep in some alfalfa north of Parma. (Scott).

STINK BUGS - ARIZONA - Five to 10 per sweep in some alfalfa seed fields on Yuma Mesa and increasing. (Ariz. Coop. Rept.).



FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Remains light generally, 3-20 per 100 sweeps in alfalfa and grasses in 4 parishes. (Oliver).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - IDAHO - Damage common on seed clover in eastern and south central areas though heavy damage rarely encountered. (Gittins). MINNESOTA - Summer-generation adults emerging July 10. (Minn. Ins. Rept.).

LEAF MINERS - ARIZONA - Liriomyza sp. common in alfalfa in Maricopa, Pima, Pinal and Yuma Counties. Considerable damage some fields. Very prevalent in 20 acres of peanuts near Yuma. (Ariz. Coop. Rept., July 16).

POTATO LEAFHOPPER (Empoasca fabae) - DELAWARE - Noticeable damage to alfalfa. Abundant on soybeans. (Milliron). MARYLAND - Yellowing conspicuous in some fields in central counties. Populations variable, as high as 21 in 1 sweep. (U. Md., Ent. Dept.). WISCONSIN - Yellowing of alfalfa showing up. (Wis. Ins. Bul.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Twenty-six to 180 per 100 sweeps in Natchitoches and West Baton Rouge Parishes. (Oliver). ARIZONA - Two to 4 per sweep in 3 alfalfa seed fields on Yuma Mesa. Heaviest in 5 years. (Ariz. Coop. Rept.).

CLOVER APHID (Anuraphis bakeri) - IDAHO - Heavy infestation in seed red clover in Idaho Falls area. Light, seldom more than 10 percent of heads infested, in Lincoln, Gooding, Jerome and Twin Falls Counties. Predators numerous in these counties. (Gittins). OREGON - This species with spider mites building up on clover in Ontario area but not economic to July 19. (Morrison).

A NITIDULID (Meligethes nigrescens) - OREGON - Large numbers migrating into red clover in Willamette Valley, July 8-14. (Every).

SPOTTED ALFALFA APHID - CALIFORNIA - Light in Orange and Santa Barbara Counties, light to heavy in San Bernardino County, light to severe in Tulare County, medium in Kern County. Lighter than expected in Sacramento Valley but build-up in Tehama County. (Cal. Coop. Rept.).

COLORADO - Has spread through most of eastern area. As many as 15,000 aphids per 100 stems in Prowers, Bent and Otero Counties; heavy honeydew in these counties. Populations increasing in Montezuma County in southwestern area. Many winged forms. (Exp. Sta.). ARIZONA - Remains at high levels, severe damage in many alfalfa fields in Maricopa, Pinal and Pima Counties. (Ariz. Coop. Rept., July 16). UTAH - Recent spread and build-up rapid. Becoming destructive in parts of Millard, Iron, Beaver, Kane and Washington Counties. Control underway.

(Knowlton). NEBRASKA - Small numbers in Jefferson, Thayer, Nuckolls, Red Willow, Hitchcock and Dundy Counties; 7-114 per 10 sweeps.

(Andersen). OKLAHOMA - Low throughout State. Lady beetle populations remain fairly high in most areas. (Coppock). MISSOURI - Remains low over southern half of State, 0-18 per sweep. (Kyd, Thomas). GEORGIA - Moderate infestation on alfalfa in Stephens and Hancock Counties.

(Johnson). LOUISIANA - Increasing in Natchitoches and Bossier Parishes. (Oliver). KANSAS - Observations indicate aphid present in all of Kansas except northern tier of Counties. Widely-scattered moderate to heavy infestations in a few fields in Edwards, Pawnee and Barton Counties and in Arkansas River Valley where counts up to estimated 20,000 aphids per sweep (90 percent winged). (Matthew). Aphids per 25 sweeps by county: Rice 375-4,00, Barton 175-15,000, Marion 0-300, Wabaunsee 0-1,475, Pottawatomie 50-3,250. (Burkhardt). Counts in 16 additional counties ran 50-450 aphids per 25 sweeps. (Matthew, Painter, Pathak).

PEA APHID (Macrosiphum pisi) - CALIFORNIA - Heavy in alfalfa fields in Sacramento County. (Cal. Coop. Rept.). IDAHO - Very common in red clover and alfalfa in eastern area. Extremely abundant in some alfalfa southwest of Twin Falls. Heavy on alfalfa in Moscow area but no apparent damage. (Gittins, Manis). NEBRASKA - Moderate in Republican Valley and in panhandle counties, 75-360 per sweep. (Andersen). UTAH - Moderate to severe on alfalfa in some areas. (Knowlton). SOUTH DAKOTA - Increasing on alfalfa in northeast, 55 per 10 sweeps. (Hantsbarger). WISCONSIN - Heavy on alfalfa in Waukesha County. (Wis. Ins. Bul.).

CLOVER SEED CHALCID (Bruchophagus gibbus) - OREGON - Severe damage to white clover in Silverton Hills area of Marion County. Up to 50 percent infestation in some fields, pupation underway. (Stephen). ARIZONA - More noticeable in alfalfa at Yuma but not abundant. (Ariz. Coop. Rept.). SOUTH DAKOTA - Numerous complaints concerning emergence of adults in stored 1955 alfalfa seed. (Lofgren).

PLANT BUGS - IDAHO - Lygus counts in alfalfa: 2 adults and 2 nymphs per sweep in Butte City and Arco areas, 4-5 per sweep in Sugar City, Lorenzo, Rigby and Rexburg areas. In red clover, 4 per sweep at Twin Falls, more than 5 per sweep at Idaho Falls, about 2 per sweep in Lincoln and Gooding Counties. L. hesperus and L. elisus involved. (Gittins). ARIZONA - Lygus extremely abundant in alfalfa in southern area, July 16. Five to 20 per sweeps on Yuma Mesa; 125 per 100 sweeps at Queen Creek, Maricopa

County. (Ariz. Coop. Rept.). NEBRASKA - Seven Adelphocoris lineolatus per 10 sweeps in alfalfa in Republican Valley. (Andersen). UTAH - Severely damaged alfalfa for seed in Millard, Uintah and Duchesne Counties where not controlled. Generally numerous in alfalfa. (Knowlton). KANSAS - From 2-9 A. lineolatus adults per sweep in alfalfa in Rush, Ellis, Rooks and Cloud Counties. (Matthew). SOUTH DAKOTA - A. lineolatus increasing in alfalfa, as high as 24 per 10 sweeps. (Hantsbarger). TEXAS - Lygus locally heavy on alfalfa seed crop in Collingsworth County. (Thomas). WISCONSIN - Very numerous in alfalfa. (Wis. Ins. Bul.).

WEATHER OF THE WEEK ENDING JULY 23, 1956

Unseasonably cool weather prevailed over the northeastern portions of the country, particularly in the northwestern Great Lakes region where daytime highs were generally in the upper 70's and nighttime lows in the mid 50's and resulting weekly averages were 9° below the normal. The entire area set off by a line extending from Glasgow, Mont. to Amarillo, Tex., then eastward to Atlantic City, N. J., experienced relatively cool weather with averages below normal by at least 3°. Over the South and elsewhere temperatures averaged near normal to somewhat above except in central Washington, Oregon and northern California where weekly departures were 6° above normal as daily maxima reached 90° on all days and 100° on some as far north as the Canadian Border. Daily frontal activity extending in an east-west direction existed along the boundary between the existing warm and cool air masses and on occasions extended northwestward through the Central and northern Plain States. Moderate to heavy precipitation totals were confined mainly to the eastern half of the Nation with a narrow projection extending over Oklahoma, the Texas Panhandle and central New Mexico, while in the West amounts were generally insignificant except in mountainous and a few isolated areas. Weekly totals were also light in some eastern sections, particularly in parts of Florida, Louisiana, Georgia, South Carolina, Kentucky, and the New England States.

Heavy rains brought flooding to some central Atlantic states as a coastal storm moved up the seaboard. One 24-hour amount recorded was 9.15 inches at Jackson Springs, N. C., where 2 lives were lost and property damages were reported. Montgomery and Washington Counties, Maryland, also reported damage and loss of lives due to flooding from this storm. Other large amounts recorded during the week were 5.50 inches in 90 minutes at Mangum, Okla. and 5.72 inches at Baraboo, Wis. on the night of July 18-19. Hail destruction was reported in several states with Lake County, Tenn. reporting damage to 1500 acres of cotton, 500 acres of corn and 3000 acres of soybeans. Tornadoes for the week were reported at Lorain, Ohio, over Little Muskego Lake, Wis., Pennock, Minn., and Limon, Colo. (Summary Supplied by United States Weather Bureau).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - DELAWARE - First injury by second-brood larvae in several orchards. (Stearns). OHIO - First second-brood moth from cages taken July 17. (Cutright). INDIANA - Heavy second-brood activity in Orleans area. (Marshall). CALIFORNIA - Light damage to pear and apple orchards in Lassen County. Medium damage to walnuts in Santa Barbara County and medium infestations in Orange County walnuts. (Cal. Coop. Rept.).

ORCHARD MITES - INDIANA - Attack on apples severe and persistent in Washington, Orange, Floyd and Crawford Counties. (Marshall). Tetranychus sp. becoming more abundant in Vincennes area. Confined to lower branches. (Hamilton). MISSOURI - Heavy infestation reported from Kansas City area. Still present in dry areas in southern section of State. (Wkly. Rept. Fr. Grow.). OKLAHOMA - Unsprayed trees in Perkins area have heavy populations. Light infestations in some orchards near Keystone. (Coppock). ARIZONA - Webbing of citrus leaves by a mite, prob. Eotetranychus yumensis reported at Yuma. (Ariz. Coop. Rept.). UTAH - Damage to fruit trees increasing in many orchards. (Knowlton).

EUROPEAN RED MITE (Metatetranychus ulmi) - ILLINOIS - Slowly decreasing in Carbondale area. (Chandler). NEW JERSEY - Considerable numbers in many apple orchards. (Ins. -Dis. News.). IDAHO - Very high populations on apple trees where no treatments made. Reaching 50 per leaf on pear trees 8-10 days after treatment. (Scott). OREGON - Building up to economic numbers at The Dalles and Hood River. (Ellertson).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - ILLINOIS - Increasing in Carbondale area. (Chandler). OHIO - Increasing in some peach orchards in spite of early applications of insecticides. (Rings). OREGON - Beginning to move to apple trees at Hood River. (Ellertson).

ROSY APPLE APHID (Anuraphis roseus) - CALIFORNIA - Medium to heavy infestations in apple orchards in Santa Cruz County. (Cal. Coop. Rept.).

APPLE MAGGOT (Rhagoletis pomonella) - WEST VIRGINIA - Adults observed in Monongalia County. (Dorsey, Hansen). MAINE - In emergence cages in Jonesboro, July 5. (Boulanger).

APPLE LEAF SKELETONIZER (Psorosina hammondi) - OKLAHOMA - Common on apples in Perkins area. (Coppock).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - WISCONSIN - Adults very numerous in Crawford County, July 11. (Wis. Ins. Bul.).

RUSTY TUSSOCK MOTH (Orgyia antiqua) - MAINE - Feeding on seedling apple trees at Monmouth. (Boulanger, July 8).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - ILLINOIS - Present in much of Jackson, Union and Johnson Counties but severe only in some blocks of early apples where little spraying done. (Chandler).

CUTWORMS - OREGON - Defoliating young apple sprouts and grafts in Milton-Freewater area. Infestations heavy with all plants with at least one cutworm. (Brown).

GRASSHOPPERS - OKLAHOMA - Most damaging insect of fruit this season. Most damaging to peaches, apples and grapes. (Coppock).

PEAR PSYLLA (Psylla pyricola) - IDAHO - Two infestations in commercial orchards near Payette. Common in Weiser area. (Manis, July 20). All stages several orchards east of Homedale. High populations one orchard. (Scott).

PEAR-SLUG (Caliroa cerasi) - UTAH - Increasing in some Davis and Salt Lake County cherry orchards. (Knowlton).

PLUM CURCULIO (Conotrachelus nenuphar) - ILLINOIS - Jarring shows low population on peaches in Carbondale area. Second brood dropping off. (Chandler). MISSOURI - Young larvae reported in plums and peaches vicinity of Cape Girardeau. (Wkly. Rept. Fr. Grow.).

GREEN JUNE BEETLE (Cotinis nitida) - MISSOURI - Unusually heavy in central area on peaches, apples, blackberries and other ripening fruit. (Wkly. Rept. Fr. Grow.).

PEACH TWIG BORER (Anarsia lineatella) - CALIFORNIA - Heavy damage to peaches in 200 acres, July 16, in Merced County. (Cal. Coop. Rept.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - NEW JERSEY - Second brood expected to reach peak in northern area, July 17. (Ins.-Dis. News.).

CHERRY FRUIT FLY (Rhagoletis cingulata) - IDAHO - Larvae heavily infesting a 10-acre cherry orchard and individual backyard fruit trees in Weiser. (Hackler).

CICADIDS - OREGON - So numerous in a prune orchard at The Dalles that serious injury resulted from oviposition. (Burts).

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Light to extensive damage in prune orchards in Napa County. (Cal. Coop. Rept.).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Medium to heavy infestation in deciduous fruit orchards in Tulare County. Medium to heavy populations in olive orchards in Tulare County. (Cal. Coop. Rept.).

GRAPE PHYLLOXERA (Phylloxera vitifoliae) - CALIFORNIA - Some severe damage in vineyards in Tulare County. (Cal. Coop. Rept.).

GRAPE MEALYBUG (Pseudococcus maritimus) - CALIFORNIA - Severe damage in vineyards in Tulare County. (Cal. Coop. Rept.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - CALIFORNIA - Inspection on 26 properties in San Diego County failed to show infestation, July 4. (Cal. Coop. Rept.). ARIZONA - Adults of second brood now abundant in Tucson. (Ariz. Coop. Rept.).

GRAPE LEAF SKELETONIZER (Harrisina americana) - NORTH CAROLINA - From 20-30 larvae per leaf in local infestation in Alamance County. (Coble, Farrier).

EIGHT-SPOTTED FORESTER (Alypia octomaculata) - MAINE - Attacking grapes in Cumberland County. (Boulanger, July 5).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - WISCONSIN - Egg laying at peak. (Wis. Ins. Bul.).

BLACK-HEADED FIREWORM (Rhopobota naevana) - WISCONSIN - Second brood hatching completed with larvae feeding on cranberry blossoms and small fruit. (Wis. Ins. Bul.).

HICKORY TUSSOCK MOTH (Halisidota caryae) - DELAWARE - Heavy on black walnut at Newark. (Milliron).

FILBERTWORM (Melissopus latiferreanus) - OREGON - Adults began emerging in Lane County, July 9. (Thompson).

Citrus Insect Situation, California, to July 17

CITRUS RUST MITE infestations light in lemon orchards in Santa Barbara County. SOFT SCALE light to heavy on citrus in Tulare County. CITRICOLA SCALE light to heavy in some Tulare County orchards. CITRUS RED MITE medium to heavy locally in Orange County. Heavy in San Diego County and light in San Bernardino County. BLACK SCALE infestations heavy in part of San Bernardino County orchards. YELLOW SCALE light to heavy in Tulare County. Some parasites present. CALIFORNIA RED SCALE light in Orange County and medium in some San Diego County orchards. Light to medium and occasionally heavy infestations in San Bernardino County. ORANGE TORTRIX medium in Orange County. (Cal. Coop. Rept.).

THRIPS - ARIZONA - Continue to appear on new growth of lemons at Yuma. Some new plantings untreated have severely damaged leaves. (Ariz. Coop. Rept.).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - Activity on both leaves and fruit increased sharply second week of July and continued increase during July is expected. Of groves checked, 67 percent were infested. (Pratt, Thompson, Johnson).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Reported in Pasco County, July 18 and in Orange County, July 24. (PPC).

A FIG BEETLE (Cotinis texana) - ARIZONA - Adults very numerous in Tucson. (Ariz. Coop. Rept.).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - IDAHO - Heavy infestations in potatoes in Cassia County. Generally spotted infestations in most fields of eastern and south central areas with exception of some fields west of Idaho Falls. (Bodily, Gittins). OREGON - More abundant than normal with control necessary in Malheur County and in central areas. (Every). DELAWARE - Requiring control on tomatoes many areas of Sussex County. (Milliron).

BLISTER BEETLES - OREGON - Damage by Epicauta sp. to tomatoes, dahlias and other plants in Agnes. (Every). TEXAS - Epicauta sp. infestations medium and widespread in Jack County. (Hulsey). OKLAHOMA - Remain abundant in gardens and in alfalfa throughout the State. (Coppock).

POTATO FLEA BEETLE (Epitrix cucumeris) - DELAWARE - Very numerous on potatoes near Smyrna. (Milliron). MAINE - Few overwintered beetles survived in Presque Isle area. Damage light in potatoes. (Shands et al.).

WESTERN POTATO FLEA BEETLE (Epitrix subcrinita) - IDAHO - Damage widespread but not generally heavy throughout south central and eastern areas. (Gittins).

TUBER FLEA BEETLE (Epitrix tuberis) - NEBRASKA - Counts 4-20 per 100 sweeps in the Gering and Scottsbluff valleys. (Andersen).

PALE-STRIPED FLEA BEETLE (Systema blanda) - COLORADO - Damaging populations on potatoes, sugar beets and beans in Montrose, Delta and Mesa Counties. (Exp. Sta.). DELAWARE - Injuring lima and snap beans at Middletown. (Milliron).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEVADA - Larvae and adults caused light damage to potatoes near heavily-infested trees near Reno. Control necessary. Pupation under way throughout infested areas. (Gallaway, July 14).

GREEN PEACH APHID (Myzus persicae) - IDAHO - Damaging populations on potatoes in Canyon County. (Scott).

HORNWORMS (Protoparce spp.) - COLORADO - Eggs and larvae in tomato fields in Prowers, Las Animas, Bent, Otero and El Paso Counties. (Exp. Sta.). MARYLAND - Moderate damage to canning tomatoes in Carroll County. Light on tomatoes on Eastern Shore. (U. Md., Ent. Dept.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Populations in epidemic proportions. Many early fields showing symptoms. Potato fields not properly treated showing extreme symptoms of yellows. Yields expected to be affected in Weld, Morgan and Adams Counties. Heavy populations in Conejos, Costilla and Alamosa Counties. Adults averaging 43 per 100 sweeps in potatoes. (Exp. Sta. and Chem. Ind.). UTAH - Causing some damage to potatoes at St. George and Washington. (Knowlton). NEBRASKA - Adult populations down due to hot weather in panhandle counties. Counts 1-4 per 100 sweeps. Nymphs in early fields 1-5 per 20 plants. (Andersen).

POTATO LEAFHOPPER (Empoasca fabae) - PENNSYLVANIA - Plentiful in Cambria County in potato fields not recently sprayed. (Udine). On potatoes in Clearfield County, 130 per 24 sweeps. (Adams). DELAWARE - Numerous generally on beans. Severe on potatoes some areas. (Milliron). MARYLAND - Abundant on snap and lima beans in most sections. Moderate on soybeans in Worcester County. (U. Md., Ent. Dept.). SOUTH DAKOTA - Population of 20 per ten sweeps in a commercial potato field in Codrington County. (Hantsbarger).

STALK BORER (Papaipema nebris) - PENNSYLVANIA - Considerable numbers in tomatoes in Allegheny County. (Udine).

TOMATO FRUITWORM (Heliothis zea) - COLORADO - General infestation of eggs and larvae in commercial tomato plantings in Prowers, Las Animas, Bent, Otero and El Paso Counties. (Expt. Sta.).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - CALIFORNIA - Damage to tomatoes and hops in Sacramento County. (Cal. Coop. Rept.).

CABBAGE LOOPER (Trichoplusia ni) - NEVADA - A larva believed to be this species damaging potatoes in Lyon County. (Gallaway, July 14). DELAWARE - Causing foliage damage and fruit injury to tomatoes throughout State. Heavy on commercial cabbage west of Middletown and at Ellendale. (Milliron).

GARDEN FLEAHOPPER (Halticus bracteatus) - DELAWARE - Abundant on tomatoes in Georgetown-Ellendale area. (Milliron).

GRASSHOPPERS - WISCONSIN - Damaging tomatoes and raspberries in Sauk County. (Wis. Ins. Bul.).

CABBAGE APHID (Brevicoryne brassicae) - CALIFORNIA - Infestations heavy in untreated cabbage crops in southern area. Medium to heavy damage to all cole crops in Santa Barbara County. (Cal. Coop. Rept.).

IMPORTED CABBAGEWORM (Pieris rapae) - RHODE ISLAND - Adults in large numbers in cabbage and broccoli fields. Damage to cabbage light to medium in most fields. (Steve). DELAWARE - Abundant in cabbage plantings generally. (Milliron).

DIAMONDBACK MOTH (Plutella maculipennis) - MASSACHUSETTS - Heavy infestations in Hampden County and lighter in other areas. (Crop Pest Cont. Mess.).

FLEA BEETLES - NEW JERSEY - Large numbers throughout State on cabbage. Second brood. (Ins. -Dis. News.).

COWPEA CURCULIO (Chalcodermus aenus) - NORTH CAROLINA - Reported in green beans and field peas from several areas. (Dogger et al.).

ALFALFA WEEVIL (Hypera postica) - IDAHO - Adults feeding on beans near a stack of alfalfa hay. Amount of injury local. (Douglass, July 13).

A LEAF ROLLER (Platynota stultana) - ARIZONA - Damage in 40 acres of castor beans in Maricopa County, July 12. Severely infesting a large planting of seed celery west of Phoenix. (Ariz. Coop. Rept.).

BEEET ARMYWORM (Laphygma exiqua) - CALIFORNIA - Common in bean fields in western Los Angeles County. Heavy damage to some fields of garbanzo (chickpea) in Santa Barbara County. (Cal. Coop. Rept.).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - IDAHO - First moth emerged from hibernation cages in Twin Falls area July 3. (Douglass, July 13).

BEAN APHID (Aphis fabae) - DELAWARE - Heavy on commercial lima beans several areas. (Milliron).

PEA APHID (Macrosiphum pisi) - PENNSYLVANIA - Considerable acreage sprayed in Union, Centre, Cambria and Potter Counties. In Centre County 850 acres sprayed. (Adams).

MELON APHID (Aphis gossypii) - UTAH - Damaging cucurbits in Washington County. (Knowlton).

ONION THRIPS (Thrips tabaci) - CALIFORNIA - Medium damage to black-eyed beans in Orange County. (Cal. Coop. Rept.). NEVADA - Severe populations in most untreated fields. (Galloway, July 14).

SQUASH BUG (Anasa tristis) - RHODE ISLAND - Egg clusters three per plant in Johnston. No serious damage. (Steve). OKLAHOMA - Damage to cucurbits heavy in Tulsa area, a few fields of squash completely destroyed. (Coppock). DELAWARE - All stages numerous on squash north of Georgetown. (Milliron). UTAH - Particularly damaging in Washington County. (Knowlton).

HORNED SQUASH BUG (Anasa armigera) - DELAWARE - All stages numerous on squash north of Georgetown and at Ellendale. (Milliron).

SQUASH BEETLE (Epilachna borealis) - DELAWARE - Injurious to squash and cucumbers in Georgetown area. (Milliron).

GARDEN SYMPHYLID (Scutigerella immaculata) - CALIFORNIA - Damage to sprouting seed and young banana squash in San Fernando Valley of Los Angeles County. One-half of 40-acre field destroyed. Medium to heavy damage to tomato and bean plantings in Santa Cruz County. (Cal. Coop. Rept.).

BEEET WEBWORM (Loxostege sticticalis) - COLORADO - Severe in sugar beets, lettuce and peas in Rio Grande, Saguache and Alamosa Counties. Lettuce in some cases has 10-15 larvae per head. (Chem. Ind.).

BEEET LEAFHOPPER (Circulifer tenellus) - NEVADA - Curly top incidence nil in Churchill County. (Dorst, Lauderdale, Gallaway, July 14). UTAH - Causing up to 55 percent loss of tomatoes at Santa Clara and 10-50 percent at Kanab. Most of State not severely affected. (Knowlton).

APHIDS - MINNESOTA - Heavy infestations on raspberries and strawberries in Albert Lea, Faribault, Lakeville and Twin City areas. (Minn. Ins. Rept.). MAINE - Populations on untreated potatoes in Aroostook County have tripled but infestations are unusually small for this time of year. (Shands et al.).

LYGUS BUGS (Lygus sp.) - CALIFORNIA - Medium to heavy damage occurred to lettuce in Santa Cruz County. (Cal. Coop. Rept. , July 17). IDAHO - Populations of L. elisus and L. hesperus averaged 10 per sweep in a 90-acre radish field west of Blackfoot. (Gittins).

STRAWBERRY ROOT APHID (Aphis forbesi) - PENNSYLVANIA - Very heavy on 3000 strawberry plants in Franklin County. (Adams).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - CALIFORNIA - Nominal damage to strawberries in San Mateo County. Medium infestations on the coast in Santa Barbara County. Heavy in some strawberry fields in San Diego County and heavy infestations on bush berries in San Bernardino County. Populations building up slowly in lima bean fields in southern area. (Cal. Coop. Rept.).

CYCLAMEN MITE (Steneotarsonemus pallidus) - CALIFORNIA - Medium infestations in some Santa Barbara County strawberry fields and heavy infestations in Orange County. (Cal. Coop. Rept.).

ARTICHOKE PLUME MOTH (Platyptilia carduidactyla) - CALIFORNIA - Thirty percent of artichoke buds infested in San Mateo County. Damage heavy in Santa Barbara County. (Cal. Coop. Rept.).

LEAFHOPPERS (Empoasca sp.) - ARIZONA - Light but increasing in three 80-acre castor bean fields at Mesa. Damage beginning. (Ariz. Coop. Rept.). IDAHO - E. filamenta common in most potato fields in eastern area; 5-10 adults per plant. (Gittins). CALIFORNIA - E. abrupta very numerous in squash and pumpkin plantings in San Fernando Valley, Los Angeles County. (Cal. Coop. Rept.).

ONION MAGGOT (Hylemya antiqua) - OREGON - Onions being attacked more severely than normally near Nyssa. Nearly 50 percent damage in several fields. Lesser damage to onions in Ontario area. (Morrison).

PEPPER MAGGOT (Zonosemata electa) - NORTH CAROLINA - Test plots in Duplin County show over 50 percent of Red Cherry variety infested but adjacent plots of Hungarian Yellow wax variety undamaged. (Reid, Farrier).

SPINACH LEAF MINER (Pegomya hyoscyami) - IDAHO - Injuring sugar beet foliage south of Burley. Most fields show 10 percent plants infested with a 5-acre field showing about 50-60 percent of plants infested. (Gittins).

TOBACCO INSECTS

BUDWORMS (Heliothis spp.) - NORTH CAROLINA - Numbers in Bertie County. (Grant, Rabb). Boring in stalks more than usual this year. (Scott). Very light generally in Granville County. (Chamberlin). Not as heavy now as in past two weeks when infestation of 10-20 larvae per 25 plants common in Transylvania County. (Davis). SOUTH CAROLINA - Particularly injurious to top leaves. (Nettles). KENTUCKY - H. zea at present most important pest of tobacco in State. (Boush).

HORNWORMS (Protoparce spp.) - NORTH CAROLINA - Infestation generally light in Granville County. (Chamberlin). Averaged 1.1 eggs and 0.5 larva per 25 plants in east central counties. (Farrier). SOUTH CAROLINA - Unusually light this season. (Nettles).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - NORTH CAROLINA - Increasing in east central counties with some fields with 1-3 adults per leaf. (Farrier). SOUTH CAROLINA - Complaints of injury increasing. (Nettles).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - Adults attacking tobacco in Craven, Washington and Pamlico Counties and especially severe on field borders. (Scott).

LONG-HORNED GRASSHOPPERS - KENTUCKY - Causing serious injury to tobacco, especially in the bud, in central area. (Boush). WISCONSIN - Threatening tobacco in Dane County. (Wis. Ins. Rept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Damage has increased markedly in untreated fields in most counties. (Cott. News. Lett.). SOUTH CAROLINA - Average infestation in 38 counties was 8 percent in treated fields and 33 percent in untreated. Increase in activity over State. (Cott. Lett., July 16). Seventeen percent infestation in 31 treated fields in Florence County and 41 percent infestation in 72 treated fields in Darlington County. (Walker et al.). GEORGIA - Average of 30

percent infestation in 42 fields in northeast and southeast counties; range of 2-78 percent. (Johnson). TENNESSEE - Damaging infestations light in southwestern counties. Between broods. Infestation averaged 19 percent compared with 28 last week. (Locke). MISSISSIPPI - Infestations about same as last week in delta counties but some higher. Average infestation for 43 fields north of Stoneville was 11 percent. Average for 20 fields in south delta was 26 percent. Some counts as high as 95 percent. (Merkl, Furr et al.). ARKANSAS - Situation variable. First-generation weevils very numerous in many fields receiving showers and infestations increased sharply. In fields not receiving showers, excellent dry weather control has been obtained and emergence is much slower. Infestation by area this week and last: southeast 11.7 and 6.5, east central 6.3 and 3.9, northeast 6.8 and 4.5, central 16.4 and 20.0, southwest 34.2 and 20.5. (Warren, Harrendorf, Barnes). LOUISIANA - Infestation averages by parish: Concordia 24 percent in 10 fields, Franklin 30 in 1, Bossier 44 in 5, Ouachita 70 in 5, Red River 40 in 1, Natchitoches 72 in 2, Rapides 16 in 2, Tensas 41 in 10 and Evangeline 0-1 in 2. (Oliver). Squares examined in 121 fields in Tallulah area and all found infested at rate of 30 percent compared with 27 last week. Infestation gradually increasing. (Pfrimmer et al.). OKLAHOMA - Local fields in east central and southeast counties showing as high as 80 percent square damage. (Flora, July 14). TEXAS - Increases in east, northeast, north central and central areas, especially in irrigated fields. (Turney, Martin, July 17). Infestation averaged 29.2 percent in 13 untreated and 18 in 12 treated fields in McLennan and Falls Counties. (Parenica et al.).

BOLLWORMS (*Heliothis* spp. et al.) - NORTH CAROLINA - Still potential pests. One to 3 percent damaged bolls in many areas. (Cott. News Lett.). SOUTH CAROLINA - Increasing again in many counties. (Cott. Lett., July 16). Of 72 fields examined in Darlington County, damaged squares found in only 1. Catch of moths increased considerably: 620 *H. zea* against 145 last week and 216 *H. virescens* compared with 18. (Walker et al.). TENNESSEE - Damaging numbers appearing in fields in west Tennessee treated for boll weevil. Several fields in Dyer County have heavy infestations. (Locke). GEORGIA - Average of .75 larvae per 100 terminals in 42 fields in northeast and southeast counties. (Johnson). MISSISSIPPI - Eggs appearing in some fields in delta counties; .8 per 100 terminals. Little damage. (Merkl, Furr et al.). LOUISIANA - Eggs found in all of 121 fields inspected in Tallulah area at rate of 3.5 eggs per 100 terminals. Larvae found in 117 fields at rate of 2.1 per 100 terminals. Potential continues in most fields but damage generally light. (Pfrimmer et al.). Increasing in several parishes: 10 eggs per 100 terminals in Tensas, 23 larvae and 6 eggs per 100 in 1 field in Natchitoches, 20 larvae and 6 eggs per 100 in 1 field in Bossier. Heavy moth flights in Bossier Parish. (Oliver). ARKANSAS - Increasing in south and east central areas. (Warren, Harrendorf, Barnes). MISSOURI - From 0-7 eggs and 0-13 larvae per 100 terminals in 464 fields. (Kyd, Thomas). TEXAS - Extremely heavy infestations in some fields. Light to heavy in 7 fields in Henderson County, 7 in Kaufman County and in 34 fields in Van Zandt and Bowie Counties. As high as 300 eggs per 100 terminals in irrigated cotton in Brazos and Robertson Counties with heavy damage in some fields. (Turney, Martin, July 17). Continue heavy in irrigated cotton in McLennan and Falls Counties. (Par-

encia et al.). OKLAHOMA - Reported from several counties, heavy in scattered fields on Muskogee County. (Flora). ARIZONA - Increasing on cotton from Maricopa County to Santa Cruz County. Oviposition heavy in Pima and Pinal Counties, July 13. Three to 7 larvae per 100 plants on 7000 acres in Maricopa County and 600 acres in Graham County. (Ariz. Coop. Rept.).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Increasing rapidly in irrigated cotton in south central area. (Turney, Martin, July 17).

SPIDER MITES - NORTH CAROLINA - Increased in spite of weather. Reported as problem in some fields in 10 counties. (Cott. News Lett.).

TENNESSEE - Light in many fields in west Tennessee. (Locke).

GEORGIA - Tetranychus sp. light in Jackson, moderate in Hart and heavy in Jenkins County. (Johnson). MISSISSIPPI - From light to heavy in a few locations in delta counties. (Merkl, Furr et al.). ARKANSAS - Continue active and increasing in some areas. Heavy enough to warrant control in some cases. (Warren, Harrendorf, Barnes). LOUISIANA - Light to moderate in many fields. (Oliver). MISSOURI - Recorded in 25 of 464 fields, mostly in margins. (Kyd, Thomas). ARIZONA - Generally light from Maricopa County to Santa Cruz County, July 13. (Ariz. Coop. Rept.).

APHIDS - SOUTH CAROLINA - Cotton aphid continues to increase in Coastal Plains counties. (Cott. Lett. , July 16). GEORGIA - Aphis gossypii light in Lincoln and Hancock Counties; moderate in Elbert, Richmond, Burke, Jenkins, Emanuel Counties; heavy in Washington County. (Johnson). LOUISIANA - Remain light in most fields. (Oliver). ARIZONA - Heavy on 100 acres in Graham County. (Ariz. Coop. Rept.).

FLEAHOPPERS - ARIZONA - More numerous on cotton at Yuma than previous years, 10-15 per 100 sweeps in some fields. Ten to 14 per 100 sweeps on 2000 acres at Phoenix, 10-12 per 100 sweeps on 600 acres at Safford, 18-35 per 100 sweeps on 5000 acres in Queen Creek. (Ariz. Coop. Rept.). MISSOURI - From 0-28 per 100 terminals in 464 fields, 98 percent of fields showed some infestation. (Kyd, Thomas). OKLAHOMA - Heaviest infestations in Coal and Caddo Counties. (Flora).

LYGUS BUGS - CALIFORNIA - High populations in many cotton fields in San Joaquin Valley. (Cal. Coop. Rept.). ARIZONA - Increasing rapidly on cotton in Pima, Pinal and Maricopa Counties, July 13. Per 100 sweeps by county: 8-32 in Maricopa, 8-25 in Pinal, 2-15 in Pima. Sixteen to 30 per 100 sweeps on 600 acres at Safford July 17. (Ariz. Coop. Rept.).

COTTON LEAF PERFORATOR (Buccatrix thurberiella) - ARIZONA - General in Buckeye area, Maricopa County; 15-20 larvae per 50 sweeps in a few fields. Severe in parts of Pinal County and abundant in stub cotton in Yuma County locations. (Ariz. Coop. Rept. , July 16).

BEET ARMYWORM (Laphygma exigua) - ARIZONA - Local damage to cotton near Yuma. (Ariz. Coop. Rept. , July 16). MISSISSIPPI - Infesting edge of cotton fields in Holmes County. (Hutchins).

CABBAGE LOOPERS - ARIZONA - Trichoplusia ni general but light in all areas; 10 larvae per 50 sweeps in one field in Maricopa County. (Ariz. Coop. Rept., July 16). TEXAS - Increase in north and south plains areas and in irrigated cotton in other areas. Some "ragging". (Turney, Martin, July 17).

COTTON LEAFWORM (Alabama argillacea) - LOUISIANA - First moth of season at Tallulah taken in light trap July 19. First moth in 1955 was caught August 8. (Pfrimmer et al.).

GRASSHOPPERS - OKLAHOMA - Marginal damage over wide areas. (Flora).

WHITEFLIES - ARIZONA - Increasing in several counties. Stunting late plantings, July 16. Very abundant on 150 acres at Queen Creek. (Ariz. Coop. Rept.).

A LEAF ROLLER (Platynota stultana) - ARIZONA - Significant damage in Litchfield Park area. (Ariz. Coop. Rept., July 16).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - CALIFORNIA - Moving from alfalfa into cotton in San Joaquin Valley, July 12. (Cal. Coop. Rept.).

THRIPS - ARIZONA - Populations remain high in most fields but plants generally outgrowing damage. (Ariz. Coop. Rept., July 16).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

LARCH SAWFLY (Pristiphora erichsonii) - WISCONSIN - Scattered light defoliation in northwestern area. (Wis. Ins. Bul.).

JACK-PINE BUDWORM (Choristoneura pinus) - MINNESOTA - Egg-laying underway in Park Rapids area. (Minn. Ins. Rept.).

TIP MOTHS - TEXAS - Constant infestations on loblolly pines in northern Orange County. (Angle).

WHITE-PINE WEEVIL (Pissodes strobi) - RHODE ISLAND Larval damage evident throughout State. Very heavy in Smithfield area where few trees escaped injury. (Steve).

TURPENTINE BEETLE (Dendroctonus sp.) - TEXAS - Populations continue to cause mortality of sawlog size pine in Hardin, Polk, Walker and Trinity Counties. (Peterson).

PITCH MASS BORER (Vespamima pini) - WISCONSIN - Damaging pines in Sauk County. (Wis. Ins. Bul.).

A COLASPIS BEETLE (Colaspis sp.) - TEXAS - Increasing on slash pine in southern Newton County. (Mattson).

PINE NEEDLE MINER (Exoteleia pinifoliella) - PENNSYLVANIA - Nearly every needle of Japanese red pine infested in Westmoreland County. Pupae and adults. (Jeffery).

A FLEA BEETLE (Systema marginalis) - FLORIDA Reported causing moderate damage to foliage of pond cypress over an estimated 2,000 acres in St. Johns County. Damage causes reddening of needles in mid-summer. Determined E. P. Merkel. (Denmark, July 5).

SARATOGA SPITTLEBUG (Aphrophora saratogensis) - WISCONSIN - Adults emerging in northwestern and central areas. Generally lighter than last year. (Wis. Ins. Bul.).

YELLOW-NECKED CATERPILLAR (Datana ministra) - DELAWARE - Defoliating pin oak from Newark southward and southern red oak in the Redden State Forest. (Milliron).

RED-HUMPED OAKWORM (Symmerista sp.) - DELAWARE - Unusually prevalent on various oaks especially white oak from Newark to Bridgeville. (Milliron).

AN OAKWORM (Anisota virginiensis) - DELAWARE - Causing defoliation of white and pin oaks throughout State. (Milliron).

ASIATIC OAK WEEVIL (Cyrtepestomus castaneus) - DELAWARE - Adults numerous on various oaks from Newark to Bridgeville and causing

conspicuous leaf injury. (Milliron).

COLUMBIAN TIMBER BEETLE (Corthylus columbianus) - WEST VIRGINIA - Heavy locally in white oaks statewide. (Dorsey, Hansen).

OAK LACE BUG (Corythucha arcuata) - WEST VIRGINIA - Heavy feeding on oaks statewide. (Dorsey, Hansen).

AN OAK LEAF MINER (prob. Cameraria sp.) - PENNSYLVANIA - Many white oaks in central area with 75 percent of leaves with mines. (Gesell).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Abundant throughout State, feeding on variety of plants. No severe damage. (Steve). PENNSYLVANIA - Very abundant southwestern area. (Udine). Feeding lightly on Chinese chestnut in central area. (Gesell). NORTH CAROLINA - Adults increasing rapidly in Watauga County and feeding on various ornamentals. (Tuckwiller). Feeding on ornamentals in Ash and Caldwell Counties. (Scott).

ASIATIC GARDEN BEETLES (Autoserica castanea) - DELAWARE - Destructive to various herbaceous ornamentals at Smyrna and Fieldsboro. Adults common at Newark. (Milliron).

LOCUST LEAF MINER (Chalepus dorsalis) - MARYLAND - Causing considerable discoloration of black locust in all sections. (U. Md., Ent. Dept.). WEST VIRGINIA - Severe infestation on black locust statewide. (Dorsey, Hansen).

EUROPEAN ELM SCALE (Gossyparia spuria) - OREGON - Causing severe damage in Gilliam County. (Every).

A NOTODONTID (Cerura borealis) - DELAWARE - Defoliating silver poplar at Petersburg. (Milliron).

NORWAY-MAPLE APHID (Periphyllus lyropictus) - IDAHO - Extremely high populations common on maple trees in Moscow. Large amounts of honeydew on unsprayed trees and premature shedding of leaves. (Manis).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEW JERSEY - Seriously attacking elm leaves. (Ins.-Dis. News., July 17). IDAHO - Continues to cause damage to some trees in Magic Valley area. Some trees in Shoshone area show heavy damage. (Gitins).

A CERAMBYCID (Derobrachus germinatus) - ARIZONA - Adults very numerous and reported digging into ground around Mexican palo verde trees. Associated with severe root damage. (Ariz. Coop. Rept.).

POPLAR AND WILLOW BORER (Sternochetus lapathi) - SOUTH DAKOTA - Damaging willow trees in Brookings area. (Severin).

WILLOW SAWFLY (Nematus ventralis) NORTH DAKOTA - Completely defoliating three-year-old willow shelterbelt in Grand Forks County. (N. D. Ins. Rept.).

MIMOSA WEBWORM (Homadaula albizziae) - DELAWARE - Causing light to moderately heavy damage at many locations from Smyrna southward. (Milliron). ARKANSAS - Defoliating mimosa trees in some sections. (Warren, Harrendorf, Barnes).

BAGWORMS - PENNSYLVANIA - Very abundant in southwestern area and on white pine in Butler County. Control needed. (Udine). VIRGINIA - Numerous complaints received in eastern area about injury to arborvitae and other ornamentals. (Brubaker, Greenwood, Hofmaster).

BAGWORM (Thyridopteryx ephemeraeformis) - DELAWARE - Severe on black locust at Newark and less so on sycamore and black walnut. (Milliron). WEST VIRGINIA - Defoliation extensive to arborvitae and other ornamentals statewide. (Dorsey, Hansen).

MITES - NORTH DAKOTA - Light to moderate infestations on juniper and spruce. (N. D. Ins. Rept.). WISCONSIN - Spider mites, possibly Tetranychus telarius and others have been reported causing lack of vigor in spruce trees. (Wis. Ins. Bul.).

A COREID (Mozena obtusa) - TEXAS - Heavy widespread populations on mesquite in Motley County. (Pallmeyer).

POTATO LEAFHOPPER (Empoasca fabae) - DELAWARE - Unusually heavy and causing tip burn of wistaria at Newark. (Milliron).

RHODODENDRON LACE BUG (Stephanitis rhododendri) - RHODE ISLAND - Adults heavy on rhododendron, causing yellowing. (Steve).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - NORTH CAROLINA - Light trap catches in Pamlico County indicate heavy populations. (Cromroy).

SALT-MARSH MOSQUITO (Aedes sollicitans) - MARYLAND - Abundant and biting in many areas on lower Eastern Shore. (U. Md., Ent. Dept.).

HORN FLY (Siphona irritans) - OKLAHOMA - Average 800 per animal on 200 yearling steers in Creek County. (Coppock).

HOUSE FLIES - MARYLAND - Abundant in untreated dairy and beef barns in Carroll and Worcester Counties. (U. Md., Ent. Dept.).

SECONDARY SCREW-WORM (Callitroga macellaria) - NORTH CAROLINA - In dehorning wound of calves in Davie County. (Dogger, Young).

A RABBIT BOT (Cuterebra sp.) - NORTH CAROLINA - Larva taken from 8-week-old puppy in Lincoln County. (Batts, Farrier).

FLEAS - GEORGIA - Heavy infestation annoying humans in Spalding County. (Beckham, July 13).

LIVESTOCK PESTS - IDAHO - Cattle lice, cattle grubs, hog louse and hog mange mite have been numerous in Butte County. (Gittins).

STORED PRODUCTS INSECTS

GRAIN MITE (Acarus siro) - OREGON - Mites covered floor beside sacked feed to a depth of one inch in a Coquillo feed store, July 10. (Goeden).

BENEFICIAL INSECTS

LADY BEETLES - CALIFORNIA - Continue to control spotted alfalfa aphid in Orange County where little treatment has been required. Increases in alfalfa fields in central areas. In Tehama County, July 10, lady beetles, especially Hippodamia convergens were numerous in alfalfa fields infested with spotted alfalfa aphid. (Cal. Coop. Rept.). IDAHO - Abundant throughout eastern and south central area on most crops, particularly alfalfa and red clover. One alfalfa field heavily infested with pea aphid near Twin Falls had 20 larvae per sweep. (Gittins).

PREDATORS - ARIZONA - Abundant in majority of alfalfa and cotton fields of all principal growing areas. In order of abundance they are Hippodamia, Collops, Orius and Chrysopa. Nabis, Zelus and smaller coccinellids are also active. In castor bean fields in Mesa area, Collops vittatus was most numerous with up to 2-3 per leaf. Chrysopa sp. also numerous in most fields. (Ariz. Coop. Rept.). CALIFORNIA - Orius tristicolor most numerous of any insect in some alfalfa in Sacramento Valley. (Cal. Coop. Rept.). IDAHO - Nabids more numerous in alfalfa fields, 2-3 per sweep. (Gittins).

MISCELLANEOUS INSECTS

EUROPEAN EARWIG (Forficula auricularia) - CALIFORNIA - Very heavy infestations in homes in Santa Barbara County and heavy damage occurred in some yards in Amador County. First heavy infestations in this area. (Cal. Coop. Rept.). IDAHO - Numerous reports from Lincoln, Gooding, Twin Falls and Cassia Counties of damage around homes and infestations in houses. Abundant in Moscow area. (Gittins, Manis).

ADDITIONAL NOTES

NEW YORK - RED-BANDED LEAF ROLLER numbers heavy by July 20 in eastern area and moths appearing in Niagara, Monroe and Orleans Counties. CODLING MOTH light in Poughkeepsie area and in Monroe and Oswego Counties. APPLE APHID increasing in Orleans and Oswego Counties. TWO-SPOTTED SPIDER MITE building up fast in Orleans County. EUROPEAN CORN BORER in pupation in Hudson Valley July 16. Heavy infestation in Columbia and Monroe Counties. LEAFHOPPERS damaging some beans in Genesee County. APHIDS abundant on white pine on Long Island. PINE SHOOT MOTH and NANTUCKET PINE TIP MOTH severe on Long Island, especially on Japanese black pine. (N. Y. Wkly. Rept.).

ALABAMA - LESSER CORNSTALK BORER continues to cause moderate to severe damage. Fields of grain sorghum destroyed in Lee County and light to moderate infestations in peanuts in southeastern area. (Mount, Arant). FALL ARMYWORM heavy in Jefferson and Henry Counties. EUROPEAN CORN BORER laying eggs on corn in Sand Mountain area. (Eden). Observations in cotton showed the following in 10 southeastern counties: BOLLWORM eggs found in 40 of 47 fields and ranged from 1-9 per 100 terminals. All 47 fields were infested with BOLL WEEVIL with an average of 37.9 percent infestation. (Tyus). Boll weevil situation is critical. (Arant).

VIRGINIA - JAPANESE BEETLE medium on corn, roses and some trees in several areas of Halifax County. (Hall). Light to medium in Rockingham County. (Peterson). Severe locally in corn, grapes and other small fruit in Shenandoah County. (Coinger). Outbreaks occurring in Fluvanna, Clarke, Bedford and New Kent Counties. GREEN JUNE BEETLE severe locally in Ladino clover pastures in Amelia County. (Holmes). Swarms appearing at Richmond. (Willey, Freund). CORN EARWORM damage heavier than usual to corn in Augusta County (Woodside) and damaging corn in Shenandoah County (Coiner). SOUTHERN CORNSTALK BORER severely attacking corn in Chesterfield, Henrico and Hanover Counties. (Matheny). VARIABLE OAK LEAF CATERPILLARS heavily defoliating oaks and other trees in several areas. (Morris). BAGWORMS severe on cedar trees along roads in the Harrisonburg-Winchester-Warrenton-Richmond area. (Willey). WALNUT CATERPILLAR attacking foliage of walnut and pecan trees many areas. (Morris). LOCUST LEAF MINER heavy on locust trees in northern and southern areas. (Willey). ORCHARD MITES appearing in apple orchards in Augusta County. (Woodside).

SURVEY METHODS

UNIFORM SURVEY PROCEDURE APPROVED BY
THE LAKE STATES FOREST INSECT SURVEY COMMITTEE - 1956

LARCH SAWFLY DAMAGE APPRAISAL SURVEY

PURPOSE:

The larch sawfly, Pristiphora erichsonii (Htg.), is found throughout the tamarack type in the Lake States; however, the intensity of infestation varies from place to place. A standard method of appraising the damage is urgently needed so that all agencies can report infestations in a similar manner. The following procedure, in use by the Division of Forest Insect Research, Lake States Forest Experiment Station, is submitted as a means of fulfilling this objective. It can be used once to obtain data on stand condition and severity of defoliation or annually to follow population trends.

Tamarack mortality attributed to sawfly defoliation was observed for the first time in the present outbreak in Minnesota during 1954 and 1955. Landowners may wish to take some means of preventing defoliation and damage because much of the tamarack growing on the better sites will soon be commercially important. Also, it may be the only species that will reach merchantable size on a boggy site. If protection is considered it will be of prime importance to know how much defoliation, over how long a period, is required to cause death of the trees or predispose them to death by other factors. If the majority of the trees will survive, even though growth is reduced, it is doubtful whether protection measures will be necessary. The proposed procedure will give this type of information from year to year.

INSTRUCTIONS:

It will be possible to follow population trends and determine the factors causing, or leading up to, tree decadence by establishing permanent observation points throughout the tamarack areas.

Observation Point Establishment

1. All permanent observation points will be established in easily accessible tamarack stands, pole size or larger, that contain 70 percent or more tamarack and are at least 10 acres in extent. The landowner should be consulted to obtain permission to enter and to request that the stand will not be removed for a period of years. It would be advisable to locate points on public lands away from major highways whenever possible.
2. Each permanent observation point should be specifically located and described on the form attached so that it can be readily found. Each point should be adequately marked, so as to facilitate ease of locating, by a band of paint on a power or telephone pole or on nearby trees.
3. A line of 10 dominant trees, at least 1 chain apart and beginning 2 chains in from the road, will be permanently marked and used for sample trees. Each tree should be marked with a 2-inch band of paint at d. b. h., completely circling the tree; a number, 1 to 10, will be neatly painted above this band. A Valspar-type enamel, tangerine in color, has proved very satisfactory because it shows up well in the woods and has long-lasting qualities. Repainting is necessary when the numbers cannot be determined or in case sample tree is windthrown and must be replaced by a nearby tree of similar size.
4. A square tenth-acre plot (1 chain on a side) will be established in the stand somewhere near the line of sample trees; possibly containing some of them. A line of trees, immediately adjacent to the edge of this plot, will be painted to delineate the plot boundaries; the paint marks should face the center of the plot. The primary purpose of

the plot will be to observe the development of tree decadence.

Field Observations

At each observation point two separate records will be made and marked on the attached form. One is a defoliation record and the second is a bark beetle record. These observations will be made after all feeding by the sawfly has ceased (approximately August 1).

1. Defoliation estimates - A defoliation estimate will be made for each of the 10 marked sample trees. The live crown is broken down into thirds visually, and a separate estimate to the nearest 5 percent is made for each crown level and then an average for the tree is obtained. When averaging, it must be realized that the upper one-third of the crown does not represent one-third of the total foliage. In making the estimates, because defoliation may vary in different quadrants of the crown, it is necessary to walk completely around the tree. Defoliation estimates will be recorded separately for each tree; the plot average will then be based on these 10 trees.

The d. b. h. for each of the 10 marked sample trees will be measured with a diameter tape to the nearest tenth of an inch and recorded on the form.

Total tree height for each sample tree is measured using an Abney level or hypsometer and recorded.

2. One-tenth-acre plot observations - Within the 1/10-acre plot all living trees in a 4-inch d. b. h. class or above will be counted and recorded by species. Only tamarack, spruce, and cedar should be considered.

Of these trees all showing recent bark beetle attack (present year) will be counted and recorded. If bark beetles are present, specimens should be sent in to the State Agency involved, or to the Lake States Forest Experiment Station, for determination.

By following these 1/10-acre plots over a period of years, some idea of tree decadence will be obtained. The recording of spruce and cedar as well as the tamarack should make possible the detection of tree decadence resulting from other factors besides the sawfly. An example would be excessive high water over a relatively long period. This should be reflected in all three tree species even though it may affect each in a different degree.

All field data should first be sent to the proper State agency; after being recorded the material can then be forwarded to the Lake States Forest Experiment Station for coordination. (L. C. Beckwith, Forest Service, U. S. D. A.).

LARCH SAWFLY DAMAGE APPRAISAL SURVEY

(1) Collecting point No. _____ (2) Approx. acreage sampled _____ (3) Date _____

(4) Location: T _____ R _____ S. _____ (5) Landowner _____

(6) Reporting agency _____ (7) Observers _____

(8) Stand condition:

Density: Poor Medium Good
Site : Dry Hummocky Wet

(9) Individual tree record

Tree No.	DBH	Ht.	Defoliation %
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Average

(10) 1/10-acre plot

	Tamarack	Spruce	Cedar
(a) No. living trees above 4" DBH class _____	_____	_____	_____
(b) No. trees containing bark beetles _____	_____	_____	_____
(c) No. trees dead but not harboring bark beetles _____	_____	_____	_____

(11) Larch casebearer: None Light Medium Heavy

(12) Remarks: _____

Instructions for Reporting Larch Sawfly Conditions

(1) For Reporting Agency only.

(2) - (7) - Self-explanatory.

(8) Underline one that best pertains to the stand.

Density: Forest Service Classification - Poor (100-224 trees/acre),
Medium (225-324 trees/acre), Good (325+ trees/acre).

Site : Dry and wet are self-explanatory; hummocky refers to a stand that has very irregular ground surface, the high areas are generally dry while the depressions are generally wet.

(9) Tree record: Tree No. , DBH (in tenths of an inch), Ht. (in feet),
Defoliation percent (ocular estimate to the nearest 5 percent)

(10) 1/10-acre plot (1 ch. square).

(11) Larch casebearer - Record spring defoliation.

(12) Any additional information concerning the stand condition.

(RETURN TO STATE AGENCY IN CHARGE OF SURVEY.)

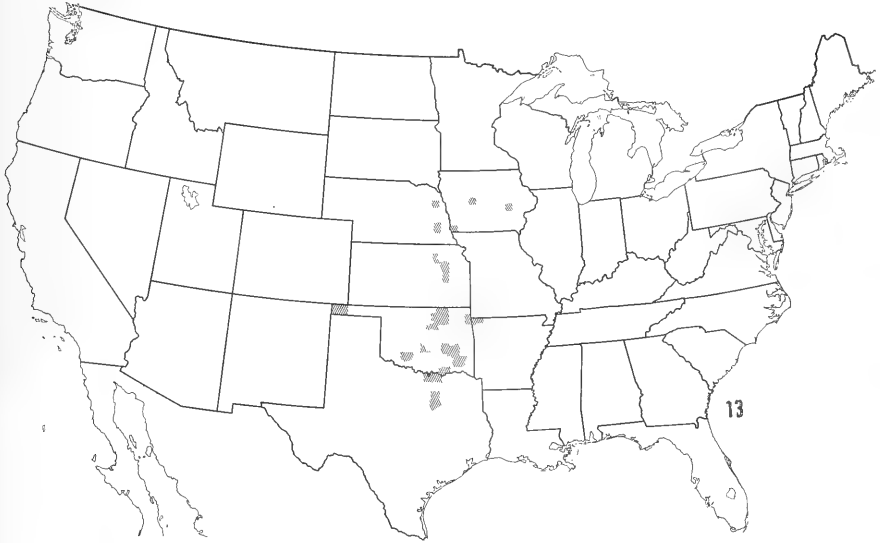
LIGHT TRAP COLLECTIONS		Pseud. unipan.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea vires.	Protoparce sexta quinq.	Laphyg. frugip.
COLORADO (Counties)									
Farmer	7/7-13	19							
Otero	7/3-5	120							
TEXAS									
College Station	7/1-15	3	1	155	3		5004	7	916
Denton	7/1-15			1			620		
Weslaco	7/1-15	126	122	836	30		5790	824	1746
Winter Haven	7/1-15	2		6	1		255	1	
Waco	7/14-20			8	6	3	432	11	
ARKANSAS									
Hope	7/13-18						95		
Stuttgart	7/13-18	2	1				17		
Van Buren	7/12-18						41		
Varner	7/12-18		26		3		43		
Fayetteville	7/14-20	30	20		7		92		
Clarksville	7/12-18	4	26				81		
LOUISIANA									
*Tallulah	7/13-19	48	15	340	3	129	508	10	157
Baton Rouge	7/14-20	2		61		235	31	19	21
Curtis	7/8-15						200	14	
MISSISSIPPI (Counties)									
*Washington	7/13-19	218	58		14		444		
Coahoma	7/14-20	8	59	33			92		
Humphreys	7/14-20	6	3	180		16	114		
Lauderdale	7/14-20	5	1	29	7		28	3	
Oktibbeha	7/14-20	35	8	401	2	34	24	1	
TENNESSEE (Counties)									
Madison	7/10-16	22	6	18	2		80		
Lawrence		20		16			2	19	2
Maury		85	4	64			68	12	4
Robertson		56	4	66			24	30	3
Cumberland		35	3	11	6		2	10	1
Knox		22	6	134	2		26	1	
Greene		72	8	88			20	17	1
Blount		32		172	4		20	3	
Johnson		487	96	100	96		24	3	3
GEORGIA (Counties)									
Tift	7/13-19	42	34	108		108	605	16	53
Spalding	7/13-19	29	16	45	1	68	28	1	13
Clarke	7/11-18	22	41				14	6	8
FLORIDA									
Gainesville	7/11			3			1	1	4
Homestead	7/12					3		1	
Quincy	7/16	2		7			16	13	2
SOUTH CAROLINA (Counties)									
Florence	7/7-13	10	8	125	2	338	145	18	134
Charleston	7/2-8		6			2	1	6	3
Oconee	7/3-21	108	1	120	6	86	10	1	11
NORTH CAROLINA (Counties)									
Duplin	7/18-19			10		4	5	3	10
Johnson	7/18-19	3	1	3			1	12	2
MARYLAND (County)									
Montgomery	7/11-20	12	5		1		2	1	10
OHIO (County)									
Athens	7/9-15	54	6				1		
ILLINOIS									
Urbana	7/13-19	322	17	18	64		1	2	
MISSOURI (County)									
Boone	7/14-20	41	11		7		20	4	2
WISCONSIN									
DeForest	7/11-15	160					14		
MINNESOTA (County)									
Ramsey	7/11-17	58	10		1				
SOUTH DAKOTA									
Brookings	7/18-19	81	22						
INDIANA (Counties)									
Lawrence	7/11-19	204	5	12	4		3	27	6
Tiptecanoe	7/13-19	75	11	4	4				
ALABAMA (County)									
Lee	7/11-20	59		420			95	6	10
								4	462

Other Collections: Colorado (Otero County, 7/4-5) *Loxostege sticticalis* - f, 040.
 Texas (Weslaco, 7/1-15) *Trichoplusia ni* - 83, 830.
 Louisiana (Tallulah, 7/13-19) *Alabama argillacea* - 1.

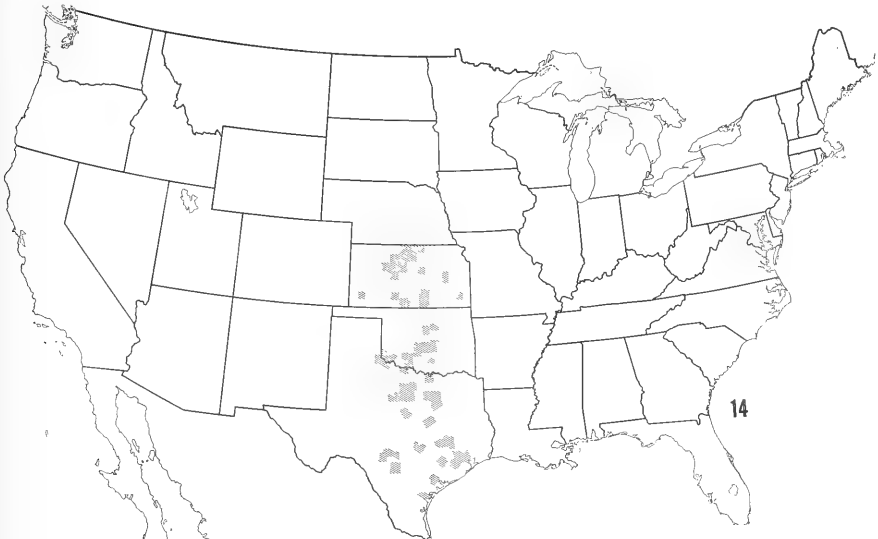
*Three traps Tallulah, Louisiana; two traps Washington County, Mississippi.

DISTRIBUTION OF RANGE GRASSHOPPERS

Boopedon auriventris McNeill

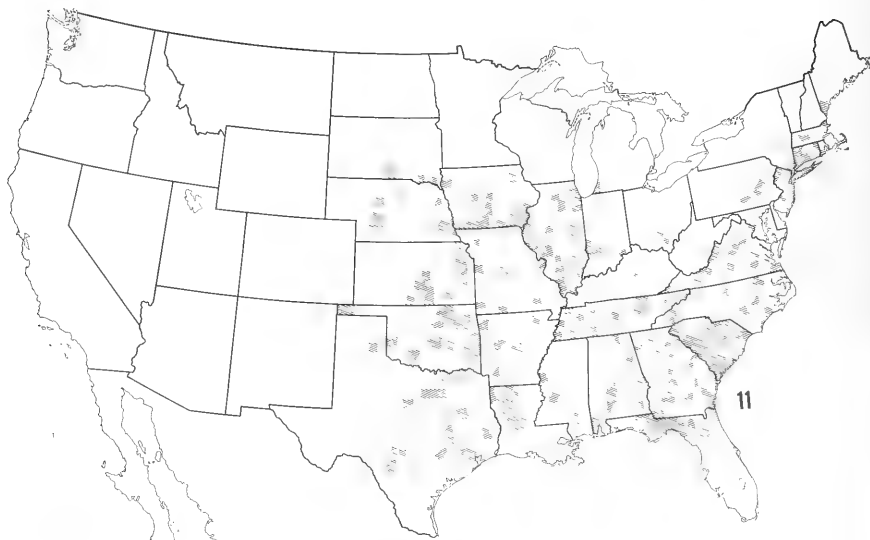


Boopedon gracile Rehn

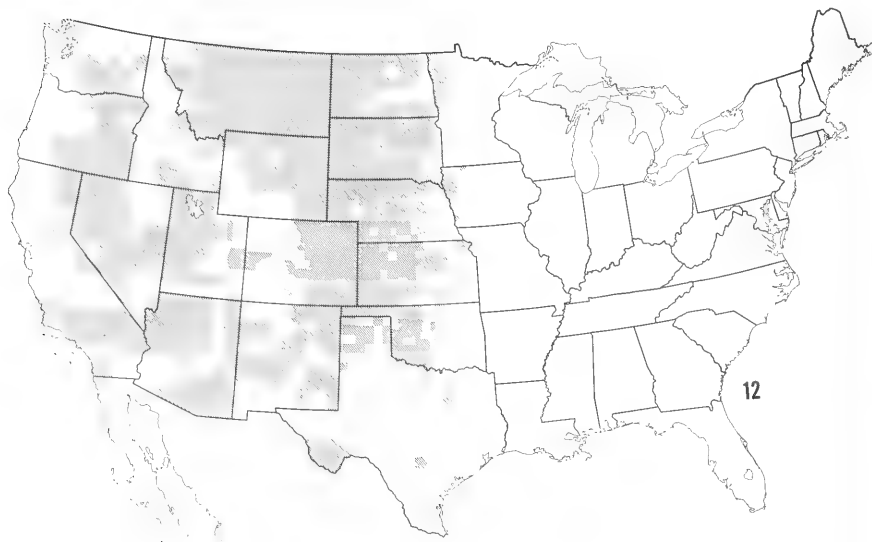


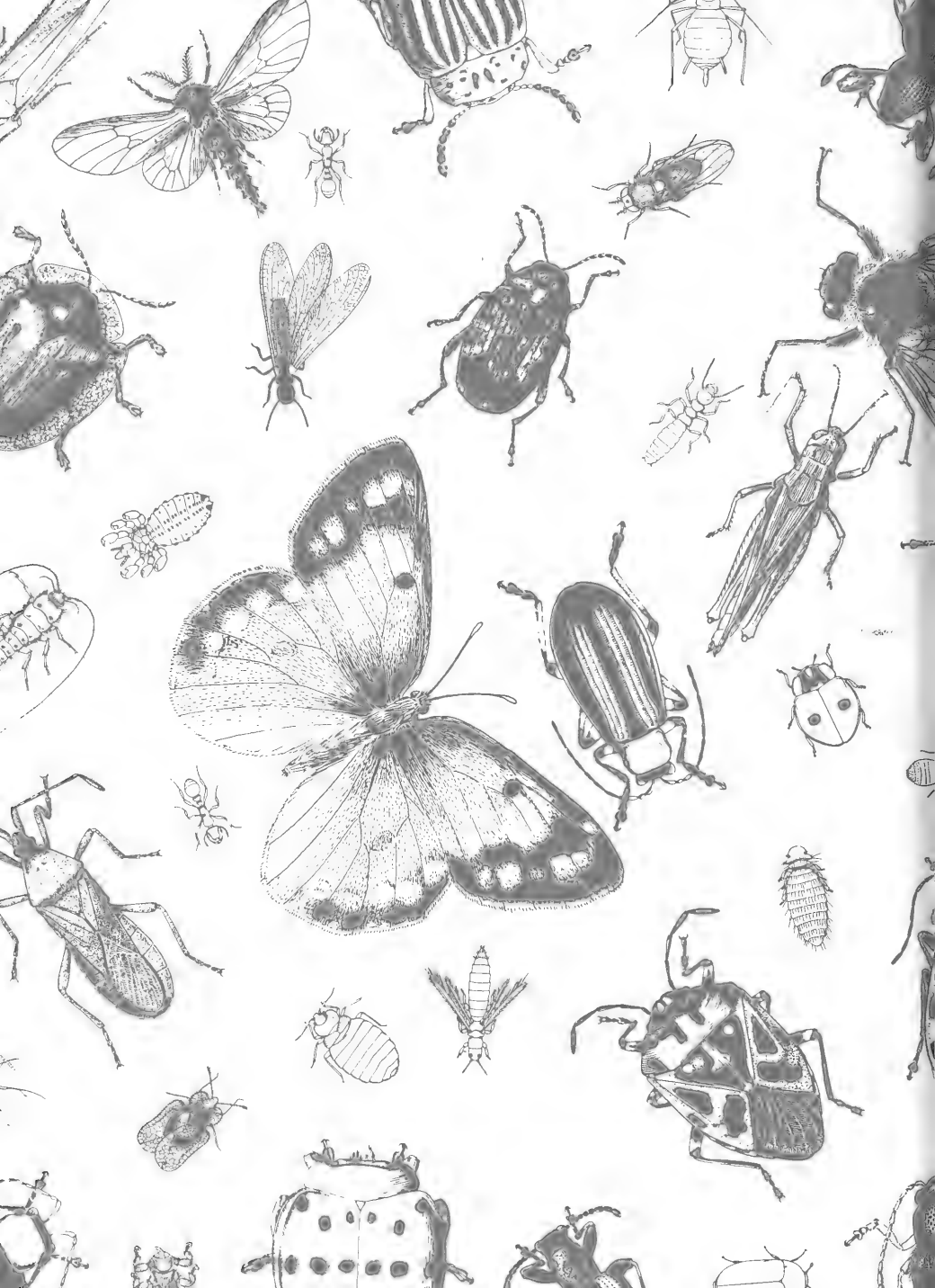
DISTRIBUTION OF RANGE GRASSHOPPERS

Arphia xanthoptera (Burmeister)



Aulocara ellioti (Thomas)





VOL. 6 No. 31

AUGUST 3, 1956

SB
823
C77
Ent

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

EUROPEAN CORN BORER causing extensive damage to corn in Rhode Island, causing concern in New Jersey and continues serious other eastern areas. Cool weather slowed development in Illinois. (p.747). GRASSHOPPERS continue to damage rangelands and croplands all sections of Colorado. Major insect threat in North Dakota and heavy infestations in Minnesota legumes and in several counties of Wisconsin. (p. 748). Continue major problem over southwestern and northern half of Missouri. (p. 749).

CORN EARWORM infesting 20 percent of ears in Baltimore County, Md. and damaging early sweet corn in several Utah counties. Infesting peanuts in Comanche County, Texas and sorghum at Casa Grande, Ariz. (p. 750). DUSKY SAP BEETLE causing severe damage to corn ears in Delaware. (p.750). STALK BORER unusually heavy in New Hampshire corn, and above normal in Wisconsin. (p. 750).

CORN ROOTWORMS heavy in several counties of Kansas and Colorado and Knox County, Ind. (p. 751). CORN LEAF APHID abundant on corn in Kentucky, Iowa and Oklahoma and heavy on corn and sorghum in South Dakota and in milo in Kansas. (p.751). THRIPS causing damage to milo in Pawnee and Finney Counties, Kansas. (p. 751). ENGLISH GRAIN APHID abundant on grain in Maine, (p. 751). JAPANESE BEETLE abundant on forage and pastures in Rhode Island and damaging soybeans in Delaware. (p. 755).

SPOTTED ALFALFA APHID populations increasing and damage occurring in several areas of New Mexico, Arizona, Utah, Colorado and southeastern Missouri. (p. 753). ALFALFA PLANT BUG very abundant in alfalfa throughout Platte Valley of Nebraska. (p. 753).

CODLING MOTH second brood stings continue in apples in Orleans area of Indiana. Large numbers caught in traps in Sandoval and Bernalillo Counties, N. M. and moderately serious in Washington County, Utah. (p. 756). ORCHARD MITES building up in Maryland and TWO-SPOTTED SPIDER MITE increasing in Carbondale area of Illinois and increasing in New Hampshire. Extremely heavy in Rio Arriba and Lincoln Counties, N. M. EUROPEAN RED MITE a problem in New Jersey. (p. 756). Unexpectedly large numbers of RED-BANDED LEAF ROLLER in central and western Missouri and requiring control in Vincennes, Ind. area. (p. 757). PEACH TREE BORER alarming in some peach orchards of Fort Valley area, Georgia. (p. 757). MEDITERRANEAN FRUIT FLY found in two additional Florida counties bringing total to 25 counties infested. (p. 758).

HARLEQUIN BUG seriously damaging cabbage in Pueblo County, Colo. PALE-STRIPED FLEA BEETLE causing heavy damage to beans and

sugar beets in Colorado. (p. 759). ONION MAGGOT damaging onions in the coastal and The Dalles areas of Oregon and severely damaging onions in Puyallup Valley, Washington. (p. 760).

BOLL WEEVIL activity high in several North Carolina counties and increasing in South Carolina. Counts high in Arkansas and increasing in western Tennessee. Infestation up to 70 percent in Pittsburg County, Okla. (p. 762). BOLLWORMS increased greatly in cotton in Louisiana and increasing sharply in parts of Oklahoma. (p. 763). PINK BOLLWORM earlier than usual in New Mexico and alarming infestation in western Texas. (p. 763). APHIDS increasing in Louisiana and South Carolina. (p. 763).

BAGWORMS most severe on record on shrubs and trees in Indiana and Missouri and causing heavy damage several areas of Georgia, Maryland, Illinois and Virginia. (p. 764). Outbreaks of VARIABLE OAK LEAF CATERPILLAR in Maryland. (p. 765).

SCREW-WORM reported in Virginia. (p. 768). TABANIDS severe in Rhode Island, Virginia, Utah and Oklahoma. - (p. 768).

ADDITIONAL NOTES. (p. 770).

LIGHT TRAP REPORT. (p. 772).

CORRECTIONS. (p. 770).

Infestation Map for MEDITERRANEAN FRUIT FLY, Florida. (p. 773).

Distribution Maps of RANGE GRASSHOPPERS. (p. 775-6).

STATES reporting this week - 43

WEATHER Summary. (p. 767). OUTLOOK. (p. 771).

Reports in this issue are for the week ending July 27 unless otherwise designated.

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis)-MASSACHUSETTS- Corn not picked by August 10 likely to be attacked by second brood. (Crop Pest Cont. Mess.). NEW HAMPSHIRE - First brood causing greater damage in early sweet corn than in 1955. (Conklin). RHODE ISLAND - Most corn fields have extensive damage. (Steve). NEW JERSEY - Causing concern to many growers. First moths of generation found in sweet corn in central and southern areas. (Ins. -Dis. News). DELAWARE - In ears of sweet corn. from Newark to Bridgeville. (Milliron). MARYLAND - Infestation in sweet corn in Frederick County averaged 12 percent. Moderate damage to field corn in Baltimore and Montgomery Counties. Pupation well underway, from 50 to 80 percent in Carroll, Baltimore and Frederick Counties. Second generation egg masses averaged 3.2 per 100 plants in Talbot County. (U. Md., Ent. Dept.). WISCONSIN - First pupation this year in Rock County, July 20. (Wis. Ins. Bul.). ILLINOIS - Cool weather slowed development. Mortality abnormally high in some areas, notably parts of Champaign, Vermilion and Iroquois Counties. Pupation well underway in central and northcentral counties. Degree of pupation varies widely ranging from 10 to 80 percent in some early sweet corn and from 0 to 50 percent in field corn. (Ill. Ins. Rept.). MISSOURI - Egg counts dropped in southeast area, averaging about 40 masses per 100 plants of May and early-June planted corn. Few egg masses on either April or late June plantings. 100 percent pupation with 77 percent emergence in central area and 70 percent pupation with very little emergence in northwest area. (Burdett). IOWA - Second brood moths appeared July 13, slightly ahead of 1955 appearance. Twenty-seven percent of corn plants infested in 8 southeastern counties averaging 42 borers per 100 plants. 65 percent of larvae in fifth instar; 18 percent pupated. (Harris, July 21). NEBRASKA - Pupation underway in Platte Valley area. Second to fourth instars can be found, indicating prolonged egg laying period. Surveys revealed 11 percent infestation in Cuming County and 14 percent in Hall County. (Hill, Andersen). SOUTH DAKOTA - Light infestation in southeast area, averaging 16 larvae per 100 plants. Seventeen percent population reached fifth instar and 1 percent pupated. (Hantsbarger). MINNESOTA - Percentage infestation per area is as follows: Central - 23; West Central - 36; South West - 62; South Central - 47; South East - 34. (Minn. Ins. Rept.). INDIANA - Counts in previously heavily infested fields dropped off markedly. (Osmun).

GRASSHOPPERS - NEVADA - Infestations of Camnula pellucida developing rapidly in eastern area. Control complete on 10,000 acres. Anticipate an additional 4000 to 6000 acres will require control. (Del Curto, Gallaway). Localized infestation of Melanoplus mexicanus, M. packardii, M. bivittatus, and Schistocerca lineata near Hazen in Churchill County. Populations averaged 20 per square yard. Second instar to adults. (Gallaway, July 20). IDAHO - More abundant around irrigated fields and home gardens in western area than immediately previous years. Predominate species are M. mexicanus and M. femur-rubrum. Some damage along field margins in southwestern area. (Gittins). UTAH - Damage is increasing in many local areas. (Knowlton). NEW MEXICO - Infestation on crop land in Socorro, Santa Fe, Rio Arriba, Taos,

Mora, San Miguel and Valencia Counties. Dominant species are M. bivittatus, M. femur-rubrum, M. differentialis and M. mexicanus. Rangeland infestations being sprayed in Lea, Union, Harding, Colfax and Quay Counties. To date, 231,507 acres have been sprayed. Approximately 100,000 acres in Lincoln County to be sprayed in near future. New outbreak on approximately 250,000 acres in southern Colfax County. Acreage did not show up in adult survey in 1955. (King, Fulkerson, Grasshopper Cont. Proj., July 21). COLORADO - Damage to range and crop lands in all areas. Applying insecticides to hay crops. (Ext. Serv.). OKLAHOMA - Numerous in all sections. A. deorum, M. differentialis, M. packardii and P. quadrimaculatum most abundant species in roadsides and rangeland throughout southwestern area. Populations average approximately 8 to 12 per square yard in roadside areas and field margins and 4 to 8 in rangeland. Second generation M. mexicanus nymphs present in southwestern section. Slight to medium damage to early-heading sorghum in Jackson County. General damage in all sections to alfalfa, sorghum and pasture. (Coppock). KANSAS - Threatening to severe populations in areas in Osborne, Mitchell, Cloud, Clay, Riley and Dickinson Counties. Some counts of over 20 adults per square yard in alfalfa fields and along margins of corn fields. New hatch of second generation M. mexicanus in several fields in Osborne County. (Matthew). SOUTH DAKOTA - Rangeland infestation, comprising Aulocara elliotti, Ageneotettix deorum, Hadrotettix trifaciatus and Phlibostroma quadrimaculatum found in Sully County; of which 85 percent were adults. Population ranged from 15 to 60 per square yard. (Bell).

NORTH DAKOTA - Major insect threat in State. Infestations threatening to severe in many areas. Hatches in alfalfa and along roadsides since removal of hay has increased this threat. Threat to flax, soybeans and second crop alfalfa is high. Migration from harvested crops begun and will increase as harvest progresses. (N. D. Ins. Rept.). MINNESOTA Untreated legume fields that have been cut contain heavy infestations of 1st to 2nd instar M. femur-rubrum, adult M. bivittatus and adult M. packardii in Woods and Roseau Counties. Probably dense vegetation in uncut fields has prevented M. femur-rubrum eggs from hatching. In sandy areas of central Marshall and Kittson Counties, heavy infestations (15-50 per square yard) of Camnula pellucida, M. bivittatus, and M. femur-rubrum present along road margins, and in alfalfa and grass fields. Where grass and alfalfa being cut; moving into oats and flax. Throughout western Red River Valley area, M. bivittatus dominant species. Most infestations light but increasing along field margins and in alfalfa. Some heavy infestations up to 200 per square yard in Clearwater, Mahnomen, Clay, Wilkin, west Ottertail, Grant, Douglas, Todd, western Stearns, Pope, Swift, Kandiyohi, Meeker, McLeod and Carver Counties. Dominant species M. femur-rubrum, still in nymphal stage. Hatching will be completed in area very soon. (Minn. Ins. Rept.). WISCONSIN - Damage on some late oats in Polk, St Croix and Barron Counties. Chief threat in small grain fields is to new seedings. Populations of 10-15 nymphs per square yard on ripened grain in Dane, Dodge and Jefferson Counties. Heavy infestations in Iron, Barron, Bayfield, Lacrosse, Pepin, Polk, Sheboygan and Washington Counties, some being localized. One second crop of alfalfa in Dane County had over 50 per square yard. Adult

M. bivittatus appearing in Portage, Waushara and Milwaukee Counties. Adult M. mexicanus in Waupaca, Waushara and Portage Counties. Hatch of M. femur-rubrum has extended over apparently longer than normal period. (Wis. Ins. Bul.). ILLINOIS - Moderate to severe infestations in western and northern area. Damage slight to date. In general nymphal populations concentrated in fencerows, ditch banks, and roadsides. (Ill. Ins. Rept.). DELAWARE - Melanoplus spp. abundant on soybeans some places in New Castle and Kent Counties. Abundant on corn at Middletown. (Milliron). MISSOURI - Continue major problem over southwest and northern half of State. Adults per square yard in southwest area ranged from less than 1 in field and margins up to 45 in field and 65 in margin. Major species M. differentialis which ranges from 3rd instar to adults. Few corn fields completely stripped in Dade, Green, Lawrence, Christian, and Stone Counties by this species. M. mexicanus adults second most prominent and M. bivittatus adults rather scarce. (Kyd, Thomas).

MORMON CRICKET (Anabrus simplex) - SOUTH DAKOTA - Non-economic numbers in two localities in Custer County. (Bell).

ARMYWORMS - NEVADA - Localized infestations of yellow-striped armyworms damaging alfalfa and home gardens in Washoe and Pershing Counties. (Gallaway, Laudedale, Snider, July 20). UTAH - Yellow-striped armyworms infesting some Millard County alfalfa fields. (Knowlton).

ARMYWORM (Pseudaletia unipuncta) - MAINE - Moths captured in traps at Monmouth and Orono but not yet at Presque Isle. No larval infestations yet. (Maine Coop. Rept.). SOUTH DAKOTA - Localized infestation in oats in Brookings County with population averaging approximately 5 larvae per square yard. No apparent injury to crop. Larvae heavily infested with braconid and tachinid parasites. (Lofgren).

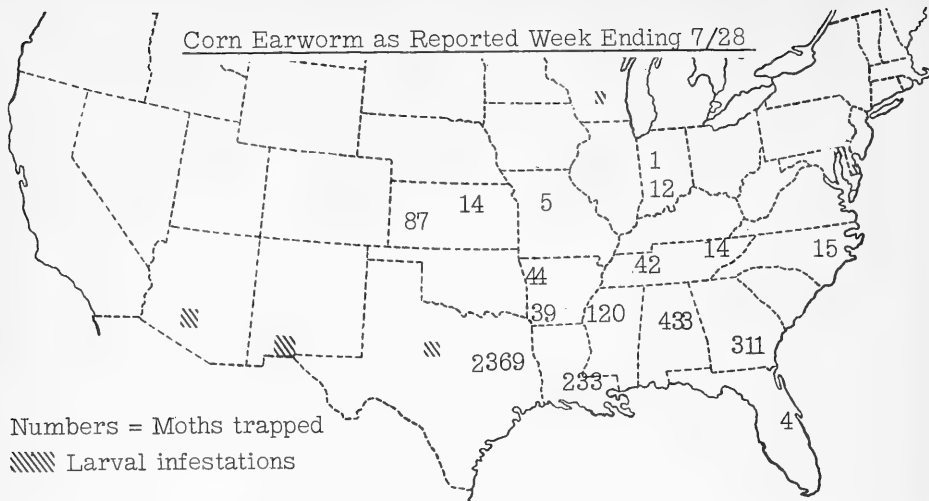
CHINCH BUG (Blissus leucopterus) - KENTUCKY - Infestations localized in McCracken, Graves and Mercer Counties. Injury prevailed in McCracken and Graves Counties. (Rodriguez). OKLAHOMA - Average 6 to 8 in whorl of young sorghums in Logan County. (Coppock).

GARDEN WEBWORM (Loxostege similalis) - SOUTH DAKOTA - Very heavy infestations in Beadle County on weeds. Some movement into corn with larvae feeding on silks. Approximately 40 percent of ears infested with 1 to 15 larvae per ear. (Lofgren).

CUTWORMS - OREGON - Peridroma margaritosa and Agrotis ypsilon present in damaging numbers in the Willamette Valley mainly on sweet corn, peppermint and beets. Parasitism of larvae high. (Crowell).

CORN SAP BEETLES - NEW JERSEY - Prevalent, particularly where borers were numerous. (Ins.-Dis. News). MARYLAND - Abundant where Pyrausta nubilalis or Heliothis zea is present. (U. Md., Ent. Dept.).

Corn Earworm as Reported Week Ending 7/28



Numbers = Moths trapped

////// Larval infestations

CORN EARWORM (*Heliothis zea*) - DELAWARE - Infesting ears of sweet corn at Hartly, Canterbury and many locations in Sussex County. (Milliron).

MARYLAND - Twenty percent of early sweet corn ears infested with small larvae, Baltimore County. (U. Md., Ent. Dept.).

WISCONSIN - Larvae in early sweet corn in Sauk County. (Wis. Ins. Bul.).

COLORADO - Pupating in Prowers, Bent, Las Animas and Otero Counties. (Exp. Sta.).

TEXAS - Medium local infestations on peanuts in Comanche County. (Sanohez).

NEW MEXICO - Infestations medium to heavy in sweet and field corn in Dona Ana County. (Durkin, July 21).

ARIZONA - Twenty-eight per 100 sweeps on sorghum in soft dough stage at Casa Grande, July 17. (Ariz. Coop. Rept.).

UTAH - Some damage in several counties to early sweet corn. (Knowlton).

DUSKY SAP BEETLE (*Carpophilus lugubris*) - DELAWARE - Very abundant on sweet corn throughout State. Severe damage by larvae and adults to ears at some places. (Milliron).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - ARIZONA - Light on 30 acres of grain sorghum west of Casa Grande, July 24; and 5 to 10 per 100 stalks 2 corn fields in early tassel stage east of Safford, Graham County. (Ariz. Coop. Rept.). MISSOURI - Approximately 90 percent emergence from pupation in extreme southwestern counties. No second generation larvae in surveyed fields. First generation infestation ranged from 1 to 5 percent. (Kyd, Thomas).

STALK BORER (*Papaipema nebris*) - NEW HAMPSHIRE - Unusually destructive to corn generally this year. (Conklin). WISCONSIN - Damage to margins of sweet corn fields. Appears to be slightly greater than normal infestation. (Wis. Ins. Bul.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - SOUTH CAROLINA - Estimated 25 percent loss of early corn at Lexington (Caughman); however, loss may not be same in silage sorn because of excessive tillering. (Nettles, July 19). GEORGIA - Light infestations on peanuts in Sumter and Terrell Counties. (Johnson).

CORN LEAF APHID (Rhopalosiphum maidis) - MAINE - Important but less abundant than Macrosiphum granarium. (Maine Coop. Rept.). WISCONSIN - Aphids, possibly all corn leaf aphid, reported on corn in several counties. (Wis. Ins. Bul.). KENTUCKY - Abundant throughout State. Infestation several thousand per plant in some areas. (Rodriguez) IOWA - Abundant on corn and grain sorghum. Noticeable damage in some areas. (Harris, July 21). SOUTH DAKOTA - Heavy infestations in southern regions on corn and grain sorghum. Grain sorghums beginning to show damage. (Hantsbarger). KANSAS - Light to moderate infestations in fields of milo in Osborne and Mitchell Counties. Counts ranged from 50 to over 1,500 per whorl. Decreased in milo fields in Marshall County. (Marvin, Matthew). OKLAHOMA - Heavy populations in Blaine and Caddo Counties, averaging hundreds per plant with few fields averaging thousands per plants. Much lower elsewhere in western and southwestern areas. No aphids observed in sorghums in heads of early-maturing sorghum. (Coppock).

A THRIPS (Anaphothrips zaeae) - KANSAS - Numerous on milo in some fields and causing damage in few fields in Pawnee and Finney Counties. Det. K. O'Neill. (Marvin, Matthew, July 21).

ENGLISH GRAIN APHID (Macrosiphum granarium) - MAINE - Generally abundant on grain. (Maine Coop. Rept.). IDAHO - Generally light throughout southwestern and southcentral area in wheat under irrigation. Light infestations on oats in area of Valley County. (Gittins).

CORN ROOTWORMS (Diabrotica spp.) - KANSAS - Heavy populations of D. undecimpunctata howardi and D. virgifera damaging silks and tassels in some fields of corn in Dickinson and Marshall Counties. (Mathew). COLORADO - Heavy damage in Boulder, Larimer and Weld Counties. Light numbers appearing in light traps in southeastern counties. (Ext. Serv.).

NORTHERN CORN ROOTWORM (Diabrotica longicornis) - INDIANA - Local, heavy infestation of adults on ears of corn in Knox County. (Osmun).

CORN FLEA BEETLE (Chaetocnema pulicaria) - DELAWARE - Very numerous on late sweet corn in Townsend-Smyrna area. Wilt appearing at Townsend. (Milliron).

RICE WEEVIL (Sitophilus oryzae) - TEXAS - Light local populations on cane sorghum in Austin County. (Turney).

SUGARCANE BEETLE (Euethoela rugiceps) - SOUTH CAROLINA -

Extremely serious on bottom land corn at Lexington. (Bouknight, July 19).

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Survey in six northwestern counties found southern Mountrail, southwestern Ward and northern McLean Counties most severe area of infestation. Some fields in Williams, Divide, Burke and Renville Counties have heavy infestations. (N. D. Ins. Rept.).

WHEAT CURL MITE (Aceria tulipae) - NEBRASKA - Light infestation in hilled areas of wheat in Cheyenne County. Percent infestation ranged between 6 to 12.5 percent. Eggs could also be found. (Staples, Andersen).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - COLORADO - Building up on corn and other cereals in Crowley, Bent, Otero, Larimer, Boulder, Delta, Mesa and Montrose Counties. (Exp. Sta.). IDAHO - Building up on clover and corn in Canyon County. (Portman).

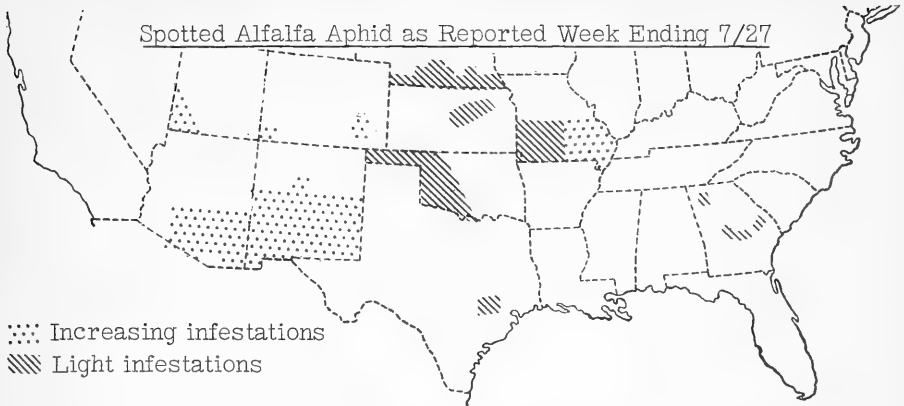
SORGHUM WEBWORM (Celama sorghiella) - TEXAS - Medium widespread on late planted grain in Calhoun County. (Cook). Light local on cane sorghum in Austin County. (Turney). OKLAHOMA - Spraying for control started in Oklahoma County. (Bower).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - NEBRASKA - Adults and larvae very prevalent in alfalfa fields in Platte Valley. Counts range between 9 and 15 larvae per 10 sweeps. (Andersen). UTAH - Generally present in alfalfa fields. (Knowlton). IDAHO - Abundant adult populations active in alfalfa hay fields in southern Minidoke and numerous in southwestern area. One to 2 late-instar larvae per sweep in some fields of Canyon and Payette Counties. Adults common around Grandview. (Barr). KANSAS - Heavy populations in alfalfa fields in Osborne County. Counts from 4 to 12 per sweep and feeding damage evident. Heavy populations present in Rooks County. (Matthew).

ALFALFA LOOPER (Autographa californica) - IDAHO - One per sweep on alfalfa hay in northern Canyon County. (Gittins, Bechtolt).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - MISSOURI - Counts averaged 0.25 to 1.0 per sweep of 2nd and 3rd instars in alfalfa in southwest area. (Kyd, Thomas). OKLAHOMA - Four per 10 sweeps from alfalfa in Caddo County. Low numbers in Jackson County. (Coppock).

PEA APHID (Macrosiphum pisi) - NEBRASKA - Population building up in Platte Valley ranging from 150 to 225 per sweep. Many predators present. (Andersen). SOUTH DAKOTA - Populations building up quite rapidly in southern area. One alfalfa field in Union County averaged 128 per 10 sweeps. (Hantsbarger). UTAH - Infestations more widely spread in forage and alfalfa seed fields. Some seed prospects lost in several counties. (Knowlton). IDAHO - Numerous on most red clover seed fields and alfalfa hay fields in southcentral and southwestern areas. (Gittins).



SPOTTED ALFALFA APHID - UTAH - Built up in additional part of southwestern area. (Knowlton). ARIZONA - Damaging number alfalfa fields in Maricopa, Pinal, Pima, Cochise and Graham Counties, especially water-stressed fields. Severe damage one seed field Kansas Settlement, Cochise County. (Ariz. Coop. Rept.). NEW MEXICO - Populations fluctuating. Sudden increase noted past two weeks in most fields. Moderate to severe damage spotty over most of southern half of State. Light to medium infestations in all fields but beneficials keeping them under control. Heavy build-ups in most fields of De Baca, Valencia and Sandoval Counties. Populations suddenly dissappeared this period in 1955, suspected correlation with July rains, however state received rains this week and populations have not decreased yet. (Durkin, July 21). TEXAS - Light populations on alfalfa in Brazos and Burleson Counties. (Randolph). KANSAS - Non-economic infestations continue in Osborne, Mitchell, Cloud, Clay and Riley Counties. Counts averaged approximately 250 per 25 sweeps. (Matthew). Aphids numbering 5,000 per 25 sweeps in some alfalfa fields near Hays, Ellis County. (Harvey). OKLAHOMA - Populations low in all fields; counts from 1 to 40 per sweep in western and southwestern counties. (Coppock). COLORADO - Increased in Otero, Crowley and Montezuma Counties. Counts per 100 sweeps were 2500 in lower McElmo Canon and 5 in Mancos. None taken in Larimer or Weld Counties. (Exp. Sta.). NEBRASKA - Population light in middle Platte Valley, Dawson County, ranging from 2 to 3 per 10 sweeps. Light in Richardson and Pawnee Counties, ranging from 1 to 15 per 25 sweeps. Many predators present in all fields; lady beetles, big-eyed bugs, lacewings and *Orius* spp. (Andersen, Hill). MISSOURI - Counts generally low in southwest, averaging 1 to 7 per sweep. Considerable build-up indicated from southeast area. (Kyd, Thomas). GEORGIA - Light infestations on alfalfa in Butts and Gordon Counties. Moderate infestations in Fayette and Spalding Counties. (Tippins, July 12). Light infestations in Oconee and Morgan Counties. (Johnson).

ALFALFA PLANT BUG (*Adelphocoris lineolatus*) - NEBRASKA - Very abundant throughout the Platte Valley averaging 10 per sweep in alfalfa. (Andersen).

LEAFHOPPERS - WISCONSIN - In conjunction with plant bugs, remain high in alfalfa. MINNESOTA - Leafhoppers, mostly Empoasca fabae, abundant on alfalfa. New seedlings hard hit in many areas. (Minn. Ins. Rept.).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Averaged 5 to 30 per sweep on alfalfa in Montgomery County. Moderate to heavy damage to uncut second growth fields. (U. Md., Ent. Dept.).

PENNSYLVANIA - Damage is very severe on untreated alfalfa particularly in southern area. (Udine).

LYGUS BUGS - OREGON - High populations of Lygus sp. in Malheur and Baker Counties. Averaged ten or more per sweep in alfalfa and clover fields. (Capizzi). IDAHO - Increasing abundant populations of L. hesperus and L. elisus on alfalfa and red clover seed fields in south-central and southwestern areas. (Gittins). UTAH - Abundant L. elisus and others damaging untreated alfalfa seed crops. Nymphs often very abundant. (Knowlton). ARIZONA - Extremely high populations in many temporarily neglected alfalfa fields in central and southeast areas. Threat to nearby alfalfa seed and cotton. (Ariz. Coop. Rept.). NEW MEXICO - Medium to heavy populations of L. elisus and L. hesperus in alfalfa fields in Dona Ana, Eddy, Chaves and Torrance Counties. Counts run from 45 to 80 per 100 sweeps. (Durkin, July 21).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Large numbers, over 200 per sweep, on alfalfa in Pinal County. (Ariz. Coop. Rept.).

ALFALFA WEEVIL (Hypera postica) - OREGON - Continues abundant in northeastern area. Extensive damage to untreated foliage. Larvae from 2-3 to 20-30 per sweep. Adults infrequently found. (Capizzi, July 19). IDAHO - Larval populations abundant in Canyon, Payette, Washington and Gem Counties. Some counts as high as 3 larvae and 2 adults per sweep. Almost all larvae in late instars. (Gittins).

CLOVER APHID (Anuraphis bakeri) - IDAHO - In almost all red clover seed fields in southcentral and southwestern areas. Populations very high in a few fields, particularly in Twin Falls area. Light general populations in Canyon County. Predators numerous. (Gittins, Daigh, Portman). UTAH - Red clover damaged in Box Elder County. (Knowlton).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - IDAHO - Increasingly abundant in red clover seed fields of southwestern area. Damage to seed heads some places. (Gittins).

NTIDULIDS - OREGON - Some damage caused on red clover by Meligethes nigrescens in Willamette Valley. Populations generally heavier than for past two years. (Crowell). INDIANA - Glischrochilus fasciatus numerous and troublesome throughout State. (Osmun).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - MAINE - More numerous than for several years in clover fields. (Maine Coop. Rept.).

BLISTER BEETLES - IOWA - Several species doing some damage to soybeans, alfalfa and garden crops. (Harris, July 21). KANSAS - Light to threatening in some alfalfa fields in Osborne and Mitchell Counties. Counts to 12 per sweep in several fields. (Matthew).

SWEETCLOVER APHID (Myzocallidium riehmi) - COLORADO - Numbers low in Delta and Mesa Counties. (Exp. Sta.). UTAH - Moderate in numbers this year. (Knowlton).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Feeding on soybeans at many places from Townsend southward. (Milliron).

MARGINED BLISTER BEETLE (Epicauta pestifera) - DELAWARE - Feeding on soybeans near Bridgeville. (Milliron).

SPIDER MITES - DELAWARE - Soybeans were injured by Tetranychus telarius and T. atlanticus at several places. (Milliron, MacCreary). VIRGINIA - Injuring soybeans in Brunswick and Amelia Counties (Gasham, Morris, Boozer), and in eastern Virginia (Greenwood). Since recent rains, damage began to disappear. (Morris).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - GEORGIA - Moderate to heavy infestations throughout the peanut area. (Johnson).

AN OLETHREUTID (Hystericophora stygiana) - OREGON - Boring into crowns of 10 percent of lupine in quarter acre field at Portland June 20. Det. J. F. G. Clarke. (Larson).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Abundant on forage and pastures, feeding mostly on weeds and grasses. Averaged 48 per 100 sweeps. (Steve). DELAWARE - Damaging soybeans at several places. (Milliron). VIRGINIA - Adults feeding on corn in Charlotte, Culpeper and Nelson Counties. (Morton, Heltzel, Whitehead).

GREEN JUNE BEETLE (Cotinis nitida) - PENNSYLVANIA - Large numbers in a pasture in Fayette County. (Udine).

FIELD CRICKETS - MINNESOTA - Very abundant in many parts of State, especially in Red River Valley and west central counties. (Minn. Ins. Rept.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW JERSEY - Second brood moth active in southern and central areas, July 23. (Ins. Dis. - News.). DELAWARE - Summer brood 75 percent emerged. (Late News). MARYLAND - Some stings in commercial orchards. (U. Md., Ent. Dept.). INDIANA - Bait traps show increase of adults July 19-20 in Vincennes area. (Hamilton). Second brood entries continue in Orleans area and expected to continue for 7-8 days. (Marshall). ILLINOIS - Fresh entries decreasing in Carbondale area. (Chandler). IOWA - Second brood moths in flight. (Harris). MINNESOTA - About 75 percent have left fruit. Adults expected about August 1 in Crescent area and about August 5 in Twin City area. (Minn. Ins. Rept.). MISSOURI - New entries by second brood underway all parts of State. (Wkly. Rept. Fr. Grow.). NEW MEXICO - Large numbers being caught in traps in Sandoval and Bernalillo Counties. Damage light so far this year. (Durkin, July 21). UTAH - Moderately serious in Washington County. (Knowlton). WASHINGTON - Infesting 80-90 percent of apples unsprayed due to winter injury. (Brannon).

ORCHARD MITES - MISSOURI - Numerous over State except in central area where populations reduced by rains. (Wkly. Rept. Fr. Grow.). INDIANA - Maintaining numbers but not increasing in Orleans area. (Marshall). Continue troublesome in Vincennes area. (Hamilton). MARYLAND - Building up in some orchards. (U. Md., Ent. Dept.). WASHINGTON - Metatetranychus ulmi and Vasates schlechtendali moderately abundant on apples at Dayton. (Brannon).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - ILLINOIS - Increasing in Carbondale area and at Grafton. (Chandler). NEW HAMPSHIRE - Beginning to increase in many orchards. (Conklin). NEW MEXICO - Extremely heavy in orchards in Rio Arriba and Lincoln Counties. One light infestation in a commercial orchard in Grant County and dooryard plantings heavily infested. (Durkin, July 21).

APPLE APHID (Aphis pomi) - WASHINGTON - General increase, especially on young grafts and renewals in Yakima Valley. (Luce).

A CATERPILLAR (Basilarchia lorquini) - WASHINGTON - Damaging young trees and renewals in Yakima Valley. (Luce).

EUROPEAN RED MITE (Metatetranychus ulmi) - MASSACHUSETTS - Causing serious bronzing in a few orchards where treatments poor. (Crop Pest Cont. Mess.). NEW JERSEY - Still problem in some orchards. (Ins. Dis. - News.). NEW HAMPSHIRE - Moderate numbers generally. (Conklin).

WOOLLYAPPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Heavy in untreated orchards in Rio Arriba, Sandoval and Lincoln Counties. (Durkin, July 21).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MISSOURI - Unexpectedly large numbers in central and western areas. (Wkly. Rept. Fr. Grow.). ILLINOIS - Moderately heavy infestation at Dix, July 24. Second brood expected soon. (Chandler). INDIANA - Requiring control in some orchards in Vincennes area. (Hamilton). PENNSYLVANIA Occurring on suckers even in well-sprayed orchards in Bedford and Allegheny Counties. (Udine). MASSACHUSETTS - Moths laying eggs for second brood. Egg-laying expected to continue into mid-August. (Crop Pest. Cont. Mess.).

APPLE MAGGOT (Rhagoletis pomonella) - MASSACHUSETTS - Heavy emergence, July 21-22. Expected to be active well into August. (Crop Pest Cont. Mess.). MINNESOTA - Adults emerging all areas. (Minn. Ins. Rept.).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - ILLINOIS - Very severe infestation at Otterville, Jersey County, July 19. New mines appearing in Johnson County area. (Chandler). MARYLAND Mines in commercial orchards increasing. (U. Md., Ent. Dept.).

RED-HUMPED CATERPILLAR (Schizura concinna) - WASHINGTON - Damaging foliage of young trees and renewals at Yakima Valley. (Luca).

PEAR PSYLLA (Psylla pyricola) - IDAHO - Survey of Central Cove, Sunny Slope and Lakeview areas of Canyon County showed one heavy and three light infestations. (Bechtolt, Gittins).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - IDAHO - Light infestation in pear orchard south of Greenleaf. (Manis).

PLUM CURCULIO (Conotrachelus nenuphar) - MISSOURI - A few larvae found in peaches southeast area. Partial second brood indicated. (Wkly. Rept. Fr. Grow.). ILLINOIS - Rains caused emergence of adults which could not emerge previously and so increased populations some in Carbondale area. (Chandler). OHIO - First generation adults emerging at Wooster, July 23. (Rings). DELAWARE - Summer brood 95 percent emerged. (Stearns). GEORGIA - Hibernating adults expected to be less than usual and not sufficient to require post-harvest control to protect next year's crop in the Fort Valley area. (Snapp).

PEACH TREE BORER (Sanninoidea exitiosa) - GEORGIA - Infestation alarming in some peach orchards in Fort Valley area and causing much damage. (Snapp).

CATFACING INSECTS - OHIO - Empoasa spp. causing moderate damage in peach and plum orchards in Ottawa County. (Rings').

A JUNE BEETLE (Cotinis texana) - NEW MEXICO - Damaging ripe fruit in Carlsbad and occasionally picked up in cotton fields in Dona Ana County. (Durkin, July 21).

GREEN JUNE BEETLE (Cotinis nitida) - MISSOURI - Large numbers on ripe peaches and apples in central area. (Wkly. Rept. Fr. Grow.).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MISSOURI - Some injury to terminal growth of peaches in northwestern area. (Wkly. Rept. Fr. Grow.).

PEAR-SLUG (Caliroa cerasi) - NEVADA - Damaging pear and cherry trees throughout western area. (Galloway).

FALL WEBWORM (Hyphantria cunea) - NORTH DAKOTA - Observed over wide area on fruit and shade trees. (N. D. Ins. Rept.).

WALNUT CATERPILLAR (Datana integerrima) - DELAWARE - Defoliating black walnut some places in Kent and Sussex Counties. (Milliron). VIRGINIA - Heavy on walnut, pecan, hickory and other hosts practically throughout the State. (Morris et. al.).

TWIG PRUNER (Elaphidion villosum) - VIRGINIA - Heavily damaged twigs and small branches of pecan trees in Amelia County. (Morris).

GRAPE BERRY MOTH (Paralobesia viteana) - MISSOURI - Most vineyards showing some damage. (Wkly. Rept. Fr. Grow.).

GRASSHOPPERS - MISSOURI - Beginning to attack grape vines in some vineyards. (Wkly. Rept. Fr. Grow.).

GRAPEVINE APHID (Aphis illinoisensis) - WISCONSIN - Infestations persist on grapes in Dane County. (Wis. Ins. Bul.).

GRAPE PHYLLOXERA (Phylloxera vitifoliae) - WISCONSIN - Reported from several counties. (Wis. Ins. Bul.).

CRANBERRY FRUITWORM (Acrobasis vaccinii) - NEW HAMPSHIRE - Estimated 20 percent loss of high bush cranberries at University Horticultural Farm. Larvae mature, July 24. (Conklin). WISCONSIN Larvae entering second berry. (Wis. Ins. Bul.).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Infestations found at Apopka, Orange County, July 23 and at Moorehaven, Glades County, July 25. This brings the total number of infested counties to 25. (PPC).

TRUCK CROP INSECTS

HORNWORMS (Protoparce spp.) - MARYLAND - Light damage to tomatoes in Baltimore County. (U. Md., Ent. Dept.). DELAWARE - Causing severe defoliation in large tomato planting at Canterbury and attacking peppers east of Bridgeville. (Milliron). NEW MEXICO - Light to medium on tomatoes in Dona Ana County. (Durkin, July 21). ARIZONA - Causing general damage to tomatoes in an early planting at Bowie, Cochise County. (Ariz. Coop. Rept.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - MARYLAND - Heavy in a large untreated tomato field in Baltimore County. (U. Md., Ent. Dept.).

BLISTER BEETLES - RHODE ISLAND - Light infestations of Epicauta pestifera on tomatoes in Warwick. (Steve). NEW MEXICO - E. bispinosa damaging tomatoes in Lea County. (Durkin, July 21).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW HAMPSHIRE - Unusually heavy and troublesome particularly to potatoes and truck crops. (Conklin).

WHITE-LINED SPHINX (Celerio lineata) - NEVADA - Damaged potatoes in northwestern Lyon County. Adults appearing in eastern area. (Galloway, July 20).

HARLEQUIN BUG (Murgantia histrionica) - COLORADO - Seriously damaging cabbage, turnips and rutabagas in Pueblo County. (Chem. Ind.). NEW MEXICO - Light to medium on potatoes in Tarrant County. (Durkin, July 21). NORTH CAROLINA - Some untreated plants with 30-40 nymphs per plant and damage on untreated plants locally in Duplin County. (Farrier).

CABBAGE LOOPER (Trichoplusia ni) - NEW JERSEY - All stages becoming easy to find throughout State. (Ins. Dis.-News.). DELAWARE - Feeding heavily on crucifers throughout State. Injuring tomatoes at Rising Sun. (Milliron). TEXAS - Light to medium widespread populations on seeded cabbage in Zavala County. (Richardson).

IMPORTED CABBAGEWORM (Pieris rapae) - NEW HAMPSHIRE - Generally prevalent, but not as heavy as in 1955. (Conklin). DELAWARE - Very heavy on crucifers in Dover-Hartly area. (Milliron).

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata) - OREGON - Occurring in higher numbers in Willamette Valley than for several years. Control required in green beans particularly. (Crowell).

MEXICAN BEAN BEETLE (Epilachna varivestis) - NEW MEXICO - Damaging beans in Tarrant and Grant Counties. (Durkin, July 21). UTAH - Damaging garden beans in Cache County. (Ashdown, Knowlton).

PALE-STRIPED FLEA BEETLE (Systema blanda) - COLORADO - Adults causing heavy damage to beans and sugar beets in Montezuma, Montrose,

Delta and Mesa Counties. Control advised. (Exp. Sta.).

BEAN APHID (Aphis fabae) - OREGON - Requiring treatment in Willamette Valley. (Crowell). DELAWARE - Injuring commercial lima beans at Andrews ville. (Milliron).

PEA MOTH (Laspeyresia nigricana) - WASHINGTON - Light infestation on untreated peas at Bellingham. (Eide, Telford).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Injuring lima beans at Andrews ville. (Milliron).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - DELAWARE - Destructive to lima beans at Milford and Selbyville and to snap beans at Laurel. (MacCreary, Stearns).

POTATO LEAFHOPPER (Empoasca fabae) - NEW JERSEY - Considerable numbers in lima bean and alfalfa fields in southern area. Expected to be more of a problem than in 1955. (Ins. Dis.-News.). NEW HAMPSHIRE - Infesting all varieties of beans in Hillsboro County. (Conklin).

ONION MAGGOT (Hylemya antiqua) - OREGON - Damaging onions in The Dalles and coastal areas and light in Willamette Valley. (Crowell). WASHINGTON - Severe damage to onions in Puyallup Valley. (Howitt). UTAH - Causing variable damage to onions generally. (Knowlton).

STRIPED CUCUMBER BEETLE (Acalymma vittata) - NEW HAMPSHIRE - Damage spotty and medium. Less destructive than in 1955. (Conklin).

PICKLEWORM (Diaphania nitidalis) - MISSISSIPPI - Reported damaging cucumbers in Lauderdale County. (Hutchins).

MELON APHID (Aphis gossypii) - ARIZONA - Reported heavy in several watermelon fields in Pima County. (Ariz. Coop. Rept.). SOUTH DAKOTA - Causing some damage to cucurbits in the Brookings area. (Hantsbarger). OKLAHOMA - Light to moderate damage in all fields in Rush Springs area. Severe damage in a few fields. (Coppock).

SQUASH BUGS (Anasa spp.) - OKLAHOMA - Occurring in all cucurbit fields in Rush Springs area with moderate to severe damage in a few fields. (Coppock). SOUTH CAROLINA - Rather severely injuring ripening tomatoes in and around Allendale. (Nettles).

A SWEETPOTATO BEETLE (Agroiconota bivittata) - MISSISSIPPI - Damaging sweetpotato vines in Forrest County. (Broome).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - COLORADO - Appeared in sections of State. Counts of 500 per 100 sweeps in commercial planting of carrots in El Paso County, July 18. (Exp. Sta.).

HOP APHID (Phorodon humuli) - OREGON - Heavy populations in hops at Corvallis. (Morrison).

ASPARAGUS BEETLE (Criocers asparaqi) - MAINE - More abundant than usual at Orono but causing little damage. (Maine Coop. Rept.).

WESTERN RASPBERRY FRUITWORM (Byturus bakeri) - OREGON - Infesting 50 percent of Cascade blackberries in home planting at Nehalem, July 19. (Larson).

GRASSHOPPERS - UTAH - Damaging raspberries and other cane fruits. (Knowlton).

TOBACCO INSECTS

HORNWORMS (Protoparce spp.) - MARYLAND - First brood larvae continue to cause moderate to heavy damage to tobacco some sections. Eggs 2-8 per 25 plants in Calvert County. (U. Md., Ent. Dept.). NORTH CAROLINA - Average about 28 eggs and five small larvae per 25 plants in experimental plots in Pitt County. (Guthrie) and 45 eggs and 20 larvae per 25 plants in plots in Johnston County. (Rabb). East central counties averaged 2.1 eggs and 1.4 larvae per 25 plants with one field with 11 eggs and seven larvae per 25 plants. Some fields with counts less this week than last. (Farrier). Averaged 2.8 eggs, 5.2 small and 3.2 large larvae in Forsyth County. (Hobbs).

BUDWORMS (Heliothis spp.) - NORTH CAROLINA - Infestation in general very light in east central counties with evidence of past infestations in unfolding leaves. Few eggs being laid. (Farrier).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Light to moderate on tobacco in Calvert and Anne Arundel Counties. Populations building up due to cool weather. (U. Md., Ent. Dept.). VIRGINIA - Light to medium on tobacco in an 8-acre field in Pittsylvania County. Some plants showing damage on lower leaves. (Dominick). NORTH CAROLINA - County-wide infestation in Yadkin County with some farmers treating. (Smith).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - VIRGINIA - Infestations 10-15 per plant of tobacco on heavy soils and generally light on tobacco on light soils in Pittsylvania County. (Dominick). NORTH CAROLINA - Some fields with 103 adults per leaf and damage accumulating. (Farrier).

STINK BUGS - KENTUCKY - Causing considerable injury to burley tobacco in central area. More numerous and troublesome than at any time within past five years. (Boush).

LONGHORNED GRASSHOPPERS - KENTUCKY - In complex with tree crickets, injuring buds and new leaves in central and northern areas. Control measures used some sections. (Boush).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis)- NORTH CAROLINA - Activity high in Scotland, Robeson, Harnett and Sampson Counties. Some mid - Piedmont and central areas showing high populations. (Cott. News Lett.). SOUTH CAROLINA - Activity continued to increase throughout the State. Many counties reporting fields with infestation counts well over 50 percent. Average percent infestations in treated fields 12 percent and untreated fields 41 percent. (Cott. Lett., July 23). Averaged 29 percent in treated and 56 percent in untreated fields in Florence area. (Walker et al.). GEORGIA - Square infestation ranged from 4 to 81 percent with average of 38 percent in 49 fields in middle, southwest and southern areas. (Johnson). MISSISSIPPI - Average infestation south of Leland and delta counties was 31.2 and 12.1 north of Leland. (Merkl, Furr et al.). LOUISIANA - Average infestation of 116 fields in Tallulah area was 28 percent. Other average infestations by parishes were: Ouachita - 42; Bossier - 43; Red River - 62; Natchitoches - 51. Two St. Landry Parish infestations were 2 and 7 percent and several fields in Avoyelles Parish have heavy populations. (Oliver). ARKANSAS - Counts high in many fields, particularly in southern portion of State and are increasing elsewhere. Counts by sections were: Southeast - 12.6; East Central - 7.6; Northeast - 13.9; Central - 20.2; Southwest - 44. (Warren, Harrendorf, Barnes). MISSOURI - Infestations generally low with highest count 10 percent punctured squares. (Kyd, Thomas). TENNESSEE - Considerable increase in infestations in fields that got rain in western area. Average percent count was 35. (Locke). OKLAHOMA - Light in western and southwestern area. No punctured squares found in some west central fields. (Coppock). Infestation up to 70 percent in Pittsburg County. From 5 to 15 percent on irrigated cotton at Chickasha, none on upland cotton. (Bryan). TEXAS - Infestation averaged 26.8 percent on treated cotton in Falls and McLennan Counties. (Parencia et al.). Activity leveled off in dryland cotton in East, Northeast, and North Central and Central areas but increased in irrigated fields. (Turney, Martin).

BOLLWORMS (Heliothis spp. et al.) - NORTH CAROLINA - Not in threatening numbers in any county. (Cott. News Lett.). SOUTH CAROLINA - Occasional damaged square or larva in Florence area. (Walker et al.). Increase in Pee Dee, lower Savannah river and upper Piedmont areas. (Cott. Lett. July 23). GEORGIA - Infestations averaged 1.17 larvae per 100 terminals for 49 counties. Some eggs noted in Jasper, Peach, Bibb, Macon, Mitchell, Thomas and Tift Counties. (Johnson). MISSISSIPPI - Average 1.4 eggs per 100 terminals in delta counties. Occasional larvae with little damage. (Merkl, Furr et al.). LOUISIANA - Populations markedly increased generally. Severe in some Tensas Parish fields. Counts per 100 terminals in parishes were: Ouachita - 9 larvae and eggs; Bossier - 12 larvae and eggs; Red River - 3 larvae; Natchitoches - 7 larvae and 3 eggs. (Oliver). Averaged 9.80 eggs and 2.87 larvae per 100 terminals in Tallulah area. (Pfrimmer et al.). ARKANSAS - Counts are variable. Egg and larval counts high in many fields but generally low. (Warren, Harrendorf, Barnes). MISSOURI - Larvae ranged from 0-16 per 100 terminals but eggs scarce and hard to find. Flower bugs numerous and apparently destroying many eggs. (Kyd, Thomas). TENNESSEE - Some

increase in western area. Increases expected to continue. (Locke). OKLAHOMA - Number of eggs increasing sharply in extreme southwestern counties; up to 22 percent infestation in Tillman County but less elsewhere. Up to 6 percent bollworm damage in Cotton, Tillman, and Jackson Counties; average less. (Coppock). Less than 5 percent in Pittsburg County and at Chickasha on upland cotton. (Bryan). Infestations highest in Caddo and McCurtain Counties. (Flora). TEXAS - Eggs averaged 60.8 and larvae 10 per 100 terminals in irrigated fields in McLennan and Falls Counties. (Parenacia et al.). Activity leveled off in dryland cotton in East, Northeast, North Central and Central areas, but increased in irrigated fields. (Turney, Martin). NEW MEXICO - Light to moderate damage in Dona Ana, Lea, Eddy and Chaves Counties. Large number predators in some fields. (Durkin, July 21). ARIZONA - Infestations general in Pima and Pinal Counties July 20. Counts up to 40 per 100 plants near Eloy, July 21, and 8 to 10 per 100 plants at Randolph, Maricopa County. Some in Cochise and Graham County. (Ariz. Coop. Rept.).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Showing up in southern Dona Ana County much earlier than usual. Very light infestations most fields. (Durkin, July 21). TEXAS - Alarming high infestation throughout area between El Paso and Ysleta. Control programs underway. (PBW Cont. Proj., July 16). Percent infestation of bolls in central counties was: McLennan - 9.3; Falls - 50.3; Robertson - 44; Bell - 57. Larvae per infested boll averaged, 1.5, 2.8, 1.9, and 1.7 respectively. (Parenacia et al.). Other areas remain unchanged. (Turner, Martin).

APHIDS - OKLAHOMA - From 0 to 4 percent of terminals infested in southwestern counties. (Coppock). LOUISIANA - Aphis gossypii continues to build up. (Oliver). Building up in few fields in Tallulah area. (Pfrimmer et al.). MISSISSIPPI - Very few in delta counties. (Merkl, Furr et al.). GEORGIA - Light infestations of A. gossypii in Oconee, Morgan, Bibb, Jasper, and Sumpter Counties. Moderate in Peach, Macon, Cook, Brooks, and Dodge Counties. Heavy in Terrell, Dougherty, Thomas, Mitchell, Lowndes, Tift, Ben Hill, Wilcox and Putnam Counties. (Johnson). SOUTH CAROLINA - Increasing in several coastal plain counties. (Cott. Lett., July 23).

LYGUS BUGS - ARIZONA - Counts in counties per 100 sweeps on July 20 were: Maricopa - 4 to 48; Pinal - 8 to 30; Cochise - 11 to 25; Graham - 30. Large acreage treated. (Ariz. Coop. Rept.). NEW MEXICO - General but light infestations of Lygus elisus and L. hesperus in Dona Ana and Eddy Counties averaging 2 to 4 per 100 sweeps most fields. (Durkin, July 21). TEXAS - Moving into cotton in North and South Plains area. (Turney, Martin).

FLEAHOPPERS - ARIZONA - Common throughout southeast area on cotton and other hosts. Counts from 2 to 8 per 100 sweeps average, but 30 per 100 at Randolph, Maricopa County. (Ariz. Coop. Rept.). NEW MEXICO - Infestations of Psallus seriatus in Lea County light. (Durkin, July 21).

TEXAS - Generally light, light to heavy few sections of Northwest area. (Turney, Martin). OKLAHOMA - Heaviest in Tillman County; 7 to 68 percent terminals infested. Lighter in adjacent counties. From 8 to 32 percent in Caddo and Blaine Counties. (Coppock). MISSOURI - Ranged from 0 up to 42 per 100 terminals. Cotton largely past point of injury. (Kyd, Thomas). TENNESSEE - Increasing western area. (Locke).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Infestations continue in Maricopa and Pinal Counties, July 20. Counts of 34 to 46 per 100 sweeps in some fields at Eloy with considerable damage evident. (Ariz. Coop. Rept.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Heavy population in 25 acres south of Eloy, July 13. (Ariz. Coop. Rept.). NEW MEXICO - Infestations medium to heavy in cotton fields in Carlsbad. Difficult to control. (Durkin, July 21). TEXAS - Increased in most areas of State. (Turney, Martin).

THRIPS - ARIZONA - Extremely high populations in all fields from Maricopa to Pima Counties, July 20. (Ariz. Coop. Rept.).

SPIDER MITES - MISSOURI - Continue to build up throughout area with 8 percent of fields infested. (Kyd, Thomas). LOUISIANA - One moderate infestation in Bossier Parish and several heavy spotted infestations in Avoyelles Parish. (Oliver). Present on edges of several fields in Tallulah area. (Pfrimmer et al.). MISSISSIPPI - Heavy local infestations along dusty roads, ditch banks, etc., in delta counties. (Merkl, Furr et al.). TENNESSEE - Some spotty infestations in western area. (Locke). GEORGIA - Light infestations in Oconee, Morgan, Jasper and Putnam counties. Moderate in Bibb, Dougherty, Dodge, Laurens, Peach and Lowndes Counties. Heavy in Macon, Sumter, Terrell, Mitchell, Thomas, Colquitt, Brooks, Tift, Ben Hill and Wilcox Counties. (Johnson). SOUTH CAROLINA - Spotted light to heavy in few fields in Florence area. (Walker et al.) Increasing in Lancaster, Spartanburg and coastal plain counties. (Cott. Lett. July 23). NORTH CAROLINA - Present in many fields throughout State, but few with severe damage. (Cott. News Lett.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

SARATOGA SPITTLEBUG (Aphrophora saratogensis) - MINNESOTA - Adults conspicuous in jack pine plantation at Cloquet. (Minn. Ins. Rept.)

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - FLORIDA - Larvae heavily infesting slash pine at Quincy, Gadsden County. Det. W. B. Tappan. (Denmark, July 17).

BAGWORM (Thyridopteryx ephemeraeformis) - INDIANA - Most severe on record. Evergreens, maple willow, birch, apple, wild cherry have been heavily infested. (Osmun). GEORGIA - Heavy infestations on evergreens in Fulton and Dekalb Counties. (Blasingame). MARYLAND -

Heavy on arborvitae, cedar and occasionally other ornamentals in central counties. (U. Md., Ent. Dept.). MISSOURI - Heaviest infestation ever recorded in State continues to cause damage to a wide range of trees and shrubs. (Kyd, Thomas). VIRGINIA - Severe one location in Stafford County. (Tulloss). Killing cedars near Charlotte Courthouse. (Turner). MISSISSIPPI - Defoliating arborvitae in Lauderdale County. (Hutchins).

BAGWORMS - NEW JERSEY - Considerable numbers on Japanese red maple, silver maple and other deciduous trees and evergreens. (Ins. Dis. News.). PENNSYLVANIA - More numerous than ever seen before in southwestern area. Arborvitae in many instances already stripped. (Udine). ILLINOIS - In many areas severely damaging shade trees, shrubs and evergreens. (Ill. Ins. Rept.).

ELM LEAF BEETLE (Galerucella xanthomelaena) - MISSOURI - Additional infestations on Chinese elms in central third of State with Boone, Miller and Camden Counties near Lake of the Ozarks showing some trees heavily infested. (Kyd, Thomas). OKLAHOMA - Causing severe defoliation of trees in Seminole and Perkins. (Howell).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEVADA - Causing severe honeydew on American elms. (Galloway).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - MARYLAND - Adults causing light to moderate damage to young oaks in Prince Georges County. (U. Md., Ent. Dept.).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - First adult emergence from pupa July 26. (Steve).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - MARYLAND - Outbreaks general on white and red oaks in St. Marys County. Severe defoliation in some sections. (U. Md., Ent. Dept.). VIRGINIA - Feeding heavily on oaks in area three miles in radius in Northumberland County (Saville) and defoliating white oaks in 100 acres in King William County. (Hall).

OAK LACE BUG (Corythucha arcuata) - MARYLAND - Heavy on oaks in Baltimore area. (U. Md., Ent. Dept.).

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) - DELAWARE - Abundant on red maple at Petersburg. (Milliron). VIRGINIA - Feeding heavily on maples at Irvington, Lancaster County. (McSwain).

SADDLED PROMINENT (Heterocampa guttivitta) - WISCONSIN - Defoliating maple in Door County. (Wis. Ins. Bul.).

JAPANESE BEETLE (Popillia japonica) - GEORGIA - Two adults collected in traps at Waycross, Ware County, July 25. (Blasingame). DELAWARE - Severe injury to maples near Andrews ville. (Milliron).

NORWAY-MAPLE APHID (Periphyllus lyropictus) - IDAHO - Common on most maples in southwestern and west central areas, and particularly abundant on unsprayed trees in Caldwell, Emmett and Grangeville. (Gittins). Heavy infestations on practically all maple trees in Twin Falls. (Douglass).

MIMOSA WEBWORM (Homadaula albizziae) - MARYLAND - Generally heavy on mimosa in all areas. (U. Md., Ent. Dept.).

LOCUST LEAF MINER (Chalepus dorsalis) - MARYLAND - Moderate to severe throughout State. Very severe central counties. (U. Md., Ent. Dept.). PENNSYLVANIA - Very heavy general infestation. Locust trees noticeable due to browning of leaves. (Udine).

LOCUST BORER (Megacyllene robiniae) - RHODE ISLAND - Larvae riddling many trees throughout State. (Steve).

POPLAR AND WILLOW BORER (Sternochetus lapathi) - IDAHO - Causing considerable damage to willow trees in Elk River. Adults emerging. (Manis).

APHIDS - UTAH - Damaging willow trees in Wasatch County. Infestations often heavy. (Knowlton). IDAHO - Extremely abundant on elm trees in Emmett, Gem County. (Gittins).

POPLAR TENT MAKER (Ichthyura inclusa) - DELAWARE - Heavily damaging aspen north of Newark. (Milliron).

SYCAMORE LACE BUG (Corythucha ciliata) - MARYLAND - Moderate to heavy on sycamore in all sections. (U. Md., Ent. Dept.).

THISTLE APHID (Anuraphis cardui) - MAINE - Abundant in late June on black cherry in Aroostook County. (Maine Coop. Rept.).

WEBWORMS - DELAWARE - Sweetgum webworms, Salebria afflictella and Tetralopa melanogrammos causing severe injury to shade trees in or reported from New Castle and Kent Counties. (Stearns, MacCreary, Milliron).

A WEEVIL (Odontopus calceatus) - RHODE ISLAND - Sassafras trees severely injured frequently. (Steve).

WHITE-MARKED TUSsock MOTH (Hemerocampa leucostigma) - RHODE ISLAND - Heavier than usual in Newport nurseries. Defoliation of a few roadside trees in Portsmouth. (Mathewson). WISCONSIN - Causing heavy defoliation to street trees in Milwaukee County. Now pupating. Third instar on walnut in Washara County. (Wis. Ins. Bul.).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - FLORIDA - All stages averaging 100 or more per square inch of bark and leaves of catalpa and on bark of three allamanda plants at Panama City, Bay County. (Baker, July 19).

THRIPS - ARIZONA - Heavy on 21 acres of roses west of Casa Grande, Pinal County, July 19. Causing light damage to flowers. (Ariz. Coop. Rept.).

FOUR-LINED PLANT BUG (Poecilocapsus lineatus) - NEW HAMPSHIRE - More numerous than for several years and causing considerable damage to flowers, particularly. (Conklin).

CYCLAMEN MITE (Steneotarsonemus pallidus) - MINNESOTA - Heavy in delphinium buds and in strawberries in Duluth and Iron Range. (Minn. Ins. Rept.).

WEATHER FOR THE WEEK ENDING JULY 30, 1956

One of the most predominate features of the week's weather was the unseasonably cool high pressure cell which pushed into the United States along the central Canadian Border on Friday and was centered over the Great Lakes moving eastward on Monday. Generally clear skies and cool weather were experienced along the Atlantic Coast as far south as North Carolina and daily temperatures fell to below freezing in the cranberry bogs of Wisconsin on Sunday morning with a low of 31° reported at Phillips. In contrast, maxima were above 100° west of the Continental Divide as far north as Omak, Wash., on Tuesday, and extended over a large area of the Central Plains from Wednesday through Friday, with Iowa reporting its highest reading, 106° and 107° in 15 years. Weekly temperature averages were below normal for the seventh consecutive week in the New England States and the sixth consecutive week in the Great Lakes Region, but the lowest average departures of -6° for this week occurred at Williston, N. Dak., and Internatinal Falls, Minn. The highest above-normal departure, 6°, was reported at Lander, Wyo. In general weekly temperature averages were within 4° of normal. Precipitation continued to fall mainly as isolated showers and accompanying thunderstorms in the vicinity of frontal boundaries. Heavy to moderate falls were general over the central Atlantic Coast States and along the Ohio and lower Mississippi Valleys. Elsewhere they were spotty, occurring mainly in Alabama, Georgia, Florida, North and South Dakota, Colorado, Nevada, Utah, Wyoming and Texas. Much of the West was without precipitation of consequence and drought conditions continued in Texas, fire danger was critically high in Washington, while in Nebraska dry weather, hot temperatures and strong winds severely damaged corn. Excessive precipitation amounts, destructive hail, and other severe storms were not as prevalent as during past weeks. However, lightning took one life in Iowa, caused one death and six injuries in Massachusetts, and caused a fire which destroyed a fertilizer plant in Florida. Several waterspouts were observed from West Palm Beach, Fla. on July 30 and a possible twister was reported on the 29th at New Orleans, La. (Summary Supplied by United States Weather Bureau).

INSECTS AFFECTING MAN AND ANIMALS

FLIES ON LIVESTOCK - MINNESOTA - Horn fly, stable fly, house flies and tabanids heavy on many dairy cattle and beef herds. (Minn. Ins. Rept.).

SCREW-WORM (Callitroga hominivorax) - VIRGINIA - Specimens submitted from Fredericksburg to Division of Plant Industry for identification. (Matheny, July 23).

STABLE FLY (Stomoxys calcitrans) - VIRGINIA - Annoying untreated cattle at Blacksburg, Montgomery County. (Turner).

HORN FLY (Siphona irritans) - UTAH - Becoming increasingly annoying over State. (Knowlton).

TABANIDS - RHODE ISLAND - Chrysopa spp. continue in abundance, causing annoyance in woods and summer camps. (Steve). VIRGINIA - Increasing about cattle at Shawsville, Christianburg and Blacksburg, Montgomery County. (Turner). UTAH - Seriously annoying livestock in Rich County. Deer flies annoying man and livestock. (Knowlton). OKLAHOMA - Tabanus abactor and T. lineola active in eastern counties. From 15-30 per animal in some areas. (Howell).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Average of 8-10 replete forms on cattle in Muskogee and Cherokee Counties. Some larvae and nymphs active. (Howell).

AMERICAN DOG TICK (Dermacentor variabilis) - OKLAHOMA - Average of 15-25 per dog in Payne County. (Howell).

BED BUG (Cimex lectularius) - NORTH CAROLINA - Two of four poultry houses, with about 2000 birds, severely infested about nests and roosts. (Jones).

MOSQUITOES - ARIZONA - Abundant and annoying at Winslow, Navajo County, July 26. (Ariz. Coop. Rept.). UTAH - Still annoyingly abundant in Rich County. (Knowlton).

SALT-MARSH MOSQUITO (Aedes sollicitans) - DELAWARE - Very prevalent in Kent County. (Darsie). NORTH CAROLINA - Severe infestations in Currituck, Camden, Tyrell and Hyde Counties due to recent heavy rains. (Cromroy).

STORED PRODUCTS INSECTS

INDIAN-MEAL MOTH (Plodia interpunctella) - KANSAS - Light infestations of adults in six of seven bins at one site in Osborne County. (Matthew).

A DERMESTID (Trogoderma boron) - VIRGINIA - Very heavy infestation at naval installation in southeastern area in late June. Although there is a previous record for Virginia, this infestation is east of the normal range of the species. Det. W. H. Anderson. (Davis, Oman).

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - UTAH - Extremely heavy in stored wheat at Charleston. (Daniels).

BENEFICIAL INSECTS

PARASITES - PENNSYLVANIA - Two parasites, Itopectis conquistor and Calliephialtes comstockii, were reared from European pine shoot moth from Westmoreland. Determined L. M. Walkley. (Udine, June 6).

NABIDS - IDAHO - Populations of adults and nymphs numerous in most alfalfa hay and red clover seed fields throughout southcentral and southwestern areas. Counts up to three per sweep. (Gittins).

LACEWINGS - OKLAHOMA - Averaging 11 per 10 sweep in one alfalfa field in Caddo County. (Coppock).

MISCELLANEOUS INSECTS

A CHRYSOMELID (Monoxia spp.) - IDAHO - Extremely abundant in Caldwell. Has been very abundant in crops in southcentral area but no damage apparent. (Gittins, Manis).

EUROPEAN EARWIG (Forficula auricularia) - UTAH - Troublesome in many counties. Organized control programs in Wasatch County and at Heber. (Knowlton).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - RHODE ISLAND - Invading homes in North Kingston. (Mathewson).

A WEEVIL (Calomycterus setarius) - RHODE ISLAND - Invading homes in Johnston. (Mathewson).

MIDGES - MAINE - Mass emergence of non-biting midge, Hydrobaenus sp. along a river between Augusta and Winslow. Driving hazard for 15 miles. (Maine Coop. Rept.).

A SNIPE FLY (Symphoromyia hirta) - UTAH - Numerous and troublesome in Logan, Allen and Wolf Creek Canyons. (Knowlton).

NORTHEASTERN SAWYER (Monochamus notatus) - RHODE ISLAND - Adult found boring through siding and studding in Westerly home. (Steve).

A TERMITE (Coptotermes sp.) - TEXAS - Heavy infestations on dry dock in Harris County. (Ford).

CORRECTIONS

CEIR 6(28): 661 - Under PEAR-SLUG (Caliroa cerasi) - IDAHO - Population averaged one larva per four leaves. (Manis, July 13).

CEIR 6(29): 692 - Under CHERRY FRUIT FLY (Rhagoletis cingulata) - IDAHO - Reported infestation at Payette is non-existent. (Manis).

ADDITIONAL NOTES

CONNECTICUT - POTATO LEAFHOPPER - Severe yellows in alfalfa in Wallingford and Mt. Carmel areas. (Quinton).

WEST VIRGINIA - SOUTHERN CORN ROOTWORM - Light to heavy on corn statewide. EUROPEAN CORN CORER averaged 21 of 100 corn plants counted in Greenbrier County. BAGWORM damage increasing statewide on arborvitae, junipers and other ornamentals. CUCUMBER BEETLES damage occurring to cucurbits especially in Randolph and Monongalia County. (Dorsey, Hansen).

LOUISIANA - RICE STINK BUG increasing with 20-70 per 100 sweeps in Acadia Parish, 40 per 100 in St. Landry Parish and 30 per 100 sweeps in Evangeline Parish. FALL ARMYWORM infesting dallis and coastal Bermuda grass in Acadia Parish at 300 per 100 sweeps and grass sods in Natchitoches Parish at 20 per 100 sweeps and are attacking 60 percent of Millet one field in East Baton Rouge Parish. CORN EARWORM infesting alfalfa at 60 per 100 sweeps in Bossier Parish and 40 per 100 sweeps in Natchitoches Parishes. SPOTTED ALFALFA APHID continues light in alfalfa in Bossier, Red River and Natchitoches Parishes. GARDEN WEBWORM infesting alfalfa at 250-300 per 100 sweeps in Natchitoches Parish and 80 per 100 sweeps in Bossier Parish. (Oliver).

ARKANSAS - STRIPED CUCUMBER BEETLE damaging melons in north-western counties. SQUASH BUG also active in area. Several hundred acres lost due to insects. HORNWORMS and BLISTER BEETLES damaging tomato fields in north western counties.

NEW YORK - ORIENTAL FRUIT MOTH increasing in Rockland County. EUROPEAN RED MITE increasing on apples and peaches in Rockland County, and heavy in a few Orleans County orchards. TWO-SPOTTED SPIDER MITE increasing in Orleans County. A few fresh entrances of CODLING MOTH in lake zone of Niagara County, July 26. APPLE MAGGOT emergence continues quite heavy in Monroe County. LEAF-HOPPERS heavy in lettuce fields of Hudson Valley. CORN LEAF APHID heavy on corn on Long Island. CORN SAP BEETLES numerous in Hudson Valley and Nassau Co. EUROPEAN CORN BORER especially heavy on sweet corn in Rockland County. TARNISHED PLANT BUG causing damage to lettuce in Oswego County and numerous along with LEAFHOPPERS in Monroe County, and both numerous on dry beans in Livingston County.

IOWA - EUROPEAN CORN BORER second brood egg masses appearing,

averaging 10 masses per 100 plants at Ankeny and lesser numbers other areas. First brood infestations were: 41 percent in northern area with average of 79 borers per 100 plants; 80 percent in central area with average of 229 borers per 100 plants; and 21 percent in south area with average of 25 borers per 100 plants. GRASSHOPPERS continue a major pest problem. Control program remarkably good. CORN LEAF APHID damaging grain sorghums in southern area. CICADA KILLER especially abundant in central area. (Harris).

ALABAMA - FALL ARMYWORM on grain sorghum. Moth flight of EUROPEAN CORN BORER practically over. Oldest larvae in second and third instars. PEPPER MAGGOT infestations on pimiento peppers scattered in northern counties. BLACK TURPENTINE BEETLE showing up in pines in Dekalb County. Cotton FLEAHOPPERS light in 7 of 20 fields. APHIDS light in 2 of 20 cotton fields. Average percent BOLL WEEVIL infestation 34.5 percent and BOLLWORM infestation 2.0 percent in 2 northern and 4 central counties. (Arant, Eden, Tyus).

MAINE - EUROPEAN CORN BORER - Moths emerging in considerable numbers July 16 at Monmouth. (Hawkins). GREENBUG generally minor importance. Barley more heavily infested than oats. (Maine Coop. Rept.).

WEATHER BUREAU'S 30-DAY OUTLOOK August 1956

The Weather Bureau's 30-day outlook for August calls for temperatures to average below seasonal normals west of the Continental Divide and in the Northeast. In the remainder of the nation above normal temperatures are predicted except near normal along the Gulf Coast and in the Great Lakes Region. Precipitation is expected to exceed normal in the northern Plains, middle Mississippi Valley and southern Rocky Mountain States. Subnormal amounts are indicated in the Northeast, Southwest and Gulf Coast States with near normal elsewhere.

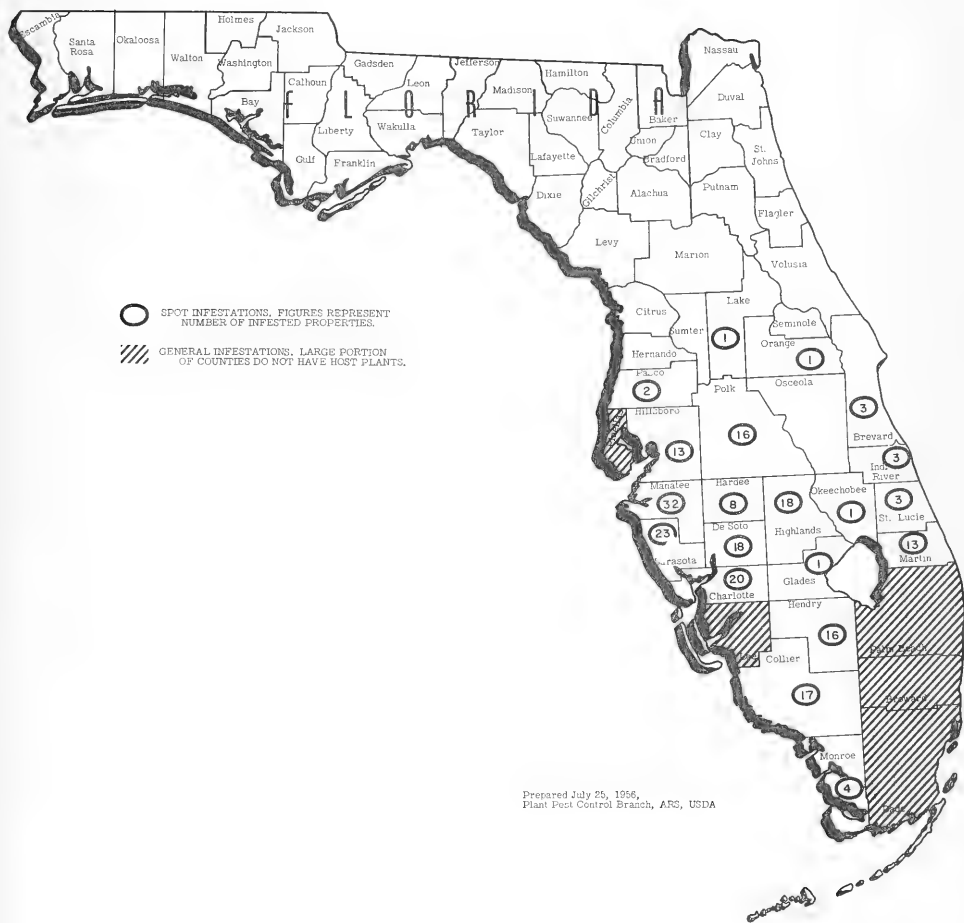
Weather forecast given here is based on the official 30-day "Resume and Outlook", published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price \$4.80 a year, \$2.40 for six months.

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea	Protoparce sexta	quing.	Laphyg. frugip.
TEXAS									
Waco 7/21-27	3	5	18	22	3	335	1		
College Station 7/16-27			115	2		2369	24		1686
SOUTH DAKOTA									
Brookings 7/25 & 26	23	12							
MINNESOTA									
St. Paul 7/25	14			1					
ILLINOIS									
Urbana 7/20-26	173	38	11	119			3		
INDIANA (Counties)									
Lawrence 7/20-25	64	1	13	7		12		5	4
Tippecanoe 7/20-26	31	3	1	5		1			
OHIO (County)									
Athens 7/16-22	57	12							
KANSAS									
Wathena 7/13-25	21	4	20			5		12	7
Manhattan 7/23	4	1	12			14		24	7
Garden City 7/19-24			12			87		6	1
MISSOURI (County)									
Boone 7/21-27	25	3		5		5		8	
ARKANSAS									
Hope 7/20-26								39	
Stuttgart 7/19-25	5	2		2				15	
Van Buren 7/19-25								11	
Varner 7/19-25	14	14		1				32	
Fayetteville 7/21-27	21	9		6				44	
LOUISIANA									
*Tallulah 7/20-26	56	20	158	4	121	231	24	23	106
Curtis 7/16-22	13	1	38		38	772		6	3
Baton Rouge 7/21-27			25		233	30		3	30
Franklin 7/16-25			30		21	4			
MISSISSIPPI (Counties)									
*Washington 7/20-26	85	12				93			
Humphreys 7/21-27	2	23	123	1	101	120	19		
Lauderdale			4		37	46	2		
Marshall	1	5	97	2	24	6			
Oktibbeha	47	7	145		35	26	4		
TENNESSEE (Counties)									
Shelby 7/16-23	42	14	98					7	
Madison	48	6	20			8			
Lawrence	32	8	24	4		12		16	25
Maury	105	2	110	2		42		17	10
Robertson	87	8	40	8		24		25	7
Cumberland	113	6	29	2		7		13	
Knox	154	12	98	16		14			
Greene	158	4	100	4		8		7	1
Blount	88	12	73	4		40		5	
Johnson	294	42	78	102		4		5	1
FLORIDA									
Gainesville 7/18			6			4			
GEORGIA (Counties)									
Tift 7/20-26	72	23	109		160	311	23	8	114
Spalding 7/20-26	18	9	61	3	69	37		6	10
Clarke 7/19-25	29	33				16	9	7	6
SOUTH CAROLINA (Counties)									
Florence 7/14-20	86		226	4	312	620	216	59	
Charleston 7/9-15			42		5	9		5	
Clemson 7/22-28	52	1	50	2	22	4	1	5	1
NORTH CAROLINA (Counties)									
Duplin 7/25-26	1		24		6	8		5	1
Johnston 7/25-26	1		16		6	15	2	47	2
VIRGINIA (County)									
*Pittsylvania 7/15-21								46	92
ALABAMA (County)									
Lee 7/21-27	45		143			433	42	3	1
MAINE									
Orono 7/24	27								

*Three traps Tallulah; three traps Pittsylvania County; and two traps Washington County.

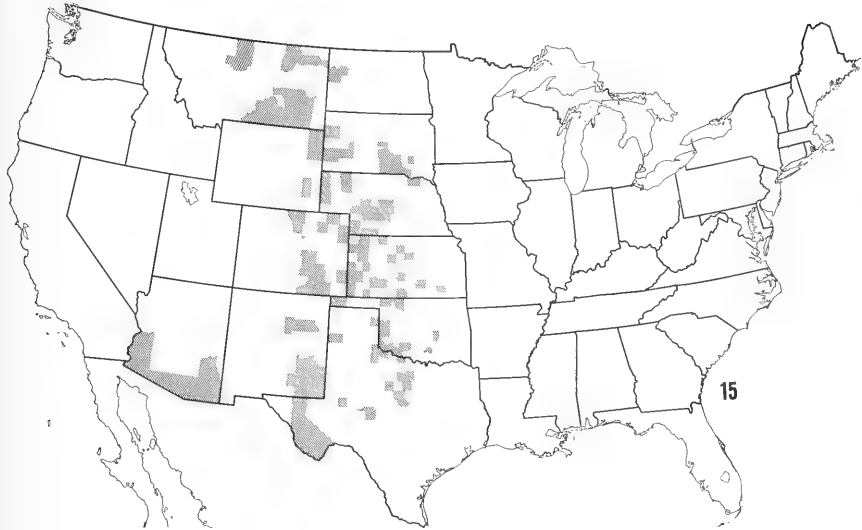
MEDITERRANEAN FRUIT FLY



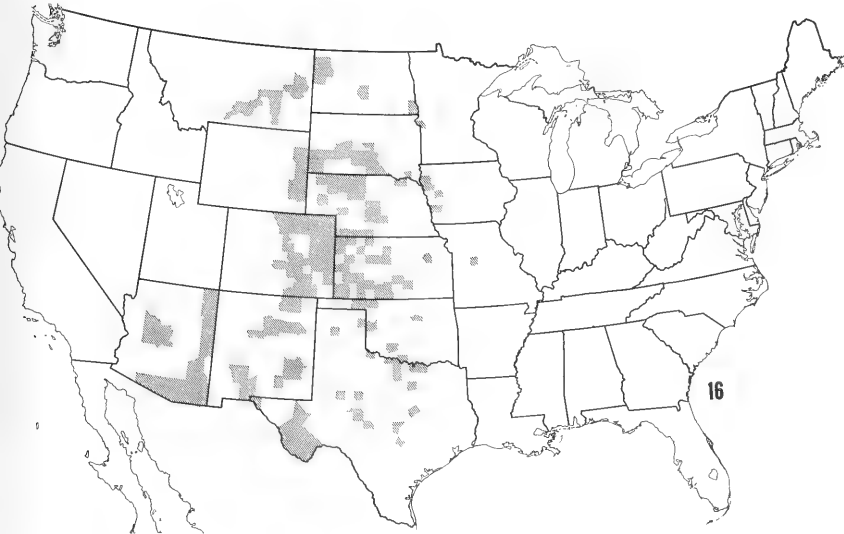
Prepared July 25, 1956,
Plant Pest Control Branch, ARS, USDA

DISTRIBUTION OF RANGE GRASSHOPPERS

Boopedon nubilum (Say)



Brachystola magna (Girard). lubber grasshopper

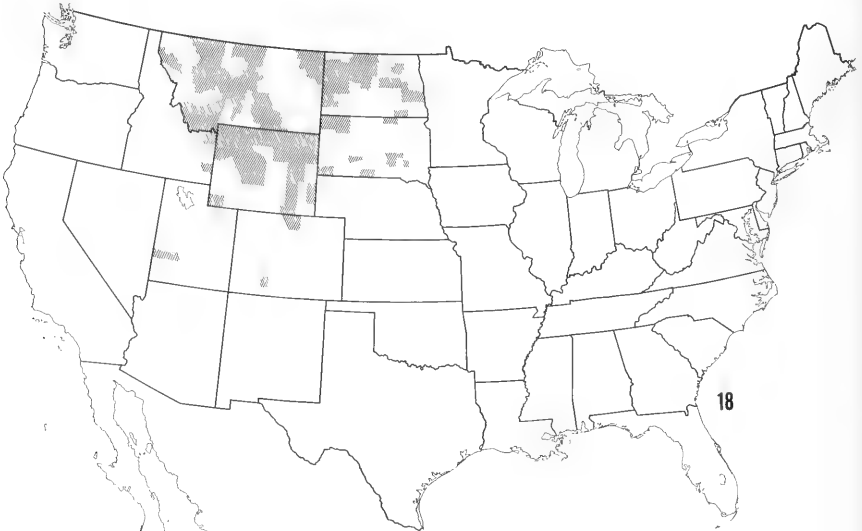


DISTRIBUTION OF RANGE GRASSHOPPERS

Bradynotes obesa (Thomas)



Bruneria brunnea (Thomas)





VOL. 6 No. 32

AUGUST 10, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

EUROPEAN CORN BORER first generation heaviest in years in New Jersey and causing considerable damage. Heavy second generation expected. First generation in northern three tiers of counties in Illinois two-to-four times greater than in 1955. Second generation that area expected to be as severe or more so than in 1955. (P. 779).

GRASSHOPPERS very severe on 69,000 acres and severe on 22,000 acres of Snake and Salmon River Valleys of Idaho. Numerous in all sections of Oklahoma and moving into corn, sorghum and soybeans in eastern and central Kansas. (P. 779). Heavy infestation in Sheridan County, Wyoming and severe local infestations in alfalfa in northern South Dakota. Moving into soybeans, corn and flax in Minnesota in west central and southwest counties. Heavy populations in some untreated fields in Iowa and damaging alfalfa, red clover and pastures in Missouri. (P. 780).

CORN EARWORM averaging 60 to 70 percent infestation in corn in Caldwell County, North Carolina and damaging sweet corn in several counties of Wisconsin. Heavy infestations, up to 96 percent, in central Kansas. Abundant with damage to corn at Phoenix and Prescott, Arizona. (P. 781).

CORN LEAF APHID building up in northeastern Colorado and severe on barley throughout Big Horn Basin of Wyoming. Heavy populations in corn and sorghum in northeastern area and Platte and Republican Valleys of Nebraska. Heavy infestations in corn in northern South Dakota and in corn and grain sorghums of Iowa where spraying continues. Killing some corn in several counties of Wisconsin and a very heavy infestation starting in Blair County, Pennsylvania. (P. 781).

CORN SAP BEETLES causing loss to sweet corn in Delaware, Maryland and Virginia. (P. 782). CHINCH BUG migrating into milo in Payne County, Oklahoma. ARMYWORM is possible threat to grain in northwest Minnesota. (P. 783).

SPOTTED ALFALFA APHID now spread to Sanpete, Sevier, Juab and Salt Lake Counties, Utah and damage remains severe in Millard County. Populations remain high in alfalfa in Pima and Santa Cruz Counties, Arizona. Increasing in Kansas River Valley in east central Kansas with counts up to 1200 per sweep several counties. Spread into Chase, Perkins and Keith Counties, Nebraska and increasing in McCook area of Red Willow County. Adults taken in Putnam and Mercer Counties, Missouri bordering on Iowa. (P. 784). PLANT BUGS serious in alfalfa in Washington, Idaho, Arizona, South Dakota, Wisconsin, Michigan and south central Pennsylvania. PEA APHID damaging alfalfa in several counties of Utah. Heavy on alfalfa in Converse County, Wyoming and increasing in panhandle of Nebraska. (P. 785). ARMYWORMS causing heavy damage over several hundred acres of alfalfa, sugar beets and potatoes in Franklin County, Idaho. (P. 786).

TWO-SPOTTED SPIDER MITE causing severe damage several orchards

in New Mexico. (P. 788). GREEN JUNE BEETLE damaging ripe peaches in Stillwater, Okla. area and attacking ripening fruit generally in North Carolina. (P. 789).

POTATO LEAFHOPPER building up in potatoes in central New Jersey and northeastern South Dakota. Hopperburn heavy on untreated potatoes at Portage, Wisconsin. Causing heavy damage to some potatoes in York County, Pennsylvania. (P. 790). POTATO PSYLLID causing yellows to potatoes in Weld and Logan Counties, Colorado with severe damage in Alamosa County. LYGUS BUGS causing severe damage to potatoes in Humboldt County, Nevada. (P. 790).

MELON FLY captured in trap in Los Angeles County, California. (P. 792).

BOLL WEEVIL punctured squares increasing in western Tennessee and adults numerous. Migration expected by mid-August. Migration started in the Carolinas. Seventy-four treated fields checked in Darlington County, S. C. averaged 83 percent square infestation. Cotton fields in northern Georgia averaged 34 percent square infestation and in eight southwestern counties of Alabama, the average infestation was 53 percent. (P. 793). BOLLWORM in cotton increasing in North Carolina and in most areas of Arizona. Egg laying heavy in Texas and heavy infestations in irrigated areas of McLennan and Falls Counties. Causing moderate to heavy damage in Okfuskee and Bryan Counties. (P. 794). PINK BOLLWORM found for first time in bloom in Arkansas. CABBAGE LOOPER heavy in cotton in Eddy, Chaves and Lea Counties, New Mexico and increasing generally in Texas. (P. 795). SPIDER MITES building up in cotton in Missouri and heavy some fields of Tennessee. (P. 796).

ELM LEAF BEETLE heaviest in recent years in elms of southeastern Idaho and destructive to elms all sections of Maryland. (P. 798).

Two cases of SCREW-WORM reported from Lancaster County, South Carolina. (P. 799).

ADDITIONAL NOTES (P. 801).

WEATHER SUMMARY (P. 802).

STATES reporting this week - 43.

LIGHT TRAP REPORT. (P. 803).

SURVEY METHOD for PINE TORTOISE SCALE. (P. 805).

Reports in this issue are for the week ending August 3 unless otherwise designated.

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW JERSEY - Considerable damage in field corn. First generation heaviest in years. Parasitism at low level. Situation looks favorable for large second generation. Heaviest activity will be about August 10th in southern, August 15 in central and August 20 in northern Counties. (Ins. -Dis. News.). DELAWARE - Light to moderately abundant in sweet corn ears from Middletown southward. (Milliron). MARYLAND - Second generation egg masses averaged 10 per 100 plants on late corn in Queen Annes County. Second generation moths started to emerge in Frederick County. (U. Md., Ent. Dept.). OHIO - Moth emergence in early planted sweet corn in northern area. Pupation 12 to 15 percent, most larvae in 5th instar. (C. R. Neiswander). ILLINOIS - Twenty-five to 50 percent of first-generation pupated, and some moths emerged in north half of State. Egg laying started, and peak expected between August 6 and 20. In general, first-generation numbers in northern three tiers of counties and eastern two tiers south to highway 36 are two to four times greater than in 1955. Second-generation may be as severe as in 1955, if not worse. Rest of State north of highway 36 about same or less than last year. (Ill. Ins. Rept.). WISCONSIN - Survey of leaf feeding by counties showed 30 percent in Grant, 20 percent in Rock, 18 percent in Walworth, 17 percent in Green, 15 percent in Lafayette, 15 percent in Iowa, 13 percent in Dane and 10 percent in Waukesha. Pupae found in most counties and larvae well advanced. (Wis. Ins. Bul.). IOWA - Pupation in central area ranges from 35 to 40 percent with 10 percent emergence. Twenty-five egg masses per 100 plants at Ankeny. (Harris). KANSAS - Percent infestations in east central counties were Jefferson and Leavenworth, 4 to 12; Johnson and Douglas, 4 to 8; Shawnee, 4. (Matthew). MINNESOTA - Infestations per 100 plants was 65 in south central and 126 in southwestern areas of which 37 and 48 percent were infested respectively. (Minn. Ins. Rept.). SOUTH DAKOTA - Infestation continues light and spotted in northern area. Seven percent pupated. (Hantsbarger).

GRASSHOPPERS - IDAHO - Camnula pellucida infestation light in alfalfa and grain fields in Boundary County. (Gittins). General in Murphey flats area of Owyhee County. (Portman). Variable damage to alfalfa in Franklin County. (Roberts). Populations of Melanoplus spp. from 3 to 10 per square yard on dry range areas south of Lewiston. (Barr). Survey of grasshoppers along Snake and Salmon Rivers included 69,000 acres very severely infested and 22,000 acres severely infested. Counts in some areas run over 150 and consistently 25 to 30 per square yard. Melanoplus spp. predominate with some C. pellucida. (Nonini). NEW MEXICO - Controlled on approximately 376,947 acres of rangeland. Control scheduled on 57,000 acres in Lincoln County. In Colfax County, 250,000 acres of rangeland infested with 2nd and 3rd instar nymphs. (Fulkerson, Grass. Cont. Proj.). OKLAHOMA - Numerous in all sections. Ageneotettix deorum and Mermiria sp. most abundant in rangeland in eastern section. (Coppock). KANSAS - Moving into corn, sorghum and soybean fields in east central area. Alfalfa fields and field margins contain higher populations. (Matthew). WYOMING - C. pellucida, 150 per square yard, is laying eggs west of Meeteetse. Area included in

approximately 30,000 acres infested with 3 to 25 grasshoppers per square yard. Large acreage infested in Natrona County extending into Carbon County and heavy infestation in Sheridan County extending to Montana, July 28. (Spackman). NEBRASKA - Mating of Melanoplus spp. occurring in southern area. Alfalfa and corn damaged in northeast. Counts in alfalfa from 4 to 11 per square yard and 7 to 15 in margins. (Andersen). SOUTH DAKOTA - Damage to marginal corn by Melanoplus spp. becoming apparent. Severe local infestations continue in alfalfa fields in northern counties. Counts per square yard average 30 to 60 in margins and 20 to 40 in more heavily infested fields. Ten percent of population adults. (Hantsbarger). MINNESOTA - Leaving margins and moving into fields of soybeans, corn and flax in west central and southwest counties. Heavy infestation in central and northwest counties. Heavy population in new seeding alfalfa in west central and central counties. (Minn. Ins. Rept.). WISCONSIN - Numerous M. femur-rubrum in many fields and late hatching pronounced. Over 100 2nd to 4th instar nymphs per square yard in one Wood County location. (Wis. Ins. Bul.). IOWA - Heavy populations in some untreated fields. (Harris). MISSOURI - Melanoplus spp. infesting alfalfa, red clover and pastures rather uniformly and most heavily damaged. Marginal injury to row crops increased considerably over State becoming most severe in southwest area. Counts from 1 to 37 per square yard in fields while marginal counts from 4 to 55 over much of northern half of State. Fungus diseases extremely light. (Kyd, Thomas). MICHIGAN - Melanoplus spp. common about Piconing and Alpena. (Hutson, July 27). VIRGINIA - Severe on pastures and corn several farms in Sussex County. (Parson). UTAH - Damage continues to increase. Melanoplus spp. and C. pellucida dominant species. Egg laying occurring. (Knowlton).

MORMON CRICKET (Anabrus simplex) - NEVADA - Light, scattered infestation from Limbo Canyon to 10 miles north in Washoe-Pershing Counties. Area received control in 1953. (Gallaway, July 28).

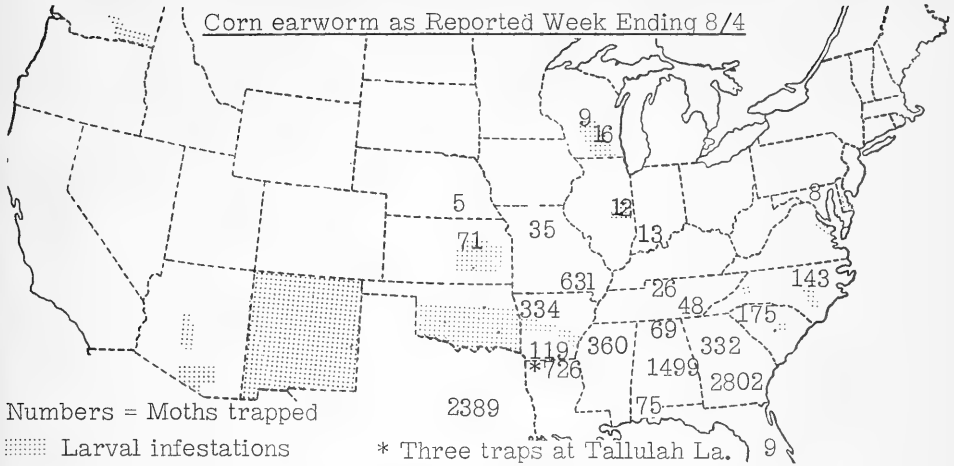
A CRICKET (Idiostatus sp.) - NEVADA - Infestation at Soldier Meadows, July 7. Probably new species between I. elegans and I. magnificus. Det. A. B. Gurney. (Gallaway, July 28).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - SOUTH CAROLINA - Considerable lodging of corn in field in Kershaw County, exit holes prominent. (Montgomery, Nettles, July 26). FLORIDA - Severely infesting 40 acres of rice at Belle Glade before field flooded. Stand reduced approximately 50 percent. (Denmark, July 10).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Infestations in the upper Arkansas River Valley very variable with 2 to 50 percent of stalks infested. Heaviest infestations in northern Conway County. (Warren, Harrendorf, Barnes).

CORN ROOT APHID (Anuraphis maidi-radicis) - VIRGINIA - Heavy and stunting corn in a field in Nelson County. (Rowell, Whitehead).

Corn earworm as Reported Week Ending 8/4



CORN EARWORM (*Heliothis zea*) - DELAWARE - Light to moderately heavy ear infestations in most sweet corn from Middletown southward. (Milliron). MARYLAND - Infestation in early sweet corn lighter than usual. (U. Md., Ent. Dept.). VIRGINIA - Heavy on corn in Westmoreland County. (Ptucha). SOUTH CAROLINA - Exit holes numerous in corn ears in field in Kershaw County. (Montgomery, Nettles). NORTH CAROLINA Infestations averaged 60 to 70 percent on corn ears in Caldwell County, 3.66 eggs per silk at Clayton and 3.60 at Faison. (Farrier). ILLINOIS Small larvae in early field corn in Champaign County. (Ill. Ins. Rept.). WISCONSIN - Damaging some early sweet corn in Dane, Rock and Sauk Counties. None in field corn to date. (Wis. Ins. Bul.). IOWA - Abundant in early planted corn. Some areas nearly 100 percent infested. (Harris). KANSAS - Heavy infestations in east central area. Infestations ranged as high as 96 percent. (Matthew). ARKANSAS - Larvae averaged 6 to 8 per 10 sweeps on forage crops and beginning to appear on sorghums in the Arkansas River Valley. (Warren, Harrendorf, Barnes). OKLAHOMA - Damage to ears from 36 to 73 percent in Okfuskee County. Populations in alfalfa from 2 to 7 per 10 sweeps in central and southern fields. Average of 1 larva per 5 feet of row in peanuts in Stratford area. (Coppock). ARIZONA - Extremely abundant in one alfalfa field in Avra Valley, Pima County. Abundant in young corn at Phoenix with 85 percent of plants infested July 28. Very abundant on 320 acres of corn at Prescott, Yavapai County. *Trichogramma* spp. preventing larger increase in Phoenix area. Fourteen per 100 sweeps on beans at Continental, July 27. (Ariz. Coop. Rept.). NEW MEXICO - Generally light to medium in most corn fields. Light in alfalfa seed fields. (Durkin, July 28). UTAH - Infestation increasing in some areas. Generally 12 to 15 percent infested. (Dorst, Knowlton). WASHINGTON - Medium infestations in sweet corn fields in Columbia, Walla Walla and Benton Counties. Higher populations in Yakima Valley. (Kamal).

CORN LEAF APHID (*Rhopalosiphum maidis*) - UTAH - Damage continues in areas on spring barley. (Knowlton). COLORADO - Building up in

northeastern area. Numerous predators present. (Exp. Sta.).
WYOMING - Severe infestation on barley throughout Big Horn Basin, July 28. Very heavy on field corn in Goshen County. (Spackman).
OKLAHOMA - Moderate infestations on sorghum in Jackson, Kiowa and Tillman Counties. (Hudson). Light general infestation on sorghums in east central and southeastern areas. (Coppock). NEBRASKA - Heavy populations in corn and sorghum in northeast, central Platte Valley and Republican Valley. Moving into heads of sorghum. (Hill, Andersen).
SOUTH DAKOTA - Increasing and more numerous than previous years in northern regions on corn. (Hantsbarger). IOWA - Continues abundant in corn and grain sorghum. Much spraying on sorghum some areas. (Harris). PENNSYLVANIA - Very heavy infestation starting in many corn fields in Blair County. (Udine). WISCONSIN - Killing some plants in fields in Waukesha, Walworth, Rock, Green, Lafayette, Grant, Iowa and Dane Counties. Appears heavier and more generally distributed than in 1955. (Wis. Ins. Bul.). DELAWARE - Injuring tassels and whorls several places. (Milliron).

RICE WEEVIL (Sitophilus oryza) - TEXAS - Light local populations on corn in field in Burleson County. (Turney).

SPIDER MITES - IDAHO - Building up throughout corn and red clover in Owyhee County (Portman) and high in some red clover seed fields in Bonner and Boundry Counties. (Gittins).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - WASHINGTON - Adults very active and increasing in numbers in alfalfa seed production area of Walla Walla County. (Kamal). COLORADO - Moderate populations on corn in Las Animas, Otero, Bent and Pueblo Counties. Scattered infestations in Yuma County. (Exp. Sta.). MARYLAND - Injury increasing on soybeans in Wicomico and Dorchester Counties. Some spraying done. (U. Md., Ent. Dept.).

JAPANESE BEETLE (Popillia japonica) - PENNSYLVANIA - Adults numerous on corn silks in south-central area. Some control treatment. (Pepper). VIRGINIA - Medium on corn in Chilhowie area of Smyth County. (Jones).

FLEA BEETLES - MARYLAND - Averaged 5 to 9 per plant on late corn in Kent and Queen Annes County. (U. Md., Ent. Dept.). TEXAS - Heavy local populations on lawns and pasture grass in Karnes County. (McNally).

CORN SAP BEETLES - RHODE ISLAND - Carpophilus spp. appearing on ears of sweet corn on July 30. (Steve). DELAWARE - All stages of Carpophilus lugubris abundant in sweet and field corn throughout State. Heavy ear loss to certain types with loose or short husks. (Milliron). MARYLAND - Eggs, larvae and adults abundant in ears of sweet corn in all sections. Considerable ear loss to early corn. (U. Md., Ent. Dept.). VIRGINIA - Damaging corn in northern neck and eastern counties. (Morris). WEST VIRGINIA - Adults feeding on corn silks in Hampshire County. (Dorsey, Hansen).

CORN ROOTWORMS (Diabrotica spp.) - WISCONSIN - Both D. longicornis and D. undecimpunctata howardi adults present in Rock and Grant Counties, causing some injury. (Wis. Ins. Bul.).

SORGHUM WEBWORM (Celama sorghiella) - TEXAS - Medium widespread infestations on late-planted cane and grain sorghum in Brazoria County. (Turney).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Migrating into milo in very heavy numbers in Payne County where adjacent sudan has been mowed. (Henderson).

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Survey in four additional counties showed no particular change in infestation. Most severe infestations continue in southern Mountrail, southwestern Ward, and northern McLean Counties. Some fields in Williams, Divide, Renville, Bottineau and McHenry Counties have heavy infestations. (N.D. Ins. Rept.)

A WHEAT MIDGE (Probably Sitodiplosis mosellana) - MINNESOTA - Larvae infesting wheat in Marshall, Kittson and Roseau Counties. Damage heaviest in Marshall County. Reported occasionally in past several years, not considered major pest in State. (Minn. Ins. Rept.).

ENGLISH GRAIN APHID (Macrosiphum granarium) - IDAHO - Spotted but heavy infestations on late barley in Franklin County. (Roberts). Generally light on grains in northern counties. Abundant populations of lady beetles. (Gittins).

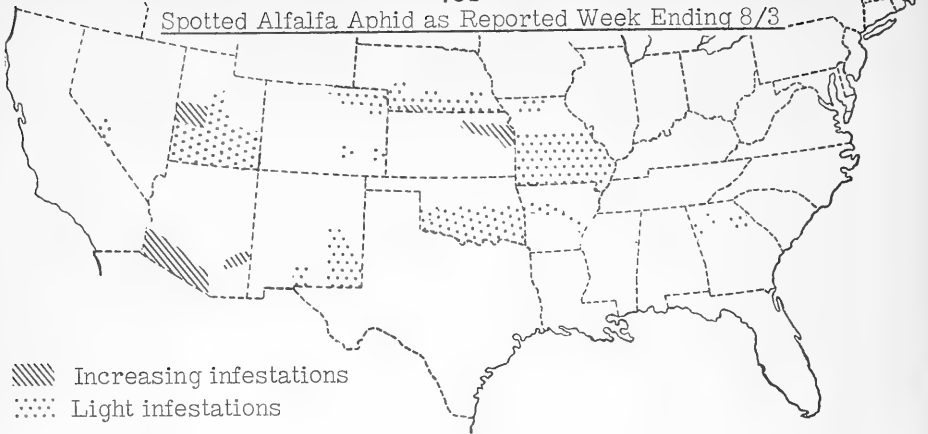
ARMYWORM (Pseudaletia unipuncta) - COLORADO - Feeding in oats with Faronta diffusa in Morgan County. As high as 5 per square yard. One F. diffusa to five P. unipuncta. (Exp. Sta.) MINNESOTA - Possible threat in northwest counties where grain unharvested. (Minn. Ins. Rept.).

FALL ARMYWORM (Laphygma frugiperda) - MARYLAND - Light to moderate damage to late field and sweet corn in Cecil, Queen Annes and Somerset Counties. Damage will probably increase. (U. Md., Ent. Dept.). GEORGIA - Moderate infestations on coastal Bermuda grass in Tift County. (Benton, July 24). TEXAS - Heavy populations on lawn grass in Brazos County. (Gaines).

RICE STINK BUG (Solubea pugnax) - TEXAS - Light to medium local populations on rice in Harris County. (Sistrunk). Light local populations on rice in Matagorda County. (Turney). Medium infestations on rice in Jefferson County. (Bowling).

TERMITES - OKLAHOMA - Heavy in pastures in Tillman, Kiowa and Jackson Counties. (Hudson).

Spotted Alfalfa Aphid as Reported Week Ending 8/3



▨▨▨▨▨ Increasing infestations

⋯⋯⋯ Light infestations

SPOTTED ALFALFA APHID - NEVADA - Light in Fish Lake Valley, Esmeralda County. First infestation on east side of Sierra Nevada Mountains in Nevada. (Borden, Gallaway). UTAH - Now spread to Sanpete, Sevier, Juab and Salt Lake Counties. Damage spotted to Sanpete County and severe in Millard County. Light northward. (Knowlton). ARIZONA - Populations remain high on alfalfa in Pima and Santa Cruz Counties, July 27. High on 100 acres at Franklin, Greenlee County; and moderate in Safford area, Graham County, July 27. Much reduced on Yuma Mesa July 31. (Ariz. Coop. Rept.). NEW MEXICO - Remain light in Dona Ana, Chaves, Eddy, De Baca and Lea Counties. Many fields suffered severe damage to third cutting of hay. (Durkin, July 28). COLORADO - Fluctuate in numbers in early infested areas. Drop in Prowers County and past peak in Otero County. Average of 11, 500 per 100 sweeps in Yuma County to none in Weld, Larimer, Sedgwick and Logan Counties. (Exp. Sta.). OKLAHOMA - Populations low with 20 per 240 sweeps in central and southern areas. (Coppock). WYOMING - None found in eastern Goshen County. (Spackman). KANSAS - Populations increasing in Kansas River Valley, east central area. Heaviest infestations near Topeka where counts range from 60 to 300 per sweep. Counts in localized spots ranged to 1, 200 per sweep. East of Shawnee, Douglas, Jefferson and Leavenworth Counties, counts ranged from 15 to 240 per sweep. Counts in Riley, Pottawatomie and Wabaunsee Counties ranged 15 to 300 while Johnson County had counts of less than 10 per sweep. Infestation levels vary greatly between fields and even within fields. (Matthew). NEBRASKA - Spread into Chase, Perkins and Keith County. Other counties infested are Kearney, Adams, Clay, Fillmore and Saline. Counts light, 8 per 25 sweeps in Hayes County to 93 per 25 sweeps in Hitchcock County. Increased 24 times since first found in McCook area of Red Willow County. (Hill). MISSOURI - Adults taken from alfalfa in Putnam and Mercer Counties, bordering Iowa. Counts averaged 1 per 10 sweeps in southern half of State. Counts from 3 to 20 per sweeps in extreme southeastern area and from 1 to 8 in most fields in southwestern quarter. Heavier infestations confined to individual fields and not to any particular region of State. (Kyd, Thomas). ARKANSAS - Active in Arkansas River Valley area.

Counts from 5 to 10 per sweep. (Warren, Harrendorf, Barnes). GEORGIA Light infestations on alfalfa in Franklin, Banks, Pickens and Floyd Counties. (Johnson).

PLANT BUGS - WASHINGTON - L. hesperus and L. elisus populations building up in alfalfa seed fields in Walla Walla County. (Kamal, Stambaugh). UTAH - Adults and nymphs of L. hesperus and L. elisus extremely numerous in many Salt Lake, Utah, Sanpete, Cache, Sevier and Juab County alfalfa fields. (Knowlton). NEVADA - Lygus spp. severe in many alfalfa fields. Range 10 to 60 per sweep. (Galloway). IDAHO - Populations, mainly L. hesperus, extremely variable on alfalfa hay and red clover seed fields in northern area; averaging 10 to 20 per sweep on alfalfa in northern Latah and Benewah and 3 to 10 per sweep on alfalfa in Bonner and Boundary Counties. (Gittins). ARIZONA - Populations of Lygus spp. very high in neglected alfalfa fields in Pima and Santa Cruz Counties, July 27. Counts per 100 sweeps were: 30 to 50 at Buckeye and 60 to 110 at Queen Creek in Maricopa County, July 28; 64 to 248 in second alfalfa seed crop at Yuma. Counts of 61 to 122 per four 180°-sweeps in alfalfa on Yuma Mesa. (Ariz. Coop. Rept.). NEW MEXICO - L. elisus and L. hesperus light to heavy in alfalfa seed fields in Dona Ana and Eddy Counties. (Durkin, July 28). SOUTH DAKOTA - A. lineolatus quite numerous in alfalfa fields in northern regions. Counts up to 40 adults and nymphs per 10 sweeps encountered. (Hantsbarger). WISCONSIN - Leafhoppers and plant bugs yellowed, stunted and reduced yields of second crop alfalfa in large areas. (Wis. Ins. Bul.). MICHIGAN - Adelphocoris lineolatus and A. rapidus adults very numerous on alfalfa, and Lygus lineolaris are more than usually abundant at Bay City, Standish and Alpena. (Hutson). PENNSYLVANIA - Adults and nymphs abundant on alfalfa in south-central area. (Pepper).

CLOVER SEED CHALCID (Bruchophagus gibbus) - UTAH - Apparent in alfalfa seed. Forty-two percent in volunteer seed at Logan. (Davis, Knowlton).

PEA APHID (Macrosiphum pisi) - UTAH - Damaging succulent alfalfa in Box Elder, Emery, Millard, Sanpete, Cache, Utah, Duchesne, Uintah and several other counties. Damage serious in some areas. Populations unusually high for season. (Knowlton). IDAHO - Generally abundant on alfalfa in Boundary County. Moderate to light on all legume crops in northern Counties. (Gittins). WYOMING - Heavy infestation on alfalfa in Converse County. (Spackman). NEBRASKA - Populations increasing rapidly in panhandle area. Counts in northeast from 122 to 160 per 10 sweeps of alfalfa. (Hill, Andersen).

POTATO LEAFHOPPER (Empoasca fabae) - NEW JERSEY - Locally abundant in southern area and on alfalfa in northwest. (Ins.-Dis. News.). DELAWARE - Abundant on soybeans generally. (Milliron). MARYLAND - Averaged 2 to 7 per sweep on third growth alfalfa fields in Kent and Frederick Counties. U. Md., Ent. Dept.). PENNSYLVANIA - Severe damage to alfalfa and birdsfoot trefoil in a field in Center County. (Pepper).

LEAFHOPPERS - OKLAHOMA - Aceratagallia uhleri common in range-land in Atoka County. (Coppock). WISCONSIN - Leafhoppers and plant bugs yellowed, stunted and reduced yields of second crop alfalfa in large areas. (Wis. Ins. Bul.).

STINK BUGS (Probably Euschistus impictiventrus) - ARIZONA - Thirty to 80 per 100 sweeps in some alfalfa seed fields at Yuma. (Ariz. Coop. Rept.).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - NEW JERSEY - Results of spring survey of 52 fields in 14 counties was average of 7.7 nymphs per 5 dandelion plants per field. This was four times lower than in 1954 and twice as low as 1955. (Ins. - Dis. News.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Approximately 4 per sweep in early bloom alfalfa at Marana, July 27. 11 per four 180° sweeps in pre-bloom alfalfa and 37 to 128 per 100 sweeps in seed and hay fields at Yuma. (Ariz. Coop. Rept.).

SPITTLEBUGS - IDAHO - Abundant on alfalfa and red clover seed fields in Bonner, Boundary and Kootenae Counties. Adults ranged from 5 to 10 per sweep in some areas. (Gittins).

THRIPS - WASHINGTON - Unusually abundant on uncut alfalfa in Columbia, Walla Walla and Benton Counties. (Kamal).

ARMYWORMS - IDAHO - Causing heavy damage generally over several hundred acres of alfalfa, sugar beets and potatoes in Franklin County. (Roberts).

YELLOW-STRIPED ARMYWORMS (Prodenia spp.) - NEVADA - Larvae developing fast. Mostly mature in Pershing County. Pupae 14 per square foot in alfalfa field. (Galloway). UTAH - Infesting alfalfa and gardens in northern counties generally. Local in other areas. (Knowlton).

KANSAS - Very light populations of P. ornithogalli larvae in alfalfa fields in east central area. Counts ranged 15 to 30 per 25 sweeps. (Matthew). NEBRASKA - Light infestations of early instar P. ornithogalli in alfalfa in northeast area. Counts between 4 and 7 per 10 sweeps. (Andersen).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - SOUTH DAKOTA Larvae feeding on alfalfa in northern counties. Populations of 8 larvae per 10 sweeps in some fields. (Hantsbarger). KANSAS - Populations in alfalfa averaged about 2 per sweep. About one-fourth of larvae parasitized. (Matthew). NEVADA - Larvae, near maturity, averaging 4 per sweep in most fields. Many pupae present. (Galloway).

ALFALFA LOOPER (Autographa californica) - WASHINGTON - Spotted infestation with as high as 2 larvae per sweep in alfalfa fields in Klickitat, Columbia and Benton Counties. (Kamal).

ALFALFA WEBWORM (Loxostege commixtalis) - NEVADA - Population 6 to 10 per sweep on alfalfa hay in Smith Valley.

Economic damage. (Gallaway, July 28).

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - MICHIGAN - Adults very numerous in alfalfa sweepings at Alpena. (Hutson).

CLOVER APHID (Anuraphis bakeri) - IDAHO - Generally abundant on red clover in Owyhee County. Predators will probably control infestations. (Portman). Populations in many red clover seed fields comparatively low in northern area; higher in southern area. (Gittins). WASHINGTON Completely eradicated on some red clover plants by minute parasitic wasp in fields near Moses Lake, Quincy and Pullman. (Johansen).

CLOVER ROOT CURCULIO (Sitona hispidula) - MICHIGAN - Adults and larvae numerous on clover at Alpena. (Hutson). NEBRASKA - Averaging 4 per 10 sweeps in alfalfa in Dixon, Dakota, Thurston and Burt Counties in northeast area. (Andersen).

A WEEVIL (Tychius probably griseus) - MICHIGAN - Adults numerous on red clover at Alpena. (Hutson).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - MINNESOTA - Population high in Crookston area. (Minn. Ins. Rept.).

CLOVER LEAF WEEVIL (Hypera punctata) - MICHIGAN - Readily found on clovers at Alpena. (Hutson).

CLOVER ROOT BORER (Hylastinus obscurus) - MICHIGAN - Injury very common on red clover at Kalamazoo. (Hutson, July 28).

GARDEN WEBWORM (Loxostege similalis) - ARKANSAS - Averaged 5 to 6 per 10 sweeps on forage crops in Arkansas River Valley. (Warren, Harrendorf, Barnes).

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - DELAWARE - Abundant on soybeans in several areas. (Milliron).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - OHIO - First entry by second brood larvae noted at Wooster, August 1. Light in northern area. (Cutright). INDIANA - Fewer entries in Vincennes and Orleans areas. (Marshall, Hamilton). ILLINOIS - Fewer entrances in Carbondale area. (Chandler). MICHIGAN - Emergence began July 21 at Grand Rapids. Peak flights on July 28 at Grand Rapids and Paw Paw. (Hutson). MISSOURI - New entries still occurring in unsprayed orchards. (Wkly. Rept. Fr. Grow.). KANSAS - Second generation moths continue emergence in northeastern orchard area. (Eshbaugh). UTAH - A few orchards with 5-8 percent wormy apples in northern area. (Knowlton). WASHINGTON - Second brood attacking fruit in Yakima area. (Yakima Spray Bul.).

ORCHARD MITES - INDIANA - Populations of mites considerably reduced in Orleans area. (Marshall). KANSAS - Mites, probably Tetranychus canadensis, continue to increase in some apple orchards in northeastern area. (Eshbaugh).

EUROPEAN RED MITE (Metatetranychus ulmi) - WISCONSIN - From 10-20 adults and nymphs per leaf some varieties of apples in some unsprayed orchards in Door County and very severe in Bayfield County. (Wis. Ins. Bul.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - NEW MEXICO - Medium to heavy on apple and peach trees in Rio Arriba, Lincoln, De Baca, Grant and Bernalillo Counties. Many orchards with severe damage. (Durkin, July 28). MISSOURI - Infesting a block of peaches at Cape Girardeau. Not sprayed in four weeks. Rain reducing populations generally. (Wkly. Rept. Fr. Grow.).

A MITE (Tetranychus mcdanieli) - UTAH - Increasing rapidly in Weber and Box Elder Counties. (Davis, Knowlton).

CLOVER MITE (Bryobia praetiosa) - UTAH - Damaging apple, pear, prune and cherry foliage in Salt Lake County. (Knowlton).

APPLE APHID (Aphis pomi) - WASHINGTON - Continues problem on young trees and renewals. (Yakima Spray Bul.). WISCONSIN - High populations some orchards of Door County. (Wis. Ins. Bul.).

ROSY APPLE APHID (Anuraphis roseus) - WISCONSIN - High populations some orchards of Door County. (Wis. Ins. Bul.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - UTAH - Severe in occasional orchard. (Knowlton).

APPLE MAGGOT (Rhagoletis pomonella) - RHODE ISLAND - Abundant and depositing eggs on fruit in unsprayed orchards. Few adults in sprayed orchards. (Steve). WEST VIRGINIA - Heavy adult emergence in Jefferson County. (Hamstead).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - ILLINOIS - Infestation continues in Carbondale area. (Chandler).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - MISSOURI - Infesting a few orchards. (Wkly. Rept. Fr. Grow.). WISCONSIN - Numerous where no controls applied in Door County. (Wis. Ins. Bul.).

PEAR-SLUG (Caliroa cerasi) - WASHINGTON - Causing severe damage to new planting of cherry and pear orchards near Sara, Clark County. (Waterhouse).

PLUM CURCULIO (Conotrachelus nenuphar) - ILLINOIS - Reduction on apple and peaches in Carbondale area. Second brood peak indicates a greater carryover for 1957. (Chandler).

A FIG BEETLE (Cotinis texana) - NEW MEXICO - Damaging ripe apples, peaches and grapes in Dona Ana County. (Durkin, July 28).

GRASSHOPPERS - UTAH - Damaging young orchards in several counties. (Knowlton).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - RHODE ISLAND - Larval injury to unsprayed peach twigs extensive. Now attacking fruit. (Steve). WASHINGTON - Second summer brood moths flying in Sawyer area. (Yakima Spray Bul.).

CHERRY SCALLOP MOTH (Calocalpe undulata) - WISCONSIN - Heavy feeding on black cherry in Columbia and parts of Marquette County. (Wis. Ins. Bul.).

PEACH SILVER MITE (Vasates cornutus) - WASHINGTON - Active on peaches in Yakima Valley. (Yakima Spray Bul.).

SAN JOSE SCALE (Aspidiotus perniciosus) - ARKANSAS - Abundant enough in a number of peach orchards to cause considerable damage before winter. (Warren, Harrendorf, Barnes).

GREEN JUNE BEETLE (Cotinis nitida) - OKLAHOMA - Damaging ripe peaches in Stillwater area. (Bieberdorf). NORTH CAROLINA - Attacking ripening fruit generally. (Scott, Farrier).

WALNUT CATERPILLAR (Datana integerrima) - DELAWARE - Causing heavy defoliation of walnut trees in State. (Milliron).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Damage to pecan nut clusters by second generation larvae averages 14 percent in Okfuskee County and 21 percent in Garvin County. Larvae late instar. (Coppock).

FALL WEBWORM (Hyphantria cunea) - OREGON - Early-instar larvae webbing leaves of English walnut in Salem area. (Capizzi).

JAPANESE BEETLE (Popillia japonica) - VIRGINIA - Damaging grapes in Chilhowie area of Smyth County. (Jones).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - Activity continued to increase sharply fourth week of July. At a very high level. Peak to remain high through August. (Pratt, Thompson, Johnson).

TRUCK CROP INSECTS

POTATO LEAFHOPPER (Empoasca fabae) - NEW JERSEY- Increasing in potatoes in central areas. (Ins. - Dis. News.). PENNSYLVANIA - Some heavy damage showing in some potato fields in York County. (Pepper). MARYLAND - Generally abundant on snap and lima beans all sections. (U. Md., Ent. Dept.). WISCONSIN - " Hopperburn" heavy on untreated potatoes at Portage, July 26. (Wis. Ins. Bul.). SOUTH DAKOTA - Populations building up in commercial potato fields of north-eastern area. Some fields averaging 46 per 10 net sweeps. (Hantsbarger).

POTATO PSYLLID (Paratrioza cockerelli- COLORADO- Adults occurring in potato and tomato producing areas with yellows from trace to severe. Yellows occurred in Weld and Logan Counties with severe damage in Alamosa County. (Chem. Ind.) UTAH - Common in potato fields. (Knowlton).

APHIDS - COLORADO - Building up on potatoes in Larimer and Weld Counties. (Exp. Sta.). NORTH DAKOTA - Injuring terminals of golden currant in Bismark Area. (N. D. Ins. Rept.). MAINE - Populations of aphids on potatoes at Presque Isle and vicinity increased during week ending August 3 but less so than previous week. Total populations about one-third as large as at this time in 1955. Rapid rise in untreated potatoes expected. (Shands).

LYGUS BUGS - NEVADA - Causing severe damage to potatoes in Humboldt County. (Gallaway).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - IDAHO - Adults general throughout potato fields in Elmore County. (Portman). Insecticides still being applied in Magic Valley. (Douglass).

POTATO FLEA BEETLE (Epitrix cucumeris) - PENNSYLVANIA - Second generation appearing. Light to moderate in Potter County. (Adams). SOUTH DAKOTA - Numerous in commercial potato fields of northeastern area. One field in Codrington County with 200 per 10 net sweeps. Leaf damage prevalent. (Hantsbarger).

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW JERSEY - First egg masses of second brood on potatoes July 25 in Mercer County. Over 50 per cent of pupae parasitized. (Ins. -Dis. News.). PENNSYLVANIA - Adults numerous in potato fields in south central area. (Pepper). DELAWARE - Entering pepper fruits near Ellendale. (Milliron).

HORNWORMS (Protoparce spp.) - NEW MEXICO - Infestations increasing in tomatoes in Dona Ana County. (Durkin, July 28).

TOMATO FRUITWORM (Heliothis zea) - NEW MEXICO - Causing light to medium damage in commercial tomatoes in Dona Ana County (Durkin, July 28).

GREEN CLOVERWORM (Plathypena scabra) - MARYLAND - Causing moderate damage to snap beans in Frederick County. (U. Md., Ent. Dept.).

BEAN APHID (Aphis fabae) - WASHINGTON - Light to moderate on beans in Pierce and King Counties. (Kamal).

ONION THRIPS (Thrips tabaci) - WASHINGTON - Very abundant in onions in Walla Walla County. One 12-acre field severely injured. (Kamal).

ONION MAGGOTS (Hylemya spp.) - WASHINGTON - Infestations of H. antiqua with other species spotted but extremely severe. One 12-acre field completely destroyed in Walla Walla area. (Kamal, Stambaugh).

BEEF LEAFHOPPER (Circulifer tenellus) - COLORADO - First appearance in northeastern area. Average 10-15 percent curly top of sugar beets. Traces in most fields. (Exp. Sta.).

ASPARAGUS BEETLES (Crioceris spp.) - WASHINGTON - Adults of C. asparagi and C. duodecimpunctata unusually abundant with 25-40 per 20 sweeps near Yoppenish. (Kamal). IDAHO - Eggs, larvae and adults of C. asparagi common on volunteer asparagus on ditch banks in Magic Valley. (Douglass).

WHITE GRUBS - WASHINGTON - Larvae of Polyphylla decemlineata causing loss of strawberries, Vancouver, Clark County. (Waterhouse).

STRAWBERRY ROOT APHID (Aphis forbesi) - DELAWARE - Very prevalent on everbearing plants east of Georgetown. (Milliron).

PEPPER MAGGOT (Zonosemata electa) - SOUTH CAROLINA - Rather heavy infestation in a number of pimento peppers in Greenville, Pickens and Andersen Counties. Some fields in Pickens County with 80-90 per cent of maturing peppers infested. (Cochran). GEORGIA - Light infestation on pimento peppers in Hart, Madison and Franklin Counties. (Johnson).

LOOPERS (Autographa spp.). - WASHINGTON - Causing light damage to mint fields in Fargher Lake vicinity, Clark County. Larvae 2-3 per sweep. (Kamal, Waterhouse).

MINT FLEA BEETLE (Longitarsus waterhousei) - WASHINGTON - Considerable build-up in populations in mint fields at Fargher Lake and vicinity, Clark County. (Kamal).

BEEF WEBWORM (Loxostege sticticalis) - COLORADO - Migrating from weeds and defoliating onions, cabbage, peppers and ornamentals. (Exp. Sta.). NEBRASKA - Up to 80 per 100 sweeps in sugar beets in Panhandle area. (Hill).

BLISTER BEETLES - VIRGINIA - Medium to heavy on tomato plants in all sections of Cumberland County. (Seay). TEXAS - Medium local populations on tomatoes in Calhoun County. (Cook).

GARDEN FLEAHOPPER (Halticus bracteatus) - DELAWARE - Numerous on tomatoes and common on lima beans at Ellendale. (Milliron).

STINK BUGS - SOUTH CAROLINA - Grower docked \$ 8 per bushel for tomatoes with catfacing injury in Orangeburg area. (Williams, July 20). Rather severe on tomatoes near Allendale. (Rogers, July 18).

IMPORTED CABBAGEWORM (Pieris rapae) - OHIO - Increasing in southern area. (Stehr). PENNSYLVANIA - Moderate to very heavy on broccoli in Potter County. (Adams). DELAWARE - Destructive to untreated cabbage throughout state. (Milliron). UTAH - Damage increasing recently. (Knowlton).

CABBAGE APHID (Brevicoryne brassicae) - IDAHO - High populations on untreated cabbage in southern area. (Douglass). UTAH - Often damaging. (Knowlton).

CABBAGE LOOPER (Trichoplusia ni) - DELAWARE - Injuring broccoli several areas and peppers near Ellendale. (Milliron).

MELON FLY (Dacus cucurbitae) - CALIFORNIA - A single female fly captured July 24 in a trap in Los Angeles County at Westwood on the University of California. First capture of the fly in the State. (Cal. Coop. Rept.).

SQUASH BUG (Anasa tristis) - RHODE ISLAND - Light damage to squash plants appearing in Johnston area. No nymphs yet. (Steve). PENNSYLVANIA - Moderate with heavy egg-laying in Potter County (Adams). And beginning to appear in numbers in Huntingdon County. (Udine). UTAH - Moderate to serious damage over most of State. (Knowlton).

CUCUMBER BEETLES - NEW MEXICO - Infestations of Diabrotica spp. and Acalymma vittata damaging melons, squash and corn in Dona Ana County. (Durkin, July 28). NORTH CAROLINA - Adults of A. vittata severe on late-planted cucumbers locally in Duplin County. (Reid).

TARNISHED PLANT BUG (Lygus lineolaris) - DELAWARE - Nymphs and adults prevalent on lima beans in Kent and Sussex Counties. (Milliron).

SPIDER MITES - IDAHO - Building up in bean fields in Elmore County. (Portman).

MEXICAN BEAN BEETLE (Epilachna varivestis) - PENNSYLVANIA - Several bean fields being treated in Potter County. (Adams). NORTH CAROLINA - Complete defoliation of bush and snap beans some places and general over northwestern area. (Scott). WYOMING - Larvae damaging beans in Goshen County. (Spackman).

TOBACCO INSECTS

APHIDS - NORTH CAROLINA - Local and limited in area in fields but requiring treatment in Guilford and Surry Counties. (Scott).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Populations have increased during past two weeks. Some fields being treated by air application. (U. Md., Ent. Dept.).

HORNWORMS (Protoparce spp.) - MARYLAND - Second brood eggs occurring in tobacco in all tobacco-growing counties. Have not reached peak. (U. Md., Ent. Dept.). VIRGINIA - Eggs and first instar larvae appearing in Pittsylvania County. Adults in light traps increased greatly. (Dominick). NORTH CAROLINA - Average over 3 eggs, 3 larvae per 25 plants in east central counties with one field having 11 eggs and six larvae per 25 plants. (Farrier).

BUDWORMS (Heliothis spp.) - NORTH CAROLINA - Immature plants particularly heavily infested in Alleghany, Caldwell and Alexander Counties on burley tobacco. Parasitism by Campoletis perdinctus as high as 40-50 percent. (Scott).

GRASSHOPPERS - VIRGINIA - Causing light to moderate damage to tobacco in Pittsylvania County. (Morris).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - NORTH CAROLINA - Increasing with some fields with four adults per leaf in Alleghany, Caldwell and Alexander Counties on burley tobacco. (Scott).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Infestations light in most areas with only isolated fields having heavy infestations. (Turney, Martin). Infestation averaged 16.7 per cent in 11 treated fields and 39.8 per cent in 6 untreated fields in Falls and McLennan Counties. (Parenica et al.). OKLAHOMA - Percent punctured squares in east central and south central counties ranged from 4 to 44 percent; Hughes County reporting highest. In Grady County dry land cotton infestation ranged from 0 to 5 percent; irrigated cotton from 5 to 20 percent. (Coppock, Bryan). LOUISIANA - Infestations increased some in experiments in Tallulah area. (Pfrimmer, et al.). ARKANSAS - Decline between broods in some fields. Emergence of second brood should be general and rapid rise in infestation can be expected. Counts by sections were: Southeast - 18.0; East Central 9.7; Northeast - 14.9; Central - 25.4; Southwest - 31.1. MISSOURI - Infestations ranged from 2 to 20 percent in 22 fields infested out of 462 inspected. (Kyd, Thomas). TENNESSEE - Increase in number of punctured squares in western area and adults are numerous. Migration expected by middle of month. Average infestation in infested fields was 39 percent compared with 13 percent this time last year. (Locke). MISSISSIPPI - Average infestation in 16 fields north of Stoneville was 12.54 percent. Of 15 fields examined at Stoneville, average infestation was 14.5 percent compared with 12.1 percent last week.

(Merkl, Furr et al.). ALABAMA - Average infestation in 8 southwestern counties was 53 percent (Tyus). GEORGIA - Of 24 fields checked in northern area, the square infestations ranged from 6 to 83 percent with an average of 34 percent . (Johnson). SOUTH CAROLINA - Migration in some sections of coastal area. Six treated fields in Florence area averaged 45 percent square infestation compared with 87 percent in 5 untreated fields. In Darlington County, 74 treated fields averaged 83 percent square infestation. (Walker et al.). NORTH CAROLINA - Migrations began in southeast, Piedmont and more northern areas. Infestations generally not as heavy in Piedmont and northeast as in lower southeast. (Cott. News Lett.).

BOLLWORMS (Heliothis spp. et al.) ARIZONA - Continue to increase all areas except in Yuma County. Populations range from 4 to 8 larvae per 50 plants. Many potential economic infestations checked by predators in Pima and Santa Cruz Counties. (Ariz. Coop. Rept.). NEW MEXICO - Infestations medium to heavy in Dona Ana, Eddy, Chaves, De Baca and Lea Counties. Damage light to moderate most areas. (Durkin, July 28). TEXAS - Egg deposition heavy with heaviest infestation in irrigated fields. (Turney, Martin). Eggs averaged 40 and larvae 18.6 per 100 terminals. Square injury averaged 19.8 per cent in 17 fields and boll injury 10 per cent in 16 fields. Infestations heavy in irrigated fields in McLennan and Falls Counties. (Parenchia et al.). OKLAHOMA - Moderate to heavy damage in Okfuskee and Bryan Counties. Eggs present on 16-20 per cent of terminals on late cotton in Bryan County. (Coppock). Infestations in Cotton, Pittsburg, Tillman, Hughes, Tulsa, McCurtain, Jefferson, Kiowa, LeFlore, McClain, Stephens and Caddo Counties. Build up in Caddo, Greer, Cotton and McIntosh Counties. Infestation ranged to 18 percent in Hughes and Cotton Counties, 13 percent in Jefferson County and 10 percent in LeFlore County. Thirty-five per cent indicated in Tillman County. Medium to heavy in Stephens County. (Flora). LOUISIANA - Increased oviposition particularly in succulent cotton expected in Tallulah area. (Pfrimmer et al.). ARKANSAS - Egg counts low in many fields. Activity increased in southeastern area and expected to increase in other areas. (Warren, Harrendorf, Barnes). MISSOURI - Egg counts relatively low ranging from 0 to 7 per 100 terminals while larval counts dropped from last week to 0 to 15 larvae per 100 terminals. Infestations in 386 fields of 462 inspected. (Kyd, Thomas). TENNESSEE - Causing considerable damage to scattered fields in western area. Infestation seemingly worse in weevil infested fields. (Locke). MISSISSIPPI - Eggs averaged 2.1 per 100 terminals in delta counties. (Merkl, Furr et al.). ALABAMA - Average infestation in 8 southwestern counties was 2 percent . (Tyus). GEORGIA - Of 24 fields checked in northern area, the number of larvae per 100 terminal buds ranged from 0 to 9 with an average of 2.7 per 100 terminals. (Johnson). SOUTH CAROLINA - Damaged squares averaged 1.5 percent in 10 infested fields of 74 examined in Darlington County. Damaged squares in Florence County averaged 2.5 percent in 2 infested fields of 6 examined. (Walker et al.). Widely scattered counties in northern area and few in southern area have increase in populations. (Cott. New Lett.). NORTH CAROLINA - Increasing in many counties. Reported from Hertford, Bertie, Edgecombe, Montgomery and Union. Few fields

close to 4 larvae per 100 bolls. (Cott. News Lett.).

PINK BOLLWORM (Pectinophora gossypiella) - ARKANSAS - First time a bloom infestation found in State with discovery of a single larva in a bloom in Logan County. (State Plt. Bd., PBW Cont. Proj., July 21). TEXAS - Results of boll inspections in several Counties were as follows: McLennan, 1 field, no infested bolls; Brazos, 8 fields, 16 percent infested bolls; and Robertson, 9 fields, 1.3 percent bolls. Larvae per infested boll averaged 0, 1.8, and 1.7 respectively. (Parenacia et al.). Light infestations found in Kaufman, Van Zandt, Henderson, Cherokee, Rusk and Smith Counties for the first time in early blooms. (PBW Cont. Proj., July 1-15). OKLAHOMA - Bloom inspection of 39 fields in McCurtain and LeFlore Counties was negative. (Senette, Flora).

COTTON LEAFWORM (Alabama argillacea) - TEXAS - Light infestations on cotton in Cameron County. First larvae for season found in late cotton July 28 in Cameron County. (Deer). Several moths collected in traps. Two small larvae in an irrigated untreated field in Freestone County and several large larvae in succulent spots of 3 untreated fields in McLennan County. (Parenacia et al.). ARKANSAS - First adult noticed at Hope. Expect infestations some areas. (Warren, Harrendorf, Barnes).

BROWN COTTON LEAFWORM (Acontia dacia) - TEXAS - Heavy spot infestations in eastern area. (Turney, Martin).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Widespread in Pima and Santa Cruz Counties July 27-28 but generally at low level. (Ariz. Coop. Rept.). NEW MEXICO - Infestations heavy in cotton in Eddy, Chaves and Lea Counties. Light in Dona Ana and De Baca Counties. Many larvae diseased. (Durkin, July 28). TEXAS - Increasing in almost every area of the State. (Turney, Martin). Considerable hatch in several fields in McLennan and Falls Counties. (Parenacia et al.). GEORGIA - Heavy infestations on cotton in Terrell County. Suspected on cotton in Johnson County. (Johnson).

BEE T ARMYWORM (Laphygma exigua) - ARIZONA - In 1000 acres of cotton at Harquahilla Valley, Buckeye, 3-6 per plant in all fields. (Ariz. Coop. Rept., July 28). MISSISSIPPI - Feeding on weeds and cotton plants in Sharkey County. (Young).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Infestation spotted in 60 acres near Gila Bend with 16 per 100 sweeps and completely stripping numerous plants. (Ariz. Coop. Rept.).

COTTON SQUARE BORER (Strymon melinus) - MISSISSIPPI - Damaging cotton squares in Panola County. (Young).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Increasing in Maricopa, Pima, Pinal, Santa Cruz and Yuma Counties. Populations generally not economic but 80 acres near Gila Bend severely damaged. (Ariz. Coop. Rept.).

A COLASPIS BEETLE - ARIZONA - Adults, probably Colaspis sp., damaging 60 acres of cotton south of Tucson. Leaves and bracts heavily riddled. Bracts seem to be preferred. (Ariz. Coop. Rept., July 26).

SPIDER MITES - MISSOURI - Heavy build up with 63 of 462 fields inspected showing infestations ranging from marginal to uniform field infestations. Many fields being heavily defoliated. (Kyd, Thomas). TENNESSEE - Several fields in western area heavily infested where controls for bollworms and boll weevil used. (Locke). GEORGIA - Light infestations on cotton in Banks, Gordon, Floyd, Polk and Bartow Counties. Moderate in Franklin and moderate to heavy in Madison. (Johnson). Heavy infestations on cotton in Pike County. (Beckham). SOUTH CAROLINA - Problem in local areas. (Cott. Lett., July 30). NORTH CAROLINA - Heavy populations of Tetranychus telarius, T. cinnabarinus and T. atlanticus on perimeters of many fields and spotty throughout fields in Johnston County. (Spyhalski). General and spotty throughout southern area with usual insecticides ineffective. (Mistic, Farrier). Threat in many fields. (Cott. News Lett.).

APHIDS - NEW MEXICO - Infestations of Aphis gossypii in all cotton growing areas. Some fields in Eddy, Chaves and Dona Ana Counties extremely heavy. Difficult to control some places in Eddy County. (Durkin, July 28). TEXAS - Build-up beginning to occur some fields in McLennan and Falls Counties following insecticide application for bollworm control. (Parencia et al.). OKLAHOMA - Light infestation in Greer, Kiowa, Jackson and Harmon Counties. (Coppock). Slight damage in Wagoner County. (Flora). TENNESSEE - Building up following use of insecticides in some fields of western area. One field heavy. (Locke). ALABAMA - Damaging numbers on cotton in several localized areas. (Arant). SOUTH CAROLINA - Problem in local areas. (Cott. Lett.).

LEAFHOPPERS - ARIZONA - Causing severe damage to foliage at edge of field at Maricopa, Pinal County. Counts were 200-400 per 100 sweeps at Avra Valley. (Ariz. Coop. Rept.).

COTTON FLEAHOPPERS - ARIZONA - Ten per 100 sweeps at Sahuarita. (Ariz. Coop. Rept., July 27). OKLAHOMA - Up to 8 percent of terminals infested in Hughes County. (Coppock). Infestations reported in Kiowa, Tillman, Cotton, Coal, Creek, Greer, Washita and Caddo. Percent infestation ranged from 20 to 25 percent in a field in Greer County and from 6 to 36 percent in some fields in Caddo County. (Flora). MISSOURI - Counts ranged from 1 to 47 per 100 terminals in 443 fields of 462 inspected. (Kyd, Thomas). TENNESSEE - Scattered light damage in western area. (Locke).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARIZONA - Four to 6 per 100 sweeps in 40 acres of cotton on Yuma Mesa. (Ariz. Coop. Rept.).

STINK BUGS - ARIZONA - Counts per 100 sweeps were 5 to 24 in many fields at Yuma, and 10 near Gila Bend. Control difficult at Yuma. (Ariz. Coop. Rept.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

WHITE-PINE WEEVIL (Pissodes strobi) - RHODE ISLAND - Emergence of adults occurring July 30. (Steve).

JACK-PINE BUDWORM (Choristoneura pinus) - WISCONSIN - Aerial survey showed heavy feeding in most jack pine in Oneida County and from Polk County northeast into western Bayfield County. (Wis. Ins. Bul.).

PINE BARK APHID (Pineus strobi) - WISCONSIN - Crawlers heavy on new growth of young white pines in Lake Nebagamon area of Douglas County, July 25. (Wis. Ins. Bul.).

COOLEY SPRUCE GALL APHID (Chermes cooleyi) - PENNSYLVANIA - Spruce show many galls in Cambria, Johnston County. (Cole).

BALSAM-FIR SAWFLY (Neodiprion abietis) - WISCONSIN - Heavily attacking balsam fir in Door County. (Wis. Ins. Bul.).

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - IDAHO - Many douglas-fir trees defoliated in an area north of Tensed. Larvae average three per tip. (Barr).

LARCH SAWFLY (Pristophora erichsonii) - WISCONSIN - Completely defoliated many stands of larch in northwestern area. (Wis. Ins. Bul.).

GYPSY MOTH (Porthetria dispar) - RHODE ISLAND - Egg deposition continuing. (Steve).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - MARYLAND - Damage to oaks and other hardwoods severe on Eastern Shore. (U. Md., Ent. Dept.). DELAWARE - Severe local outbreaks on white, pin, red and willow oaks at numerous places in Sussex County. Feeding general in State. (Milliron). VIRGINIA - Have completely defoliated most oak trees in Prince George, Sussex, Southampton, Isle of Wight and Nansemond Counties along State Highway No. 460 from Hopewell to Suffolk. (Raine).

YELLOW-NECKED CATERPILLAR (Datana ministra) - DELAWARE - Causing heavy defoliation of white and pin oaks throughout State and injurious to post oak southern areas. (Milliron).

LEAFHOPPERS - OKLAHOMA - Heavy on hardwood forest trees in Pushmataha and McCurtain Counties and on elm trees in Tulsa and Craig Counties. (Okl. Dept. Agric.). UTAH - Erythroneura ziczac and other leafhoppers causing Virginia creeper to brown in Utah, Juab, Weber, Salt Lake and Davis Counties. (Knowlton).

AN OAK MITE (Oligonychus bicolor) - DELAWARE - Very destructive to willow oak at Petersburg. Less severe in natural stands in Redden State Forest and on ornamental plantings throughout State. (Milliron).

ELM LEAF BEETLE (Galerucella xanthomelaena) - IDAHO - Heaviest infestation in recent years on elms in southcentral area. (Douglass). Light but general in Boise. (Portman). ARIZONA - Causing considerable damage to Chinese elm in Mesa and Phoenix. From one-half to two-thirds defoliated in many cases. (Ariz. Coop. Rept.). OKLAHOMA - Moderate to severe injury in isolated areas of Lincoln County. (Coppock). MARYLAND - Destructive to elms in all sections. (U. Md., Ent. Dept.). DELAWARE - Destructive to many elm trees in southern Kent and Sussex Counties. (Milliron).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - MICHIGAN - Emergence begun in numbers in Flint, Birmingham, Pontiac areas. (Hutson). MISSISSIPPI - Adults and larvae taken from bark of dead and dying elm trees in two localities of Washington County. (Morris).

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) - WISCONSIN - Largest population observed for several years. Caused considerable defoliation of basswood and elms mainly in eastern half of State as far north as Brown County. (Wis. Ins. Bul.).

MIMOSA WEBWORM (Homadula albizziae) - DELAWARE - Causing light to moderately heavy injury to mimosa trees generally. (Milliron).

SPIDER MITES (Tetranychus sp.) - MISSISSIPPI - Heavy damage to foliage of bald cypress throughout Mississippi Delta prior to July. New foliage appearing. (Morris). IDAHO - Causing severe damage to many untreated ornamentals in Moscow area. (Gittins).

COTTONY-CUSHION SCALE (Icerya purchasi) - IDAHO - Elm and maple trees in Boise heavily infested. (Portman).

LEAF MINERS - MISSISSIPPI - Heavy infestations in cottonwood trees retarding growth of nursery stock in Washington County. (Morris).

BRONZE BIRCH BORER (Agrilus anxius) - OHIO - Numerous reports of injury to white birch. (C. R. Neiswander).

APHIDS - IDAHO - Extremely high populations on birch, maple and weeping willow trees in Twin Falls area. Large amounts of honeydew. (Douglass).

FALL WEBWORM (Hyphantria cunea) - WISCONSIN - Populations much heavier than in 1955. Complete defoliation of trees many localities as far north as Wood and Marathon Counties. (Wis. Ins. Bul.).

BAGWORMS - VIRGINIA - Severe on arborvitae in Patrick County. (Olinger). Injuring arborvitae in Appomattox County. (Smith).

ILLINOIS - In many areas, severely damaging shade trees, shrubs and evergreens. (Ill. Ins. Rept.). OKLAHOMA - Heavy on arborvitae in Craig County. (Campbell).

BAGWORM (Thyridopteryx ephemeraeformis) - FLORIDA - Larvae

causing light to heavy damage to ixora hedges at Belle Glade, Palm Beach County. Det. W. G. Genung. (Denmark, July 26).

A HORNWORM (Erinnyis alope) - FLORIDA - Larvae heavily infesting small plantings of poinsettia at Lake Worth, Palm Beach County. Det. W. G. Genung. (Denmark, July 26).

AN OKRA CATERPILLAR (Anomis erosa) - FLORIDA - Larvae causing heavy feeding damage to turk's cap many locations in Lake Worth, Palm Beach County. Det. W. G. Genung. (Denmark, July 26).

LEAF ROLLERS - OKLAHOMA - Severe on redbud in Oklahoma County. (Rogers).

LACE BUGS (Stephanitis spp.) - MARYLAND - S. pyrioides on azalea and S. rhododendri on rhododendron abundant and doing damage in most sections. (U. Md., Ent. Dept.).

JAPANESE BEETLE (Popillia japonica) - DELAWARE - Severe on elms in Sussex County. (Milliron). RHODE ISLAND - Abundant and causing light damage throughout State. (Steve). VIRGINIA - Heavy on ornamentals most areas of these counties: Louisa (Andrews), Stafford (Tulloss), Goochland (Truett) and in the Chilhowie area of Smyth County. (Jones). WEST VIRGINIA - Heavy feeding generally but especially in Wood, Webster and Ohio Counties. (Dorsey, Hansen). NORTH CAROLINA - Occurring in Cherokee County. (Jones, Farrier).

INSECTS AFFECTING MAN AND ANIMALS

SCREW-WORM (Callitroga hominivorax) - SOUTH CAROLINA - One severe and one moderate case reported from Lancaster. (DeBruhl).

TABANIDS - WISCONSIN - Much heavier than for years and over large areas of State. (Wis. Ins. Bul.)

HORN FLY (Siphona irritans) - OKLAHOMA - Heavy on cattle in Pushmataha and McCurtain Counties. (Goin).

LONE STAR TICK (Amblyomma americanum) - OKLAHOMA - Nymphs present in Pushmataha, Latimer, McCurtain and LeFlore Counties. (Goin).

SHEEP SCAB MITE (Psoroptes equi ovis) - VIRGINIA - Found on 165 sheep in State during July. All were dipped. (Va. Livestock Health Bul.).

A MITE (Bdellonyssus sylviarum) - OREGON - Recovered from chickens at Corvallis on July 6. Det. Krantz. (Goulding).

MOSQUITOES - MINNESOTA - Large populations reported from northeastern area. (Minn. Ins. Rept.).

SALT-MARSH MOSQUITO (Aedes sollicitans) - RHODE ISLAND - Large numbers causing considerable annoyance in Pt. Judith area. (Steve).

HOUSE FLIES - SOUTH CAROLINA - Heaviest infestations of Musca domestica in Chester and York Counties. (Nettles).

BLACK FLIES - MINNESOTA - Large numbers reported from northeastern area. (Minn. Ins. Rept.).

WHEEL BUG (Arilus cristatus) - MARYLAND - Five cases reported of bites by adults and nymphs. (U. Md., Ent. Dept.).

CHIGGERS - MARYLAND - Annoying in suburban areas. (U. Md., Ent. Dept.). WISCONSIN - Eutrombicula alfreddugesi much heavier than for years and over large areas of State. (Wis. Ins. Bul.).

STORED PRODUCTS INSECTS

POTATO TUBERWORM (Gnorimoschema operculella) - NORTH CAROLINA Numerous infestations in stored potatoes in Jones County. (Barber). MISSISSIPPI - In stored potatoes in Pike County. (Abraham).

BENEFICIAL INSECTS

A CARABID (Calosoma scrutator) - DELAWARE - Conspicuously active on oaks heavily infested with variable oak leaf caterpillar at Petersburg. (Milliron).

A FLOWER BEETLE (Collops sp.) - OKLAHOMA - Numerous in alfalfa in central and southern areas from 12-40 per 10 sweeps. (Coppock).

SYRPHID FLIES - IDAHO - Extremely abundant in Moscow area and abundant in pea fields in Latah and Benewah Counties. Populations somewhat lower on legumes in northern area. (Manis, Gittins).

MISCELLANEOUS INSECTS

A TERMITE (Coptotermes crassus) - TEXAS - Infestation reported in CEIR 6(31): 769 under TERMITES (Coptotermes sp.) has now been determined by T. E. Snyder as C. crassus. This tropical genus is very destructive and although intercepted from time to time, has never become established in the United States. The infestation is restricted to heavy supporting timbers of a dry dock at Houston, Harris County. Two sections of the dock were constructed at Houston and four were built in Nova Scotia and brought to Houston in 1942. Fumigation of the dock has been recommended. (PQ, PPC). Submission for identification of any termite collections in the Houston area suspected as being this genus will be appreciated.

JAPANESE BEETLE (Popillia japonica) - CALIFORNIA - A single male beetle taken in trap at Travis Air Force Base near Fairfield, Solano County. First beetle captured in traps in central and northern areas. A single female beetle was captured July 20, 1951 in a trap at the Los Angeles International Airport and another female captured in this area July 29, 1954. (Cal. Coop. Rept.).

BOXELDER BUG (Leptocoris trivittatus)- MICHIGAN - Eggs abundant and hatching in several cities. (Hutson).

EUROPEAN EARWIG (Forficula auricularia) - RHODE ISLAND - Complaints increasing. (Mathewson).

ADDITIONAL NOTES

NEW YORK - Second brood RED-BANDED LEAF ROLLER hatching in Rockland, Dutchess, Orleans and Monroe Counties, and moths flying in Wayne County. Damaging strawberries in Monroe and Wayne Counties. EUROPEAN RED MITE and TWO-SPOTTED SPIDER MITE building up in Dutchess County and numerous in many apple orchards in Wayne County. APPLE APHID increasing in many orchards of Monroe County and numerous in Wayne County. A scattered build up of APHIDS on potatoes and tomatoes. (Wkly Rept.).

ALABAMA - THREE-CORNERED ALFALFA HOPPER medium in one soybean field of Clarke County. Medium infestation of BLISTER BEETLES in a soybean field of Clarke County and heavy infestations in two alfalfa fields of Marengo County. (Arant).

LOUISIANA - THREE-CORNERED ALFALFA HOPPER infesting alfalfa at rate of 350 per 100 sweeps in Bossier Parish and 260 per 100 sweeps in Natchitoches Parish. CORN EARWORM continues to infest alfalfa at 130 per 100 sweeps in Natchitoches Parish and 65 per 100 sweeps in Bossier Parish. GARDEN WEBWORM populations declined in alfalfa with 20 per 100 sweeps in Natchitoches Parish and 30 per 100 sweeps in Bossier Parish. RICESTINKBUG found in rice at rate of 10 to 30 per 100 sweeps in St. Landry and Acadia Parishes. BOLLWORMS had marked increase in populations in Concordia and Ouachita Parishes and some serious infestations in several fields in Tensas Parish. One field in Red River Parish had severe infestation with larvae present on 40 percent of terminals. COTTON APHIDS are heavy and damaging in many fields following certain insecticides. BOLL WEEVIL infestations averaged 27 percent in Concordia Parish, 38 percent in Ouachita Parish, 32 percent in Bossier Parish, 22 percent in Red River Parish and one field in Natchitoches Parish had an 80 percent infestation. (Oliver). A total of 714 fields examined in Morehouse, Ouachita, Rapides and Franklin Parishes had infestations of which 41 were 0-10 percent, 273 were 11-25 percent, 309 were 26-50 percent and 91 were over 50 percent. (Montgomery).

LYGUS BUGS - ARIZONA - Mainly L. hesperus increasing in all areas with populations ranging from 8 to 250 per 100 sweeps. Control widespread and proving difficult at Yuma. (Ariz. Coop. Rept.).

A COREID (prob. Catorhintha selector) - ARIZONA- Ranging from 2 to 12 per 100 sweeps, common in Avra Valley and from Tucson to Nogales. (Ariz. Coop. Rept. , July 26).

WEATHER FOR THE WEEK ENDING August 6, 1956

Relatively hot weather prevailed over the southeastern quarter of the Nation while the reverse picture existed in the Northeast, Great Lakes Region, and west of the Continental Divide where cool temperatures were the pre-dominate feature. Average temperatures for the week were above normal in the area bounded by lines extending from southeastern South Dakota to Del Rio, Tex., and Charleston, S. C., with departures of 6° and 7° reported in eastern Kansas where maxima reached 100° on all days. In the West, where weekly averages were below normal by as much as 9° and 10° in sections of California, Nevada, Oregon and Washington, freezing temperatures were reported at Elko, Nev., Burney, Calif., and at other high elevations on Friday. Friday also was a cool day in the Northeast with record station lows for that date, August 3, reported at Buffalo and Rochester, N. Y., and Bradley Field, Conn. A 46° reading at Albany, N. Y. was the coldest for that station and date since 1874 when a 48° occurred. The lowest average weekly departure for this area was -9° at Scranton, Pa. Heavy showers occurring along the frontal boundaries separating the contrasting air masses brought large weekly totals to north central portions of the country with over 4 inches reported for at least one location in Colorado, South Dakota, Missouri and Illinois. Rockford, Minn. had an accumulation of 7.26 inches for the week and many totals were over 5 inches in this State. In Colorado a fall of 4.60 inches occurred in 2 hours at Fort Morgan on July 30 and as unusually heavy rains fell on 6 consecutive days in Denver, Arapahoe and Jefferson Counties damage was estimated at over \$5,000,000, resulted as homes, business establishments and streets were flooded. Local flooding and rain damage from heavy showers were also reported in sections of Ohio, West Virginia, Pennsylvania and Georgia. Weekly precipitation totals were also heavy to moderate in the Central Atlantic States, the Gulf Coast Area from Port Arthur, La., to Tampa, Fla. and western Washington; while dry weather continued in California, Texas, Oklahoma and Arkansas where no appreciable rain was reported except with isolated showers. (Summary supplied by U. S. Weather Bureau).

LIGHT TRAP COLLECTIONS	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea	Heliothis vires.	Protoparce sexta	Protoparce quinq.	Laphyg. frugip.
TEXAS										
College Station 7/28-31			32	1		545	11			216
Weslaco 7/16-31	1	100	287	6		408	692			1682
Waco 7/28-8/3	3	1		15	7	2369	6			
LOUISIANA										
*Tallulah 7/27-8/2	244	19	166	2	403	726	97	57		74
Franklin 7/25-8/1	4				24	12				38
Baton Rouge 7/28-8/3	2		48		104	57		13		237
MISSISSIPPI (Counties)										
Humphreys	5	14	77	5	156	360	15			
Lauderdale	3		12	1	54	71	3			
Oktibbeha	154	10	99		54	79	10			
*Washington	220	43		6		931				
ALABAMA										
Fairhope 7/31	24		8			75		9		3
Auburn 7/28-8/3	485		409			1499	133	3	1	152
Crossville 7/25&27			34			69			20	
ARKANSAS										
Hope 7/27-8/2		2				119				
Stuttgart 7/25-8/1	7	2		5		9				
Van Buren 7/28-8/1						43				
Varner 7/28-8/1	24	19		1		74				
Fayetteville 7/28-8/3	77	16		7		334				
MISSOURI (Counties)										
Boone 7/28-8/3	29	5		10		35		40		53
New Madrid 7/31-8/3						631		52		
KANSAS										
Manhattan 7/29-31	4	13	33			71		30	28	
Hays 7/21-28	7		5			15				
TENNESSEE (Counties)										
Shelby 7/24-30	40	12	72			22		30	3	
Madison	16	16	68			24		15	26 sp.	16
Lawrence	42	4	54			20		11		19
Maury	42	14	54			26		36		42
Robertson	78	1	28	2		4		10		1
Cumberland	148	4	102	8		20		6		
Knox	216		60					31		19
Greene	216	8	92	16		48		6		6
Blount	102	48	87	60				6		
Johnson										
FLORIDA										
Gainesville 7/25					1	9	2	1		
Homestead 7/19&27		3	4			2				
GEORGIA (Counties)										
Tift 7/27-8/2	438	30	178		438	2802	29	44		170
Spalding 7/27-8/2	122	11	113	7	42	332	7	6		46
Clarke 7/29-8/1		36				19	10	10	6	
SOUTH CAROLINA (Counties)										
Florence 7/21-27	35	5	138	12	159	914	381	22	2	44
Charleston 7/16-22	2		44	2	12	23	3	5		11
Oconee 7/29-8/4	464	21	143		16	175	1	10	2	
NORTH CAROLINA (Counties)										
Duplin 8/1-2	29	2	24		4	59	35	17		1
Johnston	90	3	13		3	143	5		75 sp.	
VIRGINIA (County)										
*Pittsylvania 7/22-28								190	522	
MARYLAND (County)										
Montgomery 7/26-8/3	19	5				8		3	9	1
OHIO (County)										
Athens 7/23-29	27	5								
INDIANA (Counties)										
Lawrence 7/28-8/1	155	4	22	5		13		23	4	
Tippecanoe 7/27-8/1	57	15	2	10						
ILLINOIS (County)										
Urbana 7/27-8/2	292	40	43	27		12		4		
WISCONSIN (Counties)										
DeForest 7/25-31	68					16				
East Claire 7/18-31	7					9				
NEBRASKA (Counties)										
Lancaster 7/22-28	4	16				5				
Lincoln 7/25-26		20		10						
Scotts Bluff 7/23-28		4								2
SOUTH DAKOTA										
Brookings 7/31-8/1	48	5								
MINNESOTA										
St. Paul 8/1	8	2	1	2						

* Three traps at Tallulah and in Pittsylvania County. Two traps in Washington County.



SURVEY METHODS

UNIFORM SURVEY PROCEDURE APPROVED BY THE LAKE STATES FOREST INSECT SURVEY COMMITTEE - 1956

PINE TORTOISE SCALE - APPRAISAL SURVEY

PURPOSE:

The purpose of this survey is to appraise the extent of infestation by the pine tortoise scale and to determine whether direct control measures are necessary. This insect is not conspicuous and, unless a methodical search is made, the scales may be missed. For example, in a 8 x 8 planting of jack pine trees, when collections are made at every thirteenth tree in rows which are 10 chains apart, and when the trees are approximately 20 feet high, only about 20 twigs out of roughly 1,716,000 are examined for scale, which obviously is a very low percentage.

Estimates of actual numbers of scales present are required so that comparisons can be made from year to year. If surveys are carried out from one year to another, sufficient numerical data may be accumulated so as to be able to predict a point in a population rise where control tactics may be necessary. Information which will be of value for plotting tree survival, damage, or mortality, is also easily obtained at the same time.

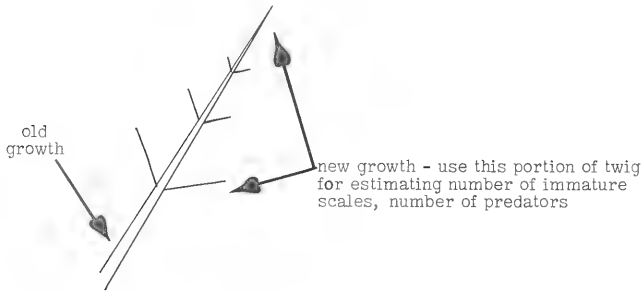
The specific form is included which is to be filled out so that no information will be inadvertently omitted. With some preliminary instruction and supervision, untrained personnel can carry out the survey.

INSTRUCTIONS:

Instructions for Carrying Out Pine Tortoise Scale Survey

1. Use pole pruners which will reach to upper third of trees. Use standard length for any one plantation; usually two sections of pole will be sufficient.
2. Cut one branch from upper crown and, before recording information, take another branch from middle of the crown. This will save time in handling pruners.
3. Use pole pruners to estimate height of tree and record.
4. Take new growth of the cut branch and record number of immature scales per inch.
If scales are present around entire branch, use figures for number of scales per inch from column two of chart. If scales are present on one side of twig only, use figures from column one.
5. Record number of predators present per inch of twig.
6. Measure length of new growth with ruler drawn on chart and record. Jack pine has one or more whorls of branchlets on new growth each year. To establish where new growth begins look for change of color in bark.
7. Estimate damage on sample tree and record in appropriate columns. If tree apparently will survive the attack, mark with check; if tree will not survive, mark with 0.
8. When recording tree mortality, make actual count of 100 trees. This can be done by counting 100 trees as seen from collecting point, i. e., count ten trees in five rows on each side of collecting point. Record in column as percentage of dead trees.
9. Work along row, even if direction of row changes. Take every thirteenth tree for sampling (when trees are spaced every 5 1/2 feet.).
10. Use only one row for counting trees between collecting points.
11. Sample may be taken from either side of row at thirteenth tree.

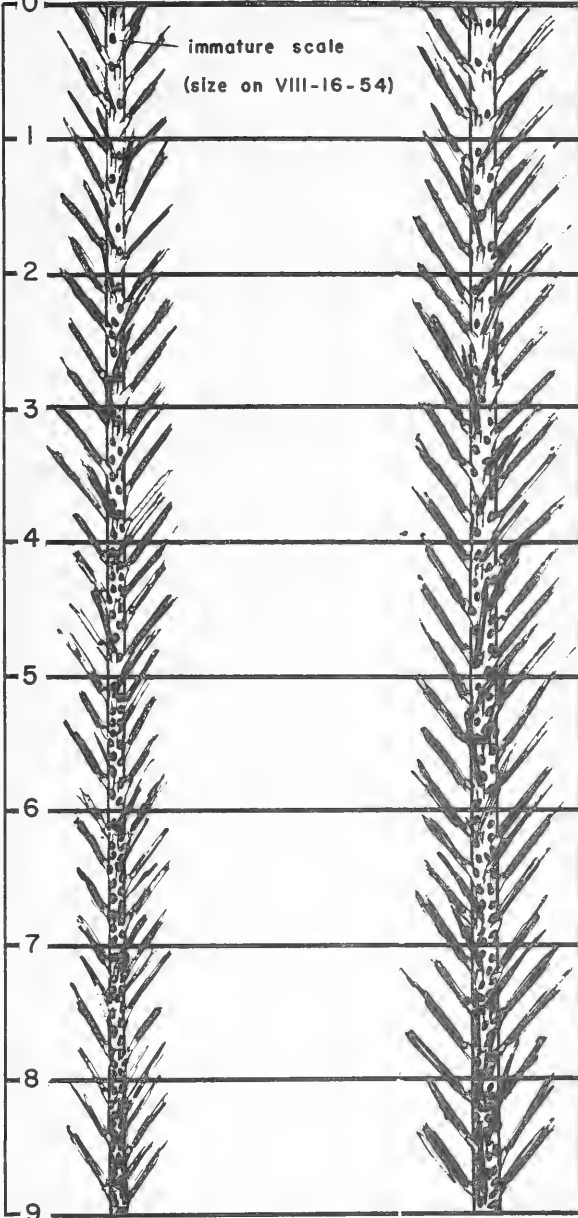
12. If thirteenth tree is dead, keep sampling space the same for taking next sample, but take sample from nearest living tree.
13. Record direction traveled in strip, direction plantation worked from, township, range, section and 40.
14. To take first sample, go along plantation 5 chains before starting first strip, then after first strip completed, take strips every 10 chains.
15. Attach to each sheet a mimeographed map of plantation being worked. On this map mark location, number and direction traveled for each sample strip.
16. Use separate sheet for recording information from each sample strip.
17. Record in remarks column any abnormal condition of trees, or any insects noticed between sample points.

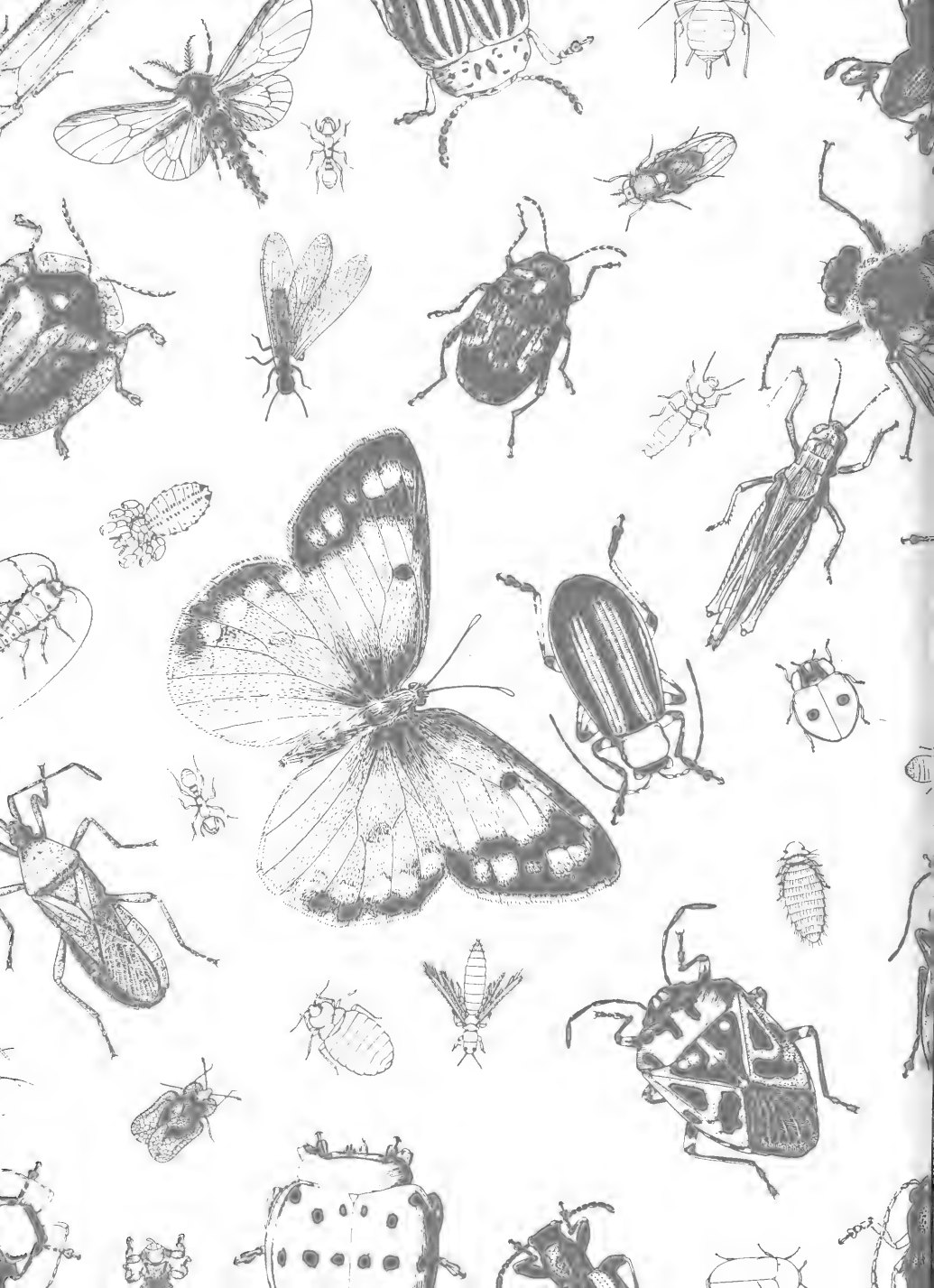


Materials Required for Survey of Pine Tortoise Scale

1. Pole pruners (5' aluminum sections 2-1/2 feet cutting head).
2. Mimeographed survey form.
3. Table to show appearance of immature scales.
4. Mimeographed map of plantation.
5. Spring-back aluminum binder for holding forms.
(R. D. Shenefelt and P. A. Jones, University of Wisconsin).

STANDARD FOR ESTIMATING NUMBER OF PINE TORTOISE SCALE PER LINEAR INCH

RULE (inches)		COLUMN 1 No. Scales Actually Observed	COLUMN 2 No. Scales Per Inch Of New Growth
0	<p>TWIG 1/8" DIAM. TWIG 3/16" DIAM.</p>  <p>immature scale (size on VIII-16-54)</p>	3	5
1		5	10
2		7	15
3		10	20
4		12	25
5		15	30
6		18	35
7		20	40
8		OVER 22	OVER 45
9			



VOL. 6 No. 33

AUGUST 17, 1956

S13
823
C97
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS continue problem in Utah, Missouri, Iowa and some other States. Heavy populations in eastern Colorado, western South Dakota and in areas of Wisconsin, Minnesota and Kansas. (pp. 811, 831).

EUROPEAN CORN BORER threat continues in northern Illinois. Moth numbers still heavy in Iowa. (pp. 811, 831). FALL ARMYWORM attacking corn in some Eastern States. (p. 812). CORN ROOTWORMS prevalent in corn in eastern Nebraska and light to heavy in north central Kansas. (p. 813).

RHODES-GRASS SCALE reported from Arizona for first time. (p. 813).

Damage by second-generation ARMYWORM unusual in Nebraska. (p. 813).

SWEETCLOVER APHID found in Mississippi for first time. Widespread in Idaho. (p. 813). SPOTTED ALFALFA APHID collected in South Carolina and Kentucky for first time. This aphid is increasing in areas of Missouri and Louisiana. Infestations reported from several other States. (p. 814).

GARDEN WEBWORM moderate to heavy on alfalfa in Missouri. South Dakota and Kansas also report on this pest. (p. 815). POTATO LEAF-HOPPER and PLANT BUG damage to alfalfa in Wisconsin is unusually severe. (p. 816). PLANT BUGS continue abundant in legumes in some States including South Dakota, Idaho, Kansas, Arizona. (p. 816).

Heaviest infestation of CITRUS BLACKFLY yet found in Rio Grande Valley, Texas, reported from Weslaco. (p. 818). Report on trapping records of MEXICAN FRUIT FLY in Baja California, Mexico. (p. 818). MEDITERRANEAN FRUIT FLY reported from Seminole County, Florida. (p. 818).

TWO-SPOTTED SPIDER MITE building up in beans in southwestern Idaho and damaging corn at Moses Lake, Washington. (pp. 819, 815). LEAF MINERS abundant on truck crops in Alabama. (p. 819). PEPPER MAGGOT heavy on peppers in Cherokee County, Georgia and Cleveland County, North Carolina. (p. 819). POTATO LEAFHOPPER serious on potatoes in some areas of Wisconsin; increasing on this crop in north-eastern North Dakota. (p. 822). Outbreak of BEET WEBWORM between Twin Falls and Pocatello, Idaho. This insect is damaging spinach and lettuce in Rio Grande County, Colorado. (p. 822).

NOTE change of name of Section on opposite page.

Background report of the MELON FLY. (p. 820).

GREEN PEACH APHID continues heavy on tobacco in southern Maryland. Light to heavy in Pittsylvania County, Virginia. (p. 823).

BOLL WEEVIL migration underway in several States. Large numbers appearing in most sections of North Carolina and infestations continue to increase in Louisiana and Arkansas. (p. 824). BOLLWORMS continue main insect problem in cotton in several Texas areas. Infestations increasing in western Tennessee, Arkansas, Arizona, and Missouri. Heavy in some Georgia counties. (p. 824). CABBAGE LOOPERS of concern in cotton in several areas. SPIDER MITES continue to increase in cotton in Missouri. Increasing also in Arkansas. (p. 825). LYGUS BUG populations : high in Arizona and requiring intensive controls. (p. 826).

PINE LEAF APHID damaged pines in Maine, New York and Vermont. (p. 826). MOUNTAIN PINE BEETLE infestation of serious proportions in some Wyoming areas. (p. 826). LARCH SAWFLY causing heavy defoliation in northern Wisconsin. (p. 828). SPRUCE BUDWORM increasing in northeastern Maine. Damage reported from Lewiston, Idaho. (p. 828). A BARBERRY LEAFWORM reported from Delaware for first time. (p. 829).

SURVEY METHOD for FOREST TENT CATERPILLAR. (p. 833).

Distribution maps of RANGE GRASSHOPPERS. (p. 838).

STATES reporting - 39. CORRECTIONS. (p. 830).

WEATHER summary (p. 830). ADDITIONAL NOTES. (p. 831).

Reports in this issue are for the week ending August 10 unless otherwise designated.

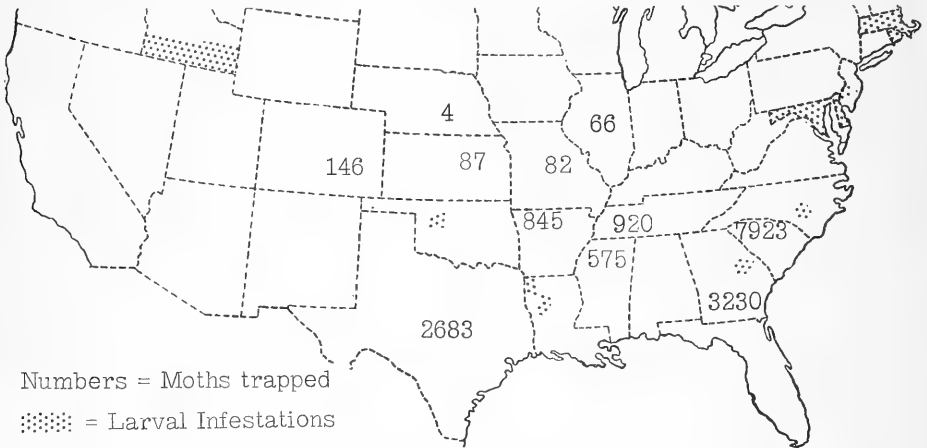
CEREAL AND FORAGE INSECTS

GRASSHOPPERS - OREGON - Adult Melanoplus mexicanus and M. femur-rubrum appearing in Willamette Valley. (Capizzi). IDAHO - Heavy infestation, 25-30 per square yard, in wheatgrass and alfalfa south of Midvale. (Manis). UTAH - Continue problem in many areas, mostly in adult stage. (Knowlton). KANSAS - Late-summer adult survey shows light to severe infestations in Dickinson, Clay, Washington and Geary Counties. Light to threatening in Marshall, Pottawatomie, Wabaunsee, Morris and Riley Counties. Where properly controlled grasshoppers are scarce and little crop damage evident. In infested areas counts ranged from 2-30 per square yard. (Mathew). OKLAHOMA - Populations static, marginal damage to crops and rangeland continues. From 2-6 per square yard on range in western counties. Second-generation M. mexicanus nymphs common in central area. (Coppock). MISSOURI - Still a major threat over much of State, considerable damage to crops in some areas. (Kyd, Thomas). COLORADO - Heavy in many eastern areas. Numerous reports of crop damage. Eight per square yard on rangeland in Fremont County. (Ext. Serv.). SOUTH DAKOTA - Abundant in alfalfa in Black Hills area twenty per square yard with populations mostly Camnula pellucida, M. bivittatus and M. femur-rubrum. (Hantsbarger). NORTH DAKOTA - Still threaten flax where uncontrolled high populations exist. (N. D. Ins. Rept.). MINNESOTA - From 20-45 per square yard in east central area alfalfa; second instars to adults. Some severe infestations along Mississippi River. Large acreage treated in Winona County. Up to 50 percent of Melanoplus femur-rubrum adult in southeastern area. Egg-laying by C. pellucida in northwestern and M. bivittatus in east central area. Destruction to corn leaves and silks noted in many areas. (Minn. Ins. Rept.). WISCONSIN - Heavy populations in many counties. Six to eight C. pellucida per square yard in eastern Oneida County roadsides. Heavy late hatch of M. femur-rubrum appears complete. (Wis. Ins. Bul.). Md. Heavy damage to corn in eastern Wicomico County by adults. (U. Md., Ent. Dept.). DELAWARE - Heavy feeding in alfalfa at Canterbury. (Milliron).

EUROPEAN CORN BORER (Pyrausta nubilalis) - RHODE ISLAND - Pupae abundant. (Steve). NEW JERSEY - Very numerous in central area. (Ins. - Dis. News.). DELAWARE - Numerous in whorls and tassels of late field corn and abundant in midseason sweet corn. (Milliron). MARYLAND - Fourteen egg masses per 100 plants in Frederick County. Second-brood damage generally light over State. (U. Md., Ent. Dept.). ILLINOIS - Pupation of first-generation borers almost complete but varies from field to field; averages 20-40 percent over State. Oviposition underway and ranges from a few masses to 200 or more per 100 plants in eastern and northern areas. Northern 3 tiers of counties and eastern 2 tiers south to Highway 36 may have very high second generation similar to or worse than 1955. (Ill. Ins. Rept.). WISCONSIN - Second-brood moths laying eggs in southern and southwestern counties. (Wis. Ins. Bul.). MINNESOTA - Percent infestation and borers per 100 plants by districts: south central 44 and 91, southeast 30 and 30, southwest 57 and 193, west central 35 and 140. Less than one percent emergence and development is delayed. Appears only late-planted sweet corn will require treatment. (Minn. Ins. Rept.). MISSOURI - Egg-laying for third brood heavy in June-

planted corn in southeast, as high as 68 egg masses per 100 plants. Second brood eggs still being found in central area, 10 per 100 plants. Sixty percent of second-brood moths in northwest. (Burdett). ARKANSAS Found for first time in Desha and Jefferson Counties. Light infestation, about 2 percent. (Warren, Harrendorf, Barnes). KANSAS - Very few larvae in Washington, Marshall and Pottawatomie Counties. (Matthew).

Corn Earworm as reported Week Ending 8/11



Numbers = Moths trapped

⋯⋯⋯ = Larval Infestations

CORN EARWORM (Heliothis zea) - MASSACHUSETTS - Not heavy but increase expected. (Crop Pest Cont. Mess.). RHODE ISLAND - Light on sweet corn in Richmond, August 5. (Steve). NEW JERSEY - Build-up of eggs in one area Burlington County. (Ins.-Dis. News.). DELAWARE - Small larvae abundant in midseason corn in Bridgeville area. (Milliron). MARYLAND - In general, infestations lighter this year than normal. Moth catches increasing in Montgomery County. (U. Md., Ent. Dept.). NORTH CAROLINA - Averaged 12 eggs per silk at Faison. (Farrier). GEORGIA - Heavy on grain sorghum in Washington County. (Johnson). IDAHO - Infestation very light in southern Idaho. First generation maturing. (Douglass et al.). OKLAHOMA - Five to 18 percent of sorghum plants infested in Woodward area. (Coppock). LOUISIANA - Thirty to 58 per 100 sweeps in alfalfa in Natchitoches and Bossier Parishes. (Oliver).

FALL ARMYWORM (Laphygma frugiperda) - NEW JERSEY - Appearing in corn. (Ins.-Dis. News.). DELAWARE - Damaging late sweet corn at Hartly. (Milliron). MARYLAND - Moderate damage to late corn in Caroline and Wicomico Counties. (U. Md., Ent. Dept.). LOUISIANA - Sixty per 100 sweeps in Bossier Parish and 30-90 per 100 sweeps in grasses in East Baton Rouge, Acadia, St. Landry and Iberville Parishes. (Oliver).

CORN ROOTWORMS (Diabrotica spp.) - NEBRASKA - D. longicornis, D. virgifera and D. undecimpunctata howardi very prevalent in corn fields in eastern third of State. As high as 22 on single corn plant. Damage to silks very noticeable. (Andersen). KANSAS - D. virgifera light to heavy, 3-40 beetles per stalk, in corn in some north central counties. Heavy feeding and destruction of silks in more heavily infested fields. About 10 percent of population is D. undecimpunctata howardi and 10 percent D. longicornis. (Matthew).

SUGARCANE BORER (Diatraea saccharalis) - TEXAS - Heavy local populations on corn in Jefferson County. (Garner).

RHODES-GRASS SCALE (Antonina graminis) - ARIZONA - Found infesting St. Augustine grass on 3 properties in Phoenix. This insect is new to the State and an eradication campaign may be undertaken if the scale has not become too widespread. Determined H. Morrison. (Ariz. Coop. Rept.).

ARMYWORM (Pseudaletia unipuncta) - NEBRASKA - Second generation damaging irrigated corn in Hall, Buffalo, Adams and Kearney Counties. First time since 1929 that second generation has caused trouble. Lower leaves destroyed by counts of 7-12 per square foot. As many as 8 per single plant. (Andersen).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - IDAHO - Found in 6 to 9 corn patches in Rupert area. (Douglass et al.).

CORN LEAF APHID (Rhopalosiphum maidis) - DELAWARE - Abundant in late corn some areas. (Milliron). SOUTH DAKOTA - Numerous on corn and sorghum in western half of State. (Hantsbarger). OKLAHOMA - Decreasing in western area due to hot dry weather. (Coppock).

FLEA BEETLES - MARYLAND - From 5-15 per plant on late corn in 3 counties. (U. Md., Ent. Dept.).

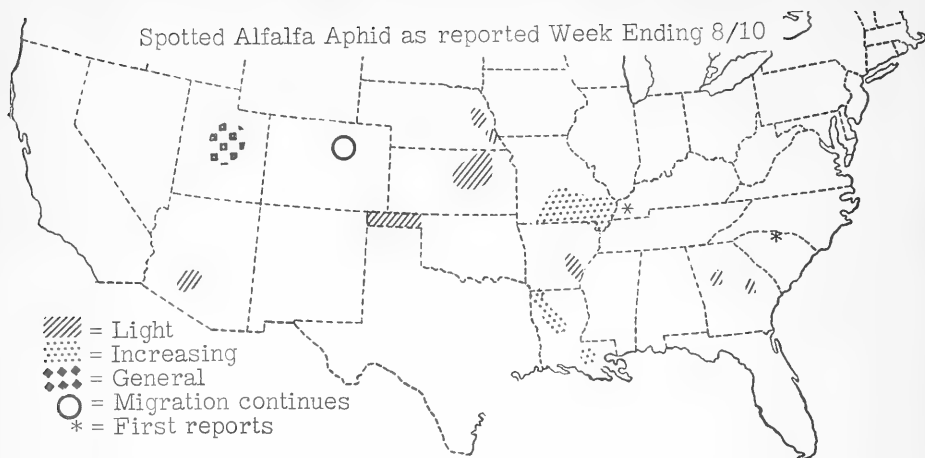
SAP BEETLES - DELAWARE - Carpophilus lugubris larvae causing damage to ears of sweet corn over State. (Milliron). MARYLAND - Continue abundant in corn coming to canneries. (U. Md., Ent. Dept.).

WHEAT STEM SAWFLY (Cephus cinctus) - NORTH DAKOTA - Average of 39 percent of stems infested in Golden Valley County. (N. D. Ins. Rept.).

SWEETCLOVER APHID (Myzocallidium riehmi) - IDAHO - Found over State on sweetclovers. Collections have been identified by L. M. Russell. (Manis). MISSISSIPPI - Collected from sweetclover at Booneville, Prentiss County, July 21 by R. C. Dickson. Determined by R. C. Dickson and L. M. Russell. (Hutchins). This is first report of this species from Mississippi.

AN APHID (Macrosiphum albifrons) - MAINE - Very abundant on stems of cultivated lupine at Orono. (Simpson).

CLOVER APHID (Anuraphis bakeri) - IDAHO - Low populations in red clover. Predators abundant. (Gittins).



SPOTTED ALFALFA APHID - SOUTH CAROLINA - Collected on alfalfa at Rock Hill, York County, July 30 by R. C. Dickson. Determined R. C. Dickson and L. M. Russell. (Nettles). First report of this species from South Carolina. KENTUCKY - Collected on alfalfa in Hickman County. First report for State. Determined L. M. Russell. (Starks). GEORGIA - Light on alfalfa in Washington County and in 3 fields in Henry County. (Johnson, Hinton). LOUISIANA - Increasing on alfalfa in Natchitoches, Red River, Bossier, Rapides and Assumption Parishes. Also collected in East Baton Rouge Parish. (Oliver). ARKANSAS - From 2-50 per sweep in Desha, Lincoln and Jefferson Counties. (Warren, Harrendorf, Barnes). OKLAHOMA - None found in northern and northwestern fields. Up to 200 per 10 sweeps in a few irrigated fields in panhandle. (Coppock). KANSAS - Non-economic to light, 50-2500 per 25 sweeps, in alfalfa in Dickinson, Geary, Clay, Riley, Wabaunsee, Morris, Marshall Counties. Few lady beetles noted. (Matthew). NEBRASKA - Continues to migrate northward. Light numbers, 1-3 per 10 sweeps, found in Nemaha, Johnson, Otoe, Saunders, Dodge, Cuming and Stanton Counties. (Andersen). MISSOURI - Increasing in south central and southeast areas, 2-25 per sweep in most fields. Some damage in individual fields having 100-225 aphid per sweep. Predators increasing in more heavily infested fields. (Kyd, Thomas). UTAH - Emery and Carbon Counties generally infested. Thousands of acres being cut to save spraying in Sanpete, Sevier, Emery and other counties. (Knowlton). IDAHO - Aphids reported earlier this year as this species have been found to be sweetclover aphid (Myzocallidium riehmi). So far in 1956, no spotted alfalfa aphid has been collected in Idaho. (Manis). COLORADO - Continues to advance from southern to northern counties. (Exp. Sta.). ARIZONA - Sub-economic numbers on alfalfa in areas of Maricopa County. (Ariz. Coop. Rept.).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Continues destructive to soybeans. Very abundant in alfalfa at Canterbury. (Milliron).

CLOVER SEED CHALCID (Bruchophaqus gibbus) - WASHINGTON -

Averaged 100 per 25 sweeps in red clover for seed near Quincy. (Johansen).

PEA APHID (Macrosiphum pisi) - COLORADO - Continues high in some fields. Predation and parasitism reaching peak. (Exp. Sta.). SOUTH DAKOTA - General in western area, up to 60 per 10 sweeps in one field. (Hantsbarger). IDAHO - Population reduced on red clover and alfalfa in southwestern and south central areas. (Gittins). UTAH - Serious in many counties on alfalfa. Unusually abundant for time of year. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - GEORGIA - Two hundred per 100 sweeps on alfalfa in Washington County. (Johnson). ALABAMA - Damage to sericea lespedeza in Chambers County. (Blake). ARKANSAS - Increased in Chicot, Desha, Lincoln and Jefferson Counties. Up to 3 per sweep. (Warren, Harrendorf, Barnes). ARIZONA - Common in alfalfa in Maricopa County; 26-36 per 4 sweeps. (Ariz. Coop. Rept.). LOUISIANA - From 180-310 per 100 sweeps in alfalfa in Bossier, Natchitoches, Red River and Assumption Parishes and from 86-140 per 100 in soybeans in Assumption, Ascension, Iberville and Pointe Coupee Parishes. (Oliver).

SPIDER MITES - MARYLAND - Moderate to heavy defoliation to soybeans in Dorchester County. (U. Md., Ent. Dept.). WASHINGTON - Heavy infestation of Tetranychus telarius whitening foliage of corn near Moses Lake. Up to 100 per leaflet on red clover near Moses Lake and Quincy. Ladino clover, beans and sugar beets also affected. (Johansen). Slight outbreak of T. telarius on alfalfa for seed around Gardena. Some control. (Cook).

ALFALFA WEEVIL (Hypera postica) - SOUTH DAKOTA - Six larvae per 10 sweeps in alfalfa field in Custer County. (Hantsbarger).

CLOVER ROOT CURCULIO (Sitona hispidula) - GEORGIA - Forty per 100 sweeps on alfalfa in Washington County. (Johnson).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - NEBRASKA - Five to 7 per 25 sweeps in alfalfa in southeastern area. (Andersen).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - GEORGIA - Moderate to heavy infestations throughout peanut area. (Johnson).

A TERMITE (Reticulitermes sp.) - NORTH CAROLINA - Extensive tunneling in tap root and stems in peanuts causing wilting and pod damage in a field in Gates County. (Artz, Dogger).

GARDEN WEBWORM (Loxostege similalis) - SOUTH DAKOTA - Some economic damage in an alfalfa field in Jerauld County. (Lofgren). MISSOURI - Moderate to heavy on alfalfa over State, 4 - 16 per 10 sweeps. Considerable damage to new growth in many areas. (Kyd, Thomas). KANSAS - Heavy in a few alfalfa fields in Wabaunsee, Morris, Dickinson and Clay Counties; 4-12 larvae per sweeps in most fields. (Matthew).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - NEBRASKA -

Adults continue prevalent, 3-7 per square yard, in southeastern and northeastern areas. From 5-8 larvae per 10 sweeps. (Andersen).

ALFALFA WEBWORM (Loxostege commixtalis) - NEBRASKA - From 8-12 larvae per 25 sweeps in alfalfa in southeastern area and 4-5 per 25 sweeps in northeastern area. Webbing noticeable. (Andersen).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Still threatens alfalfa. Appears 3 generations will be completed. Damage to second-crop alfalfa by this species and plant bugs worst in many years; marked reduction in yields. (Wis. Ins. Bul.). MARYLAND - One to 8 per sweep in alfalfa in Washington County. (U. Md., Ent. Dept.). MISSOURI - From 0.5 to 5 per sweep on alfalfa in extreme southeast; a few fields show yellowing. (Kyd, Thomas).

BLISTER BEETLES - SOUTH DAKOTA - Epicauta pennsylvanica abundant on alfalfa in some western fields. Eighteen per 10 sweeps in one Butte County field. (Hantsbarger). NEBRASKA - E. pennsylvanica averaging 12 per 10 sweeps on alfalfa in southeast. Epicauta sp. averaging 8 per 10 sweeps on this crop also. (Andersen). OKLAHOMA - Epicauta sp. common in alfalfa, 7-25 per 10 sweeps. (Coppock).

PLANT BUGS - WISCONSIN - Adelphocoris lineolatus, A. rapidus and Lygus lineolaris together with potato leafhopper causing worst damage in years to second-crop alfalfa. (Wis. Ins. Bul.). SOUTH DAKOTA - Lygus numerous in alfalfa in western area, concern to seed growers. One field in Custer County had 80 per 10 sweeps. (Hantsbarger). IDAHO - Lygus extremely abundant on most alfalfa and clover in southwestern and south central areas following general second cutting. Up to 30 per sweep, mostly adults, in some fields. Averages of 10 and 15 per sweep recorded. (Gittins). KANSAS - Abundant, 2-12 per sweep, in alfalfa in Wabaunsee, Pottawatomie, Riley, Clay, Washington and Marshall Counties. New generation of nymphs appearing. (Matthew). ARIZONA - High counts, 50-125 per 4 sweeps, in irrigated alfalfa in Maricopa County. From 400-1060 per 100 sweeps in 9 alfalfa seed fields at Yuma. (Ariz. Coop. Rept.).

STINK BUGS - VIRGINIA - Sehirus cinctus averaged 15-20 per plant on alfalfa in Culpeper County field late in June. Determined R. I. Sailer. (Rowell, Heltzel). ARIZONA - Twenty to 66 brown stink bugs per 100 sweeps in alfalfa seed fields at Yuma. (Ariz. Coop. Rept.).

YELLOW-STRIPED ARMYWORMS - UTAH - Increasing and damage of concern on alfalfa and tomatoes in several northern counties. (Dorst, Knowlton). ARIZONA - Prodenia sp. averaged 16 per 4 sweeps in alfalfa at Gilbert. Lighter in other areas of Maricopa County. (Ariz. Coop. Rept.).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - OHIO - First second-brood entry August 1. Entries light. (Cutright). INDIANA - General increase in adult activity in Vincennes area indicates that third-brood larvae will reach peak last two weeks of August. (Hamilton). Steady build-up of new entries expected until about September 3 in Orleans area. (Marshall). ILLINOIS - Between broods in Carbondale area. (Chandler). MINNESOTA - Second-generation larvae entering fruit in LaCrescent area. Very high populations noted some orchards. (Minn. Ins. Rept.). WASHINGTON - Second-brood larvae entering fruit in Yakima Valley, July 29-30. (Yakima Spray Bul.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - INDIANA - Adults increasing in bait trap catches in Vincennes area. (Hamilton). ILLINOIS - Adults of third generation and larvae in some orchards of Carbondale area. (Chandler). MINNESOTA - Causing considerable damage some orchards. (Minn. Ins. Rept.).

UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) - ILLINOIS - Moderately heavy infestation in Jefferson County and a number of new infestations in Jackson and Union Counties. (Chandler).

APPLE MAGGOT (Rhagoletis pomonella) - RHODE ISLAND - Still abundant in neglected orchards. (Steve). MASSACHUSETTS - Migrant flies from abandoned orchards threatening fruit. (Crop Pest Cont. Mess.). MINNESOTA - High numbers of adults emerging all areas. (Minn. Ins. Rept.).

APPLE APHID (Aphis pomi) - WASHINGTON - Reinfestation of growing apple tips a problem in Yakima Valley. (Yakima Spray Bul.). Heavy infestation of suckers of apples at Pullman. (Johansen).

ORCHARD MITES - INDIANA - Increasing in Orleans area. (Marshall).

EUROPEAN RED MITE (Metatetranychus ulmi) - OHIO - Damaging infestation many orchards of northern area. (Cutright).

LEAFHOPPERS - NORTH DAKOTA - Heavy infestation on apple and caragana nursery stock over much of State. (N. D. Ins. Rept.).

EUROPEAN EARWIG (Forficula auricularia) - WASHINGTON - Becoming serious pest of young trees in Yakima Valley. (Yakima Spray Bul.).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Has damaged plum and cherry trees in Washington County. (U. Md., Ent. Dept.). VIRGINIA - Damaging grapes and other hosts at Goshen, Rockbridge County. (Rowell).

GREEN JUNE BEETLE (Cotinis nitida) - VIRGINIA - Severe and eating peaches one locality of Norfolk County. (Wood).

CHERRY FRUIT FLY (Rhagoletis cingulata) - IDAHO - Survey in Weiser area shows many pupae in soil. (Manis, Gittins, Hackler).

WALNUT CATERPILLAR (Datana integerrima) - MARYLAND - Abundant on black walnut trees in Wicomico County. (U. Md., Ent. Dept.).

A CATERPILLAR (Datana sp.) - NEW JERSEY - Again increasing in blueberries and large numbers of moths appearing in some areas. (Ins.-Dis. News.).

GRAPEVINE APHID (Aphis illinoisensis) - DELAWARE - Abundant on grapes at Newark. (Milliron).

Citrus Insect Situation, Florida, First Week of August

PURPLE SCALE activity increased and further increase expected. FLORIDA RED SCALE activity increased slightly and some increase expected. New hatch continued. CITRUS RED MITE activity increased sharply. Little change expected. CITRUS RUST MITE again increased sharply. Declining trend expected. (Pratt, Thompson, Johnson).

CITRUS BLACKFLY (Aleurocanthus woolumi) - TEXAS - Heaviest infestation found so far was discovered July 24 in a commercial citrus grove 2 1/2 miles south of Weslaco on the Progresso Highway. Ten trees found infested with 90 pupae and 43 eggs on 15 leaves. About 90 percent of pupae were parasitized. (PPC).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - In early July a female adult was trapped in downtown Tijuana, Baja California. Eleven specimens have been trapped in Tijuana this season and a total of 42 flies has been collected in Baja California since the initial find January of 1954. In addition to Tijuana, specimens were collected in Ensenada and Mexicali. Eradication programs are continuing in the infested areas. (PPC).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Two adults captured August 10 in Seminole County just north of Orange County. (PPC).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - DELAWARE - Injurious to late potatoes near Masten's Corner and prevalent on untreated tomatoes several areas. (Milliron).

FLEA BEETLES - MINNESOTA - Injuring potatoes in Red River Valley area. (Minn. Ins. Rept.).

POTATO FLEA BEETLE (Epitrix cucumeris) - WISCONSIN - Second generation moderately numerous on potatoes in Kenosha and Racine Counties. (Wis. Ins. Bul.). NORTH DAKOTA - New generation in Red River Valley potato fields. (N. D. Ins. Rept.).

APHIDS - MAINE - Numbers relatively small on untreated potatoes in Presque Isle and vicinity but populations doubled. In central and southern Aroostook County, counts generally low. Aphis abbreviata and Macrosiphum solanifolii predominated with Myzus persicae and M. solani also present. (Shands).

TOMATO FRUITWORM (Heliothis zea) - ARIZONA - From 4-8 per 100 plants at Bowie and nine per 100 plants at San Simon, Cochise County, August 3. (Ariz. Coop. Rept.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - IDAHO - Infestations building up in beans in Elmore and Twin Falls Counties and some damage in two bean fields checked in Gooding County. Heavy damage to potato fields in Bonneville and Jefferson Counties. Some plants killed on five farms in Bonneville County where 60-70 percent of potatoes involved. Most of damage on margins adjacent to alfalfa. (Gittins, Kohl, Douglass et al.,).

SERPENTINE LEAF MINER (Liriomyza sp.) - ALABAMA - Abundant on tomatoes, wax beans, butter beans, watermelons, okra, field peas and squash in many areas of State. Many areas show 80-95 percent of leaves attacked. (Guyton et al.).

SEED-CORN MAGGOT (Hylemya cilicrura) - WISCONSIN - Heavy infestation in recently-emerged wax beans in Dane County. (Wis. Ins. Bul.).

MARGINED BLISTER BEETLE (Epicauta pestifera) - DELAWARE - Damaging lima beans near Andrews ville. (Milliron).

AN INTRODUCED FLEA BEETLE (Phyllotreta cruciferae) - DELAWARE - Very destructive to small cabbage plants in commercial acreage west of Dover and to older planting near Harrington. (Milliron).

CABBAGE APHID (Brevicoryne brassicae) - COLORADO - Populations 200 per plant in Fremont County. (Ext. Ser.).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - LOUISIANA - Increasing on sweetpotatoes in St. Landry Parish. (Oliver).

SOUTHERN GARDEN LEAFHOPPER (Empoasca solana) - LOUISIANA - Populations increasing in sweetpotatoes in St. Landry Parish. (Oliver).

PEPPER MAGGOT (Zonosemata electa) - NORTH CAROLINA - Severe and rather extensive infestation in red peppers in Cleveland County. (Jones). GEORGIA - Heavy infestations in pimento peppers in Cherokee County. (Johnson). A 92-percent infestation in one field. (Maxey).

THE MELON FLY

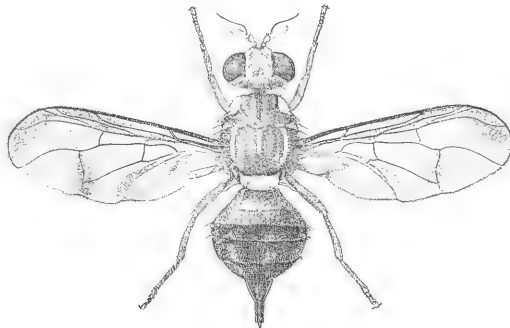
The recent finding of a single gravid female Dacus cucurbitae on the campus of the University of California at Los Angeles is of interest as this pest is not known to be established in the United States. The specimen was collected in a bait trap on July 24. No additional specimens have been found even though an intensive survey was immediately initiated.

This species is considered the most important cucurbit pest of the Indo-Malayan region where it originated. About 1895 the melon fly was introduced into Hawaii. There, the pest has made it practically impossible to grow cantaloups in the Honolulu area and it has seriously curtailed the production of melons, cucumbers and tomatoes. As early as 1915 losses from the insect reached nearly \$1,000,000 annually. The species has caused severe damage to cucurbits in Formosa and in the North-West Frontier Province of India (an area now included in Pakistan). Although the insect is primarily a pest of melons and other cucurbits, its preferred hosts are not limited to these plants. Preferred food plants include: cantaloup, chayote, Chinese cucumber, Chinese melon, cowpea, cucumber, gourds, squash, string beans, tomatoes, watermelon and pumpkin. Plants sometimes infested are bellapple (passiflora), eggplant, fig, mango, orange, papaya and peach. The entire host list includes over 80 species of plants.

Areas from which the melon fly has been recorded are Africa (Kenya only); Mauritius; Asia-Burma, Ceylon, China, Formosa (Taiwan), India, Indonesia, Malaya, Pakistan; Okinawa; Philippines; Mariana Islands-Guam, Saipan, Tinian; and Hawaii.

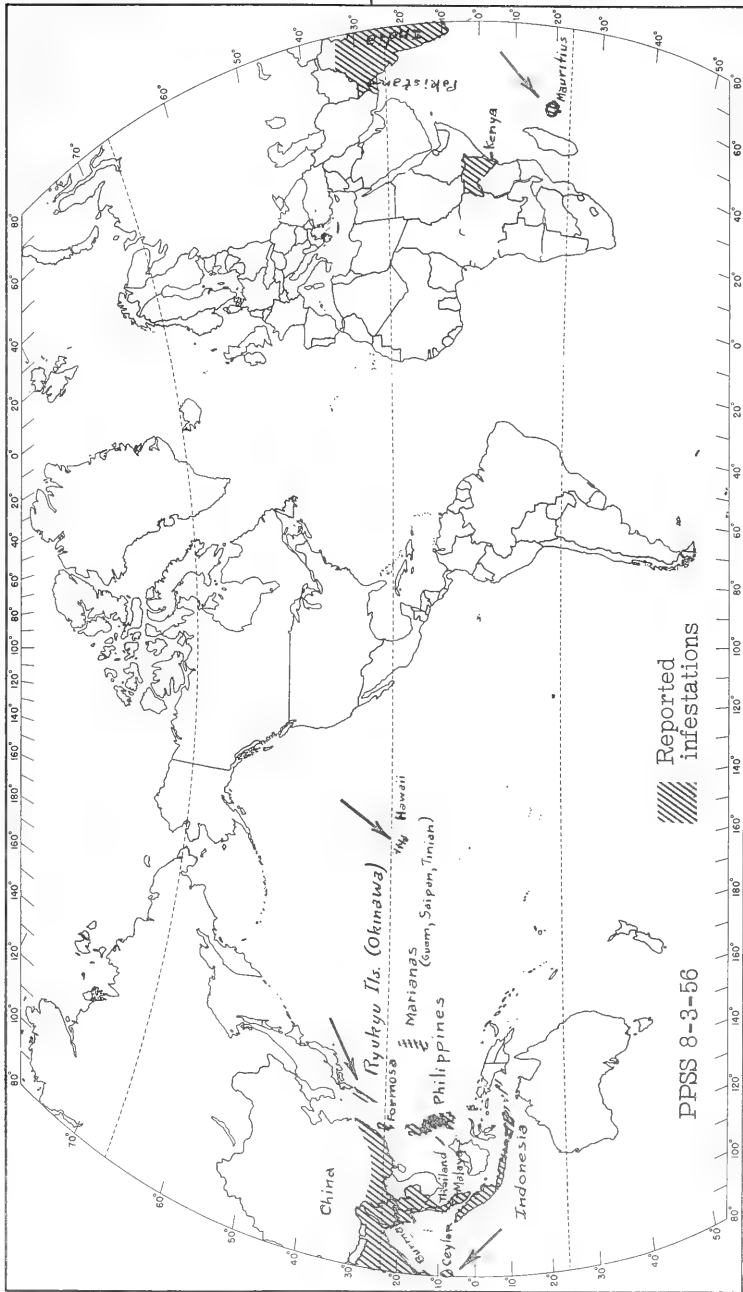
Control methods include malathion bait sprays. To some extent protective covering by soil, paper or cloth is still used.

The adult melon fly is about one-fourth of an inch long, with a wing spread of nearly one-half inch, and has a yellowish brown body. The markings between the wings are bright canary yellow banded with dark brown.



Melon fly female (greatly enlarged)

Recorded Distribution of MELON FLY (Dacus cucurbitae Coq.)



CUTWORMS - GEORGIA - Heavy infestations injuring foliage of pimento peppers in Henry County. (Dupree).

EUROPEAN CORN BORER (Pyrausta nubilalis) - DELAWARE - Injuring fruits and stems of commercial peppers in Bridgeville area. Loss moderately heavy one field. (Milliron). MARYLAND - Moderate damage to peppers in Somersset County. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - DELAWARE - Increasing on peppers several areas, especially near Bridgeville. (Milliron).

HORNWORMS (Protoparce spp.) - DELAWARE - Continue to infest a large acreage of tomatoes near Canterbury. Light elsewhere. (Milliron). IDAHO - Light infestations on tomatoes in Twin Falls area. (Douglass et al.). Light but general infestations on tomatoes in Twin Falls and Elmore Counties. (Gittins, Manis). ARIZONA - Injuring tomatoes and peppers at Bowie, Cochise County, Aug. 3. (Ariz. Coop. Rept.).

CABBAGE LOOPER (Trichoplusia ni) - DELAWARE - Causing most of conspicuous leaf damage to tomatoes except at Canterbury. Feeding extensively on potatoes at Rising Sun. (Milliron). WISCONSIN - Medium populations with Pieris rapae and Plutella maculipennis building up in Kenosha and Racine Counties. (Wis. Ins. Bul.).

POTATO APHID (Macrosiphum solanifolii) - DELAWARE - Increasing on tomatoes from Mt. Pleasant southward and prevalent on potatoes. (Milliron).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - DELAWARE - Increasing on tomatoes generally. (Milliron).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Averaged two per sweep on lima beans in Caroline and Dorchester Counties. (U. M.). WISCONSIN - Serious on potatoes in Kenosha and Racine Counties. "Hopperburn" prevalent in unsprayed or poorly-sprayed fields. (Wis. Ins. Bul.). NORTH DAKOTA - Increasing in potatoes in upper Red River Valley with "hopperburn" injury where fields not treated recently. (N. D. Ins. Rept.).

BEEB WEBWORM (Loxostege sticticalis) - COLORADO - Serious damage to spinach and lettuce in Rio Grande County. (Chem. Ind., Exp. Sta.). IDAHO - Outbreak in area extending from Twin Falls to Pocatello. Survey in progress. A 400-acre potato field in Power County with considerable webbing and larvae numerous. Heaviest infestations occur around Oakley. (Daigh, Schow, Gittins, Douglass et al.).

CLOVER CUTWORM (Scotogramma trifolii) - IDAHO - Attacking beets in south central area. More numerous than beet webworm in some fields. (Douglass et al.).

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - COLORADO -

Appearing in Otero, Weld, Boulder and Mesa Counties. (Exp. Sta.).

SQUASH VINE BORER (Melittia cucurbitae) - WISCONSIN - Damage reported in Jackson County. (Wis. Ins. Bul.).

LEAF-FOOTED BUG (Leptoglossus phyllopus) - ALABAMA - Damaging cucumbers and tomatoes. (Guyton).

CUCUMBER BEETLES - WEST VIRGINIA - Acalymma vittata and Diabrotica undecimpunctata howardi damage heavy statewide. (Dorsey, Hansen).

ONION THRIPS (Thrips tabaci) - IDAHO - Populations building up in fields with no onion maggot control. In one field southwestern area, 60-70 percent of leaf surface destroyed. (Scott).

ONION MAGGOT (Hylemya antiqua) - IDAHO - Continues severe. Adults at 1-2 per square foot in some fields of Boise Valley area. (Scott).

TOBACCO INSECTS

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Populations remain heavy on tobacco in Calvert and St. Marys Counties. Winged forms abundant on top leaves. Some mortality due to fungus. (U. Md., Ent. Dept.). VIRGINIA - Light to heavy in Pittsylvania County. Infestations generally spotted and predators numerous. (Dominick).

BUDWORMS (Heliothis spp.) - MARYLAND - H. virescens averaged four per 25 plants in southern St. Marys County. (U. Md., Ent. Dept.). NORTH CAROLINA - Some fields with 3-4 larvae per 25 plants but mainly on suckers and buds. (Farrier). Numerous some fields in Onslow County with H. zea and H. virescens present. (Scott, Rabb).

HORNWORMS (Protoparce spp.) - MARYLAND - Second-brood eggs average 3.5 per 25 plants in eight fields in St. Marys County. Some small larvae. (U. Md., Ent. Dept.). VIRGINIA - Infestation of 10 eggs and eight larvae per 25 plants in two fields of late green tobacco in Pittsylvania County. Insecticides being applied. (Dominick). NORTH CAROLINA - Averaged 2.1 eggs and slightly less than one larva per 25 plants in east central counties. Some larvae in last instar and numerous fields being treated. (Farrier).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - Light to moderate on late tobacco in Anne Arundel and St. Marys Counties. (U. Md., Ent. Dept.). VIRGINIA - Infestations generally increasing in Pittsylvania County. (Dominick).

GREEN JUNE BEETLE (Cotinis nitida) - MARYLAND - Adults numerous in tobacco fields in St. Marys County. (U. Md., Ent. Dept.).

GRASSHOPPERS - VIRGINIA - Damage general and medium in Washington County. (Gorsline).

STINK BUGS - VIRGINIA - Damaging tobacco generally over Lee County. (Lyle, Rowell). Euschistus euschistoides damaging top leaves of tobacco in Lunenburg County. Leaves dying after attack. (Hardin).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - NORTH CAROLINA - Beginning to show up in large numbers in most sections. (Cott. News Lett.). SOUTH CAROLINA - General migration in Florence area. Practically all growers ceasing insecticide applications. (Walker et al.). TENNESSEE - Forty percent infested squares in west Tennessee but squares scarce and weevils migrating to younger cotton. (Locke). GEORGIA - No square counts in south Georgia due to scarcity of squares but large numbers of weevils present and damaging young bolls. Migration underway for several days. (Johnson). MISSISSIPPI - Infestation of 16.8 percent in 53 fields north of Leland although square counts not reliable due to stage of cotton. (Merkl et al.). LOUISIANA - Examinations in 90 fields in Tallulah area showed all infested at rate of 34 percent compared with 28 percent two weeks ago. Overall infestation continues to increase. Locally migration occurring. (Pfrimmer et al.). Ten fields in Concordia Parish had 25 percent infestation and 5 in Ouachita had 49 percent. Migration occurring all areas. (Oliver). Seven of 9 fields in Tensas Parish had 91-96 percent infestation. (Clower). ALABAMA - Thirty-nine fields checked in 9 central counties and all found infested at rate of 48 percent. (Tyus). ARKANSAS - Lack of squares resulted in high infestation counts in many fields. In general, infestations have increased markedly except in southeast and where second-generation emergence occurred earlier. Percent infestation by area this week and last: southeast 20.9 and 18, east central 22 and 9.7, northeast 21.2 and 14.9, central 30.7 and 25.4, southwest 43.3 and 31.1. (Warren, Harrendorf, Barnes). TEXAS - Infestations continue generally light with only isolated heavy infestations, usually in irrigated cotton. (Turney, Martin). Average of 18.6 percent punctured squares in 10 treated fields in McLennan and Falls Counties. (Parencia et al.). OKLAHOMA - Infestations continued high in Caddo, Hughes and Pittsburg Counties. Two fields in Caddo County had 100 percent infestation. (Flora).

BOLLWORMS (Heliothis spp. et al.) - SOUTH CAROLINA - Considerable moth activity in cotton fields in Florence area. (Walker et al.). GEORGIA - Heavy in 12 counties, moderate in 3 and light in 2. (Johnson). ALABAMA - Two percent infestation in 9 central counties. (Tyus). TENNESSEE - Increasing over western area and control needed in many fields. (Locke). ARKANSAS - Increasing in succulent cotton. (Warren, Harrendorf, Barnes). MISSISSIPPI - Still low in delta counties. (Merkl et al.). LOUISIANA - Examinations in 90 fields in Tallulah area showed all infested at rate of 6.1 eggs per 100 terminals. Larvae found in 89 fields at rate of 2.6 per 100 terminals. (Pfrimmer et al.). Three to 7 larvae and eggs per 100 terminals in some parishes;

but some decline. Very heavy moth activity continues in some areas. (Oliver). TEXAS - Continue main problem in north and south plains, south central and central areas. (Turney, Martin). Decrease in eggs at Waco. Five eggs and 5.6 larvae per 100 terminals in 19 fields. (Parencia et al.). OKLAHOMA - Moderate to light in most counties. High egg counts in Greer, Jackson and Tillman Counties. (Flora). ARIZONA - Increasing in uncontrolled south central and southeastern areas; 0-18 per 100 terminals in Pima, Pinal and Maricopa Counties. (Ariz. Coop. Rept.). MISSOURI - Eggs increasing. Larvae increased also in most areas. Eighty-five percent of 462 fields showed larval infestation of 1-18 per 100 plants. Heavy moth flight continued. (Kyd, Thomas).

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - About 10 percent damage in one cotton field in Refugio County. Infesting 16 percent of bolls in 8 fields in Brazos County. (Turney, Martin). OKLAHOMA - Bloom inspection in McCurtain and Leflore Counties showed no pink bollworm. (PBW Cont. Proj.).

COTTON LEAFWORM (Alabama argillacea) - ARKANSAS - Infestations in several counties. (Warren, Harrendorf, Barnes). OKLAHOMA - A few in Pittsburg County. (Bryan).

BROWN COTTON LEAFWORM (Acontia dacia) - TEXAS - Considerable "ragging" of cotton in untreated fields in south central area. (Turney, Martin). ARKANSAS - Adults in southwest but larvae have not appeared. (Warren, Harrendorf, Barnes).

CABBAGE LOOPERS - TEXAS - Reported "ragging" cotton leaves in many fields in most areas with heaviest damage in irrigated cotton. (Turney, Martin). OKLAHOMA - General in many fields in Greer and Tillman Counties, from 1 to as high as 35 per plant. (Flora). SOUTH CAROLINA - Damage warrants controls in Dillon County (August 2). (Nettles). ARIZONA - Trichoplusia ni building up in some fields in Pinal County. Six to 10 per 100 sweeps at Gilbert, Higley and Chandler. (Ariz. Coop. Rept.). ARKANSAS - Infestations in several areas. (Warren, Harrendorf, Barnes).

APHIDS - LOUISIANA - Building up in many fields, Tallulah area. Injurious infestation in some fields. (Pfrimmer et al.). One heavy damaging infestation in Red River Parish. (Oliver). GEORGIA - Aphis gossypii heavy in Macon County, moderate in Terrell and light in Dougherty, Tift and Coffee Counties. (Johnson). TENNESSEE - Light in west Tennessee. (Locke). ARKANSAS - Increasing. Poor control some cases. (Warren, Harrendorf, Barnes).

SPIDER MITES - NORTH CAROLINA - Widely reported but most fields show only spotted damage. (Cott. News Lett.). GEORGIA - Heavy in Sumter County, moderate in Macon and light in Terrell, Worth and Berrien Counties. (Johnson). ALABAMA - Damaging numbers on cotton in northern counties. (Arant). LOUISIANA - Present in many fields in Tallulah area. (Pfrimmer et al.). Heavy in St. Landry Parish.

(Oliver). MISSOURI - Continue to increase. Infestations range from small spots to uniform infestations over field. Heaviest damage in New Madrid County where considerable defoliation has occurred. (Kyd, Thomas). ARKANSAS - Increasing with poor control in some areas. (Warren, Harrendorf, Barnes). ARIZONA - Severe on 20 acres near Gilbert and 40 acres at Tempe. (Ariz. Coop. Rept.).

A THRIPS (Frankliniella gossypiana) - ARIZONA - A thrips associated with blasting of small squares at Casa Grande, May 21, and Marana, June 4, has been identified by K. O'Neill as this species. As far as known, first report of this thrips from Arizona cotton since 1913. (Ariz. Coop. Rept.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Threatening in parts of Pinal County, Aug. 3. Seventy acres of stub cotton severely damaged in Yuma County. From 30-32 per 100 sweeps in Maricopa County, considerable leaf damage. (Ariz. Coop. Rept.).

LYGUS BUGS - TEXAS - Continue to increase in south plains area. (Turney, Martin). ARIZONA - High in all areas, 25-110 per 100 sweeps. Intensive control measures. (Ariz. Coop. Rept.).

FLEAHOPPERS - OKLAHOMA - Severe in some fields in Caddo and Greer Counties. (Flora).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

A PINE LEAF APHID (Pinus pinifoliae) - MAINE - Caused abundant and exceptional browning of 1955 tips of white pines over a good part of State. Growth output retarded in many trees. (Me. For. Ins. Notes, July). NEW YORK - Injury and mortality to white pine. (N. E. For. Pest Repr.). VERMONT - Two young plantations at 1400 and 1700 feet altitude were total loss. (N. E. For. Pest Repr.).

WHITE-PINE APHID (Cinara strobi) - VERMONT - Caused considerable flagging and mortality to young white pine. (N. E. For. Pest Repr.).

BALSAM TWIG APHID (Mindarus abietinus) - MAINE - Very abundant and causing curling and twisting of current growth which could seriously affect Christmas tree stock. Also like situation in New Hampshire and Vermont. (N. E. For. Pest Repr.).

MOUNTAIN PINE BEETLE (Dendroctonus monticolae) - WYOMING - Epidemic or near-epidemic conditions in lodgepole pines in the Wapiti District of the Shoshone National Forest and in the South Fork District an infestation is increasing and threatening adjacent lodgepole pine stands. (Ostmark).

BLACK-HEADED BUDWORM (Acleris variana) - MAINE - General increase. Light infestations over much of area from Allagash to

Madwaska Lake and south to Island Falls. (Me. For. Ins. Notes, July).

AN OAK TWIG PRUNER (Hypermallus villosus) - NEW YORK - Heavily infesting oaks in parts of Catskill Mountain area and in Letchworth Park, Wyoming and Livingston Counties. (N. E. For. Pest Repr.).

A BEETLE (Conophthorus sp.) - MAINE - Has practically eliminated white pine cone crop at Alfred. (N. E. For. Pest Repr.).

MARYLAND - Practically eliminated pine cone crop in Montgomery and Howard Counties. (N. E. For. Pest Repr.).

SUGAR-MAPLE BORER (Glycobius speciosus) - PENNSYLVANIA - Damage severe in Elk and McKean Counties. Up to 50 percent of hard maples attacked. (N. E. For. Pest Repr.).

SATIN MOTH (Stilpnotia salicis) - NEW YORK - Appears to be increasing with medium heavy populations on cottonwoods in Saratoga, Albany and Herkimer Counties. (N. E. For. Pest Repr.).

POPLAR TENT MAKER (Ichthyura inclusa) - DELAWARE - Defoliating aspen, willow and poplars throughout State. (Milliron).

BROWN-TAIL MOTH (Nygmia phaeorrhoea) - MAINE - Small local infestations sprayed with ground equipment in New Gloucester, Poland and Wiscasset. (Me. For. Ins. Notes, July).

A SAWFLY (Neodiprion pratti) - NEW JERSEY - Causing extensive damage to pitch pine in southern area and defoliating many shortleaf pines and occasional loblolly, jack and ponderosa pine. (N. E. For. Pest Repr.). NEW YORK - Light infestation on pitch pine in Warren, Albany and Rensselaer Counties. (N. E. For. Pest. Repr.).

BARK BEETLES - VIRGINIA - Severely damaging shortleaf pines in Warwick, some pines dying. (Sedivy). TEXAS - Ips spp. killing individual pines in Montgomery, Walker, San Jacinto, Liberty and Hardin Counties and groups of pines near pines struck by lightning. Dendroctonus sp. causing mortality in recently-logged area in northern Hardin County. (Young). WYOMING - Scolytus tsugae attacking Douglas-fir in Wapiti District of Shoshone National Forest. (Ostmark).

FALL WEBWORM (Hyphantria cunea) - RHODE ISLAND - Feeding generally on roadside deciduous trees and unsprayed fruit trees. (Steve). WISCONSIN - Heavy in eastern Langlade County and occurring in Vilas, Lincoln and Oneida Counties. (Wis. Ins. Bul.). SOUTH DAKOTA - Infestations in over 75 percent of chokecherries some areas of Black Hills. (Hantsbarger).

FALL CANKERWORM (Alsophila pometaria) - MAINE - Two local outbreaks on 50-75 acres in Franklin and about 1000 acres in Warren. (Me. For. Ins. Notes, July).

GYPSY MOTH (Porthetria dispar) - MAINE - Generally low ebb, with only 150 acres warranting spraying in Wells and Alfred. (Me. For. Ins. Notes, July).

LARCH SAWFLY (Pristiphora erichsonii) - WISCONSIN - Defoliation heavy in many stands over northern third of State. (Wis. Ins. Bul.).

DOUGLAS-FIR TUSSOCK MOTH (Hemerocampa pseudotsugata) - IDAHO - Rather heavy infestation in Owyhee County. Damage to some trees quite severe. (Sampson).

SPRUCE BUDWORM (Choristoneura fumiferana) - MAINE - Definite increase in eastern area of northern part of State and a decrease in western part of northern area. Infestations generally light. (Me. For. Serv. Ins. Notes, July). IDAHO - Heavy damage to current growth of grand fir in Waha Lake and Soldiers Reservoir areas south of Lewiston. (Barr, Clark).

EUROPEAN SPRUCE SAWFLY (Diprion hercyniae) - MASSACHUSETTS - Severe outbreak on 600 acres in Orleans treated with good control. (N. E. For. Pest Repr.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - NEW YORK - Causing considerable stripping of red pine in plantations in Westchester County. (N. E. For. Pest Repr.).

ELM LEAF APHID (Myzocallis ulmifolii) - MAINE - Very abundant on American elms at Orono. (Simpson).

WOOLLY ALDER APHID (Prociphilus tessellatus) - NEW HAMPSHIRE - Heavily infesting cut-leaf maples. (N. E. For. Pest. Repr.).

AZALEA LACE BUG (Stephanitis pyrioides) - ALABAMA - Causing severe damage to azaleas in Lee County. (Arant).

SYCAMORE TUSSOCK MOTH (Halisidota harrisii) - DELAWARE - Very numerous and destructive Smyrna area. (Milliron).

LOCUST LEAF MINER (Chalepus dorsalis) - VIRGINIA - Heavy damage to black locust over State. (Morris).

DOGWOOD TWIG BORER (Oberea tripunctata) - WEST VIRGINIA - Damaging dogwood in Monongalia County. (Dorsey, Hansen).

COTTONWOOD LEAF MINERS - UTAH - Damaging cottonwoods along Sevier River. Some injury to poplars in San Juan County. (Knowlton).

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) - IDAHO - Scattered severe infestations on maples in Gooding County. Many trees with considerable yellowing of foliage. (Gittins).

NORWAY-MAPLE APHID (Periphyllus lyropicetus) - MAINE - Heavy infestation with some leaf drop of Norway maples at Vanceboro, Hlesford and Old Orchard Beach. (Simpson). UTAH - Severe on maple trees in Logan area. (Knowlton).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - SOUTH DAKOTA - Reported from several areas as feeding on American elm. (Lofgren).

ELM LEAF BEETLE (Galerucella xanthomelaena) - IDAHO - Skeletonizing foliage on elms in Hammett, King Hill and Glens Ferry. Larvae very abundant. (Scott, Gittins).

YELLOW-NECKED CATERPILLAR (Datana ministra) - DELAWARE - More destructive than for past several years. Severity of attack on oaks and ornamentals increasing throughout State. (Milliron).

BAGWORM (Thyridopteryx ephemeraeformis) - DELAWARE - More abundant statewide than last season. Defoliating many coniferous and deciduous trees and shrubs. (Milliron). VIRGINIA - Damaging shrubs in Greenville and several other counties. (Rowell et al.). GEORGIA - Heavy infestation on arborvitae and other ornamentals in Jasper and Baldwin Counties. (Milner, Aug. 1).

BIRCH LEAF MINER (Fenusa pusilla) - MAINE - Causing abundant browning of birch leaves. (Me. For. Ins. Notes, July).

SPIDER MITES - WISCONSIN - An infestation, probably Tetranychus telarius heavy on red pine in Sawyer County. (Wis. Ins. Bul.). VIRGINIA - Heavy on boxwoods in New Kent and King and Queen Counties. (Rowell).

JAPANESE BEETLE (Popillia japonica) - OHIO - Increasing many sections of State. (C. R. Neiswander). NORTH CAROLINA - Severe in West Jefferson and surrounding area on ornamentals but few in rural areas. (Gardner).

A BARBERRY LEAFWORM (Coryphista meadii) - DELAWARE - Causing much concern on various kinds of barberry in nursery near Milford. First authentic State record. (Milliron).

INSECTS AFFECTING MAN AND ANIMALS

SCREW-WORM (Callitroga hominivorax) - OKLAHOMA - Isolated infestation in navels of newly-born calves in western counties. (Coppock).

HORN FLY (Siphona irritans) - OKLAHOMA - Averaged about 400 per cow in western and panhandle counties. (Coppock).

MOSQUITOES - UTAH - Serious problem at Springville. (Knowlton).
RHODE ISLAND - Aedes vexans abundant and annoying in Matunuck.
Biting rate 12 per minute. (Steve).

TABANIDS - RHODE ISLAND - Chrysops spp. continue abundant. (Steve).

DOG FLEA (Ctenocephalides canis) - ALABAMA - Locally abundant in
several parts of State. (Arant).

MIDGES (Chaoborus spp.) - RHODE ISLAND - Swarming in great
numbers in Cranston. (Mathewson).

BENEFICIAL INSECTS

A PARASITE (Apanteles congregatus) - DELAWARE - Destroyed at
least 50 percent of Protoparce larvae on tomatoes at Canterbury.
(Milliron).

DAMSEL BUGS (Nabis spp.) - SOUTH DAKOTA - Found frequently in
alfalfa fields of western area. Populations average seven per 10 sweeps.
(Hantsbarger).

CORRECTIONS

CEIR 6(21):472-MEDITERRANEAN FRUIT FLY (Ceratitis capitata)
world distribution map. Bolivia was omitted from areas of infestation.
(Christenson).

CEIR 6(31):768- TABANIDS- RHODE ISLAND . Should read (Chrysops
spp.).

WEATHER FOR THE WEEK ENDING August 13, 1956

A shifting in the circulation pattern brought about more normal summer-time conditions to the East, where for the first week in almost 2 months temperatures averaged slightly above normal in the Northeast and northern Great Lakes region. For the first time this season Atlantic coastal inhabitants have been intently watching the path of a hurricane. Relatively small in size but accompanied with winds of approximately 120 m. p. h., near the center, hurricane "Betsy" crossing the West Indies since Friday, left much destruction behind, and took at least 1 life in Puerto Rico, and is now located about 260 miles east of Miami moving northwestward. Hot weather prevailed over most of the South and weekly temperatures averaged 3 or more above normal from New Mexico eastward as Georgia, northern Florida, and Oklahoma reported their hottest days of the year. Weekly departures were above normal by 6° in parts of Oklahoma and Kansas. The coolest weather of the week occurred over

northern Rocky Mountain Region with the greatest minus departure, 6°, reported at Billings, Mont. At higher elevations in Colorado freezing temperatures were observed on some days. Weekly precipitation amounts were moderate to heavy over most of South Dakota, in the upper Mississippi Valley, closely surrounding the Great Lakes, along the Gulf Coast from New Orleans, La., to Tampa, Fla., and other scattered locations; while west of the Continental Divide, over most of Texas, and in a band about 150 miles wide from Montgomery, Ala., to the Ohio Valley little rain of consequence fell. The most noteworthy storm reported this week was one which struck the Crosby-Ironton, Minn. area on Sunday afternoon. Accompanied by hurricane force winds and flooding rain, it was described as the worst to hit that area since 1915. Damage was estimated at over \$1,000,000 as trees were uprooted, crushing cars and house roofs; winds caused destruction to at least 3 business establishments and some communication services were disrupted for several days. Throughout the country other local storms of wind and hail were reported but with less severe destruction. (Summary supplied by U. S. Weather Bureau).

ADDITIONAL NOTES

NEW YORK - ORCHARD MITES building up in Columbia County but under control and TWO-SPOTTED SPIDER MITE increasing in some orchards in Niagara County. EUROPEAN CORN BORER approaching peak in Hudson Valley. APHIDS troublesome on corn husks some fields in Hudson Valley. CABBAGE LOOPER increasing on Long Island. CORN EARWORM counts high in some corn fields on Long Island. (N. Y. Wkly. Rept.).

IOWA - EUROPEAN CORN BORER varies greatly in abundance and development. At Ankeny, second-brood emergence about 60 percent with 80 eggs masses per 100 plants, August 10. Some hatching in central area. Moths continue heavy over most of State. GRASSHOPPERS continue troublesome some areas where not previously controlled and remain abnormally abundant although damage lessened by green vegetation. (Harris).

MAINE - AN OAK TWIG PRUNER much more abundant, mostly on oaks, in central areas. (Me. Agric. Exp. Sta.).

LIGHT TRAP COLLECTIONS	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliolithis zea vires.	Protoparce sexta	Laphyg. frugip.
COLORADO (County)								
Olsero 8/3-5						146		
NEBRASKA (Counties)								
Lincoln 7/29-8/5							10	13
Lancaster 7/29-8/4						4		
SOUTH DAKOTA (County)								
Brookings 8/7-9	76	5						
MINNESOTA								
St. Paul 8/6&7	15	5		2				
INDIANA (Counties)								
Lawrence 8/2-8	405	4	42	5			37	12
Tipton 8/3-9	2	1	2				1	
OHIO (County)								
Athens 7/30-8/5	32	3						
ILLINOIS								
Urbana 8/3-9	142	48	87	10		66		26
MARYLAND (County)								
Montgomery 8/1-9	15	7		1		11		16
VIRGINIA (County)								
Pittsylvania 7/30-8/4							379	1372
NORTH CAROLINA (Counties)								
Johnston 8/8-9	15	5	32		5	94	3	16
Duplin 8/8-9	27	2	29			130	12	3
SOUTH CAROLINA (Counties)								
Charleston 7/23/29	2		21		7	39		6
Florence 7/28-8/3	754	24	250	10	220	7923	556	5C
Oconee 7/28-8/4	464	21	143		16	175	1	10
GEORGIA (Counties)								
Clarke 8/2-8/6	27	54				20	10	11
Spalding 8/3-8	356	103	202	3	29	1868	7	8
Tift 8/3-8	622	45	312		297	3230	25	21
ALABAMA (Counties)								
DeKalb 8/6	7		6			150		1
Lee 8/4-10	543		324			1974	40	1
MISSISSIPPI (Counties)								
Humphreys 8/4-10	44	6	60		82	402	11	
Lauderdale	14	1	19		41	76	3	
Marshall	16		8		5	80		
Oktibbeha	713	37	95	1	57	875	11	
*Washington 8/3-8	394	72		4		1500		
LOUISIANA								
*Tallulah 8/3-5	141	10	58	3	135	449	34	26
Curtis 7/30-8/6	14		7		9	3750		12
Baton Rouge 8/4-10	26	3	17		39	80		5
TEXAS								
Winter Haven 7/16-31	1	2	5	3		162	6	
Waco 8/4-10	17	7	14	18	18	2683	6	
TENNESSEE (Counties)								
Madison 7/30-8/6	294	16	36			920		5
Lawrence	156	12	88			64		34
Maury	108	8	112			56		27
Robertson	380	16	124			240		46
Cumberland	377	28	84			22		22
Knox	144	12	146			84		2
Greene	285	32	104			12		81
Blount	156	4	56			8		3
MISSOURI (Counties)								
Boone 8/4-10	27	2		3		82		84
Scott 8/6, 7&9						4713		59
ARKANSAS								
Hope 8/3-9		4				85		
Stuttgart 8/2-8	5	4		4		24		
Van Buren 8/2-8						45		
Fayetteville 8/4-10	32	10		2		845		
Clarksville 7/19-7/31	28	30		1		42		
KANSAS								
Wathena 8/2-8	5	7	22			87		46
Manhattan 8/5								36
								41
								16

*Two traps Washington County; three traps Tallulah.

SURVEY METHODS

UNIFORM SURVEY PROCEDURE APPROVED BY
THE LAKE STATES FOREST INSECT SURVEY COMMITTEE - 1956

FOREST TENT CATERPILLAR APPRAISAL SURVEYS

PURPOSE:

The forest tent caterpillar has been a vigorous defoliator of aspen and other broadleaved trees throughout hardwood forest areas of the Lake States. While defoliation resulting from periodic caterpillar outbreaks is spectacular in nature, the amount of mortality caused to susceptible host trees generally is not enough to warrant the initiation of large scale chemical control. However, the ever-increasing value of forested areas for wild life and recreational purposes magnifies the seriousness of such infestations. The presence of thousands of caterpillar larvae becomes a real nuisance to inhabitants of affected areas. Direct monetary loss to the resort and tourist industries was sufficient to warrant an action program in most wooded areas in Minnesota from 1950 through 1955.

Predicting the location and severity of infestations and recommending subsequent control measures must be based upon a sound appraisal of infestations. The coordinated efforts of all state, federal, civic, and commercial groups concerned with the caterpillar are necessary for maximum effectiveness. Because infestations may become widespread in distribution, vast savings can be made by utilizing foresters or other personnel already stationed in the field to collect and report survey data. The procedures discussed here will provide sufficient data to predict accurately the status of infestations for use in recommending control. They may furnish others with the facts and procedures necessary for an understanding of the behavior and characteristics of forest tent caterpillar. These procedures have been substantiated by research and were used successfully during the recent outbreak in Minnesota. The four main procedures that were used annually in order to measure populations are:

- A. Defoliation surveys. --Determining degree and extent of defoliation.
- B. Cocoon surveys. --Determining density of cocoon populations.
- C. Egg mass surveys. --Determining abundance of egg masses.
- D. Seasonal development surveys. --Time of hatching, time of maximum control effectiveness.

The following life history table covers each stage as it is likely to occur under Minnesota conditions.

Eggs: Hatch April 15-May 15
Larvae: April 15-June 15
Pupae: June 15-July 10
Adult: June 25-July 20

A. Surveys to determine degree and extent of defoliation

A rapid and useful picture of the current overall distribution of forest tent caterpillar can be made at a time when the insect or its consequences are most conspicuous. Besides delimiting the infestation, the relative population levels throughout an infested area can be determined by measuring specific degrees of defoliation. Generally both aerial and ground procedures are necessary in order to gain a complete picture. This does not, however, provide sufficient information for use in predicting the trend of infestations because the effects of starvation and parasitism are not apparent as a result of such surveys. Reconnaissance should be made after larval feeding has passed its peak, but before refoilation of the stripped trees becomes evident. Where large forest expanses are involved, north-south differences in development may make it necessary to stagger dates of observation.

1. Ground reconnaissance

Estimates of specific defoliation levels can be determined more accurately by ground rather than from aerial observations. A measure of the relative abundance of caterpillar populations can be made by recording the condition of host trees at locations scattered

throughout an infested area. In the fall the amount of actual feeding that occurred the past summer can be more closely related to the probable larval population if defoliation records are taken at the same locations where egg mass counts were made the previous fall. This also provides some indication of the amount of larval mortality that occurred during hatching and early instars.

So that the degree of defoliation may be quickly assessed over thousands or millions of infested acres, non-technical personnel already stationed in the field are requested to report conditions in their immediate area. A simple survey form for estimating and reporting defoliation is shown below. When completed forms are received, the information is transferred to a large map, using convenient symbols to show the defoliation level at each location.

FOREST TENT CATERPILLAR
DEFOLIATION REPORT

INSTRUCTIONS FOR COMPILING

Designation

- Heavy: From complete stripping of all broadleaved trees and brush (except red maple and sumac which are not fed upon) to complete defoliation of aspen or oak with conspicuous feeding damage on birch and brush.
- Moderate: Occasional aspen and oak completely stripped, most aspen and oak with tops thin; little feeding on birch or brush.
- Light: No trees showing complete defoliation. Feeding damage confined to top of the aspen and oak crowns. Little or no feeding on other tree or brush species.
- None: No leaves removed from crown of any tree species. Terminal branches with normal foliage (caterpillars may be present in small numbers, but no conspicuous signs of feeding).

Note: Do not allow presence or absence of larvae to influence defoliation estimates. The purpose of this survey is to relate actual feeding damage to egg mass abundance data which you collected last fall. Please use separate sheet for each locality. A prompt estimate of defoliation and return of this form will be appreciated because this information is necessary for planning an aerial survey.

Date _____

Forest _____ District _____ Observer _____

Locality _____ Amount of defoliation _____

S. _____ T. _____ R. _____

Comments: _____

2. Aerial reconnaissance

Aerial observations are used to map the overall distribution of caterpillar by delimiting areas of defoliation and noting comparative severity. The fine degrees of defoliation used in ground reconnaissance cannot be determined accurately from the air, unless frequent re-checks are made to study locations with known degrees of defoliation. Generally only two main categories of defoliation level are necessary for aerial reconnaissance.

HEAVY -- Areas where most of the trees show complete stripping of leaves, same as heavy on ground survey report form.

PARTIAL -- Areas where defoliation is noticeable, but trees are not completely stripped of leaves. Combining light and moderate defoliation levels.

The procedure used to map defoliation is as follows:

1. Using Regional navigational maps, or others, that show good landmark points, draw flight lines at 6- or 12 mile intervals covering the infested area. Mark three maps, one for pilot, and one for each observer.
2. The flight intervals and altitude are dependent on two sets of conditions.
 - a. Where heavy defoliation appears to be general over a large area, fly 12-mile intervals as an altitude of 1,500 feet, and observers can usually note conditions for about 6 miles on either side of the plant.
 - b. Where spotty or partial defoliation occurs fly 6-mile intervals at an altitude of 1,000 feet and observers can determine conditions for 3 miles on either side of the plane.
3. Using a plane that will accommodate the pilot and two observers, systematically follow flight lines on the previously marked maps.
4. Note the general condition of broadleaved trees over each mile of territory covered, continually checking landmarks so that the position is always known.
5. Mark observed levels of defoliation on the corresponding position of the flight maps. Suggested colors for marking are:
 - RED - To denote heavy defoliation.
 - BLUE - To denote partial defoliation.

Shading colors may be desirable where defoliation is extremely variable or if borderline conditions make determinations difficult. Where operation recorders are available they may be used to continuous strip sampling in lieu of area coloring as described above.

B. Cocoon survey

Knowledge of the abundance and condition of forest tent caterpillar cocoons is a useful index of the surviving caterpillar population. It also measures the extent of the late larval and cocoon parasitism (principally by Sarcophaga aldrichi), which may help to terminate the outbreak. Such information can be gained by counting the numbers of collected cocoons in a given time and then examining them for signs of parasitism or other destruction. It is suggested that collections be made at locations where egg mass counts and defoliation estimates were previously made in order to tie in the entire picture of caterpillar progress. Adequate coverage, by selecting these sampling stations based on an area-wide infestation, will yield a balanced picture of parasitism.

The cocoon survey can be made in the selected aspen or hardwood type stands after most of the moths have emerged. Again, because of the large area to be covered, nontechnical personnel can make the actual collections in the field and send them to a central laboratory for examination. A sample request, outlining the procedure used, is shown here.

FOREST TENTCATERPILLAR COCOON SURVEY

Attached are locality descriptions of your area which correspond to roadside locations at or near which we would like to have cocoon collections made. The selection of these sampling stations is based upon the state-wide infestation, and is intended to yield a balanced picture of parasitism in the entire area. Try to make your collections as near as possible to the sites where egg collections and defoliation estimates were made.

We are interested in both time and quantity cocoon collections. It is requested that the collector first make a three-minute collection of cocoons on the brush, beginning at a point 5 to 10 yards from the forest edge. We would prefer that this collection be made over a distance of at least 1 chain (66ft.) rather than confining all collecting to one or several branches or bushes. This is best accomplished if the collector maintains a moderate walking speed throughout the three-minute collecting period. At the end of the three-minute period, the observer should make an estimate of the number of cocoons that he has collected. Should he have fewer than 15 cocoons, it is requested that he collect for an additional 1, 2, or 3 three-minute interval up to a maximum of 12 minutes, in order to increase the size of the sample. The collection should be placed in a paper bag with the exact location and the duration of the collection time marked thereon. It is important to have both the legal description of the collection site and the length of the collecting time clearly marked on the paper bag.

The collection should be made after most of the moths have emerged. In some cases, no cocoons will be found after prolonged searching. Where this occurs, please indicate the location, time spent collecting, and the fact that no cocoons were found.

The following criteria can be used to determine the condition of cocoons:

1. Normal healthy moths emerged from silken cocoons that appear light yellow brown around the exit hole. The pupal skins within are usually dry and fragile.
2. Parasitized cocoons show dark staining around one end, and the pupal skin is greasy and tougher in texture.

The number of cocoons per unit area of ground vegetation varies greatly with (1) the size of the caterpillar population, (2) the degree of defoliation, and (3) the amount of caterpillar wandering. The vertical positioning of cocoons usually reflects the level of defoliation. For example, where light to moderate defoliation has occurred, most of the cocoons will be found in leaves of deciduous trees. Where complete defoliation has occurred the cocoons will all be found on ground vegetation, such as bracken fern and others, and there will be few, if any, in deciduous trees, excepting red maple. Principal chances for error in collecting cocoons on brush occur when populations are very large or extremely small and when the brush is irregular and not uniformly spaced. As an example, where 70 or more cocoons are found per square meter the collector cannot pick fast enough to indicate the difference between 50 or 80. However, such large numbers indicate extremely high populations and for practical purposes the differences do not matter.

In spite of these limitations, this survey provides useful information such as: (1) an accurate representation of successful moth emergence, and (2) how parasitism is progressing. Until 90 percent or more cocoons are affected, parasitism is seldom of major importance except where populations have been drastically reduced by starvation.

C. Egg mass survey

An egg mass survey is the most important measurement for predicting the area and intensity of the subsequent year's infestation. Eggs representing reproductive efforts of currently emerged moths are final indicators of the probable caterpillar population and subsequent level of defoliation. In order to determine these predictions, it is necessary to know how many viable eggs are present on individual trees throughout the area. Embryos are well developed within the eggs by early fall, and parasitized or diseased eggs can be distinguished readily in late fall.

1. Procedure for collecting egg masses

To accomplish this survey, requests can again be sent to cooperators in the field.

FOREST TENT CATERPILLAR EGG MASS COLLECTION

1. Cut representative aspen trees within a 1/5-acre area at the location selected. The trees should be typical of the stand, particularly with respect to crown size.
2. Examine the twigs of each crown carefully for the presence of tent caterpillar egg masses.
3. Collect all egg masses (whether old or new) from each tree and place in a separate container (paper bag, box, etc.). Identify each tree collection with Section, Township, and Range designations. The three collections from each station should then be placed in a single container and suitably marked.
4. Clearly mark on each bag containing egg masses, the d. b. h. of tree which was sampled.

A sequential sampling system for egg mass surveys has not been worked out for conditions in this region, although it is felt that such a system could be developed. To avoid cutting trees, other methods, such as estimating the number of egg masses with binoculars, have been tried. The results were inaccurate. Nevertheless, in parks, cities, and communities where cutting cannot be used, estimates will have to be made on small trees or with the use of binoculars.

2. Predicting probable caterpillar populations and subsequent level of defoliation

For accurate predicting of caterpillar populations it is necessary to anticipate the number of living larvae per tree fairly accurately; correlate these figures with the amount of foliage each larva can consume and with the number of leaves present. The size of trees, amount of foliage, and the number of stems per acre will greatly influence interpretation of egg mass counts. In

addition , there may be extreme variation of counts from tree to tree within a stand. However, sufficient sampling will show an average or trend throughout the area.

The following categories are used to relate egg mass abundance to the amount of defoliation expected.

<u>Average number of masses per tree</u>	<u>Expected level of defoliation</u>
0 - 4	Light
5 - 9	Moderate
10 - 14	Moderate to heavy
15 - more	Heavy to complete

The basis for these categories, as well as a more complete discussion on egg mass collections and prediction methods, is given in the University Agricultural Experiment Station Technical Bulletin 148 by A. C. Hodson.

When egg mass counts are assembled, mapped, and expressed as defoliation potential, a prediction map is drawn and duplicated for distribution to all interested groups or individuals. This will enable those in any given area of the state to anticipate the extent of caterpillar infestation for the ensuing year.

A high percent of egg, or embryonic, mortality during late fall and winter can greatly reduce the seriousness of infestation. The amount of mortality can be determined during April by carefully slicing the tops from three rows of eggs on opposite sides of a mass and then counting the number of healthy and the number of dead or diseased eggs. Sixty egg masses picked at random from any one site will give a reliable figure.

D. Survey to determine time of egg hatching

In a situation where commercial operators must be relied upon to make contact with resort owners and municipalities who wish to control forest tent caterpillars, it may be necessary to publicize the appropriate time for applying chemicals and insecticides. Since the later stages of the forest tent caterpillar epidemic covered a vast area and the seasonal variation was considerable, it was particularly valuable to have timely reports of development from all over the infested area.

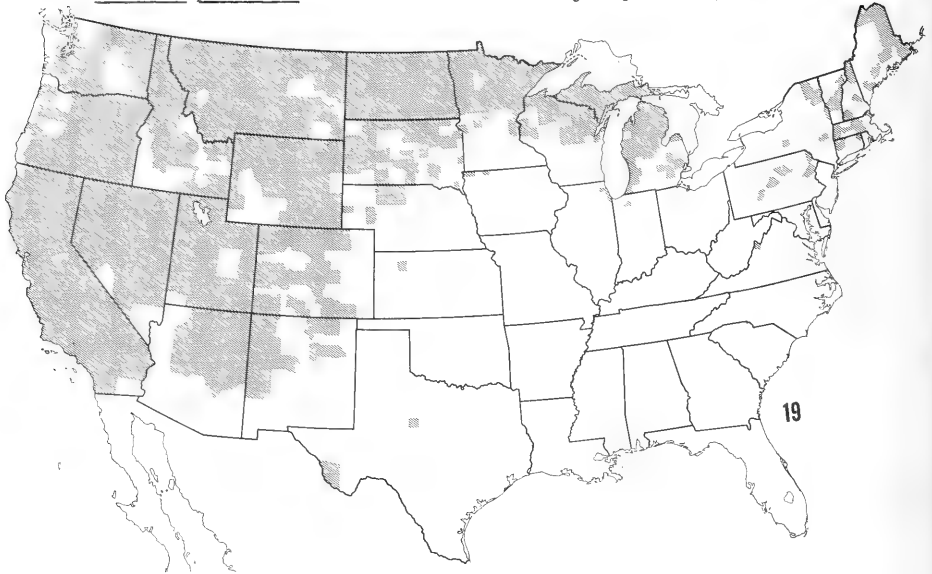
Entomologists must be in field at least 2 weeks prior to egg hatching. In addition, forester observers, who are distributed over the entire forested area, may submit reports of phenological phenomena that preceded caterpillar hatching. A supply of self-addressed post cards was mailed to each observer and he was requested to check each of 22 phenomena as they occurred and send the post card at the time of checking. As a result, each observer mailed some 22 post cards to the coordinating office. When cards from all over the state were tabulated, a reasonably good picture of seasonal variations was apparent.

Timely news releases, based on the reports of entomologists and cooperators, were prepared prior to and during the control period. In addition to circular letters, the newspapers, radio, and television were also employed where they could best serve to inform the public. In this way, both commercial spray operators and property owners depending on effective control were given necessary assistance.

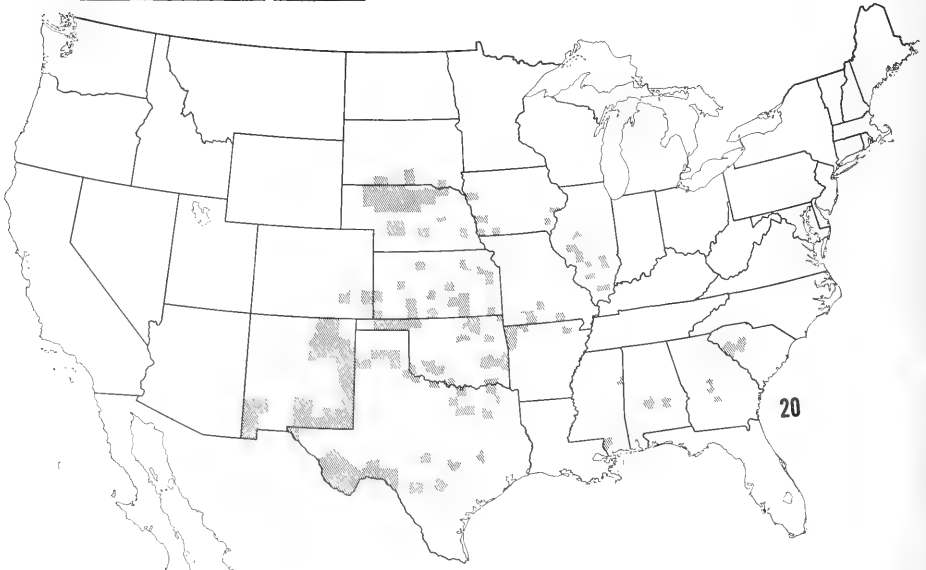
J. W. Butcher, Minnesota State Entomology Dept. and A. C. Hodson, University of Minnesota.

DISTRIBUTION OF RANGE GRASSHOPPERS

Camnula pellucida (Scudder). clear-winged grasshopper

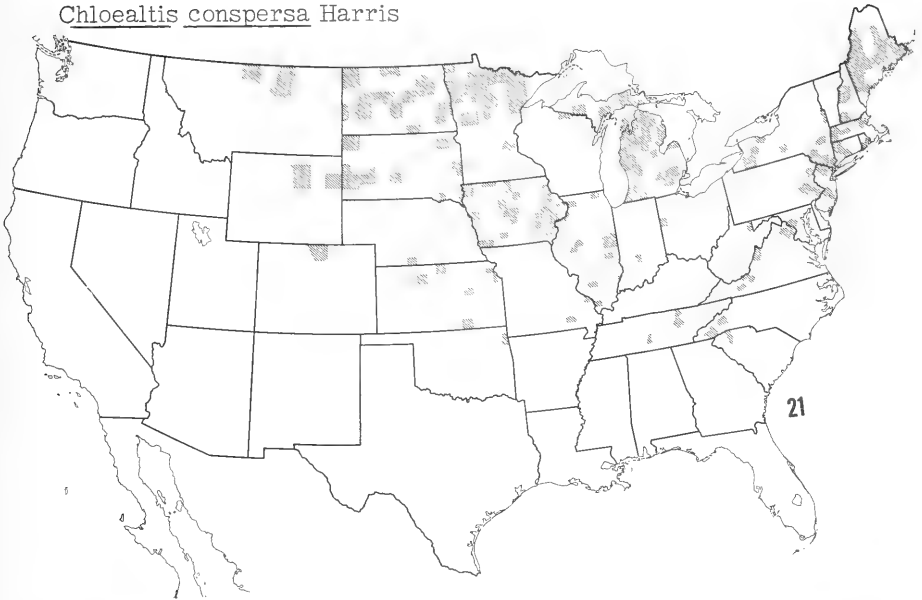


Campylacantha olivacea (Scudder)

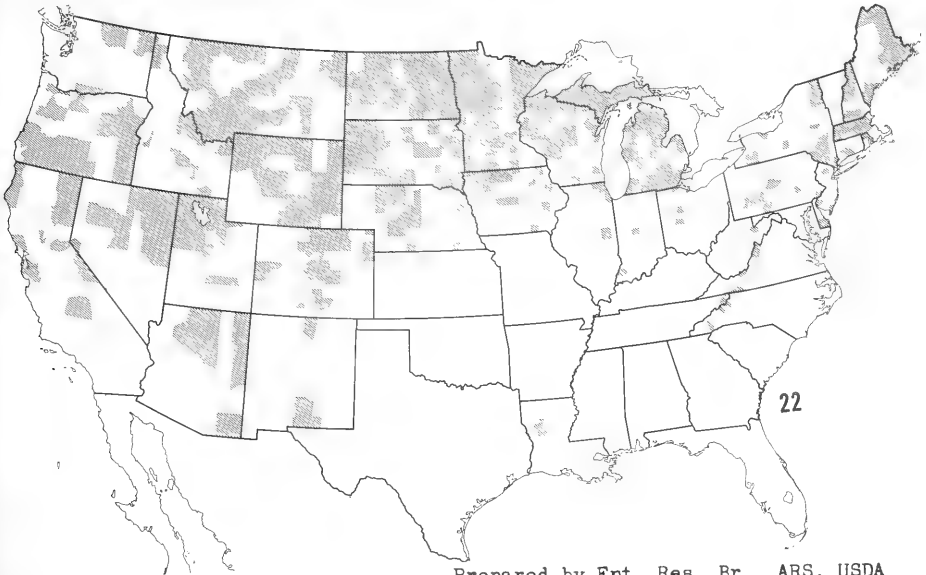


DISTRIBUTION OF RANGE GRASSHOPPERS

Chloealtis conspersa Harris

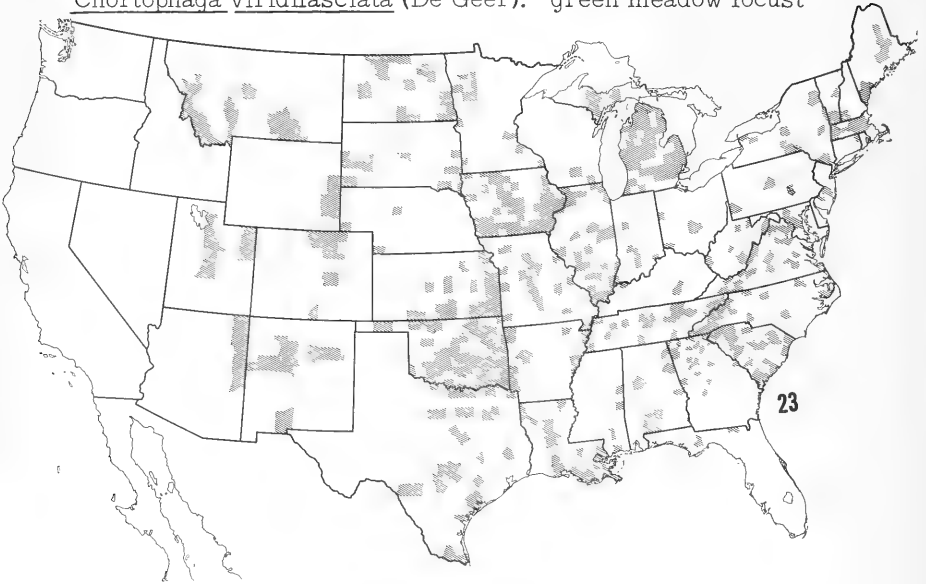


Chorthippus longicornis (Latreille)

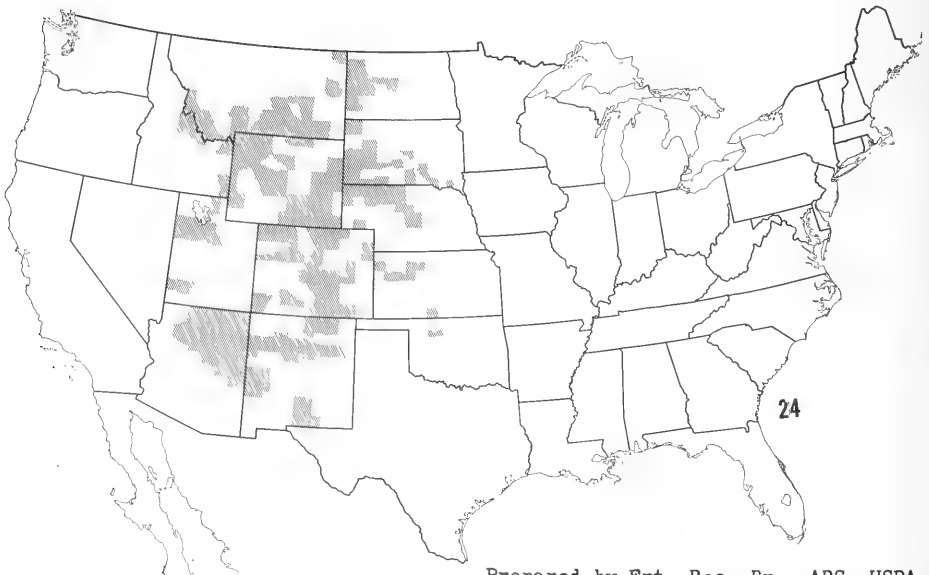


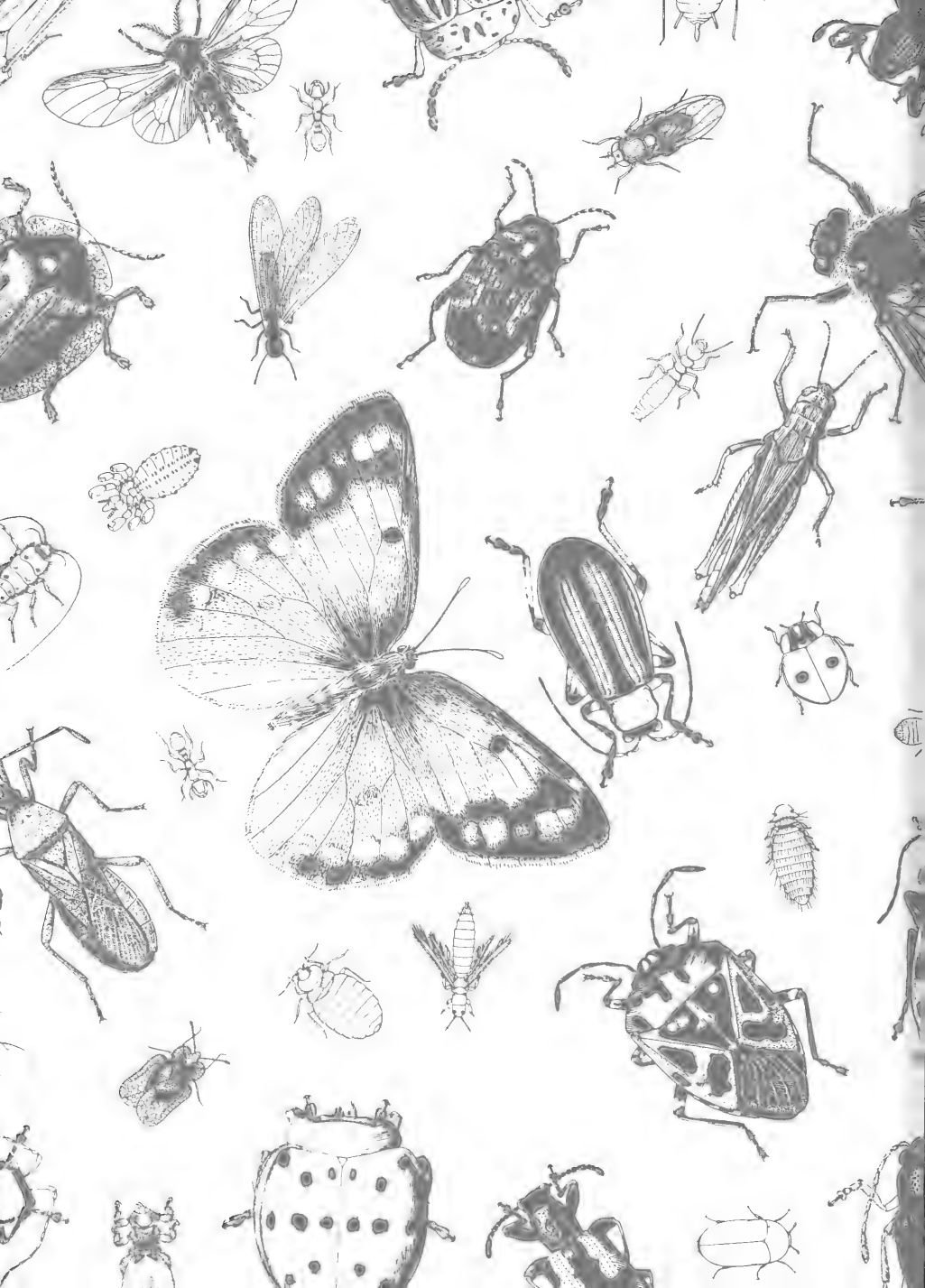
DISTRIBUTION OF RANGE GRASSHOPPERS

Chortophaqa viridifasciata (De Geer). green meadow locust



Circotettix rabula Rehn and Hebard





VOL. 6 No. 34

AUGUST 24, 1956

SB
823
c77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPER threat to legumes and fall-planted small grains continues in Missouri. Damaging new alfalfa seedings in Wisconsin and continues troublesome in areas of Utah and some other States. Adult survey shows severe population on over 100 thousand acres in northwest Idaho. (p. 843). EUROPEAN CORN BORER egg-laying continuing heavy in areas of Illinois and increasing in Minnesota. (p. 843).

FALL ARMYWORM active in several States, damage to corn, grains and grasses. (p. 844). CORN SAP BEETLES continue abundant Maryland and damaging in Delaware and West Virginia. (p. 845). CORN LEAF APHID unusually abundant on corn in Delaware and damaging in some Colorado counties. Also reported from Michigan, Oklahoma and Nebraska. (p. 845).

LESSER CORNSTALK BORER damaging sorghum and other crops in some sections of Alabama. (p. 845). CORN EARWORM of concern in many areas from Rhode Island to Utah. Heavy moth catches in Missouri and some Southeastern States. (pp. 846, 862).

SPOTTEDALFALFA APHID reported from Virginia and North Carolina for first time. Continues damaging in Utah. Increasing in southern Nebraska and some Oklahoma counties. (p. 847). CLOVER APHID abundant on red clover in areas of Idaho and Utah. (p. 847). SWEETCLOVER APHID recorded in Virginia and Kentucky for first time. (p. 847). PEA APHID continues of concern in part of Utah, Nebraska and South Dakota. (p. 848).

SPIDER MITES heavy in southeastern Colorado and damaging in some counties of Utah, Idaho, Nebraska and Delaware. (p. 848, 852). PLANT BUGS continue abundant in Oregon, Idaho, Utah and Nebraska. (p. 848). POTATO LEAFHOPPER still very heavy in Wisconsin and at high levels in New Jersey. (p. 849).

BEAN LEAF BEETLE reported on soybeans in Delaware, Maryland, Louisiana and Arkansas. (p. 849). VELVETBEAN CATERPILLAR moths appearing in Louisiana. (p. 862).

CODLING MOTH entries increasing in southern Illinois. (p. 849).

BEEF LEAFHOPPER abundant in beet fields in south central and eastern Idaho. Control program underway in Imperial County, California. (p. 850). YELLOW-STRIPED ARMYWORMS damaging truck crops in Idaho and eastern Virginia. (p. 851). CARROT BEETLE extremely heavy in Kansas. (p. 851). BLISTER BEETLES caused heavy damage to tomatoes in Lea County, New Mexico. (p. 851). BEAN APHID continues

to increase in Willamette Valley, Oregon. Heavy in some areas of Washington. (p. 852). No additional MELON FLY specimens collected in California. (p. 853).

Heavy infestations of GREEN PEACH APHID requiring control on tobacco in Maryland. (p. 857). TOBACCO BUDWORM reported from Hawaii for first time. (p.857).

BOLL WEEVIL migration continues in several States. Heavy attack on young bolls in some Georgia counties, and some boll damage in west Tennessee. Increase in square punctures in Missouri and Oklahoma. (p. 854). BOLLWORMS problem in some California counties, moderate to heavy in New Mexico and primary pest in Pima County, Arizona. Tennessee, Mississippi, Oklahoma report increases. (p. 854). LYGUS BUGS damaging cotton in plains area of Texas. Also of concern in some counties of New Mexico, Arizona and California. (p. 855). SPIDER MITES continue to increase in Kern and Fresno Counties, California; very heavy some of this State. Considerable defoliation in New Madrid and Pemiscot Counties. (p. 855).

Report of LARCH SAWFLY defoliation in Minnesota. (p. 857). Summary of GYPSY MOTH spraying for 1956 season. (p. 858). A LILY APHID (Myzus lili) reported in California for first time. (p. 859).

ENCEPHALITIS, which may be mosquito-borne, reported in horses from Lee County, Virginia. (p. 859).

WEATHER summary and outlook. (p. 856). CORRECTIONS. (p. 860).

STATES reporting this week - 41. ADDITIONAL NOTES. (p. 861).

SURVEY METHOD for RED-HEADED PINE SAWFLY. (p. 863).

Reports in this issue are for the week ending August 17 unless otherwise designated.

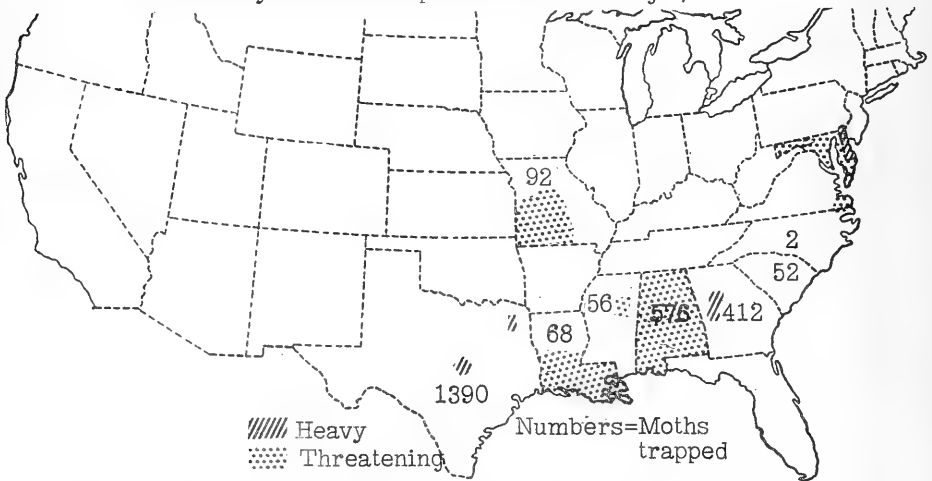
CEREAL AND FORAGE INSECTS

GRASSHOPPERS - CALIFORNIA - Camnula pellucida infesting 3,000 acres in Alpine County, average of 15-18 adults per square yard. (Cal. Coop. Rept., Aug. 10). IDAHO - Mixed threatening populations on 5,000 acres in Crane Creek, 20,000 in Midvale areas and 2,000 acres of cropland in Washington County. Also threatening on 4,000 acres in Adams County. In Whitebird area, 112,500 acres have severe population. (Hackler, Nonini). Dissosteira carolina common in Bingham and Power Counties. Melanoplus bivittatus ovipositing on roadside northeast of American Falls. (Gittins). UTAH - Still troublesome in many areas. Large infestation, 7500 acres of rangeland, in Box Elder County. Egg-laying underway. (Knowlton, Thornley). NORTH DAKOTA - Requiring control in flax and soybeans in some fields. (N. D. Ins. Rept.). SOUTH DAKOTA - Scattered local light to threatening infestation in alfalfa in southeastern area. Severe one place in Union County. Most prominent species M. femur-rubrum. (Hantsbarger). OKLAHOMA - General light damage continues on cotton, corn, sorghums, alfalfa and pastures. (Coppock). KANSAS - Adult survey shows populations about same or little lower than last year in northeast counties. Light to threatening local populations in 10 counties. Dominant species were M. differentialis, M. bivittatus, M. femur-rubrum and Aeneotettix deorum. (Matthew). MINNESOTA - Marginal damage to truck crops, flax, soybeans and corn severe in many areas. Considerable damage to alfalfa and clovers also. Over 15 grasshoppers per square yard in many fields. In southern one-thirds of State most M. bivittatus and M. femur-rubrum in adult stage. About 50 percent adult in other areas. (Minn. Ins. Rept.). MISSOURI - Melanoplus spp. continue threat to alfalfa, red clover, pastures and fall-seeded small grains and legumes over much of State. Damage to margins of fall-seeded small grains appearing in southwestern area. Parasitism by threadworms and fungi in southwestern area. (Kyd, Thomas). MICHIGAN - Camnula pellucida heavy on favorable sites on Upper Peninsula. Few M. femur-rubrum and M. mexicanus. (Janes, August 10). ILLINOIS - Damaging marginal rows in soybeans and corn in some instances. (Ill. Ins. Rept.). WISCONSIN - Damage to new alfalfa seedings and more damage anticipated. Heavy localized or general populations reported from 18 counties. Marginal damage to corn in many fields. (Wis. Ins. Bul.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - RHODE ISLAND - Second-brood adults emerging August 13. (Steve). DELAWARE - Small borers increasing in ears of midseason sweet corn. Stalk infestation heavy in southern area. (Milliron). NEW JERSEY - Moths flights have been very heavy. (Ins.-Dis. News.). MARYLAND - Second-generation light to moderate. Infestation in sweet corn in Frederick 11 percent. (U. Md. Ent. Dept.). ALABAMA - From 5-95 percent infestation in 10 fields in Blount, Marshall, Jackson, De Kalb and Cherokee Counties. (Tys.). MICHIGAN - Damage becoming noticeable. Infestation spotted in field corn but general in sweet corn. (Hutson, Aug. 3). MISSISSIPPI - Found infesting corn in Clay, Lee, Monroe, Pontotoc and Union Counties August 9. Also in Quitman and Montgomery Counties August 6. This makes total of 13 counties infested. Populations light. (Henderson). WISCONSIN - Much of State has light population. Most of first-brood larvae in southern

area in fifth instar with development in northwestern counties only slightly behind. (Wis. Ins. Bul.). ILLINOIS - Pupation complete with about 50 percent of first-generation borers pupating. This compares with 94-100 percent in 1955. Moth emergence nearly complete and egg-laying continuing heavy but decreasing noticeably in central and north central areas by August 15. (Ill. Ins. Rept.). MISSOURI - Average of 26 egg masses per 100 stalks on May-planted corn and 125 per 100 on June-planted corn in southeast. Larvae in all stages in central area with 5 percent pupation of second brood. No second-brood egg masses in northwest. (Burdett). MINNESOTA - Warm weather accelerating development. Moth emergence and egg deposition increasing rapidly with up to 50 egg masses per 100 plants. Peak flight anticipated August 23-28. Appears a high percentage of first-generation will produce a second brood. (Minn. Ins. Rept.). SOUTH DAKOTA - Second-brood moth flight and some egg-laying in southern areas. Twelve percent of first brood in pupation. (Hantsbarger). NEBRASKA - Emergence continues relatively slow resulting in low egg counts. Late-instar larvae and pupae common indicating emergence will again continue throughout August. (Andersen).

Fall Armyworm As Reported Week Ending 8/17



FALL ARMYWORM (*Laphygma frugiperda*) - DELAWARE - Heavy damage to late corn at Mt. Pleasant and Dover. (Milliron). MARYLAND - Spotty damage in late corn in some counties. (U. Md., Ent. Dept.). GEORGIA - Heavy on millet in Spalding County, 25 per square foot. (Tippins). Severe on millet in Meriwether County. (Buchanan). ALABAMA - Continues as threat to grain sorghum, late corn and lawns over most of State. (Ruffin). MISSISSIPPI - Larvae infesting grass in Oktibbeha County. (Hester). LOUISIANA - Remains general and widespread on grasses over southern half of State. (Oliver). MISSOURI - Larvae, all stages, infesting 8-60 percent of late-planted corn in southwestern and

central areas. (Kyd, Thomas). TEXAS - Heavy locally on irrigated young corn and maize in Milam County (Moore) and peanuts in Morris County. (Dean).

CORN ROOTWORMS - WEST VIRGINIA - Northern corn rootworm adults feeding heavily on corn in Hampshire County; 10-20 per ear in one field. (Dorsey, Hansen). MISSOURI - Diabrotica longicornis adults prevented pollination in a few fields in Mississippi County. Three to 4 per shoot in these fields. (Kyd, Thomas). SOUTH DAKOTA - Adults on silks in most fields in southeastern area. Twenty to 30 per plant in some areas, mostly D. longicornis and D. virgifera. (Hantsbarger).

CORN SAP BEETLES - DELAWARE - Carpophilus luqubris continues destructive to sweet corn. Heavier in ears of field corn than usual. (Milliron). MARYLAND - Continue abundant in sweet corn. (U. Md., Ent. Dept.). WEST VIRGINIA - Damaging ears of corn in Greenbrier County. (Dorsey, Hansen).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARIZONA - Heavily infesting corn on 100 acres at Gilbert, Maricopa County. Forty larvae and pupae per 100 stalks in corn west of Safford, Graham County. (Ariz. Coop. Rept.).

CORN LEAF APHID (Rhopalosiphum maidis) - DELAWARE - Unusually abundant on corn. Severe on entire plants at Middletown. (Milliron). MICHIGAN - General in Bad Axe and Tuscola vicinities. (Hutson, Aug. 7). OKLAHOMA - Common on sorghum in Alfalfa County. Decreasing southwestern section. (Owens, Coppock). NEBRASKA - Infesting heads of milo in Republican and Platte Valleys. Lady beetles very heavy and controlling. (Andersen). COLORADO - Damaging numbers on sorghums in Yuma County and adjacent areas. (Ext. Serv.). Heavy honeydew from high populations on corn in Otero County. (Exp. Sta.).

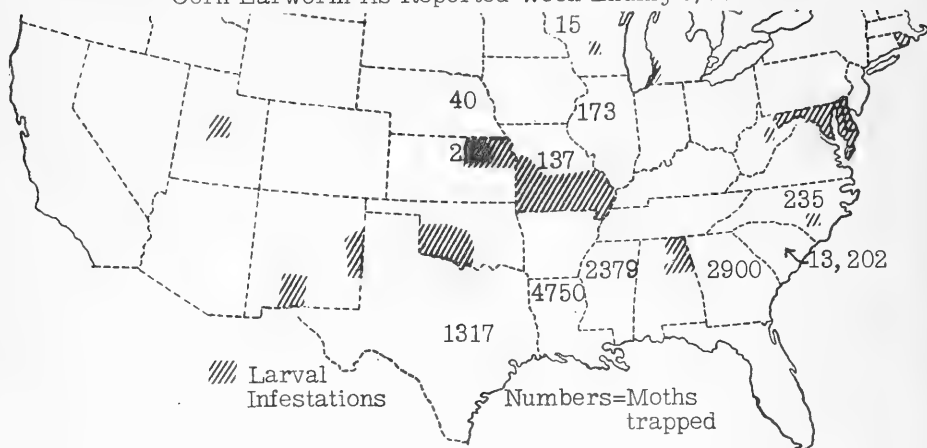
STINK BUGS - OKLAHOMA - Euschistus servus ranging from 0-6 per head on sorghum in Oklahoma and Canadian Counties. (Coppock).

WHITE-FRINGED BEETLES (Graphognathus spp.) - GEORGIA - Found at Temple, Carroll County. Extent of infestation not determined during this period. TENNESSEE - Found at Brownsville, Haywood County. Thus far infestations known to involve 12 acres of city property and 8 adjoining acres of farmland. These are new county records. (WFB Prog., July 1-31).

RICE STINK BUG (Solubea pugmax) - LOUISIANA - Generally very low in rice, 10-30 per 100 sweeps in 2 parishes. (Oliver).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ALABAMA - Damaging sorghum, field peas, beans and other crops in Escambia, St. Claire, Lee and Montgomery Counties. (Ruffin).

Corn Earworm As Reported Week Ending 8/17



CORN EARWORM (*Heliothis zea*) - RHODE ISLAND - Full-grown larvae damaging ears. (Steve). DELAWARE - Normal in field corn but lighter than usual in sweet corn. (Milliron). MARYLAND - Moderate in ears coming to canneries. (U. Md., Ent. Dept.). VIRGINIA - Potential for damage to soybeans, peanuts and other crops in several areas. (Morris). NORTH CAROLINA - Averaged 19.4 eggs per silk on sweet corn at Faison. (Farrier). WEST VIRGINIA - Heavy in corn in Mineral, Hampshire and Randolph Counties. (Dorsey, Hansen). ALABAMA - Seventy to 95 percent of ears infested in 11 fields checked in Blount, Marshall, Jackson, De Kalb and Cherokee Counties. (Tyus). MISSOURI - Heavy moth flights continue. From 1-12 eggs per silk mass and .5-4 eggs per whorl of late-planted corn in southwest. Two larvae per head of grain sorghum in southwestern and west central areas. Ninety-five to 100 percent infestation in ears of field corn in southern half of State. (Kyd, Thomas). WISCONSIN - Third instars in corn in Portage County August 10. (Wis. Ins. Bul.). KANSAS - Heavy in field corn in northeast area. Most ears infested and new generation of larvae present. Heavy moth flights in Atchison, Leavenworth and Doniphan Counties. (Matthew). NEW MEXICO - Medium to heavy in corn in Dona Ana, Roosevelt and Curry Counties. (Durkin). UTAH - Damage ranges from 3-40 percent in 5 counties. Controls in Utah County. (Dorst). OKLA.- Increasing s. w. counties, up to 22 per sweep. (Coppock).

WHITE GRUBS (*Phyllophaga* spp.) - OKLAHOMA - Destroyed 7 of 40 acres of sorghum near Anadarko. (Coppock). ALABAMA - Unusual infestation damaging peanuts in fields in Geneva and Coffee Counties. As high as 80 percent of nuts cut from vines. (Ruffin).

ARMYWORM (*Pseudaletia unipuncta*) - DELAWARE - Common in late sweet corn near Georgetown. (Milliron). NEBRASKA - Infestation about over, from 3-7 pupae per square foot 5 south central counties. About 8000 acres sprayed in Hall County. (Andersen).

SPOTTED ALFALFA APHID - CALIFORNIA - Despite general distribution of spotted alfalfa aphid in southern California and in many localities in central area, and some in the Sacramento Valley, production of alfalfa has increased to a new high, 4.65 tons per acre, in 1956. Figures on increased costs of production and quality of hay due to the aphid are not available. (Cal. Coop. Rept.). ARIZONA - Moderate to threatening on alfalfa at Bowie, Cochise County and Safford, Graham County. (Ariz. Coop. Rept.). UTAH - Continues damaging in many areas. Found in Duchesne and Uintah Counties for first time. Predators very numerous in outbreak areas. Controls applied in several counties. (Knowlton). COLORADO - Well distributed in Mesa County, August 1. Fluctuations in populations in all heavily infested areas. (Exp. Sta.). NEW MEXICO - Declining to light to non-existent in most fields in Dona Ana and Curry Counties. Heavy in Torrance County. (Durkin). TEXAS - Light locally on alfalfa in Brazos County. (Randolph). MISSOURI - Remains generally low, 1-12 per sweep, except for widely-scattered fields with 100-250 per sweep in southern half of State. No appreciable honeydew in these latter fields and predators numerous. (Kyd, Thomas). NEBRASKA - Building up in alfalfa in southern 2 tiers of counties, 1-3 per 25 sweeps. (Andersen). KANSAS - Non-economic infestations in nearly all alfalfa surveyed in 11 northeast counties, 2-40 aphids per sweep. No honeydew. Reports indicate increasing populations in north central area. In general, apparently present populations in Kansas are about same as last year at the time and with same statewide distribution. (Matthew). OKLAHOMA - Building up in fields having plenty moisture in Grady and Caddo Counties, up to 50 per sweep. Low in other sections. (Coppock). NORTH CAROLINA - Collected on alfalfa in Mecklenburg County, July 31, by R. C. Dickson. Determined by Dickson and L. M. Russell. (Farrier). This is first report of this species in North Carolina. VIRGINIA - First collected August 1 by R. C. Dickson in Botetourt County. Det. Dickson and L. M. Russell. Also collected in Botetourt, Roanoke and Montgomery Counties by W. G. Evans. Severe in one field in Botetourt County and warrants treatment, light in 3. Moderately heavy in one field in Roanoke County and one in Montgomery County. Very light in one field in Montgomery also. (Morris). New State records.

CLOVER APHID (Anuraphis bakeri) - UTAH - Abundant in red clover in north and central areas. (Knowlton). IDAHO - Large populations on red clover in Jerome, Power, Cassia and Bonneville Counties. (Cross, Gittins).

SWEETCLOVER APHID (Myzocallidium riehmii) - VIRGINIA - Collected from sweetclover in Grayson County by R. C. Dickson. Determined by R. C. Dickson and L. M. Russell. Not previously reported for State. (Morris). KENTUCKY - Collected from sweetclover at Mayfield, July 20, by R. C. Dickson. Determined Dickson and L. M. Russell. New State record. (Price).

YELLOW CLOVER APHID (Pterocallidium trifolii) - NORTH CAROLINA - Collected on Trifolium pratense or T. repens in Mecklenburg, Iredell and Surry Counties, July 31, by R. C. Dickson. Determined by Dickson and L. M. Russell. (Farrier). KENTUCKY - Collected from T. pratense or

T. repens from Mayfield and Fulton, July 20 by R. C. Dickson.
Determined Dickson and L. M. Russell. (Price).

PEA APHID (Macrosiphum pisi) - NEBRASKA - Increasing in Republican and Platte Valleys, 350-500 per sweep. (Andersen). SOUTH DAKOTA - Populations high, up to 60 per sweep in legumes in some southeastern localities. (Hantsbarger). UTAH - Continues injurious in many areas, even on third-crop alfalfa. Unusually abundant for time of year. (Knowlton).

ALFALFA WEBWORM (Loxostege commixtalis) - NEBRASKA - Adults and larvae prevalent in most alfalfa in Republican River Valley. Webbing noticeable in most fields. Ten to 15 larvae per 25 sweeps. (Andersen).

GARDEN WEBWORM (Loxostege similalis) - ALABAMA - Damaging soybeans in Baldwin County. (Ruffin). SOUTH DAKOTA - Found occasionally in alfalfa. (Hantsbarger).

VARIEGATED CUTWORM (Peridroma margaritosa) - NEBRASKA - Larvae appearing in alfalfa in Hall County, 1 per 25 sweeps. (Andersen).

GREEN CLOVERWORM (Plathypena scabra) - MARYLAND - From 2-10 sweeps on alfalfa in Talbot County. (U. Md., Ent. Dept.).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - NORTH DAKOTA - Adults numerous in alfalfa fields in southeastern area but larvae at non-economic levels. (N. D. Ins. Rept.).

YELLOW-STRIPED ARMYWORMS - OKLAHOMA - Light isolated infestations in central counties, 0-4 per 10 sweeps. (Coppock). KANSAS - Prodenia ornithogalli very light, 8-40 per 25 sweeps, in alfalfa in north-east area. (Matthew).

SPIDER MITES - DELAWARE - Tetranychus atlanticus causing light to moderate injury to soybeans. (Milliron). NEBRASKA - Light infestation and some damage by Tetranychus sp. on corn in Dawson County. (Andersen). COLORADO - T. telarius developing in many corn areas, particularly heavy in southeastern counties. (Exp. Sta., Ext. Serv.). UTAH - Damaging canning corn in Utah County. (Knowlton). IDAHO - Clover treated for control on T. telarius in Twin Falls area. Building up on alfalfa and red clover and corn in Canyon County. (Bechtolt).

BLISTER BEETLES - MINNESOTA - One to 6 Epicauta pennsylvanica per sweep in alfalfa in southeast area. (Minn. Ins. Rept.). NEBRASKA - Damage from E. pennsylvanica and Epicauta sp. in alfalfa, 15 per 10 sweeps in Republican and Platte Valley areas. (Andersen). SOUTH DAKOTA - Common in alfalfa, 6-7 per 10 sweeps. (Hantsbarger).

PLANT BUGS - OREGON - Average of 15-25 Lygus sp. per swp. on alfalfa in Jackson and Josephine Counties, Aug. 10. IDAHO - Lygus elisus and L. hesperus abundant in alfalfa and red clover seed fields in south central area. (Gittins).

UTAH - Lygus spp. continue unusually abundant in alfalfa and clover. (Knowlton). NEBRASKA - Adelphocoris lineolatus very abundant in most alfalfa in Platte Valley, 10 per sweep. (Andersen).

POTATO LEAFHOPPER (Empoasca fabae) - NEW JERSEY - Relatively high levels in alfalfa. (Ins. -Dis. News.). MARYLAND - Three to 10 per sweeps on alfalfa in Talbot and Queen Annes Counties. Light to moderate damage. (U. Md., Ent. Dept.). WISCONSIN - Damage to new alfalfa seedings. Populations still very heavy. (Wis. Ins. Bul.).

A COLASPIS (Colaspis sp.) - LOUISIANA - Heavy damaging infestation on white clover in Acadia Parish, 250 per 100 sweeps. (Oliver)

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Populations remain high; 400 per 100 sweeps in white clover in Acadia Parish, 150-300 per 100 in alfalfa in Natchitoches, Red River and Bossier Parishes, and 80-140 per 100 in soybeans in St. Landry and Pointe Coupee Parishes. (Oliver). TEXAS - Heavy locally on alfalfa in Burleson County. (Turney). ARIZONA - Eighteen per 4 sweeps in alfalfa in areas of Cochise and Graham Counties. (Ariz. Coop. Rept.).

ALFALFA WEEVIL (Hypera postica) - WEST VIRGINIA - Heavy on alfalfa in Hampshire County. (Dorsey, Hansen).

BEAN LEAF BEETLE (Cerotoma trifurcata) - DELAWARE - Heavy leaf injury to soybeans at some places on Primehook Neck. (Milliron). MARYLAND - Light in soybeans in some counties. (U. Md., Ent. Dept.). LOUISIANA - Light to moderate in soybeans, 20-60 per 100 sweeps in some parishes. (Oliver). ARKANSAS - Heavy in soybeans in parts of northeast area. (Warren, Harrendorf, Barnes).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - ILLINOIS - Very marked increase in entrances in orchards in Jackson, Franklin, Jefferson, and Marion Counties. (Chandler). WISCONSIN - Entries medium to heavy in poorly-sprayed orchards of Door County. (Wis. Ins. Bul.). MICHIGAN - Peak flight for summer brood occurred July 29 at Beulah, Traverse City and Old Mission. (Hutson). UTAH - Occasional high populations where timing missed. (Knowlton). OREGON - Damage in several pear orchards in Marion County where programs not completed. (Stephenson).

APPLE MAGGOT (Rhagoletis pomonella) - MASSACHUSETTS - Still abundant and migrants threatening orchards. (Crop Pest Cont. Mess.). WISCONSIN - Populations heavy in Jefferson and Milwaukee Counties. (Wis. Ins. Bul.).

APHIDS - WISCONSIN - Populations increasing and damaging tips of young trees. (Wis. Ins. Bul.).

APPLE APHID (Aphis pomi) - MICHIGAN - Infestations widespread but under adequate control. (Hutson).

WOOLLY APPLE APHID (Eriosoma lanigerum) - WASHINGTON - Some build-up of populations on apples in Yakima Valley. (Yakima Spray Bul.).

ORCHARD MITES - ILLINOIS - Tetranychus telarius and Metatetranychus ulmi still a problem in some orchards in southern area. (Chandler). INDIANA - Mite counts on 200 leaves of five varieties of apples were 109, 59, 117, 219 and 124 on July 26, 30, August 3, 7 and 13 respectively in the Orleans area. (Marshall). MICHIGAN - M. ulmi on plums and T. telarius on apples general in Lansing, Grand Rapids, Sodus, St. Joseph, Shelby and Monroe areas. (Hutson). WISCONSIN - Heavy populations, 15-20 per leaf, several varieties of apples in some orchards where bronzing occurs. (Wis. Ins. Bul.). OREGON - Very little summer migration to pear trees by T. telarius in Jackson County and much less abundant than normal. (Gentner).

CLOVER MITE (Bryobia praetiosa) - UTAH - Damage conspicuous particularly on apples in orchards in many counties. (Knowlton).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - ILLINOIS - Larvae half grown and tying leaves to fruit and injuring fruit in some orchards in Carbondale area. (Chandler). MASSACHUSETTS - Many small larvae and eggs found August 14. (Crop Pest Cont. Mess.). WISCONSIN - Second-generation larvae on foliage. (Wis. Ins. Bul.).

GREEN JUNE BEETLE (Cotinis nitida) - OKLAHOMA - Abundant on ripening peaches in central area. (Bower).

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - WASHINGTON - Most serious infestation in Yakima Valley in Englewood Heights and Parker areas. Trunk sprays being applied. (Yakima Spray Bul.).

JAPANESE BEETLE (Popillia japonica) - WEST VIRGINIA - Damaging grapes in Randolph and Hampshire Counties. (Dorsey, Hansen).

TRUCK CROP INSECTS

BEET LEAFHOPPER (Circulifer tenellus) - UTAH - Curly top of canning tomatoes averages five percent in northern area with peak of 14 percent in Weber County. (Dorst). IDAHO - Abundant in many beet fields in south central and eastern areas. Particularly abundant on sugar beets in parts of Bonneville and in Power and Bingham Counties. (Schow, Kohl, Gittins). CALIFORNIA - Due to heavy losses, a cooperative control program is under way in Imperial County, where populations average 5-30 per ten sweeps. In the Rio Vista area of Sacramento Valley, less than five percent of beets infected with counts 2-10 per ten sweeps. (Cal. Coop. Rept., Aug. 10).

BEEET WEBWORM (Loxostege sticticalis) - IDAHO - In economic numbers, six plus per plant, in south central and eastern areas on sugar beets and potatoes and in 320 acres of sweetclover. Damage up to 50 percent defoliation some fields. Estimated loss four tons per acre. Power County sugar beet growers estimate loss at \$8000 to date. (Gittins).

CLOVER CUTWORM (Scotogramma trifolii) - IDAHO - Damaging numbers on sugar beets and potatoes. (Gittins).

YELLOW-STRIPED ARMYWORMS (Prodenia spp.) - IDAHO - Damaging numbers on sugar beets and potatoes. Migrating from Russian-thistles to potatoes west of American Falls. (Gittins). VIRGINIA - P. ornithogalli numerous on tomatoes and snap beans eastern area. Light trap catches very high. Expected to damage late truck crops in eastern area. (Hofmaster, Brubaker).

CABBAGE APHID - MICHIGAN - Infestations appearing near Allegan and Hooper. (Hutson).

LEAF MINERS (Liriomyza spp.) - CALIFORNIA - General on sugar beets lettuce and onions in northern Salinas Valley, Monterey County and increasing in tomato fields Sacramento County. (Cal. Coop. Rept., Aug. 10).

TOMATO FRUITWORM (Heliothis zea) - UTAH - Egg populations on tomato leaves for season averages 0.4 per 100 leaves. No control measures warranted. (Dorst). NEW MEXICO - Causing light to moderate damage to tomatoes in Dona Ana County. (Durkin). VIRGINIA - Threatening tomatoes and other hosts in eastern area. Adults increased in light traps, indicating another generation. (Morris). MICHIGAN - Infestations appearing at Sodus, Baroda and Allegan. (Hutson).

HORNWORMS (Protoparce spp.) - NEW MEXICO - Damaging tomatoes in Dona Ana and Lea Counties. Large numbers of adults reported in Luna County. (Durkin).

CARROT BEETLE (Ligyrus gibbosus) - KANSAS - Destructive to tomato plantings in Kiowa County. Extremely heavy populations several areas of State. Feeding on sunflowers at Manhattan and in Jefferson County. Heavy catches in light traps, with up to 22,000 taken one night. (Matthew).

BLISTER BEETLES - NEW MEXICO - Epicauta maculata and E. bispinosa caused abandonment of about 600 acres of tomatoes in Lea County. (Durkin).

POTATO APHID (Macrosiphum solanifolii) - DELAWARE - Unusually abundant on squash and light on tomatoes at Georgetown. (Milliron).

VINEGAR FLIES - NEW JERSEY - Beginning to increase in large numbers in tomatoes. (Ins. - Dis. News.).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - IDAHO - Abundant on potatoes in Idaho Falls area. (Kohl, Gittins). Bean fields being treated in Twin Falls area. (Douglass et al.).

TUBER FLEA BEETLE (Epitrix tuberis) - COLORADO - Adult populations increasing in late potato plantings. (Exp. Sta.).

POTATO PSYLLID (Paratrioza cockerelli) - UTAH - Adults common in potato fields. Damage scattered and generally not severe. (Knowlton).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - DELAWARE Abundant on late potatoes near Georgetown. (Milliron). IDAHO - Adults greatly increased in eastern area. Occasional field will require control for second-generation larvae. (Kohl, Schow, Gittins).

APHIDS - MAINE - Continue to increase sharply on untreated potatoes in Presque Isle area, overall populations only about one-fourth those of last year. (Shands).

A LEAFHOPPER (Empoasca filamenta) - IDAHO - Heavy populations severely damaging potato foliage in eastern area. (Schow, Kohl, Gittins).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - IDAHO - Aircraft control of larval populations started August 7 in Rupert area. Some corn infested in south central area. (Douglass et al.).

POTATO LEAFHOPPER (Empoasca fabae) - DELAWARE - Abundant on lima beans northeast of Milton. (Milliron).

MEXICAN BEAN BEETLE (Epilachna varivestis) - NEW MEXICO - Heavy on beans in Torrance County. (Durkin). VIRGINIA - Heavy adult populations on young beans and extensive damage expected in eastern area unless controlled. (Brubaker).

GREEN CLOVERWORM (Plathypena scabra) - DELAWARE - Abundant on lima beans at Smyrna, Frederic and Lincoln and adults numerous east of Milford. (Milliron).

BEAN APHID (Aphis fabae) - WASHINGTON - Very numerous at Sumner on ornamentals, weeds and beans. Alates moderately numerous. (Doucette). Heavy infestations on pole beans in King County. Some controls applied. (Johansen). OREGON - Continues to build up in Willamette Valley. Several fields in Marion County treated August 16. (Capizzi).

IMPORTED CABBAGEWORM (Pieris rapae) - RHODE ISLAND - Extensive damage to late untreated cabbage. (Steve).

CABBAGE LOOPER (Trichoplusia ni) - DELAWARE - Very destructive to late cabbage at Dover, feeding on lima beans at Smyrna, on tomatoes generally, and on potatoes at Leipsic. (Milliron).

FALL ARMYWORM (Laphygma frugiperda) - VIRGINIA - Damaging kale and collards in eastern area. Expected to become serious if not controlled. (Hofmaster).

TURNIP APHID (Rhopalosiphum pseudobrassicae) - DELAWARE - Unusually abundant on late cabbage in Georgetown area. (Milliron).

FLEA BEETLES - VIRGINIA - Heavy on all cucurbits and crucifers in eastern area (Hofmaster) and have destroyed about three acres of truck in Bedford County. (Boone).

LYGUS BUGS (Lygus spp.) - CALIFORNIA - General on celery and lettuce in northern Salinas Valley, Monterey County. (Cal. Coop. Rept., Aug. 10).

A LETTUCE APHID (Macrosiphum barri) - IDAHO - Populations 25-30 per two-inch tip in Canyon County. (Scott).

MELON FLY (Dacus cucurbitae) - CALIFORNIA - In vicinity of Westwood, Los Angeles County where a single specimen was collected July 24, 1000 traps have been set out. No additional flies have been collected. Placing of additional traps, to about 7000, is in process in Los Angeles County. (Cal. Coop. Rept., Aug. 10).

SQUASH BUG (Anasa tristis) - RHODE ISLAND - Nymphs abundant and causing wilting of leaves. Leaf damage expected to increase. (Steve).

ONION MAGGOT (Hylemya antiqua) - IDAHO - Adults still active in untreated fields of Canyon County. (Scott).

ONION THRIPS (Thrips tabaci) - UTAH - Damage common throughout State. (Knowlton). IDAHO - Caused 10-20 percent leaf injury in five acres of onions in Twin Falls. (Gittins). Populations building up in bean fields in southern area. (Douglass et al.).

SOUTHERN GARDEN LEAFHOPPER (Empoasca solana) - LOUISIANA - Continues to build up in sweetpotatoes in St. Landry Parish. (Oliver).

A TORTOISE BEETLE - NEW MEXICO - Causing moderate to severe damage to commercial chile plantings in Valencia County. (Durkin).

PEPPER MAGGOT (Zonosemata electa) - NORTH CAROLINA - Heaviest damage ever noted in commercial peppers near Charlotte. One field with 10-25 percent of fruits infested. (Jones).

CUTWORMS - VIRGINIA - Heavily damaging young pepper plants on Eastern Shore. In some fields, 25 percent of plants destroyed in one night. (Hofmaster).

WEBWORMS - WASHINGTON - Abundant on mint in Yakima Valley. Second in importance only to alfalfa looper this season. (Frick). Adults numerous on clovers near Moses Lake and Quincy. Reported damaging sugar beets in Columbia Basin. (Johansen).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - VIRGINIA - Square infestations of 48 and 40 percent in 2 fields in Brunswick County. (Morris). SOUTH CAROLINA - Migrating in many areas. (Cott. Lett.). TENNESSEE - Migrating in southwestern counties. Lack of squares resulting in high infestation counts. Some boll damage in more heavily infested fields. (Locke). GEORGIA - Heavy infestation attacking young bolls in Jackson, Barrow, Forsyth, Bartow, Polk, Floyd, Gordon and Stephens Counties. No square counts due to scarcity of squares. (Johnson). ALABAMA - Twenty-six percent infestation in 30 fields in 9 northeastern counties. (Tyus). MISSISSIPPI - Local migration well underway. Infestations from 3 to 100 percent but infestation counts mean very little. (Merkl et al.). LOUISIANA - Average of 36 percent infestation in 93 fields in Tallulah area. Local migration occurring. (Pfrimmer et al.). Ten fields in Concordia Parish had 28 percent infestation and 6 in Ouachita had 27. (Oliver). ARKANSAS - Infestations very variable. Infestation percentage by area this week and last: southwest 27.4 and 20.9, east central 21.2 and 22, northeast 27.3 and 21.2, central 31.9 and 30.7, southwest 33.7 and 43.3. (Warren, Harrendorf, Barnes). OKLAHOMA - Generally light in southwestern irrigated area, 0-8 percent infestation, but punctures increasing. As high as 30 percent infestation in irrigated cotton in Grady County. (Coppock, Bryan). TEXAS - No complaints of failure to control boll weevil in Waco area this season. (Parencia et al.). MISSOURI - Considerable increase in punctured squares and in number of infestations. Square infestation from 4-68 percent. (Kyd, Thomas).

BOLLWORMS (*Heliothis* spp. et al.) - CALIFORNIA - Becoming abundant most fields in Kern County, economic populations common in several areas. Economic populations also in several fields in Tulare County. Increasing in Imperial County, Aug. 2. (Cal. Coop. Rept.). ARIZONA - Continue , primary pest in Pima County and part of Pinal County. Aug. 10. Increasing in untreated fields in upper Gila River Valley, 2-20 per 100 plants. (Ariz. Coop. Rept.). TEXAS - Lighter than for past several weeks in McLennan and Falls Counties. (Parencia et al.). Heavy in some irrigated fields. Egg deposition decreased in some areas. (Turney, Martin). OKLAHOMA - Light to heavy in irrigated cotton in southwestern area, up to one egg per terminal. (Coppock, Bryan). Some fields have as high as 20 larvae per 100 terminals and 90 eggs per 100 terminals in Jackson County. Increase in eggs in southwest counties. (Flora). NEW MEXICO - Moderate to heavy damage in most cotton areas. (Durkin). MISSOURI - From 1-21 larvae per 100 terminals in 345 fields while egg counts range from 3-96 per 100 terminals. (Kyd, Thomas). LOUISIANA - Average of 5.4 eggs per 100 terminals in 93 fields in Tallulah area. Larvae found at rate of 3.2 per 100 terminals in 91 fields. (Pfrimmer et al.). Increase in Rapides Parish. Continue threat in Bossier, Ouachita and Concordia Parishes. (Oliver). MISSISSIPPI - Eggs increasing, larvae low, little damage in delta counties. (Merkl et al.). ALABAMA - From 3-9 eggs per 100 terminals in 28 fields in 9 northeastern counties. (Tyus). GEORGIA - From 2-6 percent infestation of bolls in 8 counties. (Johnson). TENNESSEE - Increasing in some areas. Control needed in many fields. (Locke).

LYGUS BUGS - NEW MEXICO - Medium to heavy, 8-28 per 100 sweeps in Dona Ana County. (Durkin). TEXAS - Damaging infestations in several north and south plains counties. (Turney, Martin). ARIZONA - Declining most areas. As high as 35 per 100 sweeps in fields not recently treated in Maricopa County. (Ariz. Coop. Rept.). CALIFORNIA - Many fields still requiring treatment in Fresno County, August 9. Economic infestations in Tulare County. (Cal. Coop. Rept.).

CABBAGE LOOPERS - OKLAHOMA - From 2-20 per plant in irrigated cotton in southeastern, south central and southwestern counties. Light to moderate damage to foliage. (Coppock, Bryan). As high as 30-40 per plant in Greer County. Severe some fields in Jackson County. (Flora). NEW MEXICO - Trichoplusia ni light to medium in cotton in Eddy and Chaves Counties. (Durkin). ARIZONA - Trichoplusia ni heavily infesting 200 acres at Casa Grande. Severe in Pinal County, 2000 acres need treating. (Ariz. Coop. Rept.).

APHIDS - NEW MEXICO - Aphis gossypii general in Eddy, Chaves, Roosevelt and Curry Counties with some fields heavily infested. (Durkin). GEORGIA - Light infestations in 3 counties, moderate in 4. (Johnson). LOUISIANA - Very heavy cotton aphid infestation in several fields in Red River and Ouachita Valleys. (Oliver). ALABAMA - Medium in 5 fields in northeastern counties. (Tyus).

SPIDER MITES - CALIFORNIA - Continue serious problem in many fields in Kern County and increasing rapidly. Build-up continues in Fresno County. Extremely heavy in Helm and San Joaquin area. Many fields receiving border treatment in Tulare County. (Cal. Coop. Rept., Aug. 9). ARIZONA - Severe in several fields near Gilbert. (Ariz. Coop. Rept.). OKLAHOMA - Generally very light. Isolated spots in some fields in Jackson and Tillman Counties show moderate damage. (Coppock). MISSOURI - Light to very severe in 129 fields. Considerable defoliation in New Madrid and Pemiscot Counties. Mites identified as Tetranychus atlanticus. (Kyd, Thomas). TEXAS - Increased in irrigated cotton in east, central and south plains areas. (Turney, Martin). MISSISSIPPI - Medium to heavy local infestations in delta counties. (Merkl et al.). GEORGIA - Moderate in Jackson, Barrow, Forsyth and Floyd Counties, heavy in Polk, Bartow and Gordon Counties. (Johnson). TENNESSEE - Heavy spotted infestations in western area. (Locke).

COTTON LEAFWORM (Alabama argillacea) - TEXAS - Recorded in central and south plains areas, but no damaging infestations. (Turney, Martin). OKLAHOMA - Moderate infestation in Grady, Greer, Haskell and Kiowa Counties. (Flora).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Adult activity increasing in Maricopa County and larvae becoming more numerous, Aug. 10. (Ariz. Coop. Rept.).

LEAF ROLLERS - CALIFORNIA - Reaching damaging numbers in many fields in Imperial County, Aug. 2. Considerable boll rot some fields. (Cal. Coop. Rept.).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Some damage in Pinal County due to unsatisfactory controls, August 10. Light to severe infestations in Maricopa and Pinal Counties. Sub-economic in Cochise and Graham Counties. (Ariz. Coop. Rept.). CALIFORNIA - Damage lighter than last year in Imperial County. Heavy parasitism of larvae. (Cal. Coop. Rept. Aug. 2).

CELERY LEAF TIER (Udea rubigalis) - CALIFORNIA - Moths and eggs abundant in some fields in Kern County but very few larvae, Aug. 9. (Cal. Coop. Rept.).

POTATO LEAFHOPPER (Empoasca fabae) - CALIFORNIA - One fields in Tulare County showed severe damage, July 26. (Cal. Coop. Rept.).

WEATHER BUREAU'S 30-DAY OUTLOOK

Mid-August to Mid-September 1956

The Weather Bureau's 30-day outlook for the period from mid-August to mid-September calls for temperatures to average below seasonal normals in the Great Lakes region, Northern Plains, and far Southwest. Above normal temperatures are predicted in the southern half of the nation east of the Rockies, in the northern Plateau region, and along the coasts of New England and California. In other areas, temperatures should average near normal. Precipitation is expected to exceed normal in the Central Plains and Great Lakes region. Subnormal amounts are indicated in the Middle Atlantic States, the South, and the Far West, with near normal elsewhere.

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 for six months.

WEATHER FOR THE WEEK ENDING AUGUST 20, 1956

An unseasonably cold Canadian air mass entering the country via Montana on Friday and covering most of the area east of the Continental Divide by Monday produced the most outstanding influences on the Nation's weather this week. Freezing temperatures were reported in isolated locations of several northern states from North Dakota to Michigan on Sunday and Monday mornings while in Kansas, Oklahoma, Missouri, Arkansas, and northern Texas, where daily maxima have consistently reached 100 or above during the past few weeks, maxima dropped into the 60's and 70's on Sunday. Cloudy skies and rain prevailed along the leading edge of the frontal boundary and falls ranged from a trace to over 3 inches at individual locations. Hurricane "Betsy" which was threatening the eastern Florida coast a week ago moved gradually northeastward entirely missing the country's mainland but bringing heavy to moderate rain to southeastern coastal areas. Weekly precipitation totals were also moderate to heavy in (Weather continued on p. 861.

TOBACCO INSECTS

HORNWORMS (Protoparce spp.) - MARYLAND - Second-brood infestation moderate. Larvae mostly small. (U. Md., Ent. Dept.). NORTH CAROLINA - Fields in east central counties with green tobacco averaged better than one egg and one larva per 25 plants. (Farrier).

TOBACCO BUDWORM (Heliothis virescens) - HAWAII - Taken in light trap near Pearl Harbor. First record of establishment of this species in Hawaii. Determined E. Zimmerman. (Beardsley, Zimmerman, Thistle).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Heavy on tobacco in all five tobacco-growing counties. Treatment using aircraft continues. (U. Md., Ent. Dept.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - MINNESOTA - Still defoliating jack and red pines in widely-scattered areas. (Minn. Ins. Rept.).

INTRODUCED PINE SAWFLY (Diprion similis) - MINNESOTA - Causing heavy defoliation of white pines near Crosby. (Minn. Ins. Rept.).

WHITE-PINE WEEVIL (Pissodes strobi) - WEST VIRGINIA - Infesting 70 percent of white pine in one plantation in Hampshire County. (Dorsey, Hansen).

IPS BEETLES - ARKANSAS - Increasing in southwestern area where controls being used. (Ark. For. Comm.). ALABAMA - Considerable number of pine trees dying in central area. (Olive).

BAGWORM (Thyridopteryx ephemeraeformis) - MISSISSIPPI - Damage reported from Newton County. (Hutchins). KANSAS - Serious infestations in many towns southeast and south central areas. (Calkins).

LARCH SAWFLY (Pristiphora erichsonii) - MINNESOTA - Aerial survey completed August 10. Heavy to complete defoliation over much of tamarack in Red Lake area and north. Heavy defoliation northeast of Leech Lake and east of Hill City. (Minn. Ins. Rept.).

ELM CALLIGRAPHA (Calligrapha scalaris) - OKLAHOMA - Heavy

infestation on American elms in sections of Oklahoma City. (Bower).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NORTH CAROLINA - Local infestations in Caswell and Guilford Counties. (Ward, Jones).
OREGON - Defoliating many elm trees in Salem August 16. (Capizzi).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - CALIFORNIA - Heavy infestation on elms near Danville, Contra Costa County. (Harper).

APHIDS - WASHINGTON - Periphyllus lyropictus and other aphids a problem in Spokane in early summer (Moody) and aphids on maples prevalent in Sumner, causing dropping of leaves and much honeydew. (Doucette). UTAH - Abundant on Norway maple and poplars in several areas. (Knowlton).

AMERICAN DAGGER MOTH (Acronicta americana) - IDAHO - Defoliating boxelder trees in south central area. (Douglass et al.).

SADDLED PROMINENT (Heterocampa guttivitta) - WISCONSIN - Causing complete defoliation of some beech and sugar maple trees in Door County. Many larvae killed by disease in heaviest infestations, August 11. (Wis. Ins. Bul.).

Summary of Gypsy Moth Spraying
1956 Season

(Includes Both Aerial and Mist Blower Applications)

<u>Location</u>	<u>Acres Sprayed</u> <u>Federal Contracts</u>	<u>Acres Sprayed</u> <u>State Agencies</u>	<u>Total Acres</u> <u>Sprayed</u>
Connecticut	-	15,963	15,963
Maine	-	200	200
Massachusetts	-	120,000	120,000
Michigan	-	98,860	98,860
New Jersey	152,098	-	152,098
New York	395,623*	50,580	446,203
Pennsylvania	78,705	10,435	89,140
Rhode Island	-	15,000	15,000
Vermont	600	3,400	4,000
Totals:	627,026	314,438	941,464

* 38,595 acres sprayed under Federal application contract in New York with supervision and most of materials furnished by New York Conservation Department in over-all State control program involving treatment of 89,175 acres. (Gypsy Moth Cont. Prog., July 18).

BIRCH SAWFLY (Arge pectoralis) - MINNESOTA - Defoliating birch west of Nett Lake August 9. (Minn. Ins. Rept.).

FALL WEBWORM (Hyphantria cunea) - COLORADO - Appearing in chokecherry, cottonwood and other plants in foothills area of Larimer County. (Exp. Sta.). NORTH DAKOTA - Severe infestations in several groves in Benson County. Webbing of 50 percent of foliage of some groves. (N. D. Ins. Rept.). MINNESOTA - Reported from all sections. Attacking lilacs, fruit trees and many other deciduous trees. (Minn. Ins. Rept.).

LOCUST TWIG BORER (Ecdytolopa insiticiana) - DELAWARE - Prevalent in small black locust trees throughout State. (Milliron).

JAPANESE BEETLE (Popillia japonica) - FLORIDA - Trapping operations since the find of a single adult in April, failed to reveal another beetle. Trapping discontinued. (Denmark).

LUNA MOTH (Actias luna) - WISCONSIN - Larvae defoliating ironwood at several locations of Door County, Aug. 11. (Wis. Ins. Bul.).

MAGNOLIA SCALE (Neolecanium cornuparvum) - WEST VIRGINIA - Killing magnolia trees in Kanawha, Hampshire County. (Dorsey, Hansen).

MIMOSA WEBWORM (Homadaula albizziae) - SOUTH CAROLINA - Heavily infesting trees at Sand Hill Station, August 7. (Nettles). NORTH CAROLINA - Local infestation on mimosa in Caswell County. (Ward, Farrier).

PEAR-SLUG (Caliroa cerasi) - UTAH - Damage severe on hawthorn in Morgan and Summit Counties. (Knowlton).

EUONYMUS SCALE (Unaspis euonymi) - TEXAS - Heavy populations on shrubs in Kaufman County. (Hawkins).

A LILY APHID (Myzus lili) - CALIFORNIA - Light infestation on lilies in a nursery at Crescent, Del Norte County, July 19. New State record. Possible vector of lily viruses. Determined F. L. Blanc. (Harper).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Troublesome many areas. Culex tarsalis dominant in Weber County. (Fronk, Knowlton). MINNESOTA - Very large populations entered Twin Cities week end of August 11-12. (Minn. Ins. Rept.). VIRGINIA - Outbreak of encephalitis in horses reported from one area of Lee County. Diagnosis made by veterinarian. Several horses on Wallens Creek had the disease, some died. Possible encephalitis of horses reported from King George County, August 4. (Morris). NORTH CAROLINA - Aedes sollicitans and A. taeniorhynchus biting fiercely on Cedar Island, Carteret County, week of August 10. (Cromroy).

HOUSE FLIES - MARYLAND - Increasing around dairy barns and hog pens in most sections. (U. Md., Ent. Dept.).

STABLE FLY (Stomoxys calcitrans) - RHODE ISLAND - Twenty flies per animal in a two-minute period in Richmond area. (Steve).

A TABANID (Tabanus trispilus) - RHODE ISLAND - Annoying cattle, up to five per cow. (Steve).

TICKS - LOUISIANA - Very heavy populations, primarily Rhipicephalus sanguineus, in Livingston and West Feliciana Parishes. (Oliver).

TEXAS - Heavy infestations of R. sanguineus on dogs in Bexar and Brazos Counties. (Price).

STORED PRODUCTS INSECTS

GRANARY WEEVIL (Sitophilus granarius) - TEXAS - Heavy local populations in stored wheat in Van Zandt County. (Hawkins).

KHAPRA BEETLE (Trogoderma granarium) - FLORIDA - A recent survey of feed and seed stores on the east coast failed to reveal an infestation. (Denmark).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - TEXAS - Medium local infestations in stored wheat in Van Zandt County. (Hawkins).

STORED GRAIN INSECTS - UTAH - Troublesome on a number of farms in Wasatch County. Oryzaephilus surinamensis usually dominant but other pests injurious. (Knowlton).

BENEFICIAL INSECTS

LADY BEETLES - UTAH - Above normal this year. Along with other predators and parasites, especially abundant in alfalfa fields where spotted alfalfa aphid abundant. (Knowlton). IDAHO - Feeding on asparagus beetle larvae, Twin Falls County. (Gittins). Abundant in clover aphid-infested red clover fields in Jerome County. (Cross).

A BUG (Stiretrus anchorago) - IDAHO - Feeding on asparagus beetle larvae in Twin Falls County. (Gittins).

A PARASITE (Trichopoda pennipes) - DELAWARE - Common in the Georgetown-Ellendale area parasitizing squash bug. (Milliron).

CORRECTIONS

CEIR 6(33): 826 under A THRIPS (Frankliniella gossypiana) - ARIZONA - Records show collections on cotton in April and May, 1954 at Mesa, Yuma, Eloy, Continental and Tucson and in June 1955 at Continental. (Rainwater).

Weather continued from p. 856. an area west of the Appalachian Range extending southward into northern Alabama and several hundred miles westward to cover portions of the middle Mississippi and lower Missouri Valleys. Elsewhere throughout the country totals were light, except west of the Continental Divide where the only precipitation of consequence recorded was in isolated showers. Temperatures for the week averaged above normal east of a line extending from El Paso, Texas, to Alpena, Mich. and in Washington, Oregon and Idaho in the Northwest. Weekly average departures were above normal by as much as 6° in parts of Oklahoma and Arkansas, while greatest average departures, below normal by 4° or more, were observed in central California and the Great Plains. Washington reported several forest fires due to lightning, while at isolated stations throughout the country there were reports of slight damage due to hail, wind and flooding accompanying local thunderstorms. (Summary Supplied by U. S. Weather Bureau).

MISCELLANEOUS INSECTS

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - MARYLAND - Abundant and flying to lights in Prince Georges and Montgomery Counties. (U. Md., Ent. Dept.).

EUROPEAN EARWIG (Forficula auricularia) - UTAH - Still troublesome in most counties. (Knowlton).

ADDITIONAL NOTES

NEW YORK - CODLING MOTH second brood larval injury noted in sprayed and unsprayed orchards, August 13 in eastern area, and second brood appearing in Niagara, Wayne, and Oswego Counties. EUROPEAN RED MITE increasing in Rockland County and with TWO-SPOTTED SPIDER MITE heavy some orchards of Niagara and Oswego Counties. RED-BANDED LEAF ROLLER plentiful in Niagara, decreasing in Wayne and new egg masses found on pears and apples in Oswego Counties. APPLE MAGGOT causing some injury to apples in Airmont, Rockland County. Pissodes approximatus common on ornamentals and damaging pine Christmas trees. MITES increasing on elms and bronzing of leaves common. (N. Y. Wkly. Rept.).

WYOMING - CORN EARWORM commencing to cause slight damage to corn ears in Platte County. CORN LEAF APHID spotted in Platte and Goshen Counties. BEET WEBWORM causing damage in Goshen County. PEA APHID heavy on alfalfa in Johnson and Sheridan Counties. Heavy infestations of SPIDER MITES in Goshen County (Thieman, Spackman).

LIGHT TRAP COLLECTIONS

	Pseud. unipan.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea	Heliothis vires.	Protoparce sexta	Protoparce quinq.	Laphyg. frugip.
COLORADO (County)										
Otero 8/1-2									9	
NEBRASKA (Counties)										
Lancaster 8/5-11		80				40			25	
Lincoln 8/6-11		18							23	
Scotts Bluff 8/5-13		16							1	
SOUTH DAKOTA (County)										
Brookings 8/14&16	57									
MINNESOTA										
St. Paul 8/10-13	37	11								
WISCONSIN										
Eau Claire 8/2-7	10					15				
De Forest 8/8-15	22					7				
ILLINOIS										
Urbana 8/10-16	77	41	99	14		173		33		
INDIANA										
Lawrence 8/9-15	193	11	62	3		18		51	37	
Tippicanoe 8/10-16	10	4	17	1		34		1		
OHIO (County)										
Athens 8/6-12	8	7								
MARYLAND (County)										
Montgomery 8/11-17	5	12		1		6		11	14	3
VIRGINIA (County)										
Pittsylvania 8/5-11								395	1246	
North Carolina (Counties)										
Johnston 8/15-16	16	2	33		17	235	7	9	4	
Duplin	12		18		5	84	4	4	5	2
SOUTH CAROLINA (Counties)										
Charleston 7/31-8/5	48	2	27		14	289	2	18	2	33
Florence 8/4-10	1484	48	468	12	206	13,202	180	64	4	52
Oconee 8/5-11	699	50	133	6	2	419	1	3		
GEORGIA (Counties)										
Clarke 8/9-15	15	26				20	8	9		
Spalding 8/10-16	216	126	116		15	2900	10	15	117	
Tift 8/10-16	377	12	222		269	1519	32	26	6	412
FLORIDA										
Gainesville 8/10	26		2		1	243		3		
Quincy 8/6					72	1404				
ALABAMA (Counties)										
De Kalb 8/8	6		3			305		5	3	
Lee 8/11-17	179		209			991	13	30	8	576
MISSISSIPPI (Counties)										
Humphreys 8/11-17	5	6	13		33	93	13			2
Lauderdale 8/11-17	123	16	21		128	336	12			2
Oktibbeha 8/11-17	537	59	257		70	962	26			56
*Washington 8/10-16	318	93		8		2377				6
TEXAS										
Waco 8/11-17	22	12	27	11	15	1171	12			
College Station 8/1-15	16		32			1317	17			1390
Denton 8/1-15	3	1		1		454	1			
KANSAS										
Hays 8/6-10	18	12				130				
Wathena 8/10-15		3				223		34	46	
MISSOURI (Counties)										
Boone 8/11-17	15	6				137		51		92
Scott 8/13-14						1129		39		
LOUISIANA										
Curtis 8/6-12						4750		13		
*Baton Rouge 8/11	3	1	4	8		87		1		56
Franklin 8/10-15	10		24	29		222				68

Other collections: LA. (Franklin, 8/10-15): Anticarsia gemmatilis-5.

* Washington County, two traps. Baton Rouge two traps.

SURVEY METHODS

Uniform Survey Procedure Approved by
the Lake States Forest Insect Survey Committee - 1956

RED-HEADED PINE SAWFLY APPRAISAL SURVEY

PURPOSE:

The following procedures have been found useful in determining levels of red-headed pine sawfly populations. Research has shown that egg-batch sampling is a reliable way to appraise initial sawfly populations. In the Lake States jack pine and red pine are the preferred hosts.

INSTRUCTIONS:

Subsequent to detection of an outbreak the planted or natural area to be surveyed should be mapped or lined out to determine survey boundaries. A map of large enough scale to facilitate location of each sampling point should be used. The location of plots and the sampling size are governed by several factors: acreage of the stand, height of the trees, spacing (number of trees per acre), overtopping hardwoods, sandblows, etc.

The date of the survey will be determined by the particular locality in the range of the insect. For example, in lower Michigan the eggs are laid during May and early June (eggs of a partial second generation may be found from mid-September to early November). To the south there may be 2 or 3 generations annually. On open-growing trees the eggs are usually laid in the denser needle clusters, whereas on trees growing as an understory they are laid in the needles in the shaded portions of the branches. The heaviest concentration of feeding damage is in plantations in sand blows, in poor survival areas, or adjacent to hardwood borders or under overtopping hardwoods within the plantations.

Time and trained manpower available will dictate the intensity of the survey. In order to obtain uniform distribution of sampling the following procedure is suggested. Beginning with the first row every 25th row should be surveyed. Make stops at 50-pace intervals and inspect the 5 nearest trees at each stop. This will make, roughly, one stop per acre. Each tree should be carefully examined and if one egg batch is found the observer goes to the next tree. Each tree should be recorded as infested or not infested. In areas where the infested trees are less than 6 feet in height, when 10 percent of the trees have one or more egg batches, control measures are justified. In stands over 6 feet in height control measures are justified when 20 percent of the trees have one or more egg batches. Under heavy shade--50 percent or more--control operations depend on economic values.

The attached form, or a modification, will be useful in recording stand and location data for each plantation, as well as showing the number of trees infested at each sampling point. (R. C. Fox, Michigan State University).



VOL. 6 No. 35

AUGUST 31, 1956

513

823

C77
Ent.

Cooperative

**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS damaging flax in North Dakota. Heavy populations continue to be reported from areas of Wisconsin, Minnesota and some other States. (p. 867). EUROPEAN CORN BORER and SOUTHWESTERN CORN BORER reported from several new counties of Arkansas. (p. 867). FALL ARMYWORM appearing in peanuts in northeastern North Carolina. Late corn showing injury in Missouri. (p. 868).

HESSIAN FLY survey results in Missouri, Illinois and New Jersey. (p. 869)

THREE-CORNERED ALFALFA HOPPER increasing in Louisiana and eastern Oklahoma. (p. 869). SPOTTED ALFALFA APHID reported from many States but generally not in widespread damaging proportions except in Utah. Some increase in southeastern Missouri and eastern Colorado. (p. 869). SWEETCLOVER APHID reported from Illinois for first time. (p. 870).

VELVETBEAN CATERPILLAR moderate to heavy on soybeans in Colquitt County, Georgia. (p. 870). CORN EARWORM continues active in many States. (p. 871).

SPIDER MITES unusually serious this season on figs in California. (p. 872). WALNUT CATERPILLAR heaviest in 10 years in northeastern Pennsylvania. (p. 872).

MEXICAN BEAN BEETLE caused heavy loss on beans in northern Colorado. (p. 873). PICKLEWORM attacking cantaloup in eastern Virginia but lighter than 1955. (p. 874).

BOLL WEEVIL attacking young bolls in South Carolina and Tennessee, heavy in middle and south Georgia. Infestations remain high in irrigated cotton in Arkansas. (p. 875). BOLLWORMS very active in Imperial Valley, California and causing light to moderate damage in New Mexico. Situation variable in Arizona. High infestations in southwestern Oklahoma. Heavy egg counts in some Louisiana parishes. Activity increasing in Arkansas and Mississippi. (pp. 875, 881). SPIDER MITES continue of concern in California, Missouri and some other areas. (p. 876).

SMALLER EUROPEAN ELM BARK BEETLE second-brood emergence increasing in Wisconsin where Dutch elm disease reported from several counties. (p. 877). JAPANESE BEETLE infestation at high level in Ohio, considerable defoliation. (p. 878).

ENCEPHALITIS, which may be mosquito-borne, reported in horses in Kent County, Rhode Island and on Eastern Shore, Maryland. (p. 878).

STATES reporting this week - 40. ADDITIONAL NOTES. (p. 881, 882).

Distribution maps of RANGE GRASSHOPPERS. (p.).

Reports in this issue are for the week ending August 24 unless otherwise designated.

WEATHER OF THE WEEK ENDING AUGUST 27

The unseasonably cool air mass, centered in the middle of the United States at the end of last period, gradually moved northeastward and out of the country on Thursday. In its passing, record daily minima were experienced at various locations from Pennsylvania to as far south as Louisiana and Mississippi. Warming occurred to the rear of this high pressure system, but over the Great Lakes Region and in the Northeast another outbreak of continental Polar air was felt this past weekend. The combined effects of these two air masses resulted in weekly temperature averages well below normal in this area, with a departure of -12° reported at Cleveland, O., and -9° departures occurring from Michigan to Kentucky. On a countrywide basis, weekly temperatures generally averaged below normal in the eastern half, and in the West near to above normal in the western portion. In Washington, Oregon and Montana daily maxima ranged from 90° to 100° until nearly the end of the period.

Precipitation of moderate to heavy amounts was associated mainly with combined low pressure and frontal activity - in the Southeast early in the week, in the Great Lakes and northeastern areas near the middle of the period, and along the Gulf coast and in the Northwest currently. Rainfall was general over an area east of a line from Sandusky, O., extending southwestward to San Antonio, Texas and northwestward to International Falls, Minn., and in a northwestern area incorporating northern Oregon and Idaho and western Washington, while portions of the central and southern Plain States and the Southwest received little or no precipitation. Little was reported in the way of unusual events -- a probable tornado occurrence was indicated at Tinley Park, Illinois, one death was reported when a man was struck by lightning while fishing on Vallecito Lake in Colorado, and some hail damaged crops in several counties in Virginia. (Summary Supplied by United States Weather Bureau).

CEREAL AND FORAGE INSECTS

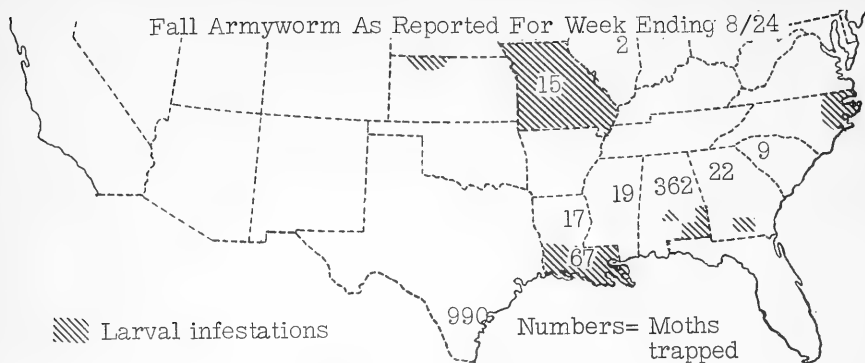
GRASSHOPPERS - NEVADA - Controls applied against Camnula pellucida on 300 acres in northern Washoe County. (Galloway). IDAHO - From one to 10 per square yard in lower Clearwater River Canyon, mostly Melanoplus mexicanus. (Barr). UTAH - Greatest abundance in areas of Cache and Box Elder Counties. (Thornley, Knowlton). KANSAS - Light to threatening populations in margins in northern tier of north central counties. A new generation of M. mexicanus nymphs in most areas. (Matthew). OKLAHOMA - Marginal damage to crops continues. (Coppock). NORTH DAKOTA - Boll-clipping in many unsprayed flax fields with 25-50 percent of bolls on ground in some fields. Immediate control warranted. (N. D. Ins. Rept.). ARKANSAS - Locally heavy numbers in western counties. Light damage to crops except in Little River County. No apparent damage to grasslands even though numbers were sometimes high. (Warren, Landrum). MINNESOTA - Preliminary reports on adult survey indicate many counties with severe or very severe populations. (Minn. Ins. Rept.). WISCONSIN - Heavy local to general populations of M. femur-rubrum in 27 counties. While grasshoppers numerous, weather continues to depress activity. (Wis. Ins. Bul.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - PENNSYLVANIA - Very heavy in sweet corn in Crawford County, Aug. 2. (Adams). OHIO - Pupation and emergence less than 20 percent in Van Wert County. Moth flight declining. Very small second brood anticipated in northern Ohio. (Rolston). MARYLAND - In 16 fields of sweet corn in Frederick County egg masses averaged 6.7 per 100 plants and infested plants averaged 7.7 percent. (U. Md., Ent. Dept.). WEST VIRGINIA - Less than one percent of plants infested in 3 fields in Randolph County. (Dorsey, Hansen). WISCONSIN - Second-brood development appears to be slow and light. Egg masses range up to 2 per 25 plants in 5 counties. (Wis. Ins. Bul.). MINNESOTA - First instars of second generation in southwest area. Very few pupae, 60 percent in fifth instar and 25 percent emerged. (Minn. Ins. Rept.). ARKANSAS - Of 69 fields examined in 16 counties, 42 found infested with European corn borer. Infestation was found for first time in Pulaski, Conway, Phillips and Prairie Counties. Except Yell and Logan, infestations increased in all counties infested prior to 1956. Heaviest infestation, 86 percent, was in Phillips County. (Warren).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - GEORGIA - Heavy infestation in soybeans in Burke County. (Morgan).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Maturing in sorghum in some eastern counties, 10-15 per plant. (Coppock).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - ARKANSAS - Of 69 fields inspected in 13 counties, this species found in 25. New county records were established from Lonoke, Prairie and Woodruff. Infestation was irregular. The pest is now near area of greatest corn production in State. (Warren).



FALL ARMYWORM (Laphygma frugiperda) - NORTH CAROLINA - First appearance of season of larvae on peanuts in northeastern counties observed. (Dogger). GEORGIA - Moderate to heavy in corn and Bermuda grass in Tift County, 100-125 larvae per sweep. (Blickenstaff, Beck, Benton). LOUISIANA - Up to 150 per 100 sweeps in many pastures over southern half of State. (Oliver). KANSAS - Forty percent infestation in some irrigated corn in Decatur and Norton Counties. Larvae nearly mature. (Matthew). MISSOURI - From 40-60 percent of late corn shows whorl and tassel injury, about 2 larvae per stalk. Larvae from second instar to full-grown. (Kyd, Thomas).

CORN ROOTWORMS - NEW MEXICO - Diabrotica sp. damaging sweet corn, melons, and ornamentals in Dona Ana County. (Durkin, Aug. 18). WISCONSIN - Diabrotica longicornis feeding heavily in ear tips in some Rock and Walworth County fields. (Wis. Ins. Bul.). MISSOURI - Diabrotica longicornis adults continue to injure a few fields of silking corn in scattered areas of Mississippi, New Madrid and Scott Counties. Damage to heads of grain sorghums in extreme northwestern corner by as many as 12 beetles per head. (Kyd, Thomas).

SAP BEETLES - NORTH CAROLINA - Carpophilus sp. damaging sweet corn in Person County. (Reams). RHODE ISLAND - Increasing numbers of Carpophilus sp. in ears of corn over State. (Steve).

CORN FLEA BEETLE (Chaetocnema pulicaria) - OHIO - Numerous, some late sweet corn severely infected with Stewart's disease. (Rolston).

JAPANESE BEETLE (Popillia japonica) - VIRGINIA - General and medium infestation on corn in Shenandoah County. (Coiner).

RICE STINK BUG (Solubea pugnax) - LOUISIANA - From 10-35 per 100 sweeps in St. Landry, Acadia and Jefferson Davis Parishes. (Oliver).

CORN LEAF APHID (Rhopalosiphum maidis) - COLORADO - Twenty-five to 100 per head on barley in Rio Grande and Saguache Counties. (Exp. Sta.).

HESSIAN FLY (Phytophaga destructor) - MISSOURI - Stubble survey showed average infestation, based on 5 or more stops per county, of 0-21.2 percent by county. Some of the counties having highest infestations were Lincoln (21.2), St. Charles (15.6), Ralls (11.2), Franklin (10.8), Cape Girardeau, Callaway, Montgomery (10.4), Pettis (11.6). (Jones, Brown, Thomas). ILLINOIS - Survey shows average number of puparia in 100 tillers was 15.4 for State. Puparia per 100 tillers averaged 1.5 in 1954 and 5.7 in 1955. State average for tillers infested was 10 percent this year. (Ill. Ins. Rept.). NEW JERSEY - Average infestation of stalks is 11.2 percent compared with 26 in 1955 and 7 in 1954. (Ins.-Dis. News.).

SPIDER MITES - COLORADO - Tetranychus telarius continued to increase in damaging numbers in Prowers, Las Animas, Otero and Pueblo Counties. Heavy in Mesa County. (Exp. Sta.). UTAH - Damaging 20 acres of corn in Utah County. (Knowlton).

SEED CHALCIDS - OKLAHOMA - Damaging alfalfa seed crop near Sentinel. (Hudson).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Continues to build up in alfalfa and clover over State with 80-250 per 100 sweep in 3 parishes. (Oliver). OKLAHOMA - Increasing in eastern area. (Coppock).

SPOTTED ALFALFA APHID - NEBRASKA - Taken in Cass, Buffalo and Lincoln Counties, 1-3 per 25 sweeps, August 17. (Andersen). CALIFORNIA - Found in most alfalfa in Butte County where 1200-1500 acres treated this season. Predators heavy some fields but not controlling. (Cal. Coop. Rept., Aug. 17). NEW MEXICO - Considerable decline in Dona Ana County, only 4 of 58 fields checked had medium to heavy infestations. Uncontrolled infestations medium to heavy in Eddy County. Also heavy in several fields in Torrance County. (Durkin, Aug. 18). TEXAS Light local populations on alfalfa in Lubbock County. (Turney, Cowger). SOUTH CAROLINA - Collected in Oconee County August 15 on roadside alfalfa. (Nettles). NEVADA - Light in Esmeralda County. (Madison). Economic populations in some fields in White Pine County. Some light infestations in Eureka County, Aug. 10. (Borden). Specimens collected in Lincoln County Aug. 20 were winged forms. (Lauderdale). KANSAS Non-economic to moderate, 10 to over 300 per sweep, in Cloud, Republic, Jewell, Phillips, Smith, Norton and Decatur Counties. Most fields had 2-15 lady beetles per sweep. (Matthew). MISSOURI - Increased slightly in southeastern section; 100-500 per sweep in a few fields with honeydew noticeable. Most fields with much growth have 5-45 aphids per sweep. Predators common but lower than past 2 wks. (Kyd, Thos.). OKLA. - Remains non-economic in eastern and northern areas. Lady beetles in fields with higher populations. Infestations increasing in isolated fields of irrigated alfalfa in southern Oklahoma. (Coppock). COLORADO - Increased in eastern sections, particularly in Bent and Crowley Counties. Third cutting may be damaged. Seventy-five per 100 sweeps in Archuleta County, 1500 per 100 in La Plata County. Surveys in Costilla, Conejos, Alamosa and Saguache Counties showed no aphid. (Exp. Sta.). UTAH - Causing damage in areas as far north as Juab, Sanpete, Emery and Grand

Counties. Becoming more easily found in additional areas farther north. Total of 10,000 acres sprayed in Beaver and Iron Counties. (Knowlton et al.).

SWEETCLOVER APHID (Myzocallidium riehmii) - ILLINOIS - Collected from sweetclover at New Berlin, July 19, by R. C. Dickson. Determined Dickson and L. M. Russell. (Moore). First report of this species from Illinois.

PEA APHID (Macrosiphum pisi) - UTAH - Still causing damage on succulent alfalfa in many counties. (Knowlton).

CABBAGE LOOPER (Trichoplusia ni) - GEORGIA - Moderate on soybeans in Colquitt County. (Johnson).

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis) - GEORGIA - Moderate to heavy on soybeans in Colquitt County. (Johnson).

ARMYWORMS - SOUTH CAROLINA - Severe on 12-15 acres of forage in Saluda County. (Kearse, Sparks, Aug. 17).

POTATO LEAFHOPPER (Empoasca fabae) - PENNSYLVANIA - Considerable damage to alfalfa in some counties. (Gesell, Udine, Aug. 9). Fairly abundant in unsprayed alfalfa in Lancaster and Franklin Counties but not much yellowing. (Pepper, Aug. 14).

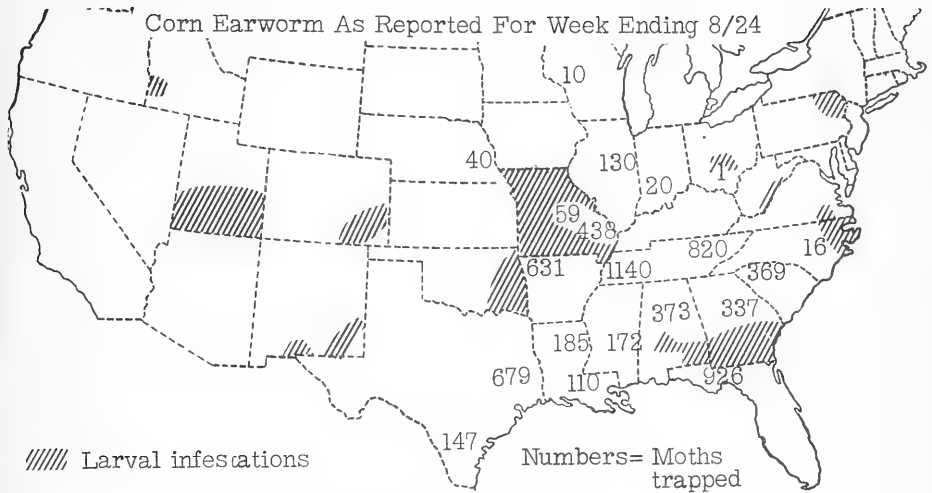
PLANT BUGS - NEW MEXICO - Lygus elisus and L. hesperus heavy in alfalfa in Dona Ana County. Some fields have 200 per 100 sweeps. (Durkin, Aug. 18). NEVADA - Lygus populations heavy in all agricultural areas. (Gallaway).

WEBWORMS - KANS. - 8-15 per sq.ft. in margins of some corn and sorghum fields in northwest area, but very few on corn and sorghum plants. (Matthew). OKLAHOMA - Alfalfa webworm caused severe damage to isolated fields of irrigated alfalfa in southwestern area. (Bryan). COLORADO - Webworm moth populations continue extremely high in Prowers, Las Animas, Otero, Saguache, Rio Grande and Costilla Counties. Total of 24,000 taken August 6 at Hartman, Prowers County. (Exp. Sta.).

A COLASPIS (Colaspis sp.) - LOUISIANA - From 75-130 per 100 in white clover in Acadia and St. John the Baptist Parishes. (Oliver). VIRGINIA - Light to medium on soybeans in 3 fields in Gloucester County. (Morris).

STINK BUGS - GEORGIA - Euschistus servus and Nezara viridula moderate to heavy on soybeans in Colquitt County. (Johnson).

RED-NECKED PEANUTWORM (Stegasta bosqueella) - GEORGIA - Moderate to heavy throughout peanut area. (Johnson).



CORN EARWORM (*Heliothis zea*) - NEW MEXICO - Damage to field corn in Dona Ana, Eddy, Chaves and Curry Counties. (Durkin, Aug. 18). IDAHO - Light in sweet corn in Canyon County. (Scott). UTAH - Infestation high in some southern areas. (Knowlton). COLORADO - Infestation in corn in Prowers, Las Animas and Otero Counties reaching 100 percent. (Exp. Sta.). OKLAHOMA - Low generally in eastern alfalfa; up to 6 per 10 sweeps. (Coppock). MISSOURI - Larvae in ears of field corn common over State. In extreme southeast 100 percent of ears infested with 1-7 larvae. Thirty to 55 percent of late corn shows whorl damage. Considerable damage to heads of grain sorghum in southwest, west central and central areas where larvae average 2-3 per head. (Kyd, Thomas). WISCONSIN - Apparently very light but moth activity increasing. (Wis. Ins. Bul.). WEST VIRGINIA - Light to moderate in corn in Randolph and Greenbrier Counties. (Dorsey, Hansen). PENNSYLVANIA - Moderate on mid-season corn in northeastern area. (Gesell, Aug. 16). NORTH CAR. - Larvae appearing in numbers on peanuts in northeastern counties, 60 percent or more plants infested. (Dogger). VIRGINIA - Light on peanuts in Sussex County. (Parson).

FRUIT INSECTS

APPLE MAGGOT (*Rhagoletis pomonella*) - RHODE ISLAND - Larvae pupating. A few adults still present, Aug. 20. (Steve). MINNESOTA - Emerging all areas. (Minn. Ins. Rept.).

CODLING MOTH (*Carpocapsa pomonella*) - DELAWARE - Local activity on August 16-19. (Late News). OREGON - Second brood still active in Willamette Valley. Weather favorable for egg-laying and development. (Jones). MINNESOTA - Second generation entering fruit. (Minn. Ins. Rept.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - PENNSYLVANIA - All stages in many orchards in south central area. (Pepper, Aug. 14).

PEAR-SLUG (Caliroa cerasi) - OREGON - Second generation appearing in Salem area, Aug. 24. (Capizzi).

YELLOW-NECKED CATERPILLAR (Datana ministra) - IDAHO - Defoliating apple and cherry trees in Canyon County. (Scott).

A JUNE BEETLE (Cotinis texana) - NEW MEXICO - Heavy on peach trees in Dona Ana and Eddy Counties. (Durkin, Aug. 18).

DRIED FRUIT BEETLE (Carpophilus hemipterus) - CALIFORNIA - Appeared in peach and fig orchards in Fresno area. (Cal. Coop. Rept., Aug. 17).

SPIDER MITES - CALIFORNIA - Infestations more serious this season than in any recent year. Kadota and Adriatic varieties of figs most affected but some weak trees of other varieties with heavy infestations. (Cal. Coop. Rept., Aug. 17).

VINEGAR FLIES - CALIFORNIA - In small numbers in Adriatic fig orchards and control measures begun in Clovis district, Fresno County. (Cal. Coop. Rept., Aug. 17).

FALL WEBWORM (Hyphantria cunea) - GEORGIA - Very heavy infestations in persimmon trees at Eastman and in pecan trees at Chauncy. (Snapp).

A GRAPE LEAFHOPPER (Erythroneura sp.) - NEW MEXICO - Heavy on grapes in Dona Ana and Eddy Counties. (Durkin, Aug. 18).

CRANBERRY FRUITWORM (Acrobasis vacinii) - WISCONSIN - Eggs hatched and early larvae are in fourth berry. (Wis. Ins. Bul.).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - A single female fly captured in trap near Calistoga in Napa County, August 17. First find in Napa County and first fly captured outside of the suppressive zone in Sonoma County. Fly taken near walnut packing plant receiving walnuts from Sonoma Valley. (Cal. Coop. Rept., Aug. 17).

WALNUT CATERPILLAR (Datana integerrima) - PENNSYLVANIA - Heaviest in northeastern area in 10 years. Many walnut trees entirely defoliated. (Gesell, Aug. 8).

WALNUT APHID (Chromaphis juglandicola) - CALIFORNIA - Increasing in Yolo County. (Cal. Coop. Rept., Aug. 17).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Damage in Okemah area 5-75 percent and in Bixby area 1-30 percent. (Coppock).

DIFFERENTIAL GRASSHOPPER (Melanoplus differentialis) - OKLAHOMA
Averages 15 per square yard in several pecan groves around Bixby with
some defoliation. (Coppock).

CITRUS RUST MITE (Phyllocoptruta oleivora) - FLORIDA - Activity
declined further but still very high, especially on fruit, and expected to
remain high for some time. (Pratt, Thompson, Johnson).

FLORIDA RED SCALE (Chrysomphalus aonidum) - FLORIDA - Activity
increased sharply. Expected to be high in September and October.
Hatching at peak and expected to decline followed by increasing trend.
(Pratt, Thompson, Johnson).

TRUCK CROP INSECTS

POTATO FLEA BEETLE (Epitrix cucumeris) - WISCONSIN - Moderately
numerous in Kenosha County. (Wis. Ins. Bul.).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Populations
in complex with aphids building up in tomatoes in Weld, Larimer and
Adams Counties. (Exp. Sta.).

APHIDS - MAINE - Have probably reached peak in Presque Isle area.
About 60 percent of relatively low peak populations in 1955. Aphis
abbreviata predominated. (Shands).

TOMATO FRUITWORM (Heliothis zea) - NEW MEXICO - Causing light
to moderate damage to tomatoes in Luna, Dona Ana and Lea Counties.
(Durkin, Aug. 18).

SLUGS - PENNSYLVANIA - Twenty percent of tomato fruits on ground
injured some commercial fields in Luzerne and Lackawanna Counties.
(Gesell, Aug. 15). Light damage some commercial cabbage fields in
Erie County. (Adams, July 31).

HORNWORMS (Protoparce spp.) - NEW MEXICO - General in tomato
fields in Luna, Dona Ana and Lea Counties, causing moderate to heavy
damage. (Durkin, Aug. 18). RHODE ISLAND - Larval damage increasing.
(Steve). VIRGINIA - With tomato fruitworm and yellow-striped armyworm
heavy on late tomatoes in eastern area. (Hofmaster).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Heavy local populations
on tomatoes in Lubbock County. (Turney). GEORGIA - Heavy infestations
on commercial turnips in Sumter County. (Johnson). WISCONSIN -
Building up and expected to reach peak soon. (Wis. Ins. Bul.).

POTATO LEAFHOPPER (Empoasca fabae) - WISCONSIN - Damaging
beans in Kenosha County. (Wis. Ins. Bul.).

MEXICAN BEAN BEETLE (Epilachna varivestis) - COLORADO - Some
commercial bean fields with 50-75 percent loss in Weld, Larimer and

Adams Counties. Requiring unusually heavy control measures. (Exp. Sta.).
VIRGINIA - Increasing in eastern area. (Hofmaster).

ONION THRIPS (Thrips tabaci) - NEVADA - Economic populations in most fields receiving limited control measures. (Galloway).

IMPORTED CABBAGEWORM (Pieris rapae) - WISCONSIN - Building up rapidly. Heavy on garden rutabagas in Dane County. (Wis. Ins. Bul.).

CUCUMBER BEETLES - NORTH CAROLINA - Diabrotica undecimpunctata howardi and Acalymma vittata severe on cucumbers in Duplin County. (Reid). LOUISIANA - D. balteata, D. undecimpunctata howardi with Colaspis flavida, Empoasca sp. and Nezara viridula heavily infesting late okra in St. John the Baptist Parish and damaging pods and foliage severely. (Oliver). VIRGINIA - D. undecimpunctata howardi and A. vittata requiring control in eastern area. (Hofmaster).

WESTERN STRIPED CUCUMBER BEETLE (Acalymma trivittata) - NEW MEXICO - Abundant on melons in Dona Ana County. (Durkin, Aug. 18).

SQUASH VINE BORER (Melittia cucurbitae) - WISCONSIN - Heavy on some squash plantings in Rock County. (Wis. Ins. Bul.).

PICKLEWORM (Diaphania nitidalis) - VIRGINIA - A few occurring on cantaloups in eastern area but lighter than in 1955. (Hofmaster).

SQUASH BUG (Anasa tristis) - RHODE ISLAND - Populations still building up. Nymphs still hatching. (Steve).

A SERPENTINE LEAF MINER (Liriomyza sp.) - VIRGINIA - Increasing on squash and pumpkins eastern area. (Hofmaster).

LEAFHOPPERS - LOUISIANA - Empoasca sp., at least four species, infesting sweetpotatoes at 420 per 100 sweeps in East Baton Rouge Parish and 60 per 100 sweeps in St. Landry Parish. (Oliver). WISCONSIN - Heavy on strawberries in Waupaca, Marathon, Outgamie Counties and heavy on raspberries in Columbia County. (Wis. Ins. Bul.).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - LOUISIANA Infesting sweetpotatoes at 72 per 100 sweeps in East Baton Rouge Parish and 88 per 100 sweeps in St. Landry Parish. (Oliver).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - VIRGINIA - More prevalent on truck crops in eastern area than for some time. (Hofmaster).

CUTWORMS - VIRGINIA - Causing more than usual damage to truck crops in eastern area. (Hofmaster).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - MINNESOTA - Heavy in raspberries in Floodwood and in buckthorn in International Falls. (Minn. Ins. Rept.).

RASPBERRY CANE BORER (Oberea bimaculata) - WISCONSIN - Moderate populations in Waupaca County. (Wis. Ins. Bul.).

RED-NECKED CANE BORER (Agrilus ruficollis) - WISCONSIN - Adults active in Waupaca County. (Wis. Ins. Bul.).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - VIRGINIA - Heavy on tobacco in Lunenburg County. (Peery).

HORNWORMS (Protoparce spp.) - NORTH CAROLINA - Infestation in Granville County light to moderate, with some fields requiring control. (Chamberlin).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Activity continues to increase as crop matures. Now attacking small unprotected bolls. (Cott. Lett.). TENNESSEE - Migration still occurring in southwestern counties. Adults attacking young bolls. (Locke). GEORGIA - Heavy infestation on young bolls in middle and south Georgia. (Johnson). MISSISSIPPI - All fields infested in delta counties. Movement general from dryland to irrigated cotton. (Merkl et al.). ARKANSAS - Infestations remain high in most irrigated fields. Most infestations are being kept below 70 percent where fruiting is heavy enough to make accurate square counts. (Warren, Harrendorf, Barnes). LOUISIANA - Ten fields in Concordia Parish had average of 29 percent infestation and 5 in Ouachita had 57. (Oliver). Still no indication of general migration in Tallulah area. Thirty-six percent infestation found in 90 fields. (Pfrimmer et al.). TEXAS - Light throughout State. (Turney, Martin). MISSOURI - Migration well underway with 139 of 398 fields infested but only 9 infested heavily enough to warrant controls. (Kyd, Thomas). OKLAHOMA - Considerable increase in square infestation in eastern counties, over 90 percent common, but squares scarce. (Coppock).

BOLLWORMS (Heliothis spp. et al.) - CALIFORNIA - Economic infestations in many fields in San Joaquin Valley. Very active in Imperial Valley. (Cal. Coop. Rept., Aug. 16). NEW MEXICO - General over cotton growing area. Damage light to moderate. (Durkin, Aug. 18). TEXAS - Light in most areas with heavier activity in north and south plains areas and in irrigated cotton in other areas. (Turney, Martin). OKLAHOMA - Damage runs from 5-10 percent in most east central counties; no recent damage, however, and no eggs or larvae present. Up to 30 percent infestation not uncommon in treated, irrigated fields in southwestern counties. Oviposition continues at high rate in these areas. (Coppock, Bryan). LOUISIANA - Very large numbers of eggs in cotton in Rapides, Red River, Bossier and Ouachita Parishes. Moth activity continues and some

fields moderately infested with larvae. (Oliver). Still problem in most fields in Tallulah area, some boll loss in improperly-treated fields. Over 6 eggs per 100 terminals. (Pfrimmer et al.). ARKANSAS - Activity has increased in most areas and infestation will probably rise sharply with new growth. (Warren, Harrendorf, Barnes). MISSOURI - From 1-34 larvae per 100 terminals in 286 of 398 fields. Some fields warrant control measures. (Kyd, Thomas). TENNESSEE - Continuing to cause some damage in weevil-infested areas in western Tennessee. (Locke). MISSISSIPPI - Egg deposition increased in irrigated cotton in delta counties. Little damage. (Merkel et al.). GEORGIA - Injured bolls ranged from 3-12 percent in 17 counties. (Johnson).

SPIDER MITES - CALIFORNIA - Many cotton fields throughout San Joaquin Valley have economic infestations. (Cal. Coop. Rept., Aug. 16). MISSOURI - Infestation in all sections resulting in considerable defoliation. Of 398 fields scouted 119 had infestations heavy enough to warrant controls. Weather reducing populations in some counties. (Kyd, Thomas). LOUISIANA - Generally spotted over State. (Oliver). MISSISSIPPI - Heavy in local areas of delta counties. (Merkel et al.). GEORGIA - General with light to heavy infestations in middle and southern counties. (Johnson). SOUTH CAROLINA - Continue to increase but only serious enough on late cotton in a few counties to warrant controls. (Cott. Lett.). TENNESSEE - Still increasing. Defoliation of large spots in some fields. (Locke). VIRGINIA - Medium to heavy in one field in Nansemond County. (Morris).

COTTON LEAFWORM (Alabama argillacea) - NEWMEXICO - One light infestation in Eddy County. Light to medium spotty infestation in Dona Ana County. (Durkin, Aug. 18). TEXAS - Infestations light. (Turney, Martin). OKLAHOMA - Reported "ragging" cotton in Grady and Kiowa Counties. (Flora).

CABBAGE LOOPERS - NEW MEXICO - Trichoplusia ni medium to heavy and spotty in Dona Ana and Eddy Counties. (Durkin, Aug. 18). TEXAS - Continue to "rag" cotton in irrigated fields. (Turney, Martin). OKLAHOMA - Heavy in some fields in Caddo County. (Flora).

LYGUS BUGS - CALIFORNIA - Large migrations from maturing alfalfa to cotton. Such populations high following migrations in Imperial County but drop within a few days. (Cal. Coop. Rept., Aug. 16). NEW MEXICO - Lygus elisus and L. hesperus general in cotton in Dona Ana County, a few heavily-infested fields. (Durkin, Aug. 18). TEXAS - Increasing in plains area. (Turney, Martin).

COTTON APHIDS - NEW MEXICO - Aphis gossypii still general with medium to heavy infestations in several fields in Eddy County. (Durkin, Aug. 18). TENNESSEE - Some increase in western Tennessee. (Locke). GEORGIA - Heavy in Jasper County. (Johnson). LOUISIANA - Generally spotted in most cotton fields over State. (Oliver). Problem in a few fields in Tallulah area. (Pfrimmer et al.). ARKANSAS - Infestations have increased. (Warren, Harrendorf, Barnes).

LEAF ROLLERS - CALIFORNIA - Platynota stultana adults numerous and many egg masses in some fields. Damage in some areas. (Cal. Coop. Rept., Aug. 16).

FLEAHOPPERS - OKLAHOMA - Up to 35 per 100 terminals in Haskell County. (Coppock). Light to moderate in Greer, Hughes, Tillman and Washita Counties. (Flora).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - FLORIDA - Larvae averaging 30 per branch on 100 slash pine branches inspected at Olustee, Baker County. (Denmark, Aug. 10).

PINE SPITTLEBUG (Aphrophora parallela) - PENNSYLVANIA - Adults abundant on pines in Centre County, July 30. (Adams).

WHITE-PINE WEEVIL (Pissodes strobi) - RHODE ISLAND - Damaging terminals of red spruce. Adults still emerging. (Steve).

SPIDER MITES - RHODE ISLAND - Heavy infestations on ornamental spruces, causing yellowing of plants in South Kingston. (Steve).

A JUNIPER MEALYBUG (Pseudococcus juniperi) - KANSAS - Causing widespread damage to some trees in Pittsburg, Crawford County; Hoisington, Barton County; Wichita, Sedgwick County; and in Wellington, Sumner County. (Calkins, Aug. 17).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEVADA - Second generation appearing August 10. (Gallaway). VIRGINIA - Very heavy on elm trees in Warwick. (Sedivy).

EUROPEAN ELM SCALE (Gossyparia spuria) - UTAH - Severely damaging elm trees at Delta. (Goodarzy, Knowlton).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - WISCONSIN - Second brood emergence increasing. Dutch elm disease isolated from 40 elms in Rock, Walworth, Racine, Kenosha and Milwaukee Counties. (Wis. Ins. Bul.).

WALKINGSTICK (Diapheromera femorata) - WISCONSIN - Caused heavy defoliation of aspen and oak in northern Marinette County. (Wis. Ins. Bul.).

BIRCH SKELETONIZER (Buccatrix canadensisella) - WISCONSIN - Damage much lighter in northwestern area than in past two years. (Wis. Ins. Bul.).

FALL WEBWORM (Hyphantria cunea) - IDAHO - Third instar larvae appearing, mostly on cottonwood and chokecherry. More abundant than previously in lower Clearwater River Canyon. (Barr).

A CEDAR SCALE (Aonidia shastae) - KANSAS - Infestation on several trees in city park in Concordia, Cloud County. Many older scales parasitized. (Matthew).

LACE BUGS (Corythucha spp.) - WEST VIRGINIA - Abundant on several varieties of trees in Kanawha County. (Dorsey, Hansen).

MIMOSA WEBWORM (Homadaula albizziae) - NORTH CAROLINA - Damaging mimosa in Davidson and Stanly Counties. (Jones). VIRGINIA - Heavily damaging untreated mimosa trees in Culpeper County. (Rowell, Heltzel).

LOCUST LEAF MINER (Chalepus dorsalis) - VIRGINIA - Severe on black locust and light on honeylocust trees in Brunswick County. Infestations general. (Marshall).

BAGWORM (Thyridopteryx ephemeraeformis) - NORTH CAROLINA - Damaging shrubs in Vance County. (Jones). VIRGINIA - Severe on evergreens and deciduous trees in Warren County (Weddle) and on locust trees in Brunswick County (Marshall). Heavy on evergreens in Smyth County (Eller) and killing untreated cedars in Greensville County (Rogers). Extremely heavy in Norfolk area. (Hofmaster).

JAPANESE BEETLE (Popillia japonica) - OHIO - Populations at high level throughout State. Considerable defoliation in established areas and in area newly-infested. Heavy turf damage expected this fall. (Polivka). NORTH CAROLINA - Reports of damage by adults continue from western areas. (Jones).

YELLOW-NECKED CATERPILLAR (Datana ministra) - PENNSYLVANIA - Fairly abundant in hawthorn and apple in north central area. (Gesell).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - FLORIDA - Medium severe throughout Dade County. Averaging seven per 25 hibiscus plants inspected at south Miami, Dade County. (Miles, Aug. 7).

AZALEA LACE BUG (Stephanitis pyrioides) - MISSISSIPPI - Injuring azalea leaves in Marion County. (Hutchins).

IRIS BORER (Macronoctua onusta) - WISCONSIN - Heavier than last year in Dane and Waupaca Counties. (Wis. Ins. Bul.). CONNECTICUT - Very heavy populations in infested iris beds. (Johnson).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - RHODE ISLAND - Report of equine encephalomyelitis in work horse in Kent County. Possibly borne by mosquitoes. (Steve).

MARYLAND - A Salisbury veterinarian reports cases of equine encephalomyelitis on lower Eastern Shore. (U. Md., Ent. Dept.).

COLORADO - Recent rains increasing populations of both mosquitoes and flies in northeastern part of Denver in stockyards. (Exp. Sta.).

WYOMING - Annoying at Douglas. (Spackman).

UTAH - Peak infestations July 1-August 15 in Cache Valley marked reduction in numbers beginning August 19 except Anopheles freeborni which is still abundant. (Harmston, Mail).

HORN FLY (Siphona irritans) - UTAH - Increasing several counties. (Knowlton). OKLAHOMA - Averages 900 per cow in several herds in Tulsa County. (Coppock). VIRGINIA - Averages about 300 per animal on beef and dairy stock in Montgomery County area. (Turner).

STABLE FLY (Stomoxys calcitrans) - VIRGINIA - Averages about 15 per animal on untreated cattle one area of Montgomery County. (Turner).

A TABANID (Tabanus americanus) - RHODE ISLAND - Annoying cattle in Richmond area. Four feeding in 20-minute period. (Ball, Steve).

FLEAS (Ctenocephalides spp.) - MARYLAND - Common in homes. (U. Md., Ent. Dept.).

MISCELLANEOUS INSECTS

MILLIPEDES - PENNSYLVANIA - Very numerous and annoying in several locations in Montour County. (Gesell, Aug. 7).

BALD-FACED HORNET (Vespula maculata) - RHODE ISLAND - Unusually high number of complaints of annoyance in Providence and Cumberland areas. (Mathewson).

FIELD CRICKET (Acheta assimilis) - CALIFORNIA - Unusually common in some Sacramento Valley districts. Migrating from fields into houses. (Cal. Coop. Rept., Aug. 17).

BOXELDER BUG (Leptocoris trivittatus) - PENNSYLVANIA - Adults and nymphs migrating in Luzerne County. (Gesell, Aug. 5).

STRAWBERRY ROOT WEEVILS - OREGON - Migrating and entering homes many locations in Willamette Valley. (Goeden).

OLD HOUSE BORER (Hylotrupes bajulus) - VIRGINIA - Damaging siding of house in Augusta County, Aug. 10. (Rowell).

AN EARWIG (Anisolabis maritima) - VIRGINIA - Causing concern to a fisherman in Northumberland County by killing soft crabs. Determined A. B. Gurney. (Morris).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea vires.	Protoparce sexta	Protoparce quinq.	Laphyg. frugip.
NEBRASKA (Counties)									
Lincoln 8/13-18						8	8	5	
Scotts Bluff 8/14-18	16	32						1	
Lancaster 8/12-18		292				40	5	23	
WISCONSIN									
De Forest 8/16-20	9					10			
ILLINOIS									
Urbana 8/17-23	31	16	32	16		130	4		2
INDIANA (Counties)									
Lawrence 8/16-21	79	5	25	5		20	12		
Tippecanoe 8/17-23	15	5	9			17		19	
OHIO (County)									
Athens 8/13-19	6	4				1			
VIRGINIA (County)									
Pittsylvania 8/12-18							183	515	
NORTH CAROLINA (Counties)									
Duplin 8/17-23	10	5	6			16			
Johnston 8/17-23	2	2	5			12		1	
SOUTH CAROLINA (Counties)									
Charleston 8/6-12	32		20	1	34	326	3	24	48
Conee 8/12-13	215		113			369	6	6	9
GEORGIA (Counties)									
Clarke 8/16-22	10	20				10	4	10	
Spalding 8/17-23	11	28	28			337	2	22	22
Tift 8/17-23	118	6	66		47	132	11	20	5
FLORIDA									
Quincy 8/6&13	33				21	929			
Homestead 8/8&14					6	26		4	
Monticello 8/15 & 21	2					22		1	
MISSISSIPPI (Counties)									
Lauderdale 8/18-24	16	5	4		53	76	3		1
Oktoberbeha 8/18-24	81	40	73		26	172	5		19
*Washington 8/17-23	136	46				811			38
LOUISIANA									
*Tallulah 8/17-23	26	7	51		44	300	11	8	31
Franklin 8/16-22	15		51		35	110			67
Curtis 8/14-20						630	23		
TEXAS									
Weslaco 8/1-15	11	45	66	2		147	566		990
Waco 8/18-24	16		44	10	6	679	1		
ARKANSAS (Counties)									
Hope 8/10-23	1	5						208	
Suitgart 8/9-22	30	19		15		147			
Van Buren 8/9-22						125			
Varner 8/9-22	6	81		9		177			
Payetteville 8/11-24	34	21				631			
TENNESSEE (Counties)									
Shelby 8/14-20		51		6		180	9	11	
Madison		8				1140	6	1	
Lawrence		32				560	13	24	
Maury		30				610	24	7	
Robertson		56				1176	17	25	
Cumberland		16		2		266	43	51	
Knox		30				820	5	1	
Greene		28				112	31	25	
Blount		44				223	22	9	
MISSOURI (Counties)									
Boone	13	2				59	4		15
Scott						433	22		
ALABAMA (Counties)									
Lee 8/18-24	123		74			373	8	19	7
De Kalb 8/22			1			33			1

OTHER COLLECTIONS: VELVETBEAN CATERPILLAR (*Anticarsia gemmatilis*) - FLORIDA

(Homestead, Aug. 1)-4; (Monticello, Aug. 15)-1; SOUTH CAROLINA (Charleston, Aug. 12)-11.

*Two traps Washington County; three traps Tallulah.

ADDITIONAL NOTES

NEW YORK - CODLING MOTH adults continue to emerge in Wayne County and possible late injury expected. Emerging in Orleans County. RED-BANDED LEAF ROLLER in a number of orchards in Orleans County and occasional grower has difficulty in control in Wayne County. CORN EARWORM infesting one percent of ears from sprayed fields in Hudson Valley. FALL ARMYWORM in tassels of one percent of 500 corn plants examined in Hudson Valley. (N. Y. Wkly. Rept.).

NEBRASKA - SPOTTED ALFALFA APHID now extends from Kansas line to South Dakota line in the eastern third of State. Counts remain low, ranging from 8 to 17 per 10 sweeps except in Dixon, Cedar and eastern Knox counties where counts averaged 150 per 10 sweeps. POTATO LEAFHOPPER nymphs and adults abundant in most alfalfa in northeast; 45 to 58 per sweep. "Hopperburn" evident. ALFALFA CATERPILLAR adults and larvae continue prevalent in alfalfa in northeast; 8 to 10 larvae per 10 sweeps. YELLOW-STRIPED ARMYWORM in most alfalfa fields in northeastern area, 5 to 7 per 10 sweeps. ALFALFA WEBWORM averaging 14 per 10 sweeps in alfalfa in northeast; webbing noticeable in most fields. BLISTER BEETLES averaging up to 13 per 10 sweeps in alfalfa fields in northeast counties. Corn continues to be damaged by GRASSHOPPERS, particularly M. differentialis. Damage is not restricted to margins. Counts range from 2 to 6 per square yard in corn in Otoe, Johnson, Lancaster, Seward and Saunders Counties. M. femur-rubrum and M. mexicanus causing damage to alfalfa in same area. Some fungus disease noted in northeast and many trombiculid mites present. (Andersen).

ARIZONA - SPOTTED ALFALFA APHID general throughout Maricopa County in irrigated alfalfa, mostly light to threatening. LYGUS BUG populations generally range from 50 to 165 per four sweeps in alfalfa throughout Maricopa County. STINK BUGS damaging some untreated sorghum fields near Wilcox, Cochise County. THREE-CORNERED ALFALFA HOPPER averages 10 per four sweeps in alfalfa in Maricopa County and 24 per 100 sweeps in soybeans. CORN EARWORM on sorghum damaging 13-45 per 100 stalks on 50 acres in Maricopa County. ALFALFA CATERPILLAR at 1 to 3 per four sweeps in alfalfa throughout Maricopa County with effective larval parasitism indicated. BEET ARMYWORMS at 1 to 3 per four sweeps throughout Maricopa County. Larval parasitism also indicated. PREDATORS remain relatively abundant in alfalfa in Maricopa County. A LEAF ROLLER (Platynota stultana) infesting 60 acres of castor beans in Maricopa County, yield considerably reduced. BOLLWORM counts up to 30 per 100 cotton plants at Eloy, Pinal County; however, in general populations remain fairly low in Pima, Pinal and Santa Cruz Counties, Aug. 16-17. Increasing in some fields in Maricopa County. Injurious in the Wilcox area, Cochise County, Aug. 17. Building up in most fields Graham County. LYGUS generally decreasing in cotton in most areas but still causing some injury. STINK BUGS injurious in some cotton fields near Wilcox, Cochise County, Aug. 17. COTTON LEAF PERFORATOR caused damage in Pinal and Maricopa Counties. Difficult to control in Pinal County. CABBAGE LOOPER

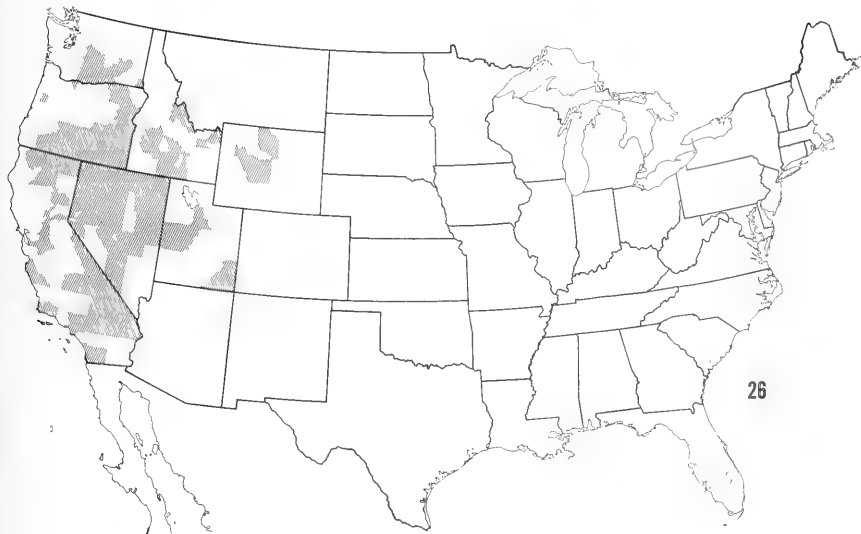
becoming a problem on cotton in parts of Pinal and Maricopa Counties, Aug. 17. A LEAF ROLLER (Platynota stultana) increasing on cotton in Maricopa County with larval counts of 50 to 60 per 100 plants in a few fields. SALT-MARSH CATERPILLAR populations remain constant in cotton, in general causing fairly light damage over State, Aug. 17. MITES required controls in a number of cotton fields near Gilbert. (Ariz. Coop. Rept.).

ALABAMA - In 10 soybean fields checked in Henry, Covington, Escambia and Conecuh Counties, light to heavy infestations of THREE-CORNERED ALFALFA HOPPER occurred in ten fields, a light infestation of GREEN STINK BUG in two fields and numerous BANDED CUCUMBER BEETLE populations in one field. In 34 peanut fields examined in Barbour, Henry, Houston, Dale, Coffee, Geneva, Covington and Conecuh Counties, one field showed a light infestation of FALL ARMYWORM; seven fields showed light, two medium and three heavy infestations of CORN EARWORM and two fields had light infestations of YELLOW-STRIPED ARMYWORM; one heavy, 20 light and 11 medium infestations of RED-NECKED PEANUT - WORM. In twenty grain sorghum fields in Henry, Houston, Dale, Coffee, Geneva and Conecuh Counties, there were 5 light, 4 medium and 5 heavy infestations of FALL ARMYWORM and two light and three heavy infestations of CORN EARWORM. (Tyus).

MICHIGAN - INDIAN-MEAL MOTH common in stored corn. SPIDER MITE infestations, chiefly Tetranychus telarius, are on the down trend. Unsprayed orchards at Grand Rapids and Allegan show many new CODLING MOTH entries. Aphids (Longistigma sp.) numerous and annoying on willow at Jackson, Lansing, Grand Rapids and Detroit. CECROPIA MOTH larvae troublesome on lilac and roses about Flint and Pontiac. STABLE FLY more numerous in barns about Lansing than for many years. SAW-TOOTHED GRAIN BEETLE and CONFUSED FLOUR BEETLE beginning to appear in stored wheat. (Hutson).

DISTRIBUTION OF RANGE GRASSHOPPERS

Circotettix undulatus (Thomas)

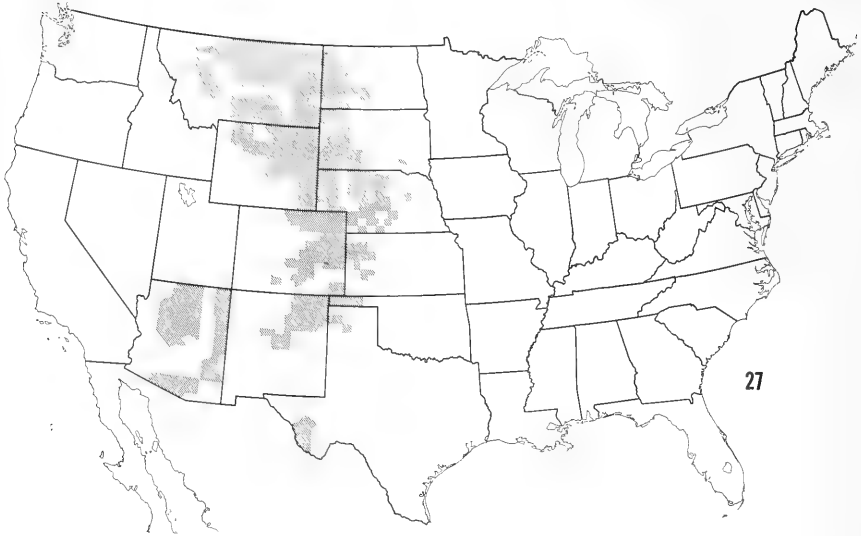


Conozoa wallula (Scudder)

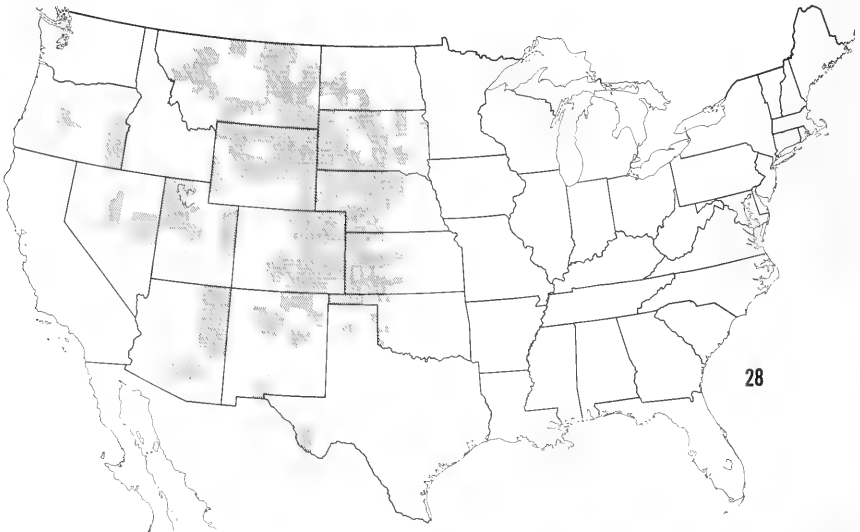


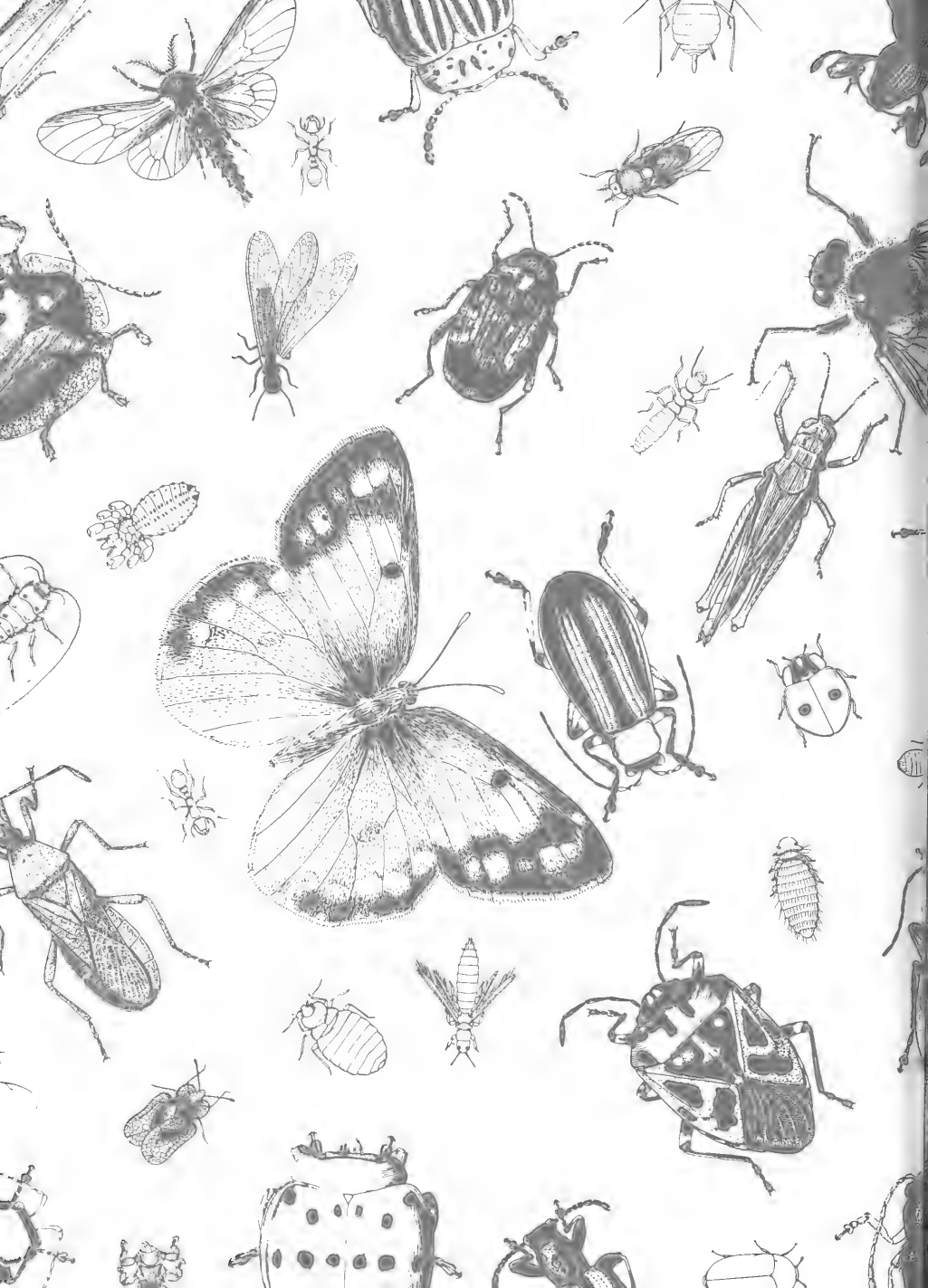
DISTRIBUTION OF RANGE GRASSHOPPERS

Cordillacris crenulata (Bruner)



Cordillacris occipitalis (Thomas)





VOL. 6 No. 36

SEPTEMBER 7, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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 Branch 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:

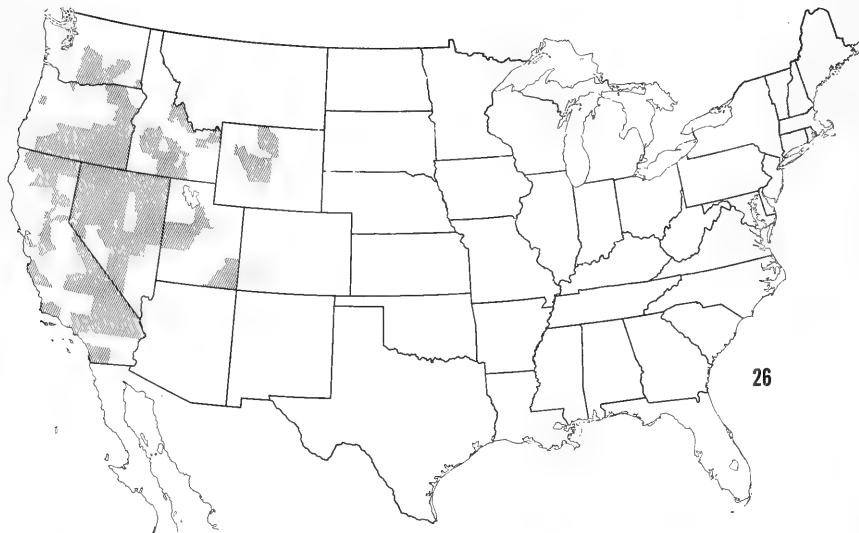
Plant Pest Survey Section
Plant Pest Control Branch
Agricultural Research Service
United States Department of Agriculture
Washington 25, D. C.

DISTRIBUTION OF RANGE GRASSHOPPERS

Circotettix undulatus (Thomas)



Conozoa wallula (Scudder)





COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS serious on grazing lands in Santa Cruz County, Arizona. Idaho, Oklahoma, Kansas and North Dakota also report infestations of concern. (p. 887).

SPOTTED ALFALFA APHID reported from South Dakota for first time. Damage continues in Utah. Heavy populations in some Louisiana parishes and local areas of Kansas. (p. 889). Map showing spread of this pest in United States. (p. 890).

PEACH TWIG BORER damage unusually severe in some areas of Washington. (p. 892).

MEDITERRANEAN FRUIT FLY reported from Osceola County, Florida. (p. 892).

Survey shows BEET LEAFHOPPER and curly top at low incidence in southern Great Plains and adjacent areas. (p. 894).

BOLLWORMS continue damage in cotton in California, New Mexico and several other States. (p. 895).

SPIDER MITES still serious on cotton in California. (p. 896).

Several cases of ENCEPHALITIS reported from Washington. Additional case in Rhode Island. (p. 897).

ADDITIONAL NOTES (p. 900).

Reports in this issue are for the week ending August 31, 1956 unless otherwise designated.

WEATHER BUREAU'S 30 DAY OUTLOOK SEPTEMBER 1956

The Weather Bureau's 30-day outlook for September 1956 calls for temperatures to average below seasonal normals west of the Continental Divide and in the Great Lakes region. Above normal temperatures are predicted for the East Coast and Southern Plains, with near normal elsewhere. Precipitation is expected to exceed normal in most of the northern third of the nation. Subnormal amounts are indicated in the southwestern quarter of the country and in the South Atlantic States. Elsewhere near normal rainfall is anticipated.

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

WEATHER FOR THE WEEK ENDING SEPTEMBER 3, 1956

Snowfall in Cutbank, Montana, a tornado in Fargo, North Dakota, excessive rains and local flooding in Syracuse, New York, freezing temperatures in the northern Great Plains and Rockies, blowing dust in northwestern Oklahoma and severe hail storms in Minnesota, Wyoming and North Dakota were all features of the weather this week. The general pattern leading to these events was one of low pressure troughs and frontal systems expanding southwestward and eastward from the Great Lakes region with cold polar air prevailing to the Northwest and extreme Northeast. Moist tropical air covered the Southeast penetrating well into the central portion of the country during most of the period.

Weekly temperatures generally averaged above normal east of lines joining North Platte, Nebraska with El Paso, Texas and Pembina, North Dakota with departures from normal of +6° or more reported in areas of Texas, Michigan and along the central Atlantic coast. Temperatures west of these lines averaged below normal under the influence of two unseasonably cold air masses. Greatest minus temperatures in this area averaged 6° or more. Morning temperature at Fraser, Colorado reached 15° on two consecutive days, August 31 and September 1. Also on September 1 a record low for so early in the season was reported at North Platte, Nebraska. Minima of freezing or below occurred at numerous mountain stations in the northwest on September 4 while at lower elevations Tioga and Beech, North Dakota, recorded lows of 26° and 28° respectively. Precipitation totals for the week were generally moderate to heavy in the Mississippi Valley, in the Great Lakes region westward along the Canadian Border through Montana, in the Ohio Valley and eastward to western New England, in the southern Appalachians and Atlantic Coastal area and from Galveston, Texas eastward along the Gulf Coast while in the central and southern Plains States and from the Continental Divide westward dry conditions continued. Some of the greatest weekly amounts reported were 6.35 inches in Syracuse, (Weather continued on p. 900).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - ARIZONA - Grasshoppers, including Boopedon nubilum, Brachystola magna, Melanoplus lakinus, M. regalis and Morseiella flaviventris, seriously damaging natural grazing areas in Santa Cruz County. Control planned on 70,000 acres of this general infestation.(ACR). IDAHO - Very severe infestation near Riggins, Idaho County, over 100 per square yard in many spots. Complete defoliation of weeds. (Barr). OKLAHOMA - Continue to cause marginal damage to sorghums, soybeans, corn, cotton, truck crop and legumes. (Coppock). KANSAS - Light to threatening populations in a few local areas of northwestern Kansas; 5-15 per square yard which is lower than last year at this time. Dominant species is M. mexicanus. Non-economic to threatening populations in 7 southwest counties. Populations confined to roadside margins along ground prepared for fall wheat plantings. (Matthew). NORTH DAKOTA - Continue to damage flax in unsprayed fields where populations high. Damaging pods of soybeans in eastern area. (N. D. Ins. Rept.).

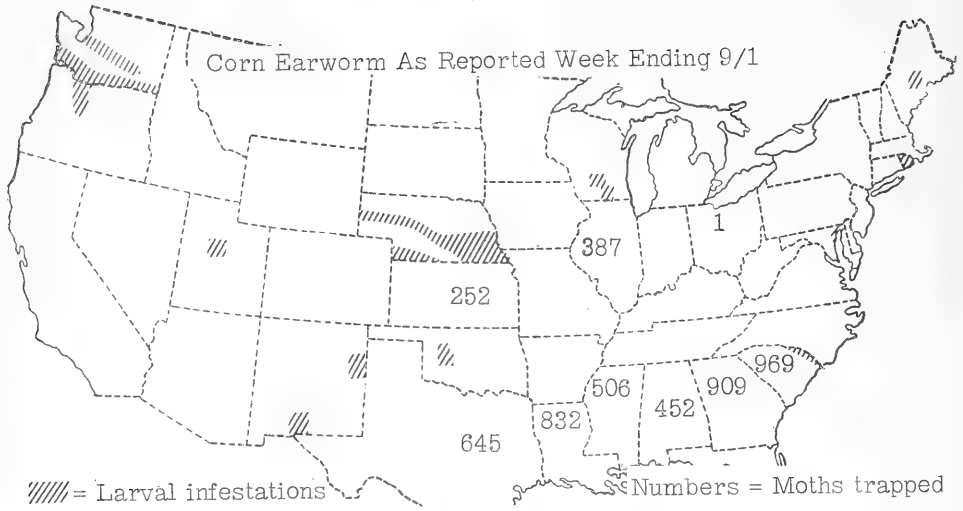
EUROPEAN CORN BORER (Pyrausta nubilalis) - MARYLAND - Two egg masses per 100 plants and 9 percent stalk infestation in 16 fields in Frederick County. Eight percent stalk infestation in 16 fields in Cecil County. (U. Md., Ent. Dept.). ALABAMA - Heavy flights of second-generation moths in northern area. Oviposition primarily on grain sorghum and pimiento peppers. (Eden). Found in Winston County for first time, light in 3 fields. (Tyus). MISSISSIPPI - Larvae collected from corn in following counties: Benton, Bolivar, Itawamba, Lafayette, Monroe, Prentiss, Sharkey, Sunflower, Tippah, Tishomingo and Washington. (Ingram).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - LOUISIANA - Found in 4 fields in Caddo Parish and 2 in Bossier Parish, 20-60 percent of stalks infested. (Oliver). NEW MEXICO - Moderate damage to field corn in Quay County. (Durkin, Aug. 25).

CHINCH BUG (Blissus leucopterus) - NORTH CAROLINA - Severe infestation on St. Augustine grass in New Hanover County. (Spink). OKLAHOMA - Twenty per sorghum plant in one field in Comanche County, lighter in rest of southwestern area. (Coppock).

MORMON CRICKET (Anabrus simplex) - Total of 58,280 acres in 5 States baited for control of Mormon cricket this year. Acreage by State: Colorado 2,464, Idaho 4,158, Nevada 9,374, Utah 35,064, Wyoming 7,220. (GHC Proj.).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - NEBRASKA - Adults still prevalent in alfalfa in Platte and Republican Valleys. Larvae average 5 per sweep in these areas. (Andersen). ARIZONA - One to 3 per sweep in some alfalfa fields near Yuma, August 29. (Ariz. Coop. Rept). NEW MEXICO - Moth numerous in alfalfa, one damaging larval infestation in Eddy County. (Durkin, Aug. 25).



CORN EARWORM (*Heliothis zea*) - MAINE - Moderate infestation at Monmouth August 23, larvae about one-half grown. (Hawkins). RHODE ISLAND - Larvae leaving corn ears. (Steve). MARYLAND - Thirteen percent of sweet corn infested in 14 fields in Cecil County. (U. Md., Ent. Dept.). SOUTH CAROLINA - This species and other caterpillars damaging soybeans in area from Bennettsville to coast. (Nettles). OKLAHOMA - Several larvae per plant in isolated fields of peanuts in Caddo County, eggs numerous. Defoliation slight. (Coppock). NEBRASKA - Adults very abundant in alfalfa in southeastern area. Approximately 95 percent of corn plants have 1-2 larvae in ears in this area. Approximately 80-90 percent of ears in Republican and Platte Valleys show larval damage. (Roselle, Andersen). UTAH - Decreasing in canning corn in Utah County. (Dorst, Knowlton). NEW MEXICO - Moderate to heavy damage to field corn in Quay and Dona Ana Counties. (Durkin, Aug. 25). OREGON - Infestations averaged 10-15 percent in Willamette Valley, August 26. (Capizzi). WASHINGTON - Larvae still prevalent but scattered in Columbia Basin and Yakima Valley. (Kamal).

SOUTHERN CORNSTALK BORER (*Diatraea crambidoides*) - MISSISSIPPI Found in stalks of corn in Chickasaw and Tippah Counties, August 28. (Douglas, Henderson).

ALFALFA WEBWORM (*Loxostege commixtalis*) - NEBRASKA - Adults very abundant in most alfalfa in Republican and Platte Valleys. Four to 5 larvae per sweep. (Andersen).

FALL ARMYWORM (*Laphygma frugiperda*) - MAINE - Infesting about 15 percent of corn at Winslow August 15. (Hawkins). ALABAMA - Infesting grain sorghum, grasses and peanuts in various sections. (Arant). GEORGIA - Light on soybeans and velvetbeans in Bryan County. (Medders). LOUISIANA - Infestations statewide, 250 larvae per 100 sweeps in alfalfa

in Caddo Parish, 60 per 100 in Bossier Parish and generally light on grass over State. (Oliver).

CRICKETS - NORTH DAKOTA - Field crickets numerous and causing damage in scattered flax fields in eastern and central areas. (N. D. Ins. Rept.).

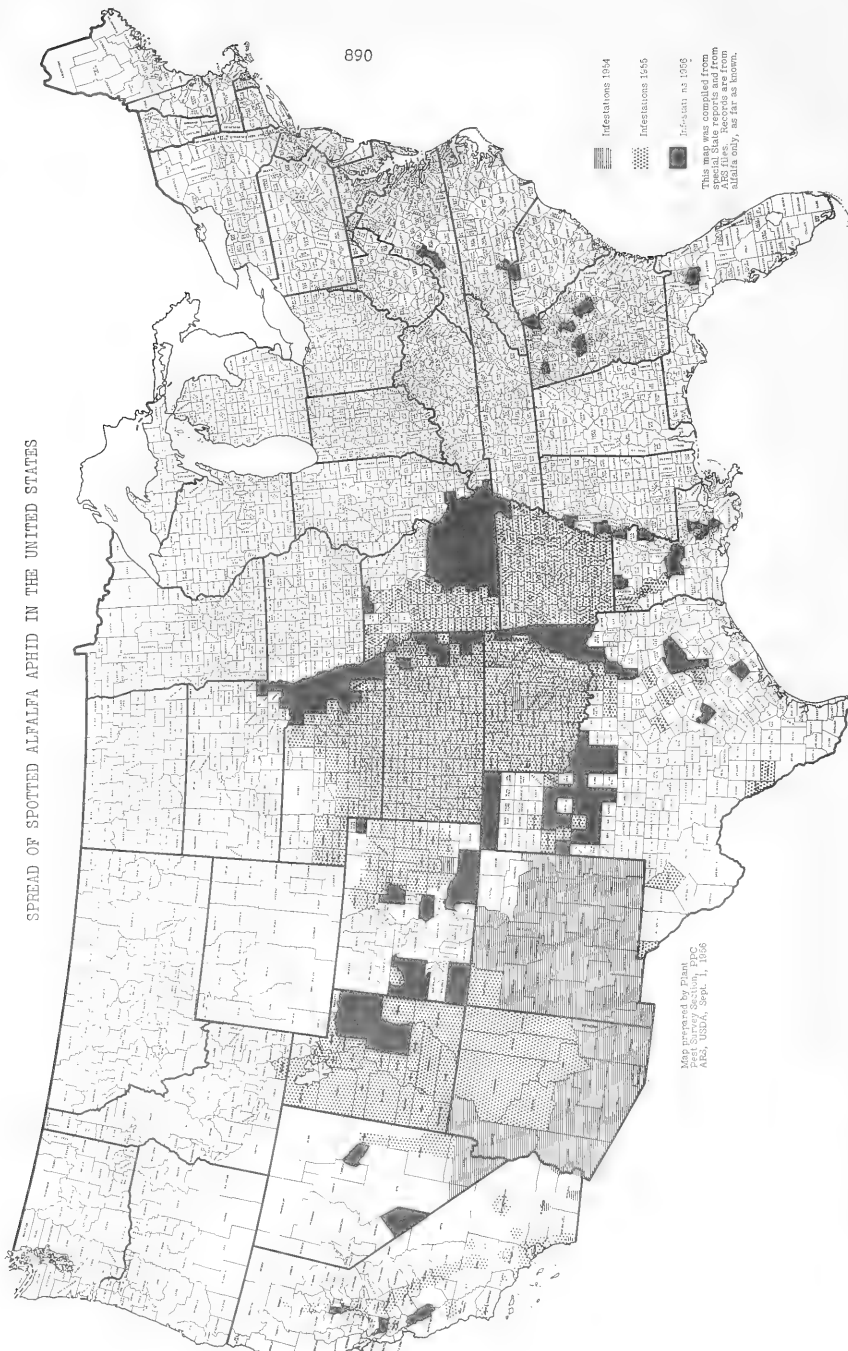
LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - SOUTH CAROLINA - Heavy infestation in 500 acres of cowpeas and soybeans in Barnwell County, August 23. (Shelley). GEORGIA - Moderate to heavy infestation in cowpeas in Gwinnett County. (Shirley). TEXAS - Heavy widespread on peanuts, hegari and some grasses in Erath County. (Sanchez).

EUROPEAN EARWIG (Forficula auricularia) - IDAHO - Numerous reports of infestation in ears of sweet corn in Moscow area. (Manis).

SPOTTED ALFALFA APHID - NEW MEXICO - Light over most of State. (Durkin, Aug. 25). COLORADO - Aphids per 100 sweeps by county: La Plata 120, Montezuma 300, Montrose 40, Delta 50, Mesa 2500. (Exp. Sta.). UTAH - Continues damaging in many counties. (Knowlton). OKLAHOMA - Remains non-economic in dryland alfalfa over State. Higher populations continue in most irrigated fields in southern area, up to 65 per sweep in one Jackson County field. Predators increasing in fields with higher aphid populations. (Coppock). KANSAS - Infestation from non-economic to heavy in alfalfa in 9 northwest counties and 6 west central and southwest counties. Light to moderate in 4 central counties. The local heavy infestations were widely scattered in western third of State. Situation varies between fields. Aphid counts from 4 to 800 per sweep, lady beetles 0-15 per sweep, lacewings 0-8. Light infestation on alfalfa seedlings in Rawlins County. (Matthew). SOUTH DAKOTA - Found in Union, Clay, Yankton, Lincoln and Minnehaha Counties August 27. Generally light, up to 5 per sweep. This is first report for State. (Walstrom, Billman, Lofgren). NEBRASKA - No increase in Republican and middle Platte Valley areas, 1-8 per sweep. (Andersen). LOUISIANA - Heavy populations continue in Natchitoches, Bossier and Caddo Parishes. (Oliver).

See Spotted Alfalfa Aphid distribution map on next page.

SPREAD OF SPOTTED ALFALFA APHID IN THE UNITED STATES



Infestations 1954
Infestations 1955
Infestations 1956

This map was compiled from special State reports and from AFBIS field notes are from United States, and 1956 as follows.

Map prepared by Plant Pest Survey Section, EPIC, ARS, USDA, Sept. 1, 1956

PEA APHID(Macrosiphum pisi) - COLORADO - Damaging numbers in Saguache and Rio Grande Counties. (Ext. Serv.). UTAH - Continues injurious in many counties. Infestation has persisted much longer than normal on alfalfa. (Knowlton). NEBRASKA - Between 150-235 per sweep in alfalfa in Republican and Platte Valley areas. (Andersen).

BLISTER BEETLES - NEBRASKA - Epicauta spp. counts remain high in most alfalfa in Republican and Platte Valleys. Ten to 12 E. pennsylvanica and Epicauta sp. per 10 sweeps. E. cinerea ranges from 10-20 per 10 sweeps in panhandle and north central counties. (Andersen, Fitchett).

A STINK BUG (Euschistus impictiventris) - ARIZONA - One per sweep in some alfalfa seed fields near Yuma. (Ariz. Coop. Rept.).

PLANT BUGS - UTAH - Continue abundant over much of State. (Knowlton). NEBRASKA - Lygus lineolaris increasing in alfalfa seed fields, 4-6 per sweep in Republican Valley area. Adelphocoris lineolatus ranges from 4-9 per sweep in alfalfa in Platte and Republican Valleys. (Andersen). KANSAS - About 1 A. lineolatus and 1 L. lineolaris per sweep in alfalfa in Riley County. (Franklin). One to 4 A. lineolatus per sweep in northwest counties. (Matthew). ARIZONA - From 200-850 Lygus sp. per 100 sweeps in untreated alfalfa in Yuma area. (Ariz. Coop. Rept.).

FALSE CHINCH BUGS (Nysius sp.) - NEW MEXICO - Numerous in sorghum fields in Hidalgo, Curry and Quay Counties. (Durkin, Aug. 25).

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis) - LOUISIANA - Found on soybeans as far north as Alexandria in Rapides Parish. Moderate on soybeans in south central area. (Oliver).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - UTAH - Abundant in some Washington and Kane County alfalfa. (Knowlton). LOUISIANA - Continues to build up in alfalfa, and soybeans over State with 60-250 per 100 sweeps common. (Oliver). TEXAS - Heavy local populations on alfalfa in Culberson County. (Garner).

SPIDER MITES - COLORADO - Considerable controls against Tetranychus telarius on corn in Larimer and Weld Counties. (Colo. Aer. Applicators). UTAH - Damaging corn in many fields in northern area. (Knowlton).

LESPEDEZA WEBWORM (Tetralopha scortealis) - SOUTH CAROLINA - Serious damage to sericea lespedeza for seed in Chesterfield County. (Nettles).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - OHIO - Infestations in commercial orchards very light. (Cutright). WASHINGTON - Active in many orchards. (Yakima Spray Bul.).

ORCHARD MITES - UTAH - Severely damaging Weber and Salt Lake

County orchards and scattered orchards in other areas. (Knowlton). OHIO - Infestations of Metatetranychus ulmi declining but serious damage in several orchards. (Cutright). NEW MEXICO - Tetranychus telarius building up on apples in Lincoln County and damaging orchards in Sandoval and Rio Arriba Counties. (Durkin, Aug. 25).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - WASHINGTON - Extremely abundant on backyard apple trees near Pullman and vicinity. (Telford, Kamal).

PEAR-SLUG (Caliroa cerasi) - COLORADO - Severe damage to sour cherry in Larimer County. (Exp. Sta.).

WOOLLY APPLE APHID (Eriosoma lanigerum) - WASHINGTON - Build-up causing concern about control. (Yakima Spray Bul.).

PEACH TWIG BORER (Anarsia lineatella) - WASHINGTON - Worst damage in past nine years in peach orchards in Crescent Bar and Wenatchee areas. (Anthon).

CATFACING INSECTS - OHIO - Many second-generation eggs deposited by Euschistus tristigmus and a few by E. servus and E. variolarius. (Rings).

TERMITES - OKLAHOMA - Attacking roots of young pecan trees in an orchard in Oklahoma County. (Bower).

FALL WEBWORM (Hyphantria cunea) - OREGON - Unusually large numbers in cherry, filbert and walnut orchards in Willamette Valley. Reaching maturity Aug. 27. (Capizzi).

BLACK PECAN APHID (Melanocallis caryaefoliae) - FLORIDA - Nymphs and adults averaging 28-43 per leaf on 100 leaves inspected of pecans at Monticello, Jefferson County, Aug. 21. (Phillips).

THRIPS - ARIZONA - Causing considerable leaf distortion in some plantings of young citrus trees at Yuma. (Ariz. Coop. Rept.).

LEAFHOPPERS - MARYLAND - Injuring grapes at Salisbury, Aug. 30. (U. Md., Ent. Dept.). NEW MEXICO - Erythroneura sp. damaging grapes in Dona Ana, Eddy and De Baca Counties. (Durkin, Aug. 25).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Infestations found in Osceola County. Three specimens trapped near Kissimmee August 23 and one August 24. (PPC). TEXAS - Trapping program underway in lower Rio Grande Valley with 104 traps set out on 96 properties in and near Brownsville. No specimens trapped by mid-August. (PPC).

TRUCK CROP INSECTS

STALK BORER (Papaipema nebris) - RHODE ISLAND - Margins of most potato fields examined, heavily infested with pupation at peak. (Steve).

POTATO PSYLLID (Paratrioza cockerelli) - COLORADO - Populations still high on buffalo burr, matrimony vine, ground cherry and bindweed. Potatoes yielding 300-400 sacks per acre when this pest properly controlled. (Exp. Sta.).

WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) - IDAHO Prodenia sp. referred to in CEIR 6(34):851 as damaging sugar beets and potatoes was P. praefica. (Manis).

POTATO FLEA BEETLE (Epitrix cucumeris) - MAINE - Only trace numbers of summer generation adults in Presque Isle area. (Shands).

GREEN PEACH APHID (Myzus persicae) - OREGON - High populations in many potato fields in Klamath Falls area. (Capizzi).

APHIDS - MAINE - Populations in commercial potato fields in Presque Isle area very low. Species were Aphis abbreviata, Macrosiphum solanifolii, Myzus persicae and M. solani. (Shands).

TOMATO FRUITWORM (Heliothis zea) - COLORADO - Reached 2.4 eggs per 100 tomato leaves in Prowers, Las Animas, Bent, Otero and Pueblo Counties compared with .6 per 100 leaves for the same period in 1955. About 10 days ahead of 1955 in development. (Exp. Sta.). ARIZONA - Damaging 20 acres of lettuce near Bowie, Cochise County Aug. 30. (Ariz. Coop. Rept.).

HORNWORMS (Protoparce spp.) - RHODE ISLAND - Damage increasing on tomatoes. (Steve). NEW MEXICO - With Heliothis zea, causing light to moderate damage to 300 acres of tomatoes in Luna County. (Durkin, Aug. 25).

FIELD CRICKET (Acheta assimilis) - FLORIDA - Adults heavily infesting fields to be planted to tomatoes and other crops in Homestead area, Dade County. Det. D. O. Wolfenbarger. (Denmark).

A LEAF MINER (Liriomyza sp.) - ARIZONA - Decreasing but heavily mining bean cotyledons in one field at Bowie, Cochise County, Aug. 23. (Ariz. Coop. Rept.). NEW MEXICO - Infesting seedling lettuce in Dona Ana County. (Durkin, Aug. 25).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - MISSISSIPPI - Infesting small bean plants in Marshall County. (Hutchins).

MEXICAN BEAN BEETLE (Epilachna varivestis) - COLORADO - Many fields severely damaged but many show excellent control. (Exp. Sta.). UTAH - Caused considerable damage in infested areas of State. (Knowlton).

SQUASH BUG (Anasa tristis) - RHODE ISLAND - Nymphs in large numbers on untreated squash plantings throughout State. Greatest damage expected later. (Steve).

MELON FLY (Dacus cucurbitae) - CALIFORNIA - To August 18, in Los Angeles County, 2658 traps had been placed with about 350 additional being placed daily. No additional flies have been trapped. (Cal. Coop. Rept., Aug. 24).

CUCUMBER BEETLES - NORTH CAROLINA - Diabrotica undecimpunctata howardi and Acalymma vittata infestations heavy on cucumbers in Duplin County. (Reid).

IMPORTED CABBAGEWORM (Pieris rapae) - NORTH DAKOTA - Adults more numerous this season than in several years. (N. D. Ins. Rept.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Damaging 80 acres of cabbage at Deer Valley, Aug. 29 and 20 acres of lettuce at Bowie, Cochise County, Aug. 23. (Ariz. Coop. Rept.). NEW MEXICO - Damaging seedling stands of lettuce in Dona Ana County. (Durkin, Aug. 25).

SUGAR BEET ROOT MAGGOT (Tetanops myopaeformis) - COLORADO - Losses of stands significant in Larimer and Weld Counties. (Exp. Sta.).

General Statement on Beet-Leafhopper and Curly-Top Conditions in the Southern Great Plains and Adjacent Areas

Both the beet-leafhopper population and curly top, a virus disease transmitted by this insect, are generally very low and widely distributed over the southern Great Plains and adjacent areas. Kochia and Russian-thistle, the principal summer weed hosts of this leafhopper in the above areas, are abundant on idle and waste lands from the Edwards Plateau of Texas north to the Platte River Valley of western Nebraska and westward to the Rocky Mountains. The incidence of curly top, as well as the grade of severity on red and sugar beets, Swiss chard, and tomatoes wherever found, was very low from Crystal City, Texas; northward through Lubbock Texas; Garden City, Kansas; and North Platte, Nebraska; westward to Fort Collins, Colorado; south through Pueblo, Colorado; Las Vegas and Roswell, New Mexico; in the Estancia Valley of New Mexico; and in the San Luis Valley of Colorado. The low incidence of curly top the latter part of August in the above areas substantiates the findings made in February and March and published in the June 22, 1956 issue of the Cooperative Economic Insect Report, Vol. 6, No. 25 page 584. (Douglass, Cowger, and Thrailkill).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - OKLAHOMA - Square infestation on irrigated cotton 5-16 percent in Tillman County, 7-25 in Jackson County. Some boll punctures. (Coppock). ARKANSAS - Dry weather reduced infestations last August. Recent rains, however, will result in high levels of infestation in early fall. (Warren, Harrendorf, Barnes). LOUISIANA - Many fields have quit fruiting and accurate infestation counts difficult to obtain. Counts in younger cotton were 40 percent in one field in Tensas Parish, 66 in 3 in Ouachita Parish. (Oliver). Average infestation in 34 fields in Tallulah area was 51 percent. Weevils moving into fields still fruiting. (Pfrimmer). TENNESSEE - Heavy infestations of adults in low land fields, considerable damage to bolls. (Locke). SOUTH CAROLINA - Population still high enough to justify controls in mountain area. (Nettles).

BOLLWORMS (Heliothis spp. et al.) - CALIFORNIA - Economic levels general over most of San Joaquin Valley, 1-6 per 100 plants. New hatch developing south of Bakersfield, up to 12-15 per 100 plants not uncommon. Although predator activity remains high, bollworm populations are heavy and require close attention. Moth activity increased markedly in Imperial Valley. (Cal. Coop. Rept., Aug. 23). ARIZONA - Increasing to 28 per 100 plants in Eloy area of Pinal County August 23. Three to 20 per 100 plants at Buckeye and Perryville, Maricopa County, August 24. (Ariz. Coop. Rept.). NEW MEXICO - Increasing in Dona Ana County, moderate to heavy damage in several fields. Bollworms general in cotton in Eddy and Chaves Counties. (Durkin, August 25). OKLAHOMA - Egg depositions still increasing in many irrigated fields in southwestern area, 18-94 percent of terminals had eggs. Damage to young bolls and squares from 3-32 percent. (Coppock). ARKANSAS - Moth flight increasing. (Warren, Harrendorf, Barnes). LOUISIANA - Continue to threaten some cotton in Tensas, Ouachita and Bossier Parishes. (Oliver). Eggs in 38 fields in Tallulah area at rate of 6.6 per 100 terminals and larvae at rate of 3.1 per 100 terminals. (Pfrimmer et al.). TENNESSEE - Still increasing in weevil-infested areas. (Locke). SOUTH CAROLINA - Damage increasing in Calhoun, Lancaster and Spartanburg Counties. (Cott. Lett.).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Large populations in many fields in Imperial Valley. Little or no serious damage but treatment may be necessary in some cases in order to prevent too-early defoliation. (Cal. Coop. Rept., Aug. 23). ARIZONA - Severe in several fields near Eloy. Disease killing many large caterpillars. Populations increasing in Maricopa, Pima and Pinal Counties, August 24. (Ariz. Coop. Rept.). NEW MEXICO - Spotty, a few fields moderately damaged. (Durkin, Aug. 25). OKLAHOMA - Abundant in isolated fields in Tillman and Jackson Counties. One field had 8 per plant. (Coppock). LOUISIANA - Beginning to infest cotton fields in northern area, some defoliation in a few fields. (Oliver).

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - Gin stand inspections in Bryan, Caddo, Kiowa and Marshall Counties negative;

however, following ginning of first bale of cotton at Terral, a handful of motes revealed 8 pink bollworms. (Senette).

SALT-MARSH CATERPILLAR (Estigmene acrea) - CALIFORNIA - Many newly-hatched larvae on cotton in most areas of Imperial Valley. (Cal. Coop. Rept., Aug. 23). ARIZONA - Increasing in Maricopa County but damage remains light, August 24. Continued increase expected into September at Yuma. (Ariz. Coop. Rept.).

APHIDS - ARKANSAS - Infestations have increased. (Warren, Harrendorf Barnes). OKLAHOMA - Common in some fields in southwestern counties. (Coppock). CALIFORNIA - Aphis gossypii in near-economic numbers in areas of Kern County. (Cal. Coop. Rept., Aug. 23). ARIZONA - A. gossypii particularly heavy on pima cotton near Bowie, Cochise County, August 23. (Ariz. Coop. Rept.).

LYGUS BUGS - ARIZONA - Continues to decline in Maricopa County but still problem in some areas of Pima County August 24. Twenty per 100 sweeps on 400 acres at Eden, Cochise County. (Ariz. Coop. Rept.). NEW MEXICO - Lygus elisus and L. hesperus damaging cotton in most areas. Heavy in Dona Ana County. (Durkin, Aug. 25).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - CALIFORNIA Still not too serious in most spring-planted cotton in Imperial Valley. (Cal. Coop. Rept., Aug. 23). ARIZONA - Light to severe in Eloy area, Pinal County. Portion of some fields completely defoliated. Increasing in Maricopa and Pima Counties, August 24. (Ariz. Coop. Rept.).

SPIDER MITES - CALIFORNIA - Continue serious problem, especially in untreated cotton. (Cal. Coop. Rept., Aug. 23). ARIZONA - Appearing in Bowie area, Cochise County, in light spotty infestation, August 23. (Ariz. Coop. Rept.). TENNESSEE - Still increasing in weevil-infested areas and causing complete defoliation in spots within fields. Continued increase expected. (Locke). OKLAHOMA - Abundant in many fields in Jackson County, up to 25 per leaf. (Coppock). SOUTH CAROLINA - Increasing in all sections. (Cott, Lett.).

LEAFWORMS - OKLAHOMA - Present in many southwestern fields but generally low. (Coppock). NEW MEXICO - Alabama argillacea infestations spotty with some fields heavily infested in Dona Ana, Eddy and Chaves Counties. (Durkin, Aug. 25).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - RHODE ISLAND - A report of death of workhorse at Coventry. Second case involving horses. Mosquitoes continue to annoy residents of Davisville, Matunuck and Point Judith. (Steve). UTAH - Culex tarsalis most prevalent species. During August, 3800 acres were spray by air, 1500 acres by ground equipment and 3500 gallons of insecticides fogged on. Some scattered areas of annoyance now. (Fronk, Knowlton). NORTH CAROLINA - Aedes sollicitans numerous in Dare County. (Cromroy). WASHINGTON - A number of cases of encephalomyelitis of horses and a few cases of encephalitis of humans reported during August. Possibly borne by mosquitoes. (Telford).

CATTLE GRUBS - OKLAHOMA - Heel flies annoying cattle in Pushmataha County. (Goin).

HORN FLY (Siphona irritans) - OKLAHOMA - Averaged 800 per cow in large herd of dairy cattle in Okfuskee County. (Coppock).

TABANIDS (Tabanus spp.) - RHODE ISLAND - Still annoying cattle in Richmond area. Numbers decreasing, 2-5 per animal in five minute period. (Steve).

TICKS - SOUTH CAROLINA - Heavy infestations in and about houses in West Columbia. (Nettles). ARIZONA - BROWN DOG TICK (Rhipicephalus sanguineus) - Infesting some homes on the Yuma Mesa. (Ariz. Coop. Rept.).

STORED PRODUCTS INSECTS

KHAPRA BEETLE (Trogoderma granarium) - CALIFORNIA - No new infestation found week ending Aug. 17 in Fresno, Kings, Merced and Tulare County. Two properties fumigated in Imperial Valley. (Cal. Coop. Rept.).

RUSTY GRAIN BEETLE (Laemophloeus ferrugineus) - WASHINGTON - Three specimens collected in wheat field by threshing crew. (Bishop).

MISCELLANEOUS INSECTS

CRICKETS - ARIZONA - Causing annoyance in homes in Yuma, Aug. 29. (Ariz. Coop. Rept.).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - WEST VIRGINIA - Causing annoyance by entering houses in Charleston area, Aug. 14. (Dorsey, Hansen).

YELLOW JACKETS - RHODE ISLAND - Unusually high number of complaints from Smithfield and Cranston areas. (Mathewson).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - WEST VIRGINIA - Moderate injury in Christmas tree plantations of red, Scotch and Austrian pines in Randolph County. (Dorsey, Hansen).

A PINE TIP MOTH (Rhyacionia sp.) - NORTH CAROLINA - Heavily infesting young pine seedlings at Faison, Duplin County. (Mitchell).

BAGWORMS - OKLAHOMA - Very abundant on evergreens in Tahlequah. (Campbell).

FOREST INSECT SITUATION, SOUTH CENTRAL U. S.

Widely scattered infestations of SOUTHERN PINE BEETLE in pines several areas of ALABAMA. Active on the Talladega and Bankhead National Forests. Situation improved over conditions in June. BLACK TURPENTINE BEETLE increasingly destructive most sections of South. Infestations in scattered trees and small groups of trees general and increasing on private lands in central and southwestern ARKANSAS, east TEXAS, LOUISIANA and MISSISSIPPI. Many small control projects in progress. IPS BEETLES increased in activity in east TEXAS and ARKANSAS. Ips avulsus triggering attacks of SOUTHERN PINE BEETLE in ALABAMA by attacking crown and upper stems of pines. A COLASPIS (Colaspis pini) browned foliage of pines in southern LOUISIANA and southeastern TEXAS. A CONE MOTH (Diorycetria amatella) caused flagging of branch tips of mature longleaf pines in TEXAS and LOUISIANA, last of June. FALL WEBWORM attacking mulberry, persimmon, pecans, gums and other hardwoods in eastern TEXAS, LOUISIANA, MISSISSIPPI and east central OKLAHOMA. Lighter defoliation in ARKANSAS and ALABAMA. (Southern For. Pest Repr., Aug. 24).

LACE BUGS - OKLAHOMA - Heavy infestation on sycamore and elm trees in Tulsa. (Pinkston).

A HELIOSELID (Coptodisca n. sp.) - ARIZONA - Severely perforating leaves and causing leaf-shed on cottonwood trees in Maricopa and Yuma Counties, Aug. 27. A new species. Det. H. W. Capps and J. F. G. Clarke. (Ariz. Coop. Rept.).

A WEEVIL (Brachyrhinus sp.) - WASHINGTON - Adults heavily damaging young shoots of lilac at Pullman. (Telford, Kamal).

AZALEA LACE BUG (Stephanitis pyriodes) - WEST VIRGINIA - Severe infestations of azaleas in Marion County. (Dorsey, Hansen).

GRASSHOPPERS - OKLAHOMA - Defoliating ornamentals and nursery stock in Cherokee County. (Campbell).

AN ERIOPHYID MITE (probably Eriophyes loewi) - WASHINGTON - Very abundant and causing considerable bronzing of lilac leaves at Pullman. (Telford, Kamal).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis vpsilon	Prod. ornith.	Perid. marf.	Feltia subt.	Heliothis zea	Protoparce sexia	Laphyg. frugip.
KANSAS								
Hays 8/18-24	7	23	1		3			
Manhattan 8/28-30	7	13			252		8	1
Garden City 8/23-29	13	116			194			2
Goodland 8/29	1	5			16			
OHO (County)								
Athens 8/20-26	2	3			1			
ILLINOIS								
Urbana 8/24-30	52	21	21	22	387		18	22
NORTH CAROLINA (Counties)							35 spp.	
Duplin 8/27-31							14 spp.	
JOHNSTON								
SOUTH CAROLINA (Counties)								
Charleston 8/13-19	22	1	49	1	35	231	13	1
Florence 8/18-24	163	30	163	2	163	969	54	1
Oconee 8/18-24	38	19	43		3	66	10	4
GEORGIA (Counties)								
Tift 8/24-30	106	11	17	28	28	269	69	5
Spalding 8/24-30	19	36	8	5	909		21	2
Clarke 8/23-29	13	16			11	3	16	1
FLORIDA								
Gainesville 8/1&9			13			87	6	
Quincy 8/20	2				6	21	7	
Sanford 8/23					2			
ALABAMA (County)								
Lee 8/25-31	140		82		452	23	27	8
MISSISSIPPI (Counties)								
Humphrey (8/25-31)	30	5	39		26	506	18	2
Lauderdale	9	3			60	42		1
Marshall	79	13	12		14	420	9	
Oktibbeha	113	39	30		18	282	12	11
LOUISIANA								
*Tallulah 8/23, 25, 27	56	16	62	2	49	345	27	25
Curtis 8/20-26	128	3		1	10	882	4	4
Eaton Rouge 8/28	13	1	10		6	59	1	1
TEXAS								
Waco 8/25-31	37	2	13	3	10	645	7	
College Sta. 8/16-31	158	10	26	1	401	2		483
WISCONSIN								
DeForest 8/21-28	68					93		

*Three traps Tallulah

OTHER COLLECTIONS: VELVETBEAN CATERPILLAR (*Anticarsia gemmatilis*) - SOUTH CAROLINA (Charleston, 8/13-19)-16; FLORIDA (Gainesville, 8/9)-3; (Quincy, 8/20)-4.

BENEFICIAL INSECTS

KLAMATHWEED BEETLES (*Chrysolina* spp.) - IDAHO - A few specimens of *C. gemellata* emerging in Rathdrum Prairie area. No *C. hyperici* (Barr).

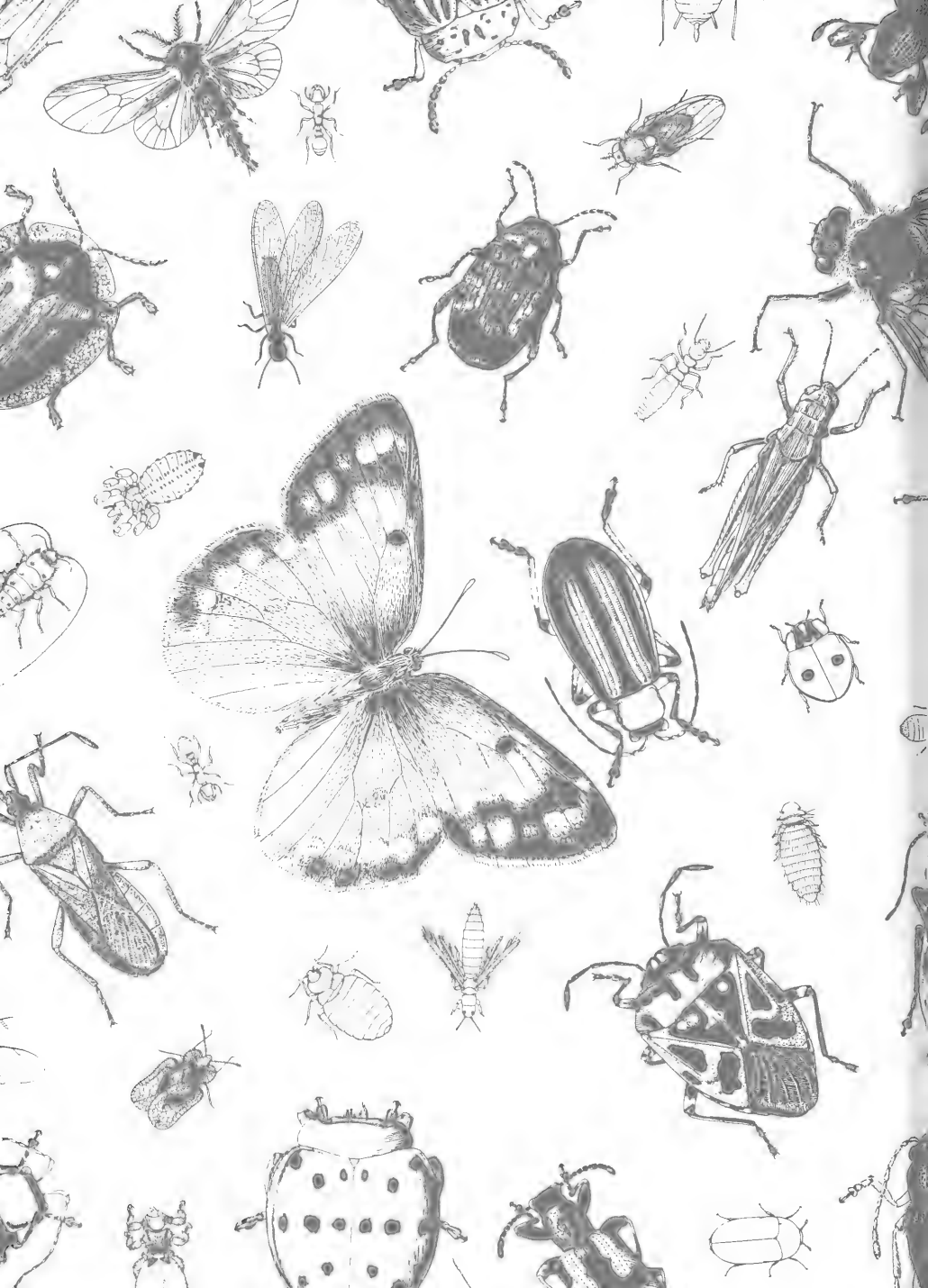
ADDITIONAL NOTES

WISCONSIN - CORN EARWORM damage beginning on canning sweet corn, 3-4% -4 infested ears in Dane County and averaging 110 eggs per 100 ears in Rock County, Aug. 28. EUROPEAN CORN BORER second brood over 90 percent hatched in Rock County. Hatch is about a week later at DeForest and expected to extend into September further north. WALNUT CATERPILLAR defoliating walnuts in Dane County. RED-LEGGED GRASSHOPPER damaging margins of corn fields in Dane County. Damaging alfalfa heavily in LaCrosse and Lafayette Counties. DIFFERENTIAL GRASSHOPPER heavier this year than in 1955. BLACK BLISTER BEETLE heavy in alfalfa in Dane County. NORTHERN CORN ROOTWORM adults heavy and feeding on silks of corn in Dane County. MEXICAN BEAN BEETLE damaging garden beans in Waukesha County; second county reporting. (Wis. Ins. Bul.).

PENNSYLVANIA - Ten percent of Scotch pine in a plantation in Wyoming County affected by *Eucosma gloriola*. Several specimens of NORTH-EASTERN SAWYER taken in Wyoming County, Aug. 21. (Pepper). STRAWBERRY WHITEFLY severely attacking strawberries in Indiana County. (Udine). IMPORTED WILLOW LEAF BEETLE infestations heavy on weeping willow in Crawford County and a heavy infestation of an aphid *Clavigerus smithiae* on willows in Crawford County. Some infestations of CONFUSED FLOUR BEETLE in stored wheat in Clearfield. MOSQUITOES much more abundant than usual in central areas. (Adams).

NEW YORK - ORCHARD MITES increasing where control poor in Orleans County. CORN LEAF APHID unusually abundant in Hudson Valley. (N. Y. Wkly. Rept.).

Weather continued from p. 886 New York, more than 4 inches at Charles City, Iowa and 3.81 inches at Lakeland, Florida. Hail damage to 2,000 acres of sugar beets was reported north of Worland, Wyoming while in the Fertile-Thief River Falls area of Minnesota on August 28 a severe hail storm resulted in damage to crops estimated at \$75,000 and to other property at \$200,000.



VOL. 6 No. 37

SEPTEMBER 14, 1956

513
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

Survey for adult GRASSHOPPERS shows threatening populations in roadsides of Washington and economic infestations on 100,000 acres in Wallowa County, and 80,000 acres in Grant County, Oregon. Southeastern Nebraska has over one million acres of rangeland with threatening populations. Feeding extensive on sorghum and legumes in Oklahoma and damage occurring to alfalfa and corn field margins in Wisconsin. (p. 903).

EUROPEAN CORN BORER averaging 115 per 100 plants in southeastern South Dakota. (p. 903). Additional county found infested in Alabama. (p. 918). CORN EARWORM heavy in sweet corn in Lewiston area of Idaho; prevalent in corn fields of southeastern South Dakota and severe in Ohio. Serious in grain sorghum in Craig and Ottawa Counties, Oklahoma; near outbreak proportions in southwestern Illinois, and severe in grain sorghum in southwestern Kentucky and in Northampton County, North Carolina. (p. 904). FALL ARMYWORM in near outbreak proportions in sorghum in eastern Virginia and severe in King and Queen County. (p. 905).

SPOTTED ALFALFA APHID found in additional counties of California, Nevada, South Dakota, Virginia and South Carolina. (906). Populations up to 30,000 per 100 net sweeps in Weld County, Colorado. (p. 906). CODLING MOTH causing extensive damage to apples in Berkeley and Jefferson Counties, Virginia, and heaviest populations past five years in Gays Mills area of Wisconsin. (p. 908). Twelve infestations of CITRUS BLACKFLY at Weslaco, Texas. (p. 909).

ADDITIONAL NOTES (p. 918).

DISTRIBUTION OF RANGE GRASSHOPPERS (p. 920).

Number of states reporting - 37

Reports in this issue are for the week ending September 7, 1956 unless otherwise designated.

WEATHER FOR THE WEEK ENDING September 10, 1956

An unseasonably cold air mass which pushed into the country just east of the Continental Divide along the Canadian Border on Wednesday produced the most outstanding features of this weeks weather. Freezing temperatures were reported in most northern Border States with slight damage to crops in some sections; while at numerous stations northeast of a line extending from Great Falls, Montana to Tallahassee, Florida daily minima temperature records for so early in the season were equalled or exceeded on one or more days. These records, occurring from September 5 to 10, included 32° at Havre, Montana; 27° at North Platte, Nebraska; 43° at Wichita, Kansas; 40° at West Plains, Missouri; 58° at Savannah, Georgia; and 62° at Jacksonville, Florida.

Temperatures for the week, below normal over the greater portion of the country, were slightly above normal along the New Jersey, New England and Pacific Coasts and in Nevada, Utah, Arizona and eastern New Mexico and Colorado. Weekly averages were 12° below normal at Huron, South Dakota, and by as much as 6° or more over most of the remainder of the northern Great Plains.

Major areas of moderate to heavy precipitation for the week included the upper Mississippi Valley northeastward to the Canadian border and southward into northwestern and southeastern Kansas; the Gulf Coast region; and the Appalachian area eastward. Outside of a few moderate to heavy showers late in the period along the Oregon and Washington coasts, no precipitation of consequence was recorded west of the Continental Divide. Much of the middle Mississippi Valley and the lower Great Lakes region also were without precipitation.

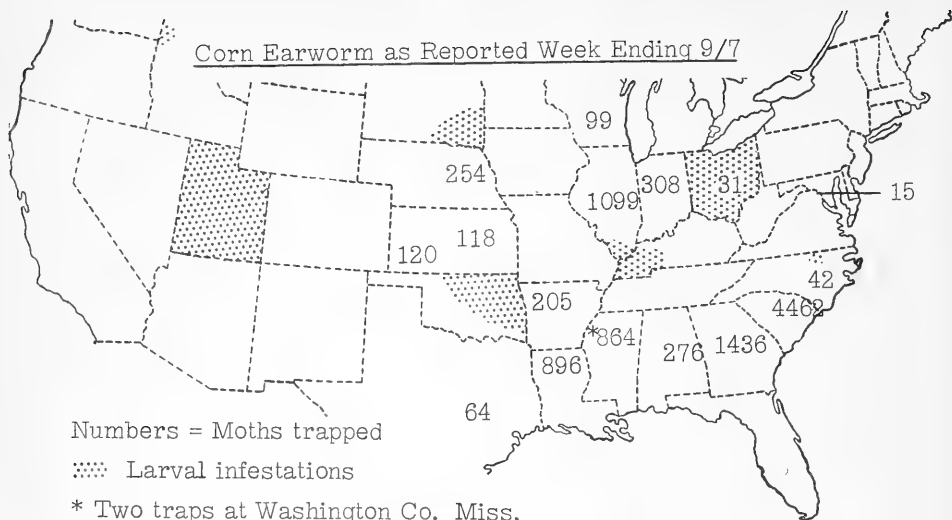
The third tropical storm of the season "Carla" was tracked from the Bahamas east-northeastward and passed 400 miles southeast of Cape Hatteras on September 10. Winds of 50 to 60 m. p. h. accompanied the storm but coastal areas were not endangered.
(Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - WASHINGTON - Threatening populations of Melanoplus mexicanus in roadsides with an average of 6-10 per square yard at Wawawai. (Kamal). OREGON - Adult surveys indicate economic infestation on 100,000 acres in Wallowa County and approximately 80,000 acres in Grant County. Damage to rangeland grasses light (less than 10 percent) due to unusually favorable growing season. Local damage occurred to grain crops and alfalfa. (P.P.C., Grass. Cont. Proj.). UTAH - Threatening population exists over 80,000 acres of rangeland in Box Elder County. Egg laying well advanced and adults dying most localities. (Thornley, Knowlton). NEBRASKA - General, light-to-spotted, threatening infestations of cropland species in eastern area. Heaviest infestations in southeastern area. Dominant species M. femur-rubrum and M. differentialis. Nymphs of M. mexicanus and M. femur-rubrum present most counties. Spotted light infestations present along North Platte Valley and isolated areas other river valleys. Estimated 317,000 acres cropland potentially threatened. Threatening infestations of rangeland species exist in sections of McPherson, Logan, Lincoln, Keith, Arthur, and Dundy Counties with severe infestations in Dundy County and sections of Deuel, Cheyenne and Garden Counties. Light infestations in Blaine, Thomas, Hooker, Arthur, Scotts Bluff and Box Butte Counties. Dominant species Ageneotettix deorum. Estimated 1,052,000 acres rangeland threatened. (Roselle, Andersen). OKLAHOMA - Adult populations 3 to 5 per square yard in most northeastern rangelands. Populations higher in field margins. Feeding quite extensive on sorghum and legumes. (Coppock). WISCONSIN - Populations of Melanoplus femur-rubrum local and generally heavy in Barron, Brown, Buffalo, Chippewa, Clark, Crawford, Eau Claire, Marquette, Milwaukee, Ozaukee, Pepin, Richland, Rock, Trempealeau, Vernon, Walworth and Waukesha Counties. Many grasshoppers killed by fungus disease in some alfalfa fields in Sheboygan County. Damage on alfalfa, margins of corn fields and other vegetation in many sections. Cool and rainy weather depressing activity. Should conditions change, damage and egg laying could occur. (Wis. Ins. Bul.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - SOUTH DAKOTA - Average number of larvae per 100 plants in southeast area is 115. Thirty-eight percent of plants infested with 28 percent in second instar, 15 percent in third instar, 27 percent in fourth instar and 27 percent in fifth instar. Remaining percent pupae emerged. (Hantsbarger). ILLINOIS - Eggs found in Union County. Highest count was one field which averaged 50 fresh masses per 100 plants. (Ill. Ins. Rept.). WISCONSIN - Heaviest damage occurred in Grant, Lafayette, Green, Rock and Walworth Counties where a heavier first and second brood occurred. A band through these five counties 5 to 20 miles north of Illinois line would include most fields with heaviest infestations. (Wis. Ins. Bul.). MISSISSIPPI - Larvae found in Calhoun and Chickasaw Counties on August 30. Has been found in small numbers in 29 counties in northern third of State. (Henderson). WEST VIRGINIA - Heavy to moderate on corn in Harrison County. (Dorsey, Hansen).

Corn Earworm as Reported Week Ending 9/7



CORN EARWORM (*Heliothis zea*) - IDAHO - Heavy populations in late sweet corn in Lewiston area. Almost every ear infested with small to mature larvae. (Manis). UTAH - Moderate damage to canning corn. Heavier in home garden corn some counties. (Knowlton). OKLAHOMA - Up to 5 larvae, all instars, in grain sorghum heads in isolated fields in Ottawa County and from 5 to 10 percent of late sorghum in Craig County shows feeding damage. Present in all alfalfa fields in northern and eastern areas. Up to 8 larvae per 10 sweeps. (Coppock). SOUTH DAKOTA - Prevalent in corn fields in southeast area. One field in Charles Mix County showed 75 percent damage. (Hantsbarger). WISCONSIN - Unhatched eggs in Rock County. (Wis. Ins. Bul.). ILLINOIS - Present in near outbreak numbers in some sorghum fields in southwestern area. (Ill. Ins. Rept.). KENTUCKY - Considerable damage to sorghum heads in southwestern area. As many as 30 larvae per head. (Rodriguez). OHIO - Oviposition continues at high level. Seventy-five to 100 percent of ears of late sweet corn infested. (Ralston). NORTH CAROLINA - Larvae attacking grain sorghum heads in Northampton County. (Jameson, Jones).

SOUTHWESTERN CORN BORER (*Zea diatraea grandiosella*) - LOUISIANA - Two fields of corn infested in Bossier Parish. (Oliver). TEXAS - Infestations light in northeast Texas. (Turney).

CORN SAP BEETLES (*Carpophilus* spp.) - WEST VIRGINIA - *C. lugubris* and *C. antiquus* heavy on corn in Harrison, Kanawha and Cabell Counties. (Dorsey, Hansen).

CORN LEAF APHID (*Rhopalosiphum maidis*) - WYOMING - Infestation on corn in Goshen County. (Thieman). OKLAHOMA - In whorls of late

planted sorghums in northeastern counties. (Coppock).

FALSE CHINCH BUGS (Nysius sp.) - NEVADA - Heavy localized infestations migrating into edge of populated area, Carson City. (Lauderdale).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - Populations in sorghum heads more common in northeastern counties. Up to 30 per head in Craig County, less elsewhere. (Coppock).

SPIDER MITES - UTAH - Damaging to number of canning corn fields and scattered home garden corn in northern counties. Infestations sometimes severe. (Knowlton). IDAHO - Infestations of Tetranychus telarius damaging corn in isolated areas in Canyon County. (Manis).

ARMYWORM (Pseudaletia unipuncta) - NORTH CAROLINA - Attacking cane locally in Davie County. (Roberts, Rabb).

HESSIAN FLY (Phytophaga destructor) - KANSAS - Stubble survey of wheat showed following county infestation levels expressed as percent of tillers infested: Douglas - 25, Franklin - 2, Jefferson - 1, Johnson - 1.3, Marshall - 0.2, Miami - 1.1, Nemaha - 1, Osage - 1, Pottawatomie - 0.14, Cherokee - 0.6, Linn - 0.5. Hessian fly not found in remaining counties of State. (Jones, Sept. 1).

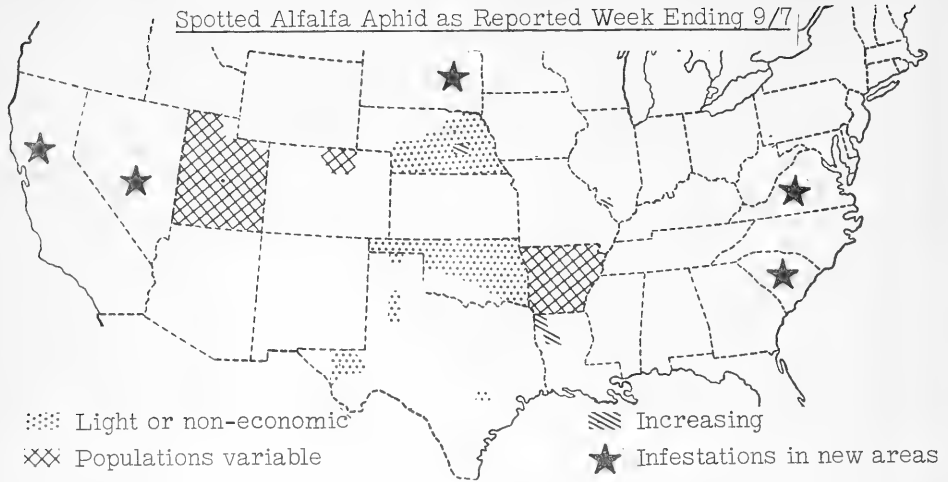
WHEAT JOINTWORM (Harmolita tritici) - KANSAS - Galls found at single locations in Cherokee and Linn Counties. (Jones, Sept. 1).

RICE STINK BUG (Solubea pugnax) - LOUISIANA - Infesting rice at 30 to 50 per 100 sweeps in Acadia Parish and 12 to 30 per 100 sweeps in St. Landry and Lafayette Parishes. Lightly infesting two fields of grain sorghum with Nezara viridula and a pink corn worm in Claiborne Parish and one field in Acadia Parish. (Oliver).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Heavy on grasses in St. Landry, Acadia and St. Martin Parishes. Larvae found on grasses over State. (Oliver). VIRGINIA - Infestations reached outbreak proportions on Eastern Shore in sorghum. Thousands of gulls in fields feeding on the larvae. Relatively light and caused little damage on Norfolk side of Chesapeake Bay. (Hofmaster). Severe and feeding heavily on newly-seeded grass slopes in Yorktown National Park (Sedivy) and severe on Sudan grass in Saint Stephen's Church area of King and Queen County just prior to August 28. (Norment).

A SOD WEBWORM (Pachyzancla phaeopteralis) - FLORIDA - Larvae averaged 20 per square foot of sod in 3 square feet of St. Augustine grass at Lakeland, Polk County. (Wesson, August 17).

GREEN JUNE BEETLE (Cotinis nitida) - VIRGINIA - Larval migrations prominent in localities of Dinwiddie and Hanover Counties. (Bedwell, Stanley).



SPOTTED ALFALFA APHID - SOUTH CAROLINA - Specimens collected July 16, Clemson, Oconee County. First report in State. (Chamberlain, August 22). Found in all counties since where collections have been made. The following counts per 20 sweeps were made in several counties: Anderson - 337, 425; Spartanburg - 65, 3, 45; Greenwood - 61, 62; Newberry 1, 7, 0, 12; Union - 37; Chester 8. (Chamberlain, August 31).

VIRGINIA - New infestations found in three additional counties: Rockbridge (Evans), Pittsylvania (Dominick) and Prince Edward (Striplin). Degree of infestation unknown. Infestation of several hundred aphids per 20 sweeps in a Botetourt County alfalfa field on August 31 reduced about 75 percent by September 4 by lady beetles. (Evans).

LOUISIANA - Populations building up on alfalfa in Natchitoches, Bossier and Caddo Parishes. (Oliver).

ARKANSAS - Infestations very variable in intensity over State and local areas throughout summer. (Warren).

ILLINOIS - Populations of infestations in Jackson increased but not yet damaging. (Ill. Ins. Rept.).

OKLAHOMA - Populations non-economic in northern and eastern areas. Counts from 0 to 8 per sweep. (Coppock).

TEXAS - Light infestations observed in Reeves, Culberson, Hale, Swisher, Hansford and Burleson Counties. (Garner, Turney).

NEBRASKA - Found throughout Loup Valley counties and northward to include Rock and Holt Counties. Counts low ranging from 3 to 20 per 10 sweeps. Population in Merrick County building up, counts reaching to 111 per 10 sweeps. (Andersen).

SOUTH DAKOTA - Spreading northward on alfalfa. Present in Aurora, Douglas, Sanborn, Davison, Bon Homme, Hutchinson, Hanson, Minor, McCook, Turner, Yankton, Clay, Union, Lincoln, Minnehaha and Moody Counties. Populations non-economic, averaging less than one per sweep. Heaviest population was 8 per sweep one location in Bon Homme County. (Hantsbarger).

COLORADO - Counts ranged from 0 to 30,000 per 100 sweeps in Weld County, 0 to 20 in Larimer County and 20 to 150 in Boulder County. (Exp. Sta., Aug. 28 to Sept. 1).

UTAH - Continued damage in spotted localities in several counties. (Knowlton).

NEVADA - Evidence of heavy migration from southern areas during August. Infestations in new areas as follows: Mineral County - Hawthorn and Schurz. (Lauderdale, Gallaway); Churchill County - Fallon (York) and East Gate (Gallaway, Borden); Eureka County - entire length of Newark Valley (Borden); Elko County - south of Jiggs at Harrison Pass (Borden); White Pine County - north to Gosute Indian Reservation south of Wendover (Cook). Economic populations at East Gate and one field at Fallon. (Gallaway). CALIFORNIA - Very light infestation in 35 acres alfalfa in Maxwell district of Colusa County. First report in this county. (Cal. Coop. Rept., July).

PEA APHID (Macrosiphum pisi) - UTAH - Moderately heavy in alfalfa in number of counties. (Knowlton). SOUTH DAKOTA - Populations high in alfalfa with counts reaching 60 to 80 per sweep. (Hantsbarger). NEBRASKA - Counts in alfalfa range from 10 to 50 per 10 sweeps. Cool weather some bearing on lowered populations. (Andersen). MARYLAND Light on alfalfa in Saint Marys County. (U. Md., Ent. Dept.).

SWEETCLOVER APHID (Myzocallidium rhiemi) - CALIFORNIA - Three new infestations were found in State on sweetclover in three counties which were as follows: Siskiyou County at Montague on July 23, Tehama County near Cottonwood August 1, and Stanislaus County at Stanislaus County Road Camp in Arroya del Puerto Canyon August 12. (Harper).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARKANSAS - Infestations in alfalfa increased over State with damage occurring in local area. (Warren). LOUISIANA - Infesting alfalfa at 45 to 150 per 100 sweeps in Bossier, Natchitoches and Caddo Parishes. (Oliver). TEXAS - Local heavy populations in Brazos and Burleson Counties. Counts of 4 to 8 per sweep one field. (Randolph).

ALFALFA PLANT BUG (Adelphocoris lineolatus) - SOUTH DAKOTA - Numerous in alfalfa with 12 adults and nymphs per 10 sweeps in some areas. (Hantsbarger). NEBRASKA - Averaging 7 per 10 sweeps in alfalfa in Loup Valley area. (Andersen).

RAPID PLANT BUG (Adelphocoris rapidus) - NEBRASKA - Counts in alfalfa low ranging from 2 to 5 per 10 sweeps in Loup Valley area. (Andersen).

LYGUS BUGS (Lygus sp.) - SOUTH DAKOTA - Counts in alfalfa averaged 14 nymphs and adults per 10 sweep. (Hantsbarger).

GARDEN FLEAHOPPER (Halticus bracteatus) - MARYLAND - Light injury by nymphs and adults to red clover in Anne Arundel County. (U. Md., Ent. Dept.).

POTATO LEAFHOPPER (Empoasca fabae) - MARYLAND - Averaged four per sweep on alfalfa in Saint Marys County. (U. Md., Ent. Dept.). VIRGINIA - Adults and nymphs medium on alfalfa in two fields in Clarke County, August 25. (Morris).

CATERPILLARS - ARKANSAS - Several species including Heliothis zea, Laphygma exigua and Plathypena scabra causing light to heavy damage to soybeans in the delta area. (Warren). VIRGINIA - Infestations of Heliothis sp. moderate in several soybean fields in southeastern counties (Hofmaster) and medium on corn and grass in Cumnor area of King and Queen County on August 30 (Norment). Threat of heavy earworm damage to soybeans over large area of State believed passed for year. (Morris). NEBRASKA - Populations of Colias philodice eurytheme on alfalfa somewhat down; larval counts average 4 per sweep in Loup Valley area. Few adults flying. (Andersen).

ARMYWORMS - SOUTH CAROLINA - Serious damage to some fescue grass in Anderson County, and to Dallas, Bermuda and crab grass in Saluda County. (Kearse, Nettles). TENNESSEE - Few small patches of Laphygma frugiperda being found with other armyworms. (Mullett). NEVADA - Average 1 to 3 per sweep most alfalfa and sugar beet fields throughout Churchill, Lyon and Washoe Counties. (Galloway, Lauderdale).

A TORTRICID (Tortrix pallorana) - OREGON - Webbing tips and damaging seed alfalfa in vicinity of Pendleton during early August. Det. J. F. Gates Clarke. (Prescott).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - SOUTH CAROLINA - Seriously damaged 75 acres soybeans Clarendon County. (Johnson, Nettles). Grain sorghum severely damaged locally in Greenville County. (Gilliam, Nettles). TEXAS - Light local infestation on guar in Comanche County. (Sanchez).

BLISTER BEETLES (Epicauta spp.) - WISCONSIN - Heavy populations of E. fabricii and E. pennsylvanica on alfalfa in many counties. Western and southern sections which correspond to heaviest grasshopper populations in 1955 have heaviest populations. Few positive reports from eastern and northern sections of State. (Wis. Ins. Bul.). NEBRASKA - Population of E. pennsylvanica high in Loup Valley area. Counts range from 10 to 50 per 10 sweeps in alfalfa. (Andersen).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - Extremely light, one per 100 sweeps, larval infestations in two fields in Franklin County. (Morris).

CORN ROOTWORMS (Diabrotica spp.) - SOUTH DAKOTA - Adults prevalent in alfalfa fields with some counts six D. longicornis and two D. undecimpunctata howardii per 10 sweeps. (Hantsbarger).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - WEST VIRGINIA - Causing extensive damage to apples in Berkeley and Jefferson Counties. (Hamstead). WISCONSIN - Heaviest population past five years in Crawford County, in Gays Mills area. Second brood egg-laying and hatching has been heavy but now decreasing. Heavy populations Rock

County. (Wis. Ins. Bul.). CALIFORNIA - Populations increased markedly in walnuts compared with recent years. Second brood particularly severe. At Linden, San Joaquin County, Aug. 3, 28 percent of developing walnuts infested. (U. C. Ext. Serv., Aug. 23). OREGON - Emergence prolonged and requiring a fourth cover spray for protection of apples. (Jones).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - WEST VIRGINIA - Increasing. Recently caused widespread damage to apples in Berkeley and Jefferson Counties. (Hamstead). WISCONSIN - Moderate populations of second brood, in Crawford County but not as heavy as expected. (Wis. Ins. Bul.).

PEAR-SLUG (Caliroa cerasi) - UTAH - Seriously infesting hawthorn in Morgan and Summit Counties. Scattered damage in orchards and on ornamental hawthorns in cities. (Knowlton).

ORCHARD MITES - WASHINGTON - Rust mites a problem on pome fruits in Okanogan area. (Law). UTAH - Damage serious in several apple orchards and occasionally severe in pear orchards of several northern counties. (Knowlton).

EUROPEAN RED MITE (Metatetranychus ulmi) - MICHIGAN - Populations on downward trend but a few orchards near Leslie, Laingsburg and Shelby still have high counts. (Hutson, Aug. 31). WEST VIRGINIA - Increasing. Some populations 50-100 per leaf in Berkeley and Jefferson Counties. (Hamstead).

EUROPEAN EARWIG (Forficula auricularia) - NEVADA - Very heavy infestation in peach trees, corn and home gardens in Reno area. (Galloway).

DRIED FRUIT BEETLE (Carpophilus hemipterus) - ARIZONA - Infesting peaches in Tucson. Eggs, larvae and adults in fruit. (Ariz. Coop. Rept.).

BLACK-HEADED FIREWORM (Rhopobota naevana) - WASHINGTON - Second brood finished feeding on cranberries. Moderate infestation. Adults expected to lay eggs soon. (Tidrick).

GRAPE LEAF FOLDER (Desmia funeralis) - CALIFORNIA - Extremely heavy in the Parlier, Reedley and Selma districts of Fresno County. Many vines with all leaves in new growth folded. Infestation heavier than at any time in previous 20 years. In largest grape growing region of State. (Dixon, Aug. 31).

PECAN NUT CASEBEARER (Acrobasis caryae) - OKLAHOMA - Damage by second generation averaged 5-10 percent in two orchards in Rogers County. (Coppock).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - No weevils jarred from two large orchards in Rogers County. (Coppock).

A COCCID (Neosteingelia texana) - OKLAHOMA - Common to abundant on young pecan trees in Rogers County. (Coppock).

CITRUS BLACKFLY (Aleurocanthus woolumi) - TEXAS - Twelve infestations were found in Weslaco in Lower Rio Grande Valley. All stages but adults noted. In about 60 blocks, 2277 trees on 378 properties were inspected. (Mex. Fruitfly and Citrus Blkfly Cont. Proj., Aug. 16-31).

TRUCK CROP INSECTS

HORNWORMS (Protoparce spp.) - RHODE ISLAND - Defoliation of tomatoes increasing throughout State, especially on untreated plants. (Ball). VIRGINIA - Attacking peppers in eastern area. (Hofmaster).

TOMATO FRUITWORM (Heliothis zea) - INDIANA - Adults being collected in large numbers in light traps in Lafayette and Orleans areas. Eggs common. (Osmun).

TOMATO RUSSET MITE (Vasates lycopersici) - UTAH - One field of canning tomatoes infested at Taylorsville. First infestation noted this year. (Dorst). INDIANA - Appearing in some tomato fields but no serious outbreaks. (Osmun).

GREEN PEACH APHID (Myzus persicae) - MICHIGAN - Populations becoming high in potato fields at Greenville, Ionia, Bath, East Lansing and Howard City. (Hutson, Aug. 31).

POTATO APHID (Macrosiphum solanifolii) - MICHIGAN - Colonies appearing on potatoes at Bath, Greenville and Belding. (Hutson, Aug. 31).

MELON APHID (Aphis gossypii) - MICHIGAN - Requiring control on cucumbers and cantaloups at Stevensville, Baroda, Eau Claire, Sodus and Paw Paw. (Hutson, Aug. 31).

MELON FLY (Dacus cucurbitae) - CALIFORNIA - In Los Angeles County, about 5000 traps have been placed to Sept. 7. No melon flies captured since the single fly on July 24. (Cal. Coop. Rept., Aug. 31).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - COLORADO - Increasing in light trap catches in Otero County with up to 1122 in a single night's catch. (Exp. Sta.).

SQUASH BUG (Anasa tristis) - RHODE ISLAND - Large numbers of nymphs in untreated squash plantings throughout State. Unhatched egg clusters still present but decreasing. Peak infestation expected later. (Ball). WISCONSIN - Causing damage in Walworth County. (Wis. Ins. Bul.).

SQUASH VINE BORER (Melittia cucurbitae) - RHODE ISLAND - Larval damage increasing with up to five larvae tunneling in vine of untreated squash. (Ball). WISCONSIN - Causing damage in Walworth County. (Wis. Ins. Bul.).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Second survey for "curly top" in tomato fields in Monterey, Santa Clara and Alameda Counties showed no increase and less than one percent infection. Spraying of weed hosts on roadsides was completed in Imperial Valley Aug. 23. Weeds were sprayed on 2642 miles of roadsides and 1960 acres of ditches using 13,525 gallons of insecticides in all. Checks showed 98-99 percent kill. (Cal. Coop. Rept., Aug. 31).

APHIDS - MAINE - Populations on untreated potatoes very small in Presque Isle area. (Shands). COLORADO - Populations extremely high on late potatoes and causing early maturing in Weld County. (Exp. Sta.).

BEEF WEBWORM (Loxostege sticticalis) - WYOMING - Damaging sugar beets in Goshen County. (Thieman). WASHINGTON - Completely defoliated year-old apple trees at Yakima in an orchard planted to sweet-clover cover crop. (Dean).

GRASSHOPPERS - MICHIGAN - Requiring treatment near Ithaca, Cheboygan and Howard City. (Hutson, Aug. 31).

CABBAGE LOOPER (Trichoplusia ni) - RHODE ISLAND - Larvae pupating. Damage quite heavy on untreated cabbage plants. (Ball). VIRGINIA - With Pieris rapae, infesting young cole crops in eastern area and possible serious problem expected. (Hofmaster).

IMPORTED CABBAGEWORM (Pieris rapae) - RHODE ISLAND - Damage high on untreated cabbage. (Ball).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Skelettonizing of late beans increasing in Johnston and Kingston areas. (Ball).

LEAFHOPPERS (Empoasca spp.) - LOUISIANA - Infesting sweetpotatoes at 45 per 100 sweeps in Bossier Parish; 37 per 100 sweeps in Ouachita Parish; eight per 100 sweeps in Bienville Parish; 140 per 100 sweeps in Acadia Parish; and 1056 per 100 sweeps in St. Landry Parish. (Oliver).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - VIRGINIA - Common on peppers in eastern area. (Hofmaster).

A PHALAENID (Hypena humuli) - OREGON- Caused light damage to hops near Ontario during late July and early August. Det. Ins. Id. & Para. Intro. Sect. (Capizzi).

ZEBRA CATERPILLAR (Ceramica picta) - OREGON - Causing variable damage to mint in Jefferson County. Some fields show severe damage. (Goeden)

SPIDER MITES - OREGON - More abundant than normal in raspberry plantings in northern Willamette Valley. Partial defoliation some fields. Infestations diminishing and predators abundant. (Every).

STRAWBERRY ROOTWORM (Paria sp.) - NORTH CAROLINA - Adults noted on strawberry foliage in Pender County. (Wells, Farrier).

TOBACCO INSECTS

HORNWORMS (Protoparce spp.) - MARYLAND - Continue to cause moderate to heavy damage to untreated tobacco in St. Marys County. (U. Md., Ent. Dept.).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - ARKANSAS - In fields that cut out early, some boll damage occurred. Irrigated and green cotton being subjected to heavy attack by migrating weevils. Treatments continued in many fields. (Warren). LOUISIANA - Average square infestation 62 percent in 36 fields examined in Tallulah area compared to 51 percent last week and 36 percent two weeks ago. (Pfrimmer et al.).

MISSISSIPPI - All fields in delta counties infested. Control difficult in irrigated cotton because of heavy migration from cut out fields, to irrigated fields. (Merkl, Furr et al.). TENNESSEE - Adults present in large numbers in fields with green growth in southern section of western area. More adults present in fields than any time since 1950. Adults continue to be very active and completely destroying young bolls; however these bolls would not have time to mature. Populations continue to increase due to large number of larvae in fallen squares. Control measures still being carried out in some extremely heavily infested fields. (Locke).

BOLLWORMS (Heliothis spp. et al.) - CALIFORNIA - Predators effective in San Joaquin Valley. Most important cotton insect in Kern County. Very active throughout Imperial Valley area, where counts ranged from 18 to 20 per 100 plants some fields. Activity little heavier in Brawley area. Predators active in untreated fields in Imperial Valley and controlling infestations. (Cott, Lett., Aug. 30). ARIZONA - Infestations decreased most areas; however, controls necessary few localities. Infesting up to 30 percent of plants in Eloy area, Pinal County. (Ariz. Coop. Rept., Sept. 1). ARKANSAS - Activity increased on green cotton and/or second growth. (Warren).

LOUISIANA - Eggs and larvae in all of 40 fields inspected with an average of 8.75 eggs and 3.38 larvae per 100 terminals in Tallulah area. (Pfrimmer et al.). Continue to threaten cotton some fields in Nachitoches and Bossier Parishes. (Oliver). MISSISSIPPI - Some damage in fields in delta counties where treatments stopped too soon. (Merkl, Furr et al.). TENNESSEE - Causing considerable damage in

southern section of western area. All instars being found, largely confined to boll weevil infested areas. (Locke).

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - Of 9 gin stand inspections in 4 counties, 2 larvae were found in Caddo County; 2 larvae in Jackson County; 1 larva in McClain County; and 1 larva in Tulsa County. Inspections in other counties were negative. Four lint cleaner inspections in Tillman County resulted in finding 4 larvae on one premise with 3 negative. Inspections in other counties were negative. (Senette, Harfield). TEXAS - Gin trash inspection completed in Eagle Pass and Cuero-Port Lavaca areas. Infestation in Eagle Pass section heavy, but less than last season. Fewer larvae found in Cuero-Port Lavaca area except where trash samples taken from irrigated fields. (Pink Boll. Cont. Proj.).

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Heavy infestation in number of cotton fields; some may be beneficial by preventing boll rot in rank cotton. (Ariz. Coop. Rept., Sept. 1). ARKANSAS - Infestations scattered generally over State causing ragging in some fields. (Warren). LOUISIANA - Populations continue to build up in cotton in Bossier, Natchitoches and Ouachita Parishes with considerable defoliation some fields. (Oliver).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - CALIFORNIA Importance increasing in Imperial Valley, particularly in northern area. Feeding injury present in all areas of valley particularly around margins of fields. (Cott. Lett., August 30). ARIZONA - A problem on cotton in Eloy area, Pinal County on August 30. Portions of some fields stripped. (Ariz. Coop. Rept.).

COTTON LEAFWORM (Alabama argillacea) - LOUISIANA - Infesting cotton in Natchitoches Parish. (Oliver).

COTTON SQUARE BORER (Strymon melinus) - CALIFORNIA - Numbers found in San Joaquin Valley. (Cott. Lett., August 30).

A LEAF ROLLER (Platynota stultana) - ARIZONA - Populations on cotton ranged from 5 to 85 larvae per 100 plants in Buckeye area. Infestations scattered. (Ariz. Coop. Rept., Sept. 1).

SALT-MARSH CATERPILLAR (Estigmene acrea) - ARIZONA - Infestations on cotton increasing in Buckeye area, Maricopa County. (Ariz. Coop. Rept., Sept. 1).

BEE T ARMYWORM (Laphygma exiqua) - ARKANSAS - Infestations present in cotton fields of southeast area in light numbers. (Warren).

APHIDS - CALIFORNIA - Remarkable build up of Aphis gossypii most noticeable in southern Fresno, eastern Tulare and Kings Counties. (Cott. Lett., August 30). ARKANSAS - Infestations increasing in intensity and becoming economically important in local areas. (Warren). MISSISSIPPI - Occasional infestation causing light to medium damage in

delta counties. (Merkl, Furr et al.). TENNESSEE - Infestations becoming heavier in rank cotton of western area. (Locke).

STINK BUGS - CALIFORNIA - Populations decreased in Imperial Valley but still large some localities. Counts 8 to 10 per 100 sweeps in El Centro area and 18 to 20 per 100 sweeps some fields in Brawley area. (Cott, Lett., August 30).

SPIDER MITES - CALIFORNIA - Almost 75 percent of cotton fields in San Joaquin Valley infested. Mite populations of no concern in maturing cotton in Kern County. (Cott, Lett., August 30). ARIZONA - Infestations on cotton generally controlled by predators. (Ariz. Coop. Rept., Sept. 1). MISSISSIPPI - Occasional infestation causing light to medium damage in delta counties. (Merkl, Furr et al.). TENNESSEE - Causing complete defoliation in some fields in western area, but infestations too late to cause any damage. (Locke).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE NEEDLE SCALES - UTAH - Damaging pines and spruces in Wasatch and Summit Counties. (Knowlton).

IPS BEETLES - TEXAS - Infesting loblolly pines in Jasper County. (Bates).

A BARK APHID (Cinara sp.) - UTAH - Damaging ornamental spruce trees in Morgan. (Knowlton).

MEALYBUGS - OKLAHOMA - Heavy populations on junipers in the Midwest City area of Oklahoma County. (Latham).

ORANGE-STRIPED OAKWORM (Anisota senatoria) - RHODE ISLAND - Damage increasing on roadside oaks. (Ball).

TWIG PRUNER (Elaphidion villosum) - MAINE - Very abundant with considerable damage to oaks at Camden. (Simpson, Aug. 30).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - MICHIGAN - Populations reached peak at Flint, Lansing and Pontiac about August 23 and beginning to subside. (Hutson).

ELM LEAF BEETLE (Galerucella xanthomelaena) - VIRGINIA - Very heavy on Chinese elms at a locality in Craig County. (Rowell, Fields).

BAGWORM (Thyridopteryx ephemeraeformis) - VIRGINIA - Damaging host plants in Blacksburg and Galax (Rowell) and the Nahor area of Fluvanna County (Smith).

APHIDS - UTAH - Numerous to especially abundant in several northern Utah communities on Norway maple and sycamore maple foliage. (Knowlton).

SYCAMORE LACE BUG (Corythucha ciliata) - MARYLAND - Heavy on sycamore in Anne Arundel County. (U. Md., Ent. Dept.).

MIMOSA WEBWORM (Homadaula albizziae) - MARYLAND - Heavy on mimosa in most sections. (U. Md., Ent. Dept.).

OYSTERSHELL SCALE (Lepidosaphes ulmi) - Damaging willows, poplars, lilacs and other hosts in Summit County. (Knowlton).

DOGWOOD TWIG BORER (Oberea tripunctata) - NORTH CAROLINA - Feeding on an ornamental dogwood planting in Wake County. (Jones, Scott).

A LEAF ROLLER (Platynota stultana) - FLORIDA - Larvae with adult curculionid, Epicaerus formidosus severely infesting leaves of chrysanthemum at Gainesville, Alachua County. (Martinez).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - FLORIDA - Larvae severely damaging begonias in Miami Shores area, and collected on ceriman at Opa Locka, Dade County, Aug. 24. (Daigle).

BOXWOOD LEAF MINER (Monarthropalpus buxi) - MARYLAND - Heavy infestations on boxwood in Annapolis area. (U. Md., Ent. Dept.).

VIRGINIA-CREEPER LEAFHOPPER (Erythroneura ziczac) - UTAH - Seriously damaged Virginia creeper and sometimes grapes in many areas. Ornamental vines frequently brown or dead. (Knowlton).

SPIDER MITES - VIRGINIA - Heavy on boxwoods in area of Charlotte County and heavy and causing loss of vigor in boxwoods in Greensville County. (Rowell, Rogers).

EUONYMUS SCALE (Unaspis euonymi) - MISSISSIPPI - Infesting two species of euonymus in Forrest County. (Broome). MARYLAND - Heavy on euonymus in most sections. (U. Md., Ent. Dept.).

VIRGINIA - Heavy on euonymus in areas of Arlington County and at Waynesboro. (Rowell).

GIANT HORNET (Vespa crabro germana) - VIRGINIA - Injuring lilacs in Loudoun County (Brown) and nesting in Smyth County (Eller).

SLUGS - IDAHO - Light to 1-2 slugs per bulb in the Parma area. Attacking bulbs around plate. (Scott). WISCONSIN - A problem in Lincoln and Langlade Counties. (Wis. Ins. Bul.).

Forest Pest Situation Northeastern States:

Increased populations of SPRUCE BUDWORM are expected over most of northern Maine in 1957. Indications for generally lessened activity of PINE ENGRAVER BEETLES in red pine plantations of New York and Massachusetts expected this year. Pineus floccus abundant in New York. BAGWORM is greatly increased on redcedar, arborvitae, willows,

sycamore and a wide variety of ornamentals in Maryland and Delaware. Heavy defoliation by LARCH SAWFLY occurred in European larch plantation in Clinton County, Pennsylvania. PINE GALL WEEVIL caused numerous galls on Virginia pine in Petersburg and Redden Delaware area. Adults of SARATOGA SPITTLEBUG common on Virginia and loblolly pine at Petersburg Delaware. Approximately 2,150 acres were sprayed for SADDLED PROMINENT in eastern Rensselaer County, New York. Localized outbreaks by VARIABLE OAK LEAF CATERPILLAR in Maryland and Delaware. Widespread occurrence of LOCUST LEAF MINER was again evident in central Maryland, northern Delaware, New Jersey, and southern Connecticut. Three significant trap catches of GYPSY MOTH were made beyond the quarantine area in central New York in Fenton, Colesville and Albion. Severe infestations of TWIG PRUNER on oaks in southern Maine and south-central Pennsylvania. Some counts in Pennsylvania showed over 100 branches cut from single trees. Various defoliators such as WALNUT CATERPILLAR, ORANGE-STRIPED OAKWORM, POPLAR TENT MAKER, YELLOW-NECKED CATERPILLAR, FALL WEBWORM and A BROWN ANISOTA are reported still active in local areas in different States. (Northeastern Forest Pest Reporter, Sept. 10).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - NORTH CAROLINA - Aedes sollicitans biting severely in Orton Plantation area of Brunswick County. Culex taeniorynchus also biting this area and in Fort Fisher area of New Hanover County. (Cromroy). VIRGINIA - One horse infected with encephalomyelitis in each of Wise, Lee and York Counties. Possibly borne by mosquitoes. (Va. Livestock Health Bul., August). WISCONSIN - Heavy emergence of Aedes vexans and A. trivittatus in southern area. Unusually heavy peak for time of year. (Wis. Ins. Bul.). UTAH - Still troublesome in scattered areas. (Knowlton).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - FLORIDA - Two specimens collected in house at Alachua, Alachua County, Aug. 27. (Hunter).

HORN FLY (Siphona irritans) - UTAH - Annoying to cattle in Summit and Wasatch Counties. (Knowlton). OKLAHOMA - Averaged 1200 per cow in one large herd in Osage County. (Coppock).

STABLE FLY (Stomoxys calcitrans) - RHODE ISLAND - High populations annoying cows. (Ball).

CATTLE LICE - UTAH - Moderately abundant on cattle in parts of Summit County. (Moore).

SHEEP SCAB MITE (Psoroptes equi ovis) - VIRGINIA - During August, 134 sheep infested and treated in the State. (Va. Livestock Health Bul., August).

FLEAS (Ctenocephalides spp.) - NORTH CAROLINA - C. canis infestations heavy in a home in Wake County and in one in Orange County. (Wray).

CHICKEN BODY LOUSE (Menacanthus stramineus) - VIRGINIA - Infestations light to medium and spotty on poultry in Montgomery County. (Raffensparger).

STORED PRODUCTS INSECTS

STORED GRAIN INSECTS - ARKANSAS - Of 401 grain bins examined in the Stuttgart-Dewitt area, 125 bins were empty and 48 free of insects. Infestations in 353 bins showed the following: Sitophilus oryza, 15 bins; Laemophloeus pusillus, 49; Tribolium sp., 113 bins; Oryzaephilus surinamensis, 229; Sitotroga cerealella, 87; Plodia interpunctella, 42; Rhyzopertha dominica, 21; Tenebroides mauritanicus, 15 (Rouse); and fungus beetles, 47; dermestids, 19; and meal worms; 2; (Warren).

MEALYBUGS - NORTH CAROLINA - Attacking stored potatoes in Edgecombe County. (Powell, Mitchell).

BENEFICIAL INSECTS

LACEWINGS - OKLAHOMA - Becoming numerous in alfalfa fields in Tulsa County; up to 18 per ten sweeps. (Coppock).

MISCELLANEOUS INSECTS

FIELD CRICKET (Acheta assimilis) - MAINE - Abundant and entering homes in suburban and rural areas. (Johnson).

EARWIGS - UTAH - Continue troublesome in Summit and Wasatch Counties where community control programs are under way. (Knowlton).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - WEST VIRGINIA - Continue heavy in Charleston area of Kanawha County. (Dorsey, Hansen).

IO MOTH (Automeris io) - RHODE ISLAND - Reports of stings from several areas of State. (Ball).

BOXELDER BUG (Leptocoris trivittatus) - WEST VIRGINIA - Entering homes in areas of Kanawha County, Sept. 1. (Dorsey, Hansen).

UTAH - Beginning to cause annoyance in buildings. (Knowlton).

YELLOW JACKETS - MAINE - Several species, especially ground nesters, annoying and generally abundant. (Johnson). IDAHO - Extremely abundant throughout northern areas. Numerous reports of persons being stung. (Manis). UTAH - Troublesome in complex with paper wasps about homes in several areas of Wasatch, Summit and Weber Counties. (Knowlton).

ADDITIONAL NOTES

ALABAMA - A survey of eight counties for EUROPEAN CORN BORER showed an infestation in Winston County, bringing the total number of counties infested to 15. (Tyus). VEGETABLE WEEVIL attacking turnips in Covington County and FALL ARMYWORM damaging grass, pastures and legumes in various parts of State. (Arant).

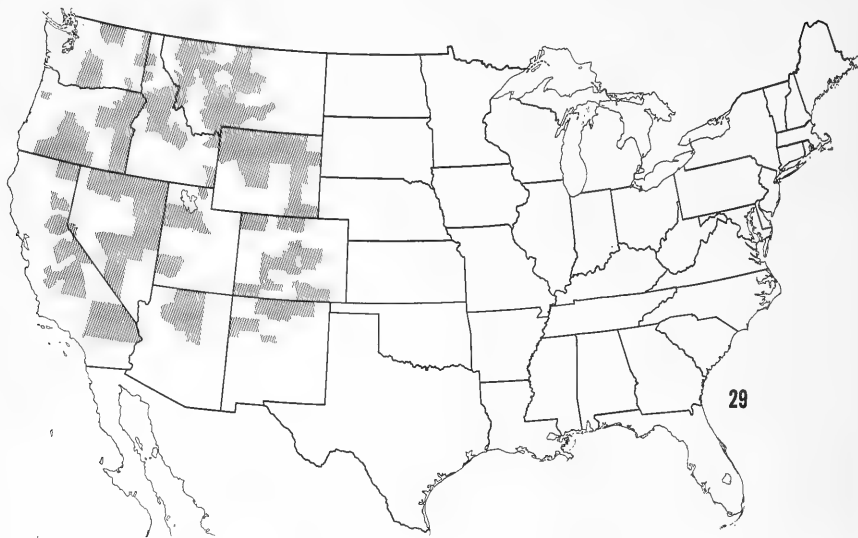
LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea vires.	Protoparce sexta quing.	Laphyg. frugip.
COLORADO (County)								
Otero 8/15	66							
KANSAS								
Manhattan 9/5-8	6	12	11		118		10	2
Garden City 9/1-5	269	115	2		120		2	1
NEBRASKA (Counties)								
Lancaster 8/26-9/1	40	456			254		5	10
Lincoln 8/27-9/2	56	32			72		2	5
Scotts Bluff 8/26-9/1		32			8			3
WISCONSIN								
DeForest 8/29-9/3	41				99			
ILLINOIS								
Urbana 8/31-9/6	34	30	39	24	1099		14	13
INDIANA (Counties)								
Lawrence 8/22-31	352	13	51	12	308		44	7
Tippecanoe 8/24-9/3	10	1	4	1	26		2	
OHIO (County)								
Athens 8/27-9/2	4	1			31			
MARYLAND (County)								
Montgomery 9/4-6	5	1			15		3	9
VIRGINIA (County)								
Pittsylvania 8/26-9/1							71	131
NORTH CAROLINA (Counties)								
Johnston 9/5-6	11	7	4		6	38	14	3
Duplin 9/5-6	6	2	6		17	42	11	5
SOUTH CAROLINA (Counties)								
Charleston 8/20-26	13	2	17		37	104		7
Florence 8/25-31	154	51	348	2	336	4482	265	137
Oconee 8/26-9/1	140	73	55	1	13	453	4	22
GEORGIA (Counties)								
Clarke 8/31-9/6	9	11			8		2	7
Spalding 8/31-9/6	77	48	52	4	26	1436	16	17
Tift 8/31-9/6	52		52		16	198	41	65
MISSISSIPPI (Counties)								
*Washington 8/31-9/6	469			27		864		
LOUISIANA								
Franklin 9/1-5	12	13	24		20	28		
Baton Rouge 9/3-7	46	49	30		51	285	14	
Curtis 8/27-9/2	64					898	48	
TEXAS								
Waco 9/1-7	9	6	1	3	1	64	1	
ARKANSAS								
Hope 8/24-30		3				97	5	
Stuttgart 8/23-30	4	8		12		295		
Van Buren 8/23-28						56		
Fayetteville 8/25-31	13	11				205		
Clarksville 8/4-22	25	26				104		
TENNESSEE (Counties)								
Shelby 8/21-27		15	42			21	9	30
Lawrence	28	8	28	4		477		13
Maury	18	12	54			354		14
Robertson	36	12	204	4		786	8	13
Cumberland	13	12	13	1		176		15
Knox	33	9	72	2		57		1
Greene	44	10	50	8		133		18
Blount	38	26	112	2		119		10
Johnson	26	29	118	31		82		1
ALABAMA								
Auburn 9/1-7	55		56			276	12	26

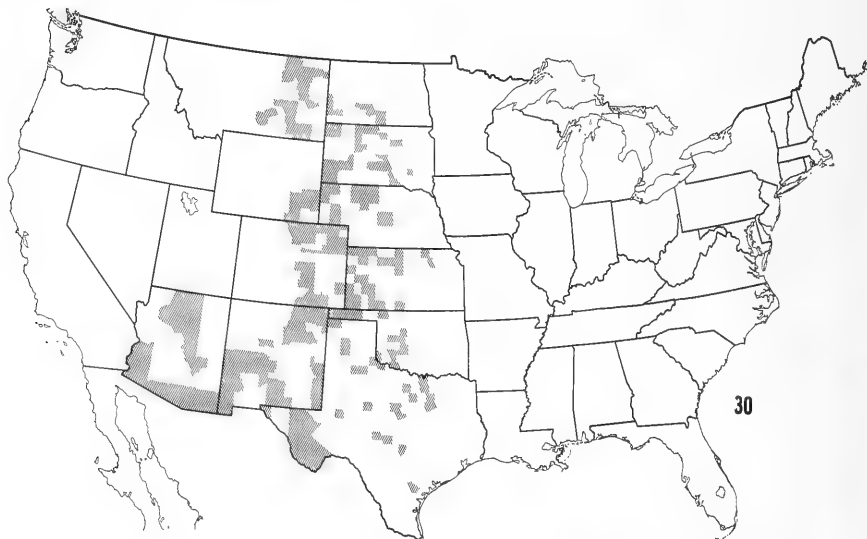
*Two traps Washington County.

DISTRIBUTION OF RANGE GRASSHOPPERS

Cratypedes neglectus (Thomas)



Dactylotum bicolor Charpentier





VOL. 6 No. 38

SEPTEMBER 21, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS damaging early-seeded small grain and fall-seeded alfalfa in Missouri and large numbers in alfalfa in Nebraska. Large build-up of populations several counties of New Mexico. (p. 923).

EUROPEAN CORN BORER 130 per 100 stalks in east-central South Dakota and infestations average about 30 percent stalks infested in Lancaster and Saunders Counties Nebraska. Damage heavy in tassels of sweet corn in Rhode Island (p. 923), and causing heavy injury to sorghum some sections of Alabama. (p. 924).

CORN EARWORM average 1-2 per head of grain sorghum in west-central and central Missouri and heavily infesting alfalfa in several parishes of Louisiana. Damaging grain sorghum in northern Alabama and soybeans in Lee County, South Carolina. (p. 924). CHINCH BUG infestation heavy in grain sorghums in west-central Missouri. (p. 924).

SPOTTED ALFALFA APHID infestations reported from new areas in South Dakota, Iowa, Tennessee and Nevada. Very severe and damaging populations on alfalfa in Bossier Parish, Louisiana and Dona Ana County, New Mexico and some heavy populations in Kansas. (pp. 925, 936). Map of situation (p. 926). Large numbers of ALFALFA WEEVIL larvae in several counties of Colorado and populations increasing. (p. 927).

ORCHARD MITES still damaging fruit trees and ornamentals many areas of Utah and building up on apples in New Mexico during harvest. (p. 928). Injury to late peaches by catfacing insects 1-3 percent in Ohio.

ONION MAGGOT damage to onions most severe in history of industry in Walla Walla, Washington area and still abundant and heavily damaging onions in southwestern Idaho. (p. 929).

BOLLWORMS a problem on cotton most areas of New Mexico and threatening cotton bolls in northeastern Louisiana. (p. 932). FALL WEBWORM heavy on ornamentals in south central Virginia and damage common in eastern South Dakota and in Alabama. (p. 933).

EQUINE ENCEPHALOMYELITIS reported from Rhode Island. Mosquitoes in large numbers in parts of North Carolina and Colorado. (p. 934).

LIGHT TRAP COLLECTIONS (p. 937). DISTRIBUTION OF RANGE

GRASSHOPPERS (p. 938). Number of States reporting - 35

Reports in this issue are for the week ending September 14 unless otherwise designated.

WEATHER BUREAU'S 30-DAY OUTLOOK

Mid-September to Mid-October 1956

The Weather Bureau's 30-day outlook for the period from mid-September to mid-October 1956 calls for temperatures to average below seasonal normals in the eastern half of the nation. Above normal temperatures are predicted for the western United States, with greatest departures in the Plateau Region.

Precipitation is expected to exceed normal in Florida and the Northeast. Subnormal amounts are indicated from the Mississippi River westward to the Pacific Coast. In the remainder of the nation, near normal rainfall is anticipated.

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

WEATHER FOR THE WEEK ENDING SEPTEMBER 17, 1956

General frontal activity extending from Montana into the Central Plains northeastward through the Great Lakes to the Atlantic Coast brought some precipitation to most northern areas; while in the southern half of the country practically no precipitation of consequence was recorded except on the lower tips of Texas and Florida. Here, under the influence of the tropical storms "Dora" and "Ethel" passing several hundred miles from the United States mainland, moderate to heavy rains occurred. Unseasonably high temperatures, along with strong winds in some areas, accompanied this relatively rainless period in the Southern Plains and further intensified the droughty conditions, while an unseasonably cold air mass brought freeze damage to the Dakotas and Minnesota on September 14. Temperatures dropped to as low as 20° at Langdon, North Dakota, and International Falls, Minnesota, reported its first snowfall of the year on this date, the earliest in 43 years.

Temperatures for the week averaged below normal in the Atlantic and Gulf Coast States and along the Canadian Border from North Dakota eastward, also in western Washington, Oregon, northern California and southwestern Nevada. Elsewhere averages were above normal with the greatest departures, +8° to +11° or more, extending from Pueblo, Colorado, through Springfield, Missouri. During this period, stations in Kansas reported maxima of 100° on 2 to 5 days, and at Dodge City a 101° reported on September 11 was the highest for so late in the season at that location. Daily maxima were equaled or exceeded on other dates in Colorado, Arizona and New Mexico; while on the 11th several daily minimum records were equaled or exceeded in the Southeast. Weekly precipitation totals were moderate to heavy in only a few sections. In addition to the southern areas already mentioned, included are western Washington, the northern Great Lakes region, the Ohio Valley, New York, Weather continued on p. 936

CEREAL AND FORAGE INSECTS

GRASSHOPPERS -IDAHO - Generally non-economic populations, one to two per square yard, of primarily Melanoplus mexicanus and M. bivittatus in range and crop areas of Boundary County. Copulation common but little egg laying. Most of Kootenai County contained 0 to 3 adults per square yard on crop and range areas. Above species and Camnula pellucida most common. One infestation near Athol severe over 100 acres of pasture which averaged 12 per square yard of primarily M. mexicanus. Light but general populations of Chorthippus longicornis throughout three most northern counties. (Smith). Populations along roadsides in Kooskia and Stites areas extremely severe with counts of 50 to 75 per square yard. (Barr). NEW MEXICO - Large build up on rangeland in Colfax, Harding, Curry and Roosevelt Counties. Approximately 667,000 acres sprayed this year in Lea, Union, Harding, Quay, Colfax and Lincoln Counties. (Durkin, September 8). OKLAHOMA - Populations average 10 to 12 per square yard in field margins and along roads in northern counties. Predominant species were Ageneotettix deorum, M. differentialis and Mermiria sp. Range populations in Panhandle generally low, however light damage to sorghums in area. (Coppock). MISSOURI - Early-seeded small grain and fall-seeded alfalfa suffering light to heavy marginal damage from M. differentialis and M. femur-rubrum. Counts in field average 3 to 5 per square yard and 5 to 12 per square yard along margins. M. differentialis heavily infested with mites and considerable number being killed by bacterial disease in northwest area. (Kyd, Thomas). KANSAS - Predominately M. mexicanus and M. differentialis feeding on emerging alfalfa seedlings in field margins. Few fields in Riley, Pottawatomie and Shawnee Counties show definite plant loss. Counts ranged from 5 to 16 per square yard in fence rows and roadside ditches. (Matthew). NEBRASKA - Adults decreasing in northeast counties. Large number of second and fourth instars present in alfalfa with counts ranging from 3 to 11 per square yard. (Fitchett, Roselle). WISCONSIN - Populations of M. femur-rubrum still high. Cool, rainy weather retarded grasshopper activity. Heavy populations in Adams, Barron, Burnett, Dodge, Fond du Lac, Green, Kewaunee, La Crosse, Lafayette, Manitowoc, Pierce, Sauk, Sheboygan, Trempealeau, Waukesha, Waupaca and Winnebago Counties. (Smith).

EUROPEAN CORN BORER (Pyrausta nubilalis) - SOUTH DAKOTA - Percent corn infested averaged 36 percent in east-central area. Corn borers averaged 130 per 100 stalks with 51 percent second instars, 16 percent third instars, 16 percent fourth instars and 10 percent fifth instars. Remaining percent emerged pupae. (Hantsbarger).

NEBRASKA - Infestations in irrigated corn average about 30 percent infested stalks in Lancaster and Saunders Counties, with one borer per stalk. (Roselle). KANSAS - All larvae in east central area were late instars. The following percent infestations were recorded: Riley County 0-44; Geary 0-12; Wabaunsee 0-12; Sherman 4-76 and Pottawatomie 0-20. (Matthew). WISCONSIN - Second brood larvae generally light but spotty. Some sections fair numbers. (Smith). RHODE ISLAND - Second brood in late sweet corn near Kingston. Damage heavy in tassels with as many as three larvae per plant. (Ball, Stoner). WEST VIRGINIA -

Larvae average 39.6 per 100 corn plants in Harrison County. (Dorsey, Hansen). ALABAMA - Heavy injury to sorghum in a few sections. (Arant).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - KANSAS - None found in any corn fields surveyed in Geary, Riley, Pottawatomie, Shawnee and Wabaunsee Counties. (Matthew).

CORN EARWORM (Heliothis zea) - RHODE ISLAND - Mature larvae of first instar in small numbers. Reinfestation by second brood in untreated plantings near Kingston. (Ball, Stoner). WISCONSIN - Larvae commonly observed in ends of untreated sweet corn ears. (Smith). UTAH - Damaging throughout State with infestations highly variable; 10 to nearly 100 percent in home gardens. (Knowlton). MISSOURI - Infestations continue in ears of late corn throughout State. Heads of grain sorghums average from 1 to 2 larvae in west-central and central areas. (Kyd, Thomas). OKLAHOMA - Low populations on heads of sorghum in Panhandle. Generally less than 10 percent of heads infested. Infestation higher in Alfalfa County; over one larva per mature head. Present in most all alfalfa fields in western area, averaging less than 5 per 10 sweeps. (Coppock). LOUISIANA - Larvae heavily infesting alfalfa with 200 to 350 per 100 sweeps in East Carroll Parish and 30 to 75 per 100 sweeps in Bossier and Red River Parishes. (Oliver). ALABAMA - Seriously damaging grain sorghum in northern area. (Arant). SOUTH CAROLINA - Damaging pods of soybeans in Lee County. (Nettles, September 7).

CORN LEAF APHID (Rhopalosiphum maidis) - UTAH - Injurious in occasional corn fields in northern area. (Knowlton). OKLAHOMA - Populations in sorghum in northern and western counties quite variable; up to hundreds per plant many fields. However, very few aphids present in heads, most found under leaf sheath and at base of head. (Coppock).

SPIDER MITES - UTAH - Moderate damage in many fields of corn in Utah County and some damage in Salt Lake, Weber and Davis Counties. (Knowlton).

CHINCH BUG (Blissus leucopterus) - MISSOURI - Heavy infestation in grain sorghums in west-central area. Average 20 to 30 per head and from 5 to 35 per stalk some fields. Lighter infestations occurring on corn and sorghums throughout much of northern two-thirds of State. (Kyd, Thomas).

STINK BUGS - OKLAHOMA - Small nymphs common in heads of sorghum throughout State. (Coppock).

APHIDS - MISSOURI - Heavily damaging one field early-sown barley in Bates County. Control needed. (Kyd, Thomas). WEST VIRGINIA - Heavy locally on red clover in Greenbrier County. (Dorsey, Hansen).

DINGY CUTWORM (Feltia subgothica) - MISSOURI - Heavy flight of adults underway past 10 days in central and northern areas. Light trap catches average near 100 per night at Columbia. (Kyd, Thomas).

WHITE GRUBS (Phyllophaga sp.) - OKLAHOMA - Populations low, up to 2 per square yard, in isolated wheat fields being prepared for seeding in Kay and Noble Counties. (Coppock).

WIREWORMS - WYOMING - Damaging wheat in Goshen County. (Thieman).

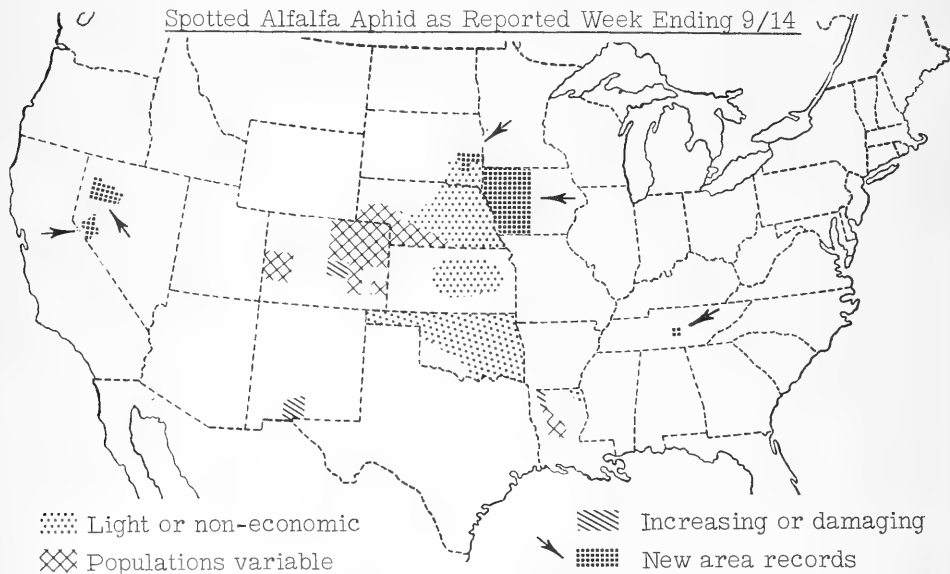
RICE STINK BUG (Solubea pugnax) - LOUISIANA - Counts of 30 per 100 sweeps in Dallisgrass in Tangipahoa Parish. (Oliver).

ARMYWORM (Pseudaletia unipuncta) - LOUISIANA - Two larval infestations on Dallisgrass and Bermuda grass, one 25 per 100 sweeps in Tensas Parish and one 36 per 100 sweeps in St. Landry Parish. (Oliver).

SOUTHERN MASKED CHAFER (Cyclocephala immaculata) - NEBRASKA - Grub damage to lawns general in eastern area. Some damage severe. (Roselle).

SPOTTED ALFALFA APHID - NEVADA - Light new infestations south end Smith Valley, Yerington, Lyon County; and Lovelock, Pershing County. (Borden, Lauderdale, Sept. 8). NEW MEXICO - Building up on alfalfa in Dona Ana County. Damaging infestations scattered and spotty. (Durkin, Sept. 8). COLORADO - Well-distributed through northeastern area; and in Mesa, Delta and Montrose Counties. Very high populations in Blende, Vineland and Avondale districts of Pueblo County. Populations in Prowers, Otero and Crowley Counties dropped off slightly. (Exp. Sta.). OKLAHOMA - Populations in northern and northwestern Counties static, from 3 to 400 per 10 sweeps in Texas County irrigated alfalfa. Predator populations remain low. Lady beetles up to 9 per 10 sweeps and larvae of lacewings up to 10 per 10 sweeps. (Coppock). KANSAS - Non-economic to heavy populations with counts ranging from less than 10 to more than 600 per sweep in alfalfa fields in east central area. Lady beetle populations generally low, counts ranged from 1 to 12 per sweep in aphid infested fields. Fields with heavy aphid populations had many leaves injured on lower parts of infested plants. (Matthew). NEBRASKA - Counts range from 6 to 30 per 50 sweeps in extreme northeast and 0 to 7 in east central counties. Economic populations in Republican Valley. Spotted infestations in dry and irrigated fields in Red Willow and Furnas Counties. Infestations increased in Garden, Morrill and Cheyenne Counties. Numerous aphids in several seedling alfalfa fields indicating severe damage may occur this fall. Final cutting most fields in eastern area. (Hill, Roselle). SOUTH DAKOTA - Found in three new areas: Kingsbury, Brookings and Lake Counties. Now spread to 20 counties. Infestation continues light, less than one per sweep. (Hantsbarger). MISSOURI - Light numbers, 1 to 5 per sweep, occur commonly throughout State with occasional fields in central, southwest and southeast areas having populations from 50 to over 100 per sweep. Some honeydew evident in more heavily-infested fields. (Kyd, Thomas). LOUISIANA - Very severe and damaging populations in alfalfa in several fields in Bossier Parish. One field had approximately 5000 per sweep. Several fields had up to 1000 per sweep. Moderate populations in Natchitoches, Tensas and Red River Parishes; and light

population in East Carrol Parish. (Oliver). IOWA - Present in western half of State. Highest populations in Plymouth, Woodbury, Wayne and Warren Counties, averaging approximately 3 per sweep. Lowest infestations in southwest corner of State with populations approximately 1 per 500 sweeps. (Harris).



PEA APHID (Macrosiphum pisi) - OKLAHOMA - Populations up to 14 per 10 sweeps in irrigated alfalfa in Texas County. (Coppock). NEBRASKA - Populations decreasing in northeast counties. Counts range up to 60 per 50 sweeps. (Fitchett, Roselle). WEST VIRGINIA - Heavy locally on alfalfa in Greenbrier County. (Dorsey, Hansen).

LEAFHOPPERS - VERMONT - Large numbers many alfalfa fields. (MacCollom, August 23). LOUISIANA - Empoasca sp. infesting cowpeas and peanuts at 60 per 100 sweeps in Tangipahoa Parish. (Oliver).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - NEW MEXICO - Building up in alfalfa in Dona Ana County. Infestations range from 10 to 75 per 100 sweeps. (Durkin, Sept. 8). LOUISIANA - Populations 100 to 150 per 100 sweeps in alfalfa in Natchitoches, Red River, Bossier, East Carroll and Tensas Parishes. (Oliver).

LYGUS BUGS - IDAHO - One 25 acre alfalfa seed field near Sweet, Gem County infested with predominantly Lygus hesperus. (Barr). General but not abundant on alfalfa in three northern most counties. (Smith). NEW MEXICO - Heavy on alfalfa in Dona Ana County ranging from 25 to 150 per 100 sweeps. (Durkin, Sept. 8). UTAH - Still abundant in

many alfalfa fields, gardens and fields of clover. (Knowlton).

WYOMING - Lygus lineolaris damaging alfalfa seed crop in Crook County. (Spackman). OKLAHOMA - L. lineolaris and other Lygus spp. up to 8 per 10 sweeps in irrigated alfalfa in Texas County. (Coppock). NEBRASKA - Infestations of L. lineolaris light in northeastern counties. (Roselle, Fitchett).

RAPID PLANT BUG (Adelphocoris rapidus) - NEBRASKA - Counts ranged from 5 to 10 per 50 sweeps in alfalfa in northeast counties. (Roselle, Fitchett).

SPITTLEBUGS - IDAHO - Light but general throughout alfalfa fields in Boundary, Bonner and Kootenai Counties. Populations average one or two per sweep. (Smith).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - IDAHO - Adults extremely numerous and active in alfalfa hay fields in Grandview area of Owyhee County. (Barr). NEW MEXICO - Adults very active in most alfalfa fields in State. Very few larvae found and damage light. (Durkin, Sept. 8). COLORADO - Larval counts averaging 125 per 100 sweeps in Prowers, Bent, Otero, Crowley and Pueblo Counties. Causing damage. (Ext. Serv.). OKLAHOMA - From one to 4 per 10 sweeps in western area alfalfa fields. (Coppock). MISSOURI - Larval populations range from 1 to 4 per sweep in alfalfa in north central and northwest areas. Few fields of seedling alfalfa require controls. (Kyd, Thomas).

FALL ARMYWORM (Laphygma frugiperda) - OKLAHOMA - Light populations of 0 to 2 per 10 sweeps in isolated alfalfa fields in western area. (Coppock). LOUISIANA - Infesting grasses over State. Heavily infesting alfalfa in East Carroll Parish with at least 1000 larvae per 100 sweeps. Larval counts averaged 180 to 200 per 100 sweeps in alfalfa in Bossier, Tensas and Red River Parishes. (Oliver). ALABAMA - Attacking grain sorghum, late corn and other crops in central and southern areas. (Arant).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - LOUISIANA - Infesting one field of alfalfa in East Carroll Parish with 20 larvae per 100 sweeps. (Oliver).

GREEN CLOVERWORM (Plathypena scabra) - NORTH CAROLINA - Present in all alfalfa fields surveyed in Mecklenburg, Union, Stanley and Moore Counties but none with extensive damage. (Farrier).

WEBWORMS - NEW MEXICO - Loxostege sticticalis and L. commixtalis adults abundant in alfalfa and cotton. (Durkin, Sept. 8).

ALFALFA WEEVIL (Hypera postica) - COLORADO - Larval counts in Weld, Larimer, Boulder and Otero Counties increasing. Fields untreated in 1956 showing build up. Will need watching closely in 1957. (Exp. Sta., Ext. Serv.).

BLACK BLISTER BEETLE (Epicauta pennsylvanica) - NEBRASKA - Counts average about 9 per 25 sweeps in northeast counties in alfalfa. (Roselle, Fitchett). SOUTH DAKOTA - Becoming quite numerous and widespread in alfalfa. Counts in heavier-infested areas average one per sweep. (Hantsbarger).

ROOTWORMS (Diabrotica spp.) - WISCONSIN - Adults of D. longicornis very heavy in some southern counties. (Smith). NEBRASKA - Adults of D. longicornis ranged from 15 to 40 per 25 sweeps and D. virgifera from 2 to 15 per 50 sweeps in alfalfa. (Roselle, Fitchett).

CATERPILLARS - SOUTH CAROLINA - Becoming quite abundant and damaging leaves and pods of soybeans in Richland County. (Bailey, Sept. 7). LOUISIANA - Anticarsia gemmatilis infesting soybeans over State with some heavy populations in Ascension Parish. (Oliver).

LESPEDEZA WEBWORM (Tetralopha scortealis) - GEORGIA - Moderate damage to lespedeza in Appling County. (Johnson).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - SOUTH DAKOTA - Adults continue feeding on sweetclover and populations range up to two per 10 sweeps. (Hantsbarger).

COWPEA WEEVIL (Callosobruchus maculatus) - FLORIDA - Adults averaged 35 per ounce of seed on cowpeas at Freeport, Walton County. (Tappan, August 18).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - NEW MEXICO - Injured about 25 percent of apple crop at State College. No calyx spray. (Durkin, Sept. 8).

APPLE MAGGOT (Rhagoletis pomonella) - OHIO - First adult of second generation in cage on Sept. 10. (Cutright).

A LEAF MINER (Lithocolletis sp.) - OREGON - Quite common in apple trees in Benton and Marion Counties. Adults emerging. High percent of parasitism. (Goeden).

ORCHARD MITES - UTAH - Still damaging orchards and ornamentals many areas. (Davis, Knowlton). NEW MEXICO - Tetranychus telarius building up in apple orchards during harvest. (Durkin, Sept. 8).

EUROPEAN RED MITE (Metatetranychus ulmi) - OHIO - Numerous some orchards where no controls used. (Rings).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - OHIO - Heavy infestations on unsprayed trees. (Cutright).

CATFACING INSECTS - OHIO - Injury on late peaches 1-3 percent in commercial orchards. (Rings).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - OHIO - Injury light in commercial orchards. (Rings).

A BUPRESTID (Psiloptera drummondi) - NEW MEXICO - Damaging pecan trees in Dona Ana County by snipping terminal buds. (Durkin, Sept. 8).

FALL WEBWORM (Hyphantria cunea) - MISSISSIPPI - Reported damaging small pecan trees in Hancock in early September. (Hutchins).

FILBERT BUD MITE (Phytoptus avallanae) - WASHINGTON - Causing deformity of catkins on filberts in Clark County. (Waterhouse).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - More abundant on grapes in Tucson area than it has been all season. (Ariz. Coop. Rept.).

A LEAF SKELETONIZER (Harrisina sp.) - NEW MEXICO - Heavily infesting one grape planting in Dona Ana County. (Durkin, Sept. 8).

BLACK-HEADED FIREWORM (Rhopobota naevana) - WASHINGTON - Second brood about through feeding. Infestation moderate. Probable 1957 infestation quite severe. (Tidrick).

A SCARABAEID (Anomala undulata) - FLORIDA - Adults averaging 40 per leaf of sweet orange in Brandon area, Hillsborough County. (Beem, Sept. 4).

CORN EARWORM (Heliothis zea) - FLORIDA - Larvae infesting several acres of 3-month old orange trees and a heavy stand of hairy indigo planted as a cover crop at Alcoma, Polk County. (Griffiths, Sept. 5).

TRUCK CROP INSECTS

ONION MAGGOT (Hylemya antiqua) - WASHINGTON - Most severe damage to onions in history of onion industry in Walla Walla area. (Telford, Aug. 24). IDAHO - Still abundant in southwestern area and causing heavy damage. One carload of onions 90 percent infested on arrival at eastern terminal. (Scott).

TOMATO PINWORM (Keiferia lycopersicella) - TEXAS - Heavy local populations on tomatoes in Brazos County. (King).

SERPENTINE LEAF MINER (Liriomyza sp.) - FLORIDA - Adults averaging 1-4 per tomato plant at Homestead, Dade County, Sept. 3. (Denmark).

LEAF-FOOTED BUG (Leptoqlossus phyllopus) - MISSISSIPPI -

Damaging tomatoes and cowpeas in Newton County. (Hutchins).

SPIDER MITES - MISSISSIPPI - Tetranychus sp. infesting beans and tomatoes in Winston County, Sept. 12. (Hutchins).

CABBAGE LOOPER (Trichoplusia ni) - RHODE ISLAND - Pupation nearly complete. Damage heavy but decreasing on unprotected plants. (Ball, Stoner). WISCONSIN - Quite high populations with Plutella maculipennis larvae in Green Bay area of Brown County. (Smith). LOUISIANA - Severely damaging broccoli in Concordia Parish, averaging six larvae per leaf in a 30-acre field and in two patches of collards in Bossier Parish, averaging three larvae per leaf. (Oliver). NEW MEXICO - Medium to heavy infestation in fall lettuce in Dona Ana County. (Durkin, Sept. 8).

IMPORTED CABBAGEWORM (Pieris rapae) - WISCONSIN - Moderate populations in Green Bay area of Brown County. (Smith). RHODE ISLAND - Damage severe but decreasing on unprotected plants. (Ball, Stoner).

SOUTHERN CABBAGEWORM (Pieris protodice) - NEW MEXICO - Damaging lettuce in Dona Ana County. (Durkin, Sept. 8).

HARLEQUIN BUG (Murgantia histrionica) - NORTH CAROLINA - Severely attacking crucifers in Mecklenburg County and collards in Duplin County. (Hobson, Reid). LOUISIANA - Severely damaging a patch of collards in East Baton Rouge Parish. (Oliver).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - SOUTH CAROLINA - Causing considerable damage to fall snap beans in Charleston area Sept. 7. (Nettles). MARYLAND - Moderate damage to lima beans at Cambridge, Dorchester County. (U. Md., Ent. Dept.).

Beet Leafhopper Situation, Southern Great Plains

Recent surveys indicate that populations and the incidence of "curly top" of beet and other related hosts are generally low over Southern Great Plains area. (ARS, PPC, Sept. 11).

STINK BUGS - VIRGINIA - Damaging pole beans in Rockbridge County, causing pods to wilt and fall. (Rowell).

GRASSHOPPERS - VERMONT - Infestation, probably Melanoplus femurrubrum heavily damaging bean fields in Lamoille County. (Scott, Aug. 23).

PEA MOTH (Laspeyresia nigricana) - WASHINGTON - Populations in Skagit and Whatcom Counties above average and higher than two preceding years. Control effective. (Eide, Kamal, Aug. 24):

SQUASH BEETLE (Epilachna borealis) - VIRGINIA - Severe on squash, watermelons and snap beans in an area one mile long and a half mile wide in southeastern section of Amherst County on the James River. Old leaves completely shredded and squash and melons being attacked.

Attacking Johnson grass in the area. (Wilkins).

STRIPED CUCUMBER BEETLE (*Acalymma vittata*) - NORTH CAROLINA - Attacking cucumbers locally in Duplin County. (Reid).

APHIDS - COLORADO - Populations 200-500 per leaf of cucumber and squash in Pueblo County. (Ext. Serv.).

SQUASH BUG (*Anasa tristis*) - RHODE ISLAND - Large numbers on pumpkin and squash. Increased damage anticipated. (Ball, Stoner).

SQUASH VINE BORER (*Melittia cucurbitae*) - RHODE ISLAND - Larvae prevalent several varieties of squashes. (Ball, Stoner).

FALL ARMYWORM (*Laphygma frugiperda*) - SOUTH CAROLINA - Infesting pimiento peppers at Laurens. (Cannon).

EUROPEAN CORN BORER (*Pyrausta nubilalis*) - ALABAMA - Damaging pimiento peppers some areas. (Arant).

SWEETPOTATO FLEA BEETLE (*Chaetocnema confinis*) - LOUISIANA - Infesting sweetpotatoes up to 125 per 100 sweeps in St. Landry Parish. (Oliver).

LEAFHOPPERS (*Empoasca* spp.) - LOUISIANA - Infesting sweetpotatoes at 200-1600 per 100 sweeps in St. Landry Parish. (Oliver).

RASPBERRY ROOT BORER (*Bembecia marginata*) - OREGON - Egg deposition began first week of September in central Willamette Valley. (Rosenstiel).

A STRAWBERRY ROOTWORM (*Paria* sp.) - TENNESSEE - Heavy infestations in a few strawberry fields of eastern area. (Mullett).

PEA LEAF WEEVIL (*Sitona lineata*) - WASHINGTON - Adults migrating from peas into strawberries and causing considerable defoliation near Clipper. (Kamal, Eide, Aug. 24).

CYCLAMEN MITE (*Steneotarsonemus pallidus*) - NORTH DAKOTA - Several heavy infestations attacking strawberries in Fargo area. (N. D. Ins. Rept.).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - OREGON - Decreasing rapidly on strawberries in northern Willamette Valley. (Rosenstiel).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - LOUISIANA - Some control for late weevils in Tensas and Madison Parishes. (Oliver).

BOLLWORMS (Heliothis spp. et al.) - NEW MEXICO - Problem in all cotton areas except Quay, Curry and Roosevelt Counties. Infestations light to medium with no heavy infestations. (Durkin, Sept. 8). LOUISIANA - Heliothis zea and H. virescens threatening cotton bolls in northeast area. H. zea feeding on cotton foliage in Natchitoches and Tensas Parishes. (Oliver).

CABBAGE LOOPER (Trichoplusia ni) - LOUISIANA - Continue to eat cotton foliage in Natchitoches and Tensas Parishes.. (Oliver).

COTTON LEAFWORM (Alabama argillacea) - NEW MEXICO - Infestations light to heavy and spotty in most cotton growing areas. (Durkin, Sept. 8). TENNESSEE - Few larvae in cotton fields in Lawrence County. (Mullett).

LYGUS BUGS - NEW MEXICO - Lygus elisus and L. hesperus numerous in cotton in Dona Ana County. (Durkin, Sept. 8).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - WISCONSIN - About completed cocooning in Price and Rusk Counties. Defoliation scattered and light on roadside Norway and jack-pines. (Smith).

PINE ROOT COLLAR WEEVIL (Hyllobius radialis) - WISCONSIN - Heavy and apparently new infestations in Norway pine and jack-pine trees in Washburn County. (Smith).

BAGWORM (Thyridopteryx ephemeraeformis) - VIRGINIA - Medium and general on evergreens in Shenandoah County. (Coiner). NORTH CAROLINA - Attacking cedars and junipers in Craven, Vance and Onslow Counties. (Scott, Jones).

Forest Pest Situation, Arkansas, September 10

Activity of IPS BEETLES increased due to hot, dry weather in southwestern area. BLACK TERPENTINE BEETLE increasing and causing concern where logging operations under way where controls being used. Widespread reports of light to heavy damage by PINE TIP MOTHS in young pine plantations. Severe infestations near Clarksville and on Blue Mountain Reservoir plantations, and damage occurring north of Atkins in Pope County. (Ark. Forestry Comm.).

ORANGE-STRIPED OAKWORM (Anisota senatoria) - RHODE ISLAND - Damage increasing on roadside oaks. (Ball, Stoner).

PALE TUSsock MOTH (Halisidota tessellaris) - RHODE ISLAND - Light but general infestation on oaks in Kingston area. (Ball, Stoner).

A WEBWORM (Tetralopha sp.) - WISCONSIN - Defoliating hardwood trees in Ashland County and in scattered stands of aspens in eastern Sawyer County. (Smith).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NEVADA - Larvae still severely defoliating untreated trees in western counties. (Gallaway, Sept. 8).

GREEN-STRIPED MAPLEWORM (Anisota rubicunda) - VIRGINIA - Attacking maple trees in Warwick area. (Sedivy).

APHIDS - UTAH - Infestations increasing on Norway maple in recent weeks in northern area. (Knowlton).

FALL WEBWORM (Hyphantria cunea) - VIRGINIA - Attacking several kinds of shrubs and trees throughout Culpeper County. (Heltzel). Heavy on ornamentals in south central area. (Copley). SOUTH DAKOTA - Scattered infestations becoming noticeable in eastern areas and particularly heavy on cottonwoods in Missouri Valley. (Hantsbarger). ALABAMA Common throughout State. (Arant).

MIMOSA WEBWORM (Homadaula albizziae) - VIRGINIA - Heavy on mimosa trees at Bybee, Fluvanna County (Rowell) and heavily damaging mimosa trees some areas of Rockingham County. (Holloman).

LEAFHOPPERS - OKLAHOMA - Common on redbud throughout State. (Latham).

DOGWOOD BORER (Thamnosphacia scitula) - VIRGINIA - Damaging dogwood trees at Holland. (Morris).

AN AZALEA CATERPILLAR (Datana major) - MISSISSIPPI - Feeding on azaleas in one area of Forrest County in early September. (Broome).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Damage severe on wide range of hosts and increasing in untreated plantings. (Ball, Stoner).

FULLER ROSE BEETLE (Pantomorus godmani) - GEORGIA - Heavy damage to shrubs in Treutlen County. (Johnson).

PEA APHID (Macrosiphum pisi) - WASHINGTON - Increasing rapidly on sweet peas in Puyallup Valley with spread of mosaic. (Doucette).

SPIREA APHID (Aphis spiraeicola) - WEST VIRGINIA - Abundant on spirea statewide. (Dorsey, Hansen).

LACE BUGS - OKLAHOMA - Widespread on pyracantha throughout State. (Latham).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Very heavy on euonymus all sections. (U. Md., Ent. Dept.). VIRGINIA - Causing yellowing of euonymus hedge in Alexandria, heavy at McKenney (Rowell) and attacking euonymus in Lunenburg County (Peary). WEST VIRGINIA Abundant on euonymus statewide. (Dorsey, Hansen).

A WAX SCALE (Ceroplastes sp.) - NORTH CAROLINA - Local infestations on camellia in Hoke County and pyracantha in Nash County. (Scott).

WHITEFLIES - WASHINGTON - Abundant on various flowers in Sumner area. (Doucette).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - RHODE ISLAND - Reported infection of horse by equine encephalomyelitis. Total of three cases reported to date. (Grennan). Aedes intrudens and A. sollicitans annoying some areas. (Pannone). NORTH CAROLINA - Culex taeniorhynchus biting in numbers in Onslow County. (Cromroy). COLORADO - Anopheles sp. larval counts average 50 per dipper in Grand County. (Ext. Serv.).

STABLE FLY (Stomoxys calcitrans) - RHODE ISLAND - High populations causing annoyance to cattle. (Ball, Stoner).

BROWN DOG TICK (Rhipicephalus sanguineus) - ARIZONA - Abundant in Tucson area. (Ariz. Coop. Rept.).

YELLOW JACKETS (Vespuila sp.) - IDAHO - Abnormally abundant in northern area. (Manis, Smith).

STORED PRODUCTS INSECTS

GRAIN MITES - WEST VIRGINIA - Very heavy population in stored wheat in Monongalia County. (Dorsey, Hansen).

TOBACCO MOTH (Ephestia elutella) - NORTH CAROLINA - Light infestations noted in tobacco packhouses in Johnston, Lenoir, Wayne and Jones Counties. (Jones).

BENEFICIAL INSECTS

PARASITES - LOUISIANA - Parasitic wasps very numerous in alfalfa over State. (Oliver). VIRGINIA Scolia dubia collected in Henry County. Attacks larvae of Japanese beetle. (Rowell, Pollard).

PREDATORS - LOUISIANA - Hippodamia convergens and Nabis sp. very numerous in alfalfa over State. (Oliver).

MISCELLANEOUS INSECTS

BROWN-BANDED ROACH (Supella supellectilium) - COLORADO - Pest control operators report increasing numbers in Grand Junction area of Mesa County. Infestations first noted in 1955. (PCO, Dept. of Agric.).

EUROPEAN EARWIG (Forficula auricularia) - UTAH - Entering homes in a number of areas. (Knowlton).

FLIES - UTAH - House flies and blow flies numerous around a number of communities. (Knowlton).

SOLDIER FLIES - NORTH CAROLINA - Present in large numbers under a caged layer operation in Onslow County. (Scott).

BOXELDER BUG (Leptocoris trivittatus) - TENNESSEE - Numerous many areas throughout State. (Mullett).

TERMITES - VIRGINIA - Damaging homes in Bluefield and in Montgomery County. (Rowell).

SADDLEBACK CATERPILLAR (Sibine stimulea) - MARYLAND - Numerous reports of stings by this species and by Megalopyge opercularis. (U. Md., Ent. Dept.).

A HORNTAIL (Sirex aerolatus) - CALIFORNIA - Adults emerging from walls of home built in April. Adults cutting through sheet rock walls. (Cal. Coop. Rept.).

A DERMESTID (Dermestes ater) - RHODE ISLAND - Report from Providence of invasion of home from carelessly-managed incinerator. (Mathewson).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - RHODE ISLAND - Adults very numerous. (Ball).

ASIATIC OAK WEEVIL (Cyrtopistomas castaneus) - WEST VIRGINIA - Adults entering homes in Berkeley County. (Dorsey, Hansen).

CARABIDS - MARYLAND - Annoying in homes in central areas. (U. Md., Ent. Dept.).

CORRECTIONS

CEIR 6(37): 907 under SWEETCLOVER APHID should read (Myzocallidium riehmi). CEIR 6(37): 906 under SPOTTED ALFALFA APHID-SOUTH CAROLINA - First report in State should read first collection in State. CEIR 6(37): 915 under SLUGS - Refers to onion bulbs.

ADDITIONAL NOTES

MICHIGAN - CODLING MOTH egg hatching increasing in Grand Rapids area. EUROPEAN CORN BORER infesting peppers occasionally in Coloma area. Occasional RED-HUMPED CATERPILLAR some apple orchards. CABBAGE LOOPER locally severe at Tecumseh, Bath and Stockbridge. STORED GRAIN INSECTS more numerous although not as extensive as in 1955, with Oryzaephilus surinamensis most common. (Hutson).

TENNESSEE - SPOTTED ALFALFA APHID collected August 29 on alfalfa in Maury County. Det. L. M. Russell. (Stanley, Breeland, Mullet).

NEW YORK - Conditions in Hudson Valley as follows: CORN EARWORM eggs readily found on silks of sweet corn but hatching retarded. Ears in unsprayed corn at harvest about 20 percent infested by CORN EARWORM and about 70 percent by EUROPEAN CORN BORER. FALL ARMYWORM was present in all stages but none observed in corn ears. (N. Y. Wkly. Rept.).

Weather continued from p. 922

and portions of New England. A series of damaging thunderstorms struck the New England area on the 14th, with Maine reporting some loss to apple orchards from hail and strong winds. (Summary Supplied by U. S. Weather Bureau).

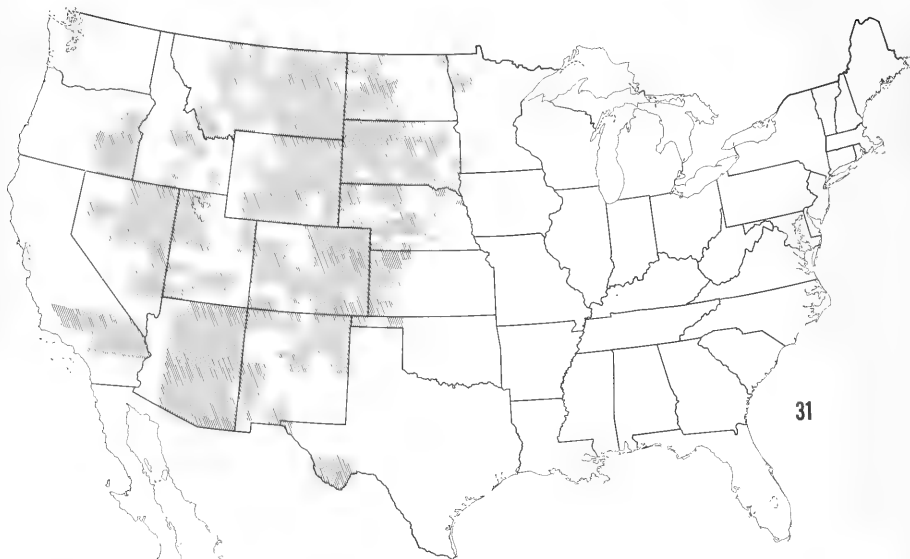
LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea vires.	Protoparce sexta quing.	Laphyg. frugip.
KANSAS								
Wathena 9/8-13	14	25			412		33	13
Manhattan 9/8-13	32	20			482		20	10
Hays 9/1-7	7	5			20		1	
Goodland 9/3-6	18	8			18			
OHIO								
Athens 9/3-9	15	4			35			
TENNESSEE (Counties)								
Madison 9/4-10	27	5	12		201		12	
Lawrence	36	20	32		475	28	65	9
Maury	75	14	30		359	8	56	11
Robertson	120	26	66		689	18	47	7
Cumberland	18	8	15	3	163		13	6
Knox	71	34	129	5	267	1	6	1
Greene	125	16	80		513	4	9	3
Blount		10	2		72	2	27	4
Johnson	263	118	140	92	781		1	2
MARYLAND (County)								
Montgomery 9/8-14	5	3	6	2	11			3
VIRGINIA (County)								
Pittsylvania 9/2-8							66	117
NORTH CAROLINA (Counties)								
Duplin 9/12-13	22	4	12		17	12	4	10
Johnston 9/12-13	35	9	12		14	23	4	12
SOUTH CAROLINA (Counties)								
Charleston 8/27-9/2	15	3	17		26	154	2	7
Florence 9/1-7	125	54	370	6	326	2338	198	58
Oconee 9/2-8	86	35	65	4	9	86	1	9
GEORGIA (Counties)								
Clarke 9/5-12				6				
Spalding 9/7-13	144	56	116	2	58	430	17	6
Tift 9/7-13		3	19		11	41	8	19
FLORIDA								
Monticello 9/5						1		
Quincy 9/4	4		8			194		9
Gainesville 9/13		1	6			3		
ALABAMA								
Fairhope 9/10&12	13		3			54		5
Auburn 9/8-14	36			21		132	4	16
LOUISIANA								
Franklin 9/6-13	13	18	30		40	49		
Baton Rouge	82	76	20		75	82	6	2
Curtis 9/3-9	368	96	96		128	976		
*Tallulah 9/8-14	27	23	7		5	108	7	6
MISSOURI (County)								
Boone 9/9-15	24	5				88		15

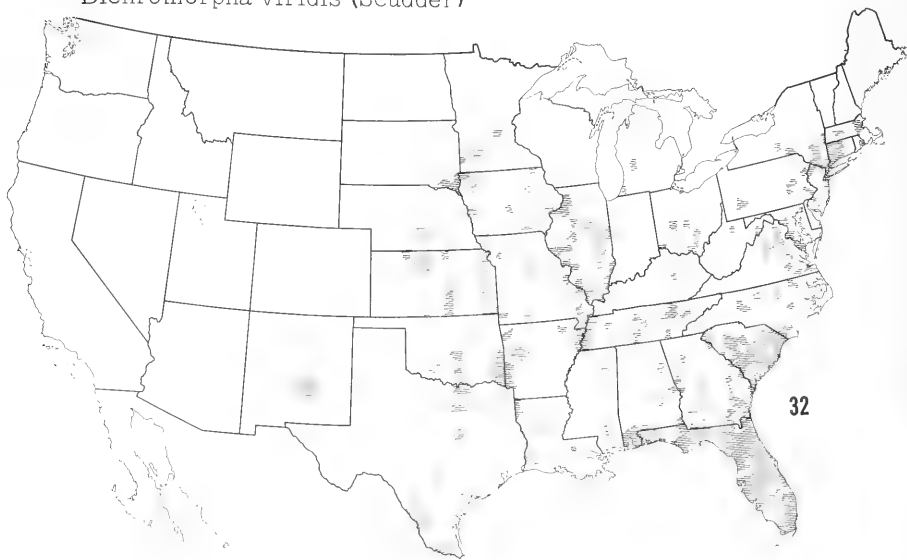
* Tallulah, three traps not operated 9/11.

DISTRIBUTION OF RANGE GRASSHOPPERS

Derotmema haydenii (Thomas)



Dichromorpha viridis (Scudder)

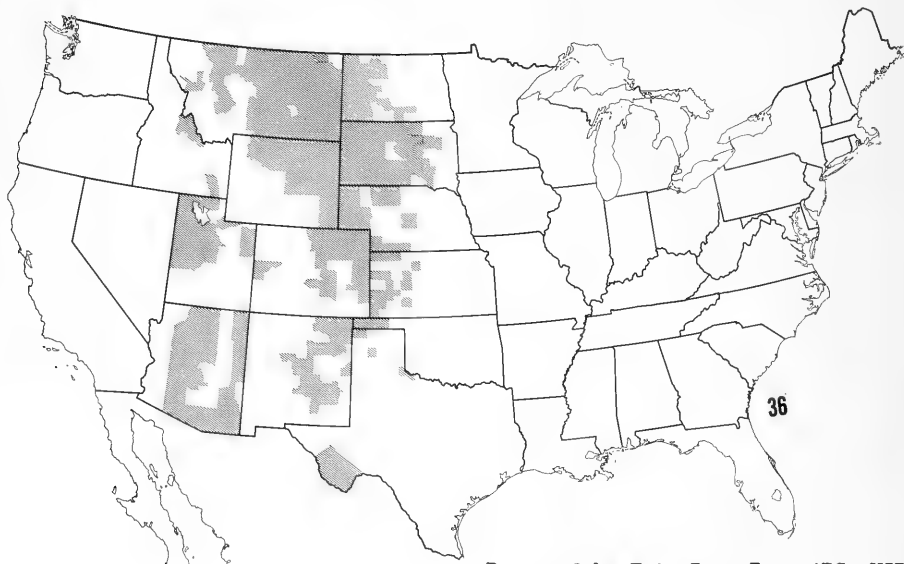


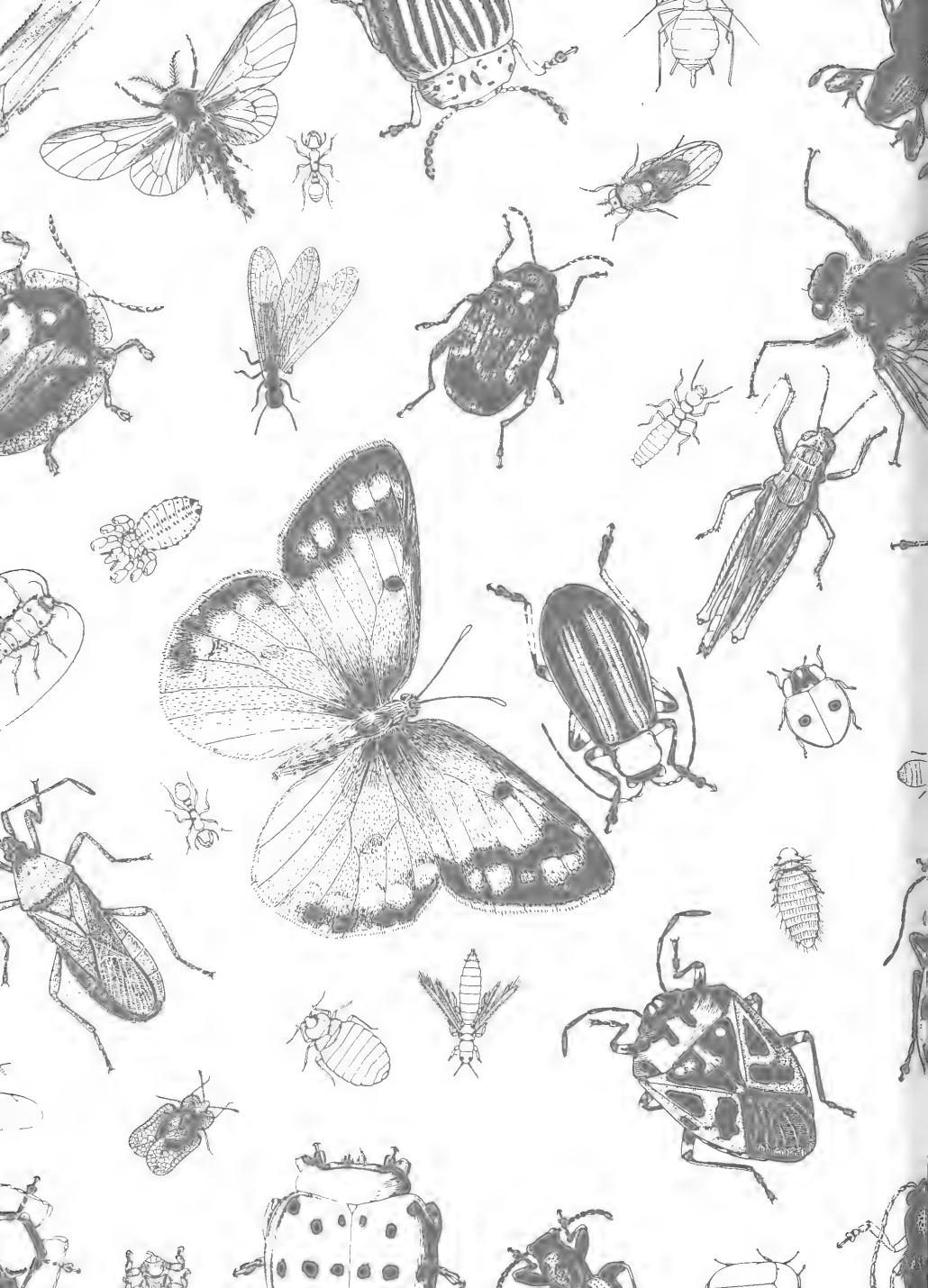
DISTRIBUTION OF RANGE GRASSHOPPERS

Dissosteira spurcata (Saussure)



Drepanopterna femoratum (Scudder)





VOL. 6 No. 39

SEPTEMBER 28, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

EUROPEAN CORN BORER infestation of plants averaged 43 percent in southeastern and south central South Dakota and 40-80 percent in irrigated corn in Platte Valley of Nebraska. (p. 943). LESSER CORN-STALK BORER heavy in sweet corn at Mesa, Arizona and heavy populations in peas in Lavaca County, Texas. (p. 944).

CORN EARWORM infestations severe in field corn several areas of Washington. Corn 100-percent infested at Boardman, Oregon. High percent of corn ears infested near Pine Bluffs, Wyoming. Locally severe on soybeans in King William County, and medium on soybeans in Northumberland County, Virginia. FALL ARMYWORM counts high on grasses in several parishes of Louisiana. SPIDER MITES causing severe damage to corn and alfalfa in three Washington counties and damaging field and canning corn in four Utah counties. (p. 944).

PEA APHID heavy in alfalfa in eastern Laramie County, Wyoming. THREE-CORNERED ALFALFA HOPPER extremely numerous in some alfalfa fields of Washington County, Utah and building up in Bossier and East Baton Rouge Parishes, Louisiana. (p. 945). SPOTTED ALFALFA APHID now occurs in principal alfalfa-growing areas of Nevada and continues to damage alfalfa in counties in Utah as far north as Juab and occurs in all but three counties of northern area. Very high populations in alfalfa in several Colorado counties. Found for first time in Minnesota and in new areas of Nevada, South Dakota, Illinois, Tennessee, North and South Carolina and Virginia. (p. 946). New records (p. 955). Increasing Republican River Valley of Nebraska and severe damage expected in fall-seeded alfalfa of Furnas and Red Willow Counties, Nebraska. (p. 946). Infestations moderate to heavy in alfalfa in upper Arkansas River Valley of Arkansas. (p. 947).

SPIDER MITES causing severe damage to sugar beets in several Washington Counties. ALFALFA WEBWORM heavily damaging sugar beets in Weld and Boulder Counties, Colorado. (p. 950).

TURPENTINE BEETLES continue to damage pines several areas of Texas. (p. 952). EQUINE ENCEPHALOMYELITIS causes death of 700-800 pheasants in commercial flock in Rhode Island and infection confirmed in other birds. (p. 953). SCREW-WORMS severely infesting cattle and deer on some of the Sea Islands of South Carolina. (p. 953).

ADDITIONAL NOTES (p. 955) LIGHT TRAP COLLECTIONS (p. 956).

Number of states reporting this issue - 33.

Reports in this issue are for the week ending September 21, unless otherwise designated.

WEATHER FOR THE WEEK ENDING SEPTEMBER 24, 1956

Wide temperature fluctuations with little or no significant precipitation except in some eastern areas were the chief characteristics of the week's weather as cold Canadian air masses moved southeastward from the northern Great Plains on the 18th, 20th and 21st and a low pressure trough, followed by an inflow of cold northern air, moved across the country from the 20th to the 24th. On the 20th and 21st freezing ended the growing season for tender crops and damaged late crops in many extreme northern areas east of the Rockies where the season was later than usual owing to cool, rainy weather during the spring and summer. Many stations had record low temperatures for so late in the season, including Green Bay, Wisconsin, 28° on the 19th; Rochester, New York, 36° all on the 21st. Temperatures as low as 17° were recorded in the cranberry bogs of Wisconsin.

In contrast, the first part of the week was unusually hot in the far Southwest and Great Plains. Prescott, Arizona recorded 96° on the 18th and El Paso, Texas, 99° on the 17th record high temperatures at those stations for so late in the season. Maxima reached 97° in South Dakota and over 100° in Oklahoma and Texas on several days. High temperatures and hot winds from Kansas to Texas intensified the drought and caused local dust storms. The Kansas River at one point in Kansas fell to the lowest stage on record. Throughout the lower Great Plains large areas are plagued by water shortages, and there are no prospects for grain pastures until general rains come. With another dry week in the middle and parts of the lower Mississippi Valley, the need for rain is becoming critical in some areas for pastures and fall seeding; late crops are suffering in Arkansas, and forest fires threaten northwestern Louisiana. Most of the week's rain was limited to western Washington, the extreme upper Great Lakes, the Middle Atlantic and New England States, Florida, and the central Gulf Coast area. Heavy rains fell in the latter area when hurricane Flossie moved across southeastern Louisiana on the 24th and was centered in extreme southwestern Georgia at 8 a. m., e. s. t., September 25. Some stations reported over 6 inches for the 24-hour period ending at 1:30 a. m. the 25th. (Summary Supplied by United States Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - UTAH - Still numerous in a few local areas of northern part of State. (Knowlton). SOUTH DAKOTA - Survey for adults completed and rangelands rated non-economic and cropland in eastern area from light to threatening in scattered local areas. Heaviest in southeastern corner and rated severe. Dominant species Melanoplus femur-rubrum, M. differentialis and M. bivittatus. The only economic infestations in western area occurred in the Black Hills. (Hantsbarger). NEBRASKA - Populations decreasing in Platte Valley, with 2-6 adults per square yard in alfalfa field margins. (Roselle). OKLAHOMA - Slight reduction in populations in central area. Roadside populations average approximately six per square yard in Lincoln, Pottawatomie and Pontotoc Counties. (Coppock). ARKANSAS - Infestations in northwestern counties from Scott to Benton were generally below economic levels but averaged above that of 1955. M. femur-rubrum was predominant species. (Warren). WISCONSIN - Moderate to heavy infestations of adult M. femur-rubrum in much of legume acreage, principally alfalfa. More uniform and heavy infestations in western and southern counties. M. differentialis more commonly found than in 1955. M. bivittatus observed few locations as well as a slant-faced species. (Wis. Ins. Bul.).

EUROPEAN CORN BORER (Pyrausta nubilalis) - RHODE ISLAND - Damage by second brood heavy in tassels of late sweet corn planting near Kingston. (Stoner). WISCONSIN - Larvae averaged 1.1 per ear in untreated sweet corn in Rock County. (Wis. Ins. Bul.). SOUTH DAKOTA - Infestation averaging 43 percent of plants in southeast and south central areas. Corn borers average 83 per 100 plants with 20 percent in third instar, 18 percent in fourth instar, 59 percent in fifth instar and 3 percent pupae emerged. (Hantsbarger). NEBRASKA - Infestations 40 to 80 percent in irrigated corn in Platte Valley. (Roselle). KANSAS - The following county averages of infestations in Kansas River Valley during fall abundance survey were: Wabaunsee 9 percent with 13 borers per 100 stalks; Shawnee 27 percent with 54 borers per 100 stalks; Miami 9 percent with 11 borers per 100 stalks; Johnson 19 percent with 48 borers per 100 stalks; Douglas 28 percent with 37 borers per 100 stalks; and Franklin 8 percent with 4 borers per 100 stalks. (Matthew). MISSISSIPPI - Larvae collected from corn stalks in DeSoto, Lowndes and Oktibbeha Counties on September 14 and 17. (Henderson). WEST VIRGINIA - Spotty infestations of up to 220 per 100 plants in corn in Greenbrier County. (Dorsey, Hansen).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - ARIZONA - Heavy infestation in three acres of sweet corn at Mesa, Sept. 14 and reducing stand about 50 percent. (Ariz. Coop. Rept.). KANSAS - Larvae, probably this species, found at one field in both Douglas and Johnson Counties. These two records the farthest northeast found this year. (Matthew).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - MISSISSIPPI - Larvae found in burrows in corn stalks in DeSoto and Oktibbeha Counties, Sept. 14 and 17. (Henderson).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - ARIZONA - Heavy in experimental plantings of sweet corn at Mesa, Sept. 17, causing up to 50 percent loss of stands. (Ariz. Coop. Rept.). TEXAS - Light populations on peanuts and heavy populations infesting peas in Lavaca County. (Sanchez).

CORN EARWORM (Heliothis zea) - WASHINGTON - Continues to maintain high populations in lower Yakima Valley. Severe infestation in field corn and home garden corn near Sunnyside, Prosser, Grandview and Zillah. (Kamal). OREGON - Corn 100 percent infested at Boardman. Most ears have 2-3 larvae and destruction of whole ears common. Damage to corn tips at The Dalles estimated at over five percent in late-maturing plantings. (Capizzi). UTAH - Damage conspicuous in canning corn in northern counties. Untreated corn with 35-90 percent infested in Utah County. Treated corn with 10-60 percent infested. Many small larvae appearing. (Knowlton). WYOMING - High percentage of ears infested with nearly-mature larvae near Pine Bluffs. (Shockley, Spackman). WISCONSIN - Larvae averaged 5.5 per ear in untreated sweet corn in Rock County. (Wis. Ins. Bul.). RHODE ISLAND - Pupation of first brood virtually complete. Infestation by second brood in untreated planting near Kingston but not too active. (Stoner). VIRGINIA - Locally severe on late soybeans in King William County (Kelly) and medium on soybeans with L. frugiperda in Northumberland County (Saville). WEST VIRGINIA - Ninety eight percent infestation of one 20-acre corn field in Randolph County. (Dorsey, Hansen). NORTH CAROLINA - Late planted sorghum averaged 13 larvae, half early instars, per 25 plants in a Randolph County field and 2 per 25 heads in late planted field in Duplin County. (Farrier). SOUTH CAROLINA - Moderately infesting soybeans in Barnwell County. (Shelley, Sept. 13). LOUISIANA - Infesting sorghum at one per five heads in East Baton Rouge Parish. (Oliver).

FALL ARMYWORM (Laphygma frugiperda) - ARIZONA - Heavy on sweet corn in experimental plantings at Mesa, Sept. 18. In whorls and underground. (Ariz. Coop. Rept.). LOUISIANA - Counts per 100 sweeps on grasses by parishes were as follows: Jefferson Davis, 220; Acadia, 150; East Baton Rouge, 10 to 150; and Ascension, 40. Infesting alfalfa at 150 to 200 per 100 sweeps with L. exigua in Bossier Parish. (Oliver).

SPIDER MITES - WASHINGTON - Tetranychus telarius causing severe damage to corn and alfalfa in Yakima, Benton and Grant Counties. (Telford). UTAH - Damaging canning and field corn in scattered fields in Utah, Salt Lake, Washington and Millard Counties. (Knowlton).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Populations low in mature sorghum in central counties, averaging less than five per plant most fields. (Coppock).

RUSTY PLUM APHID (Hysteroneura setariae) - ARIZONA - Heavy along borders of two 60-acre sorghum fields southwest of Mesa, Maricopa County, Sept. 19. Lacewing adults and larvae very numerous. Collops sp. and syrphid larvae also present in numbers. (Ariz. Coop. Rept.).

SUGARCANE BORER (Diatraea saccharalis) - TEXAS - Light to medium infestation on Dallisgrass in Brazos County. (Turney).

NORTHERN MASKED CHAFER (Cyclocephala borealis) - MARYLAND - Grubs injuring lawns in University Park vicinity, Prince Georges County. (U. Md., Ent. Dept.).

GREEN JUNE BEETLE (Cotinis nitida) - VIRGINIA - Larvae medium but spotted in pastures and lawns in Norfolk County. (Wood).

FIELD CRICKET (Acheta assimilis) - MARYLAND - Abundant in grassy fields in most sections. Light crop damage. (U. Md., Ent. Dept.).

BEEET WEBWORM (Loxostege sticticalis) - COLORADO - Larvae migrating from weeds into wheat in Baca County and causing considerable damage. From 1-10 larvae per square foot over entire fields. (Exp. Sta.).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - ILLINOIS - Survey showed heaviest infestations in northern counties with up to 12 adults per sweep. East central counties showed up to 5.4 per sweep. (Ill. Ins. Rept., Aug. 20 - Sept. 7).

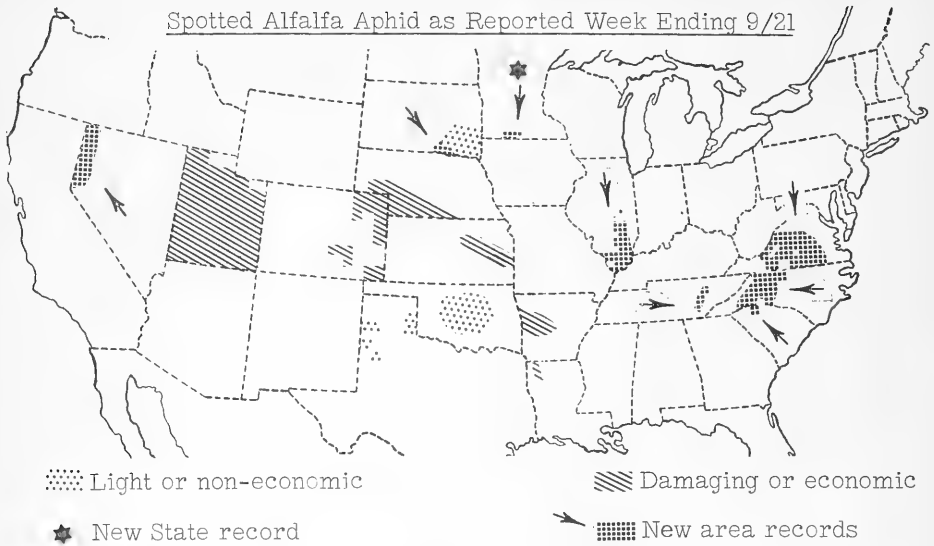
RICE STINK BUG (Solubea pugnax) - LOUISIANA - Average infestation on rice per 100 sweeps was 30 in Acadia Parish, 1-12 in St. Landry Parish and 10-25 in Jefferson Davis Parish. (Oliver).

PEA APHID (Macrosiphum pisi) - WASHINGTON - Populations decreasing gradually on alfalfa east of Cascades but increasing near Puyallup and Sumner. One alfalfa field near Freeland, Whidbey Island produced half a cup of aphids per 20 sweeps. (Kamal). WYOMING - Heavy infestation on alfalfa in eastern Laramie County. (Shockley, Spackman). NEBRASKA - Remains relatively constant in Platte River Valley with 100-300 per sweep in most alfalfa fields. Low populations in Republican River Valley with up to 50 per sweep. Where this species present spotted alfalfa aphid is light and vice-versa. (Roselle, Hill).

LEAFHOPPERS - WEST VIRGINIA - Potato leafhoppers moderate to heavy on alfalfa in Greenbrier and Monroe Counties. (Dorsey, Hansen). VIRGINIA - Empoasca fabae severe on old stand of alfalfa in Westmoreland County. (Dawson). SOUTH DAKOTA - Macrostoteles fascifrons numerous in many alfalfa fields of southeastern area with up to 20 per sweep. (Hantsbarger).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - UTAH - Extremely numerous in some Washington County alfalfa fields and orchards. (Knowlton). TEXAS - Light populations on alfalfa in Erath County. (Sanchez). LOUISIANA - Populations building up with 100 to 500 adults and nymphs per 100 sweeps in Bossier Parish and 80 to 100 per 100 sweeps in East Baton Rouge Parish. (Oliver). ARKANSAS - Light, averaging no more than 3 to 4 per 10 sweeps. (Warren).

Spotted Alfalfa Aphid as Reported Week Ending 9/21



SPOTTED ALFALFA APHID - NEVADA - Late summer migrations have progressed very rapidly. Infestations now occur in Pershing and Washoe Counties. The principal alfalfa-producing areas of State are now infested. (Galloway). **UTAH** - Continues to damage alfalfa in a number of counties as far north as Juab. Some fields with severe damage where control delayed. Taken in all counties but Cache, Rich and Dagget in northern area. Populations increased conspicuously in Uintah and Duchesne Counties. Damage occurring in Kane, Millard, Juab and other counties. Lady beetles decreasing in fields generally. Infestations spotty. (Knowlton). **COLORADO** - Survey of alfalfa showed the following number of aphids per 100 sweeps by counties: Otero, 12,000-14,000; Pueblo, 13,000-14,000; Baca, 4,000; Kit Carson, 4,000-15,000; Phillips, 1200; Crowley, 12,000; Sedgwick, 550-900; Yuma, 7000-8500. (Exp. Sta.). **WYOMING** - None found on alfalfa near Pine Bluffs. (Shockley, Spackman). **SOUTH DAKOTA** - Found in two new areas, Gregory and Charles Mix Counties. Infestations in extreme southeastern area building up with counts 20-80 per sweep. (Hantsbarger). **NEBRASKA** - Continue to increase in Republican River Valley. Up to an estimated 1000 per sweep in Furnas and Red Willow Counties. Severe damage expected in fall-seeded alfalfa with 3-40 aphids per plant in Furnas and Red Willow Counties. Damage also in fall-seeded alfalfa in Cheyenne County. (Roselle, Hill). **KANSAS** - Light to heavy in alfalfa in fields surveyed in Wabaunsee, Shawnee, Douglas, Johnson, Miami, Franklin, Osage and Riley Counties. Counts from 15 to over 400 per sweep most fields with no honeydew. Increasing on small seedlings in Kansas River Valley. Lady beetles extremely low numbers all aphid-infested fields with counts never over five per sweep. (Matthew). **OKLAHOMA** - Populations central counties from 0-11 per sweep. Lady beetles generally quite low in numbers. Lacewing larvae and adults

common all fields. (Coppock). TEXAS - Light infestations on alfalfa in Hockley, Collingsworth, Deaf Smith, Bailey and Wheeler Counties. (Turney). LOUISIANA - Continues to severely damage several alfalfa fields in Bossier Parish, causing loss of foliage some fields. One field in Claiborne Parish also infested. Heavy populations of Hippodamia convergens, Collops balteata, Chrysopa oculata and Nabis sp. giving good control in few fields. (Oliver). ARKANSAS - Infestations on alfalfa moderate to heavy in upper Arkansas River Valley. Counts from 500 to 1500 per sweep with plant damage in fields where regrowth slowed due to dry weather. Numbers lighter in Washington and Benton Counties but present in all fields. Predators active but not effective. (Warren). TENNESSEE - Found in Monroe, Loudon, Knox and Maury Counties. (Stanley, Mullett, Sept. 12). ILLINOIS - Has been collected in following counties: Effingham, Clay, Fayette, Wayne, Jefferson, White, Jackson, Williamson, Saline, Gallatin, Union, Johnson, Pope, Hardin, Alexander, Pulaski and Massac. (Ill. Ins. Rept., Sept. 13). MINNESOTA - Found for first time in Jackson and Noble Counties. (Aamodt). VIRGINIA - Infestations found for first time in Floyd, Patrick, Franklin, Henry, Pulaski, Morris, Bedford (Amos), Nelson, Alleghany, Craig and Giles (Manglitz, Gillespie) Counties. Infestations ranged from light to probably heavy. Additional new infestations in Campbell, Appomattox, Buckingham, Cumberland, Charlotte, Halifax, Mecklenburg, Lunenburg, Nottoway and Amelia Counties. (Morris).

LYGUS BUGS (Lygus spp.) - UTAH - Still extremely numerous in some southern and central area alfalfa fields and orchards. (Knowlton).

WYOMING - L. lineolaris infestation light in alfalfa in eastern Laramie County. (Shockley, Spackman).

A STINK BUG (Thyanta custator) - SOUTH DAKOTA - Prevalent some southeastern alfalfa fields. One field Charles Mix County with 12 nymphs and adults per ten sweeps. (Hantsbarger).

GARDEN WEBWORM (Loxostege similalis) - SOUTH DAKOTA - Larvae occasionally in alfalfa. One field in Gregory County with two larvae per 10 net sweeps. (Hantsbarger).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - LOUISIANA - Eighty per 100 sweeps on alfalfa. (Oliver).

CLOVER LEAF WEEVIL (Hypera punctata) - ILLINOIS - Survey showed up to 13 adults per 100 sweeps in central counties and up to six per 100 sweeps in northern counties. (Ill. Ins. Rept., Sept. 7).

ARMYWORMS - VIRGINIA - Severe on new seedings of crimson clover in permanent pastures in Norfolk County. Heavy damage on a number of farms. (Wood).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - ARKANSAS - Caused damage to soybeans in Monroe County. Insecticides used for control. (Warren).

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis) - LOUISIANA - Populations on soybeans per 100 sweeps were 30 to 40 in East Baton Rouge Parish, 20 in Ascension Parish and 15 to 20 in Pointe Coupe Parish. (Oliver).

GREEN CLOVERWORM (Plathypena scabra) - ARKANSAS - Infestations light on soybeans in Johnson, Crawford, and Sebastian Counties. (Warren).

FRUIT INSECTS

APPLE APHID (Aphis pomi) - WASHINGTON - Populations continue to increase in Yakima Valley, mostly in young shoots and suckers. (Kamal). WISCONSIN - Medium to heavy damage on unsprayed trees. Honeydew and sooty mold on many apples. (Wis. Ins. Bul.).

APPLE MAGGOT (Rhagoletis pomonella) - WISCONSIN - Populations have been heavy many sections with considerable unsaleable fruit in unsprayed orchards. (Wis. Ins. Bul.).

CODLING MOTH (Carpocapsa pomonella) - UTAH - Infesting 4-5 percent of apples in commercial orchards in Washington County. Some infestations higher about State where control inadequate. (Knowlton). WISCONSIN - Adults observed, September 4. (Wis. Ins. Bul.).

PEAR-SLUG (Caliroa cerasi) - WASHINGTON - Seriously damaging pear and apple on Whidbey Island, Friday Harbor, Anacortes and Puyallup. (Kamal).

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - Nymphs and adults collected in pear orchards near Puyallup. (Breakey, Kamal).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - GEORGIA - Infestation in six orchards near Fort Valley during season showed 1.6 percent upon examination of 13,632 peaches. Lighter than in 1955. (Snapp, Sept. 17).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - WISCONSIN - Second generation larval populations medium to heavy where control measures not applied. (Wis. Ins. Bul.).

FLORIDA WAX SCALE (Ceroplastes floridensis) - FLORIDA - Adults and nymphs heavily infesting persimmon at Welaka, Putnam County. (Hetrick, Sept. 14).

GRAPE BERRY MOTH (Paralobesia viteana) - UTAH - Infestation in one vineyard at Washington caused crop to be unmarketable. (Knowlton).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - UTAH - Appeared in vineyard at Washington for first time in two seasons. (Knowlton).

A LEAF ROLLER (Gracilaria perseae) - FLORIDA - All stages averaging one per leaf over acres of avocado in Dade County. Reported as worst infestation in 10 years. Det. D. O. Wolfenbarger. On avocado at Miami. (Dowling, Sept. 11, 12).

FALL WEBWORM (Hyphantria cunea) - GEORGIA - Continues heavy on pecan trees in Spalding and other counties. Some orchards in Spalding County averaged 12.6 webs per tree. (Beckham, Sept. 14).

BLACK PECAN APHID (Melanocallis caryaefoliae) - LOUISIANA - Heavily infesting pecan trees in Bossier Parish. (Oliver).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Trapping for flies in peripheral areas of Sonoma County nearly complete. A single fly captured in Sonoma County and one in Napa County are only specimens taken to date outside of quarantine lines. More than 70,000 walnut trees have been covered in three applications of bait spray. (Cal. Coop. Rept., Sept. 14).

WALNUT CATERPILLAR (Datana integerrima) - WISCONSIN - Caused considerable defoliation of black walnut and hickory trees. (Wis. Ins. Bul.).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - ARIZONA - Larvae heavy on 60 acres of lettuce at Glendale, Sept. 18, with 3-6 per plant and 3-4 per leaf of lettuce at Glendale and Queen Creek, Maricopa County, Sept. 20. (Ariz. Coop. Rept.). LOUISIANA - Continues to severely damage cole crops in Bossier, Claiborne and East Baton Rouge Parishes. (Oliver). NORTH CAROLINA - Severe and difficult to control on cabbage in Hyde County and general with about 10 percent of heads in commercial plantings lightly infested in Pasquotank County. (Scott). A persistent problem on cabbage in Person County. (Reams).

HARLEQUIN BUG (Murgantia histrionica) - NORTH CAROLINA - Continues to damage collards in Duplin County. (Reid).

CUTWORMS - VIRGINIA - With corn earworm, fall armyworm and garden webworm is injuring young spinach plantings in eastern area. (Brubaker, Greenwood, Hofmaster).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Russian thistle elimination work completed. A total of 36,051 acres mainly on west side of San Joaquin Valley. Initial populations on Russian thistle average 2-36 per sweep with about ten percent overwintering adults indicated. Fall spraying of Russian thistle for leafhopper control will begin during first week of October, with not over 250,000 acres to be sprayed. (Cal. Coop. Rept., Sept. 14).

APHIDS - WASHINGTON - Abundant but spotty in sugar beet fields near Grainger. (Kamal).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - WASHINGTON - Maintaining high populations and causing severe damage to sugar beets in Yakima, Benton and Grant Counties; to raspberries in Snohomish, Skagit and San Juan Counties; and to beans near Puyallup. (Telford).

ALFALFA WEBWORM (Loxostege commixtalis) - COLORADO - Heavy larval populations moving from weeds into sugar beet fields, causing heavy damage in Weld and Boulder Counties. (Exp. Sta.).

CARROT BEETLE (Ligyryus gibbosus) - COLORADO - Damaging carrots in gardens and numerous adults around ornamentals, corn and sorghum. (Exp. Sta.).

BEAN APHID (Aphis fabae) - WASHINGTON - Extremely abundant on beans, rhubarb and several ornamentals near Puyallup, Sumner and Auburn. (Kamal).

CORN EARWORM (Heliothis zea) - MARYLAND - Moderate damage to pods of late lima and snap beans in Somerset, Wicomico and Worcester Counties. (U. Md., Ent. Dept.). VIRGINIA - Large numbers some bean fields in eastern area. (Brubaker, Greenwood, Hofmaster). NORTH CAROLINA - Light to heavy spotty infestations in commercial lettuce fields in Pasquotank County. (Scott).

EUROPEAN EARWIG (Forficula auricularia) - WASHINGTON - Abundant in pea pods and corn. Troublesome around homes and gardens near Anacortes and Friday Harbor. (Kamal).

MEXICAN BEAN BEETLE (Epilachna varivestis) - VIRGINIA - Light to moderate on lima beans and light to heavy on snap beans in eastern area. (Brubaker, Greenwood, Hofmaster). NORTH CAROLINA - Continues to damage beans in local area of Duplin County. (Reid).

SLUGS - OREGON - Reappearing after a period of quiescence in Willamette Valley and laying eggs in old bean yards near Eugene. (Crowell).

WIREWORMS - NEVADA - Causing considerable damage to 30 acres of potatoes in Lyon County in Dayton area. (Gallaway).

POTATO PSYLLID (Paratrioza cockerelli) - NEBRASKA - Damaging tomato plants in Clay County. (Roselle). WYOMING - Severe damage on potatoes due to disease in vicinity of Pine Bluffs. (Shockley, Spackman).

POTATO LEAFHOPPER (Empoasca fabae) - WYOMING - Light infestation on potatoes near Pine Bluffs. (Shockley, Spackman).

FLEA BEETLES - VIRGINIA - Injuring potatoes eastern area. (Brubaker, Greenwood, Hofmaster).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - FLORIDA - Heavily infesting eggplant at LaCrosse, Alachua County. (Denmark).

MELON FLY (Dacus cucurbitae) - CALIFORNIA - Inspections totaling 20,842 of 5176 traps in Los Angeles County failed to show any flies. No flies have been captured since the single specimen collected July 24. (Cal. Coop. Rept., Sept. 14).

ASPARAGUS BEETLE (Crioceris asparagi) - WASHINGTON - Second brood larvae causing considerable damage to young shoots and mature plants near Toppenish and Wapato. (Kamal).

LEAF MINERS - WASHINGTON - Causing considerable damage to raspberry leaves in Friday Harbor. (Kamal, Baker).

STRAWBERRY LEAF ROLLERS - VIRGINIA - Generally infesting strawberries in eastern area. (Brubaker, Greenwood, Hofmaster).

COTTON INSECTS

BOLLWORMS (Heliothis spp. et al.) - ARIZONA - Infesting up to 50 percent of plants in two fields south of Eloy, Pinal County, September 15, and up to 40 percent in same area on September 19. (Ariz. Coop. Rept.). CALIFORNIA - Continues a problem in Kern County, especially in flowering fields. Losing importance in many maturing fields. (Cott. Lett. Sept. 13).

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - Of 49 green bolls examined in Frederick area, 14 infested with larvae, yielding 22 live larvae and 4 pupae. Of 50 open bolls examined in McClain County, one infestation with two live larvae found. Fifty green bolls in McClain County showed two infestations with two live larvae. (Hatfield, Senette). Forty-five gin stand inspections in 23 leading cotton-producing counties during week of September 10 yielded 58 dead larvae. Nineteen lint cleaner inspections in same counties produced three dead larvae while inspection of over three bushels of gin trash yielded two dead larvae. (PBW Cont. Proj., et al.).

LEAFWORMS - LOUISIANA - Trichoplusia ni, Heliothis zea and Alabama argillacea continue to cause considerable defoliation of cotton in Natchitoches Parish. (Oliver). CALIFORNIA - Foliage feeders, Auto-grapha spp., Estigmene acrea and Udea rubigalis, present in many fields in Kern County but are not seriously damaging cotton at present. (Cott. Lett., Sept. 13).

COTTON APHID (Aphis gossypii) - CALIFORNIA - Very seriously damaging cotton fiber in areas of San Joaquin Valley. More abundant than during past two seasons in Kern County. Honey dew drip and mold reducing grade in Old River area. (Cott. Lett., Sept. 13).

SPIDER MITES - NEVADA - Control required on 140 acres of cotton in Nye County in Pahrump Valley. Infestations generally local. (Gallaway). ARIZONA - Mild to severe infestations of Tetranychus atlanticus in four fields near Eloy, Pinal County, Sept. 19. (Ariz. Coop. Rept.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE MOTH (Rhyacionia frustrana) - NORTH CAROLINA - Local, severe infestation on pines in Johnston County. (Barnes, Farrier).

SAWFLIES - MARYLAND - Infestation of 95 percent of ornamental pines in Queen Annes County. Infestation heavy. (U. Md., Ent. Dept.).

TURPENTINE BEETLES - TEXAS - Continues to damage pines in Liberty, Hardin, Jasper and Newton Counties and in Sam Houston and Sabine National Forests. (Texas For. Pest Comm.). FLORIDA - Adults of Dendroctonus terebrans active in small area of slash pines near Welaka, Putnam County. (Denmark, Sept. 14).

IPS BEETLES - TEXAS - Damaging scattered merchantable pines through eastern area. (Texas For. Pest Comm.). ARKANSAS - Isolated trees or clumps of pines infested in Scott and Logan Counties. Damage heaviest in decadent trees in southern part of Logan. (Warren).

VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - VIRGINIA - Defoliating oaks, primarily white oaks, some areas of Chesterfield, Henrico and Hanover Counties. Infestations severe. Second brood. (Matheny).

ORANGE-STRIPED OAKWORM (Anisota senatoria) - RHODE ISLAND - Last instar feeding heavily with up to 10 percent damage some areas. Major damage over. (Stoner). MARYLAND - Damaging oaks in Baltimore County. (U. Md., Ent. Dept.). VIRGINIA - Attacking oaks in an area of Appomattox County. (Smith, Rowell).

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - In town-state programs 16,000 acres were sprayed while 3500 acres of woodlands were not sprayed and were defoliated 50 percent or more during season. (Turner).

EUROPEAN ELM SCALE (Gossyparia spuria) - NEBRASKA - Nymphs migrating to twigs. Populations high in central area, averaging 1-2 per bud axil on infested trees. (Roselle).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - WISCONSIN - Adults continue to emerge and feed in southern area. (Wis. Ins. Bul.).

POPLAR TENT MAKER (Ichthyura inclusa) - VIRGINIA - Defoliating poplars one locality in Montgomery County. (Amos).

APHIDS - WISCONSIN - Larval populations on weeping willow trees quite general. (Wis. Ins. Bul.).

FALL WEBWORM (Hyphantria cunea) - WEST VIRGINIA - Heavy infestation in redbud in Greenbrier County. (Dorsey, Hansen).

JAPANESE BEETLE (Popillia japonica) - RHODE ISLAND - Damage still severe in wide range of hosts and could increase with temperature rise. (Stoner).

BLACK VINE WEEVIL (Brachyrhinus sulcatus) - RHODE ISLAND - Larvae causing damage to roots of yew cuttings in nurseries at Middletown. (Mathewson).

CITRUS WHITEFLY (Dialeurodes citri) - VIRGINIA - Medium on gardenias at Hampton. (Adams).

A MEALYBUG (Pseudococcus cuspidatae) - RHODE ISLAND - Moderate to heavy spot infestation on yew cuttings in nurseries at Middletown. (Mathewson).

AZALEA LACE BUG (Stephanitis pyrioides) - MARYLAND - Adults and nymphs damaging azaleas, Prince Georges County. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - UTAH - Quite well under control in Weber County after 200 acres sprayed using aircraft, 1200 acres sprayed with ground equipment and 1250 gallons used in fogging. Still annoying scattered localities and outbreaks may still occur. (Fronk, Knowlton). Annoyingly abundant particularly Aedes dorsalis, at Salt Lake and adjacent areas following flooding for duck hunting season. (Knowlton). RHODE ISLAND - First confirmed report of equine encephalomyelitis of season in commercial pheasant flock with loss of 700-800 birds at West Greenwich. Confirmed infection in specimens of chucker partridge, hawk, sparrow, chicken and a random sample of wild birds. (Grennan). NORTH CAROLINA - Aedes sollicitans in large numbers in Dare County from Stumpy Point to Manns Harbor. An outbreak of Psorophora howardi in Dare County. (Cromroy).

BED BUG (Cimex lectularius) - SOUTH CAROLINA - Marked increase in populations in households of Berkeley County. (Nettles).

SCREW-WORMS - SOUTH CAROLINA - Cattle and deer severely infested on some of the Sea Islands. (Jenkins, Nettles). VIRGINIA - Infestation, probably Callitroga macellaria, in wounds of dog in Fredericksburg. (Brumble).

STABLE FLY (Stomoxys calcitrans) - RHODE ISLAND - Annoying to animals in pastures but populations decreasing slightly. (Stoner). OKLAHOMA - From 30-40 per animal on untreated dairy cattle in Payne County. (Coppock).

HORN FLY (Siphona irritans) - OKLAHOMA - Averaged 2000 per cow and 800-1000 per calf in Major County. (Coppock). TEXAS - Heavy infestations on cattle in Montgomery County. (Garner).

STORED PRODUCTS INSECTS

STORED GRAIN INSECTS - TEXAS - Sitophilus oryza, Oryzaephilus surinamensis and Tribolium confusum infesting a 15,000 bushel bin of sorghum in Brazos County. (Garner).

Survey of Stored Products Insects in Peanuts, Oklahoma

Survey of 15 warehouses showed light to moderate infestations and damage by counties as follows: INDIAN-MEAL MOTH light in Seminole and Okfuskee, and very light in Lincoln and Hughes and medium in Pontotoc. BLACK CARPET BEETLE very light in Seminole, heavy one premise in Lincoln, medium in Okfuskee and light damage in one premise of Hughes. MEDITERRANEAN FLOUR MOTH very light damage in Seminole, light in two premises each of Hughes and Pontotoc, medium in three premises of Lincoln and heavy but reduced by fumigation in Okfuskee. Braconids numerous all locations. (Coppock, Meharg).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - SOUTH CAROLINA - Many samples showing infestations. (Siedschlag, Sept. 10).

BENEFICIAL INSECTS

LACEWINGS - ARKANSAS - Unusual number of adults present in cotton and soybean fields of Arkansas River Valley. (Warren).

MISCELLANEOUS INSECTS

OLD HOUSE BORER (Hylotrupes bajulus) - MARYLAND - Damaging timbers in home, Hagerstown, Washington County. (U. Md., Ent. Dept.).

TERMITES - NEBRASKA - Emergence of reproductive forms numerous in eastern area. (Roselle).

BOXELDER BUG (Leptocoris trivittatus) - WEST VIRGINIA - A bushel collected from one side of one house in Greenbrier and Harrison Counties. (Dorsey, Hansen). VIRGINIA - Congregating in large numbers about homes in Floyd County. (Talley).

A FUNGUS GNAT (Bradysia picea) - MISSISSIPPI - Large numbers of adults, probably of this species, reported from Lauderdale and Wayne Counties recently. (Hutchins).

ADDITIONAL NOTES

PENNSYLVANIA - BAGWORM very heavy on junipers, arborvitae and deciduous trees in Armstrong, Beaver and Butler Counties. LARDER BEETLE in shipments of hides in Lawrence County in sufficient numbers to warrant control, Sept. 13. SLUGS causing heavy damage to commercial plantings of cauliflower in Potter County, Sept. 10. SYMPHYLIDS heavily infesting six acres of sweet corn in Lawrence County. LOCUST LEAF MINER heaviest in many years on locust trees in northwestern area. A SAWFLY heavily infesting dogwood in Mercer County, Sept. 10. (Adams). EUROPEAN CORN BORER infesting 40 percent of ears of sweet corn in Wyoming County, Sept. 11. APPLE MAGGOT light to moderate in apples where late cover sprays not used in northeastern area. (Gesell).

IDAHO - Adult and nymphal populations of BEET LEAFHOPPER in Upper Snake River Valley on September 4 and 5 averaged 7 and 1.8 per 100 sweeps. Obvious "curly top" averaged 0.58 percent. Heaviest populations found in Aberdeen area with average of 14 adults and 2.7 nymphs per 100 sweeps. Obvious "curly top" in that area was 0.67 percent. Leafhopper populations and incidence of "curly top" in sugar beets in Upper Snake River Valley low. Small third generation larvae of BEET WEBWORM appearing in sugar beets. CORN EARWORM more common in Glens Ferry area than in Burley and Rupert areas (Twin Falls Field Station). Heavy populations of GRASSHOPPERS two miles south of Riggins on rangeland. Population averaged 18 to 20 per square yard of approximately 50 percent Melanoplus mexicanus and 50 percent Phoetaliotes nebrascensis. This infestation occurs in 150,000 acres in Salmon River Drainage area. In Bliss, Shoshone and American Falls area, adults commencing to die off very rapidly. (Evans, Smith).

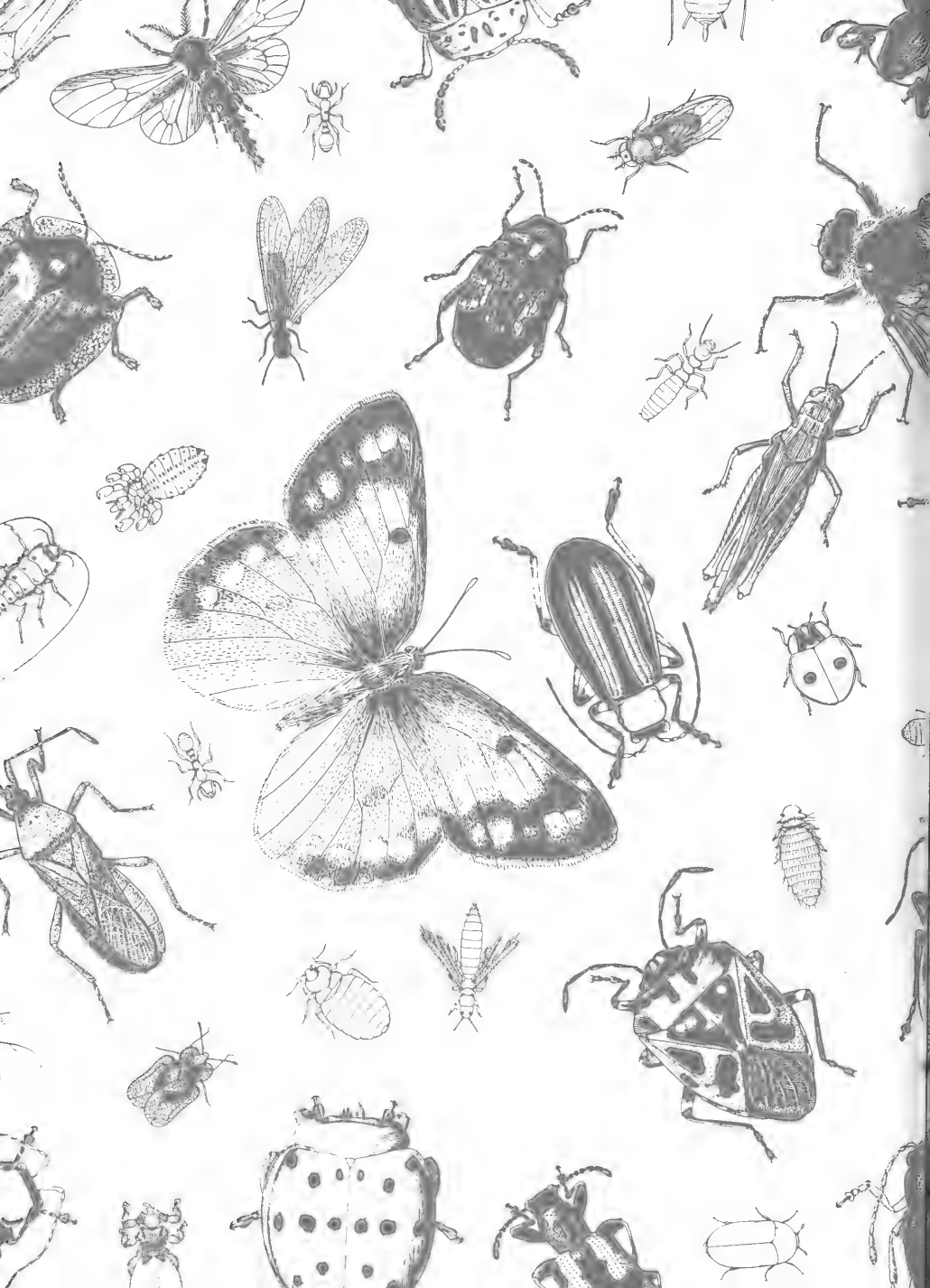
NORTH CAROLINA - SPOTTED ALFALFA APHID collected on alfalfa in Rowan, Cabarrus and Davidson Counties on September 11; Forsyth, Guilford, Rockingham, Stokes, Surry, Yadkin and Davie Counties on September 12; Iradell, Alexander, Catawba, Lincoln, Gaston, Cleveland, Rutherford and Polk Counties on September 13; and McDowell, Burke, Caldwell, Wilkes, Alleghany, and Ashe Counties on September 14. Det. L. M. Russell. (Burkholder).

SOUTH CAROLINA - SPOTTED ALFALFA APHID collected on alfalfa in Cherokee County September 10. Det. L. M. Russell. (Burkholder).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea	Heliothis vires.	Protoparce sexta	Protoparce quinq.	Laphyg. frugip.
COLORADO (Counties)										
Otero 9/15						351				
Weld 9/12						2				
Larimer 9/8						4				
KANSAS										
Manhattan 9/11-15	4	12	24			48				
Hays 9/3-15	16	40	20			424		1		
Garden City 9/13-17	35	230	34			1919				
Goodland 9/10-13	7	12				140				
NEBRASKA (Counties)										
Scotts Bluff 9/9-15	33	89				16		4		
Lincoln 9/4-18	12	270				48				
Lancaster 8/2-8	9	59				53		1	4	
OHIO										
Athenis 9/10-16	4					25				
TENNESSEE (Counties)										
Madison 9/11-17	79	8	60			1530	8	14	1	8
Lawrence	26	8	6			410	10	17	4	4
Maury	6	3	2			47		4		4
Robertson	177	48	196	4		1156	8	76	16	52
Cumberland	82	10	16	4		987		20	9	4
Knox	26	4	17	4		339	1	1		12
Greene	32	7	14	1		98	1	12		5
Blount	6	2	10			98		17	7	18
Marion	7	6	8			193		9		5
Johnson	109	12	60	36		63		1	1	17
VIRGINIA (County)										
Pittsylvania 9/9-15								35	41	
NORTH CAROLINA (Counties)										
Johnston 9/19-20	8	2	7			19		1		1
Duplin 9/19-20	9	1	6		1	12	1		1	
SOUTH CAROLINA (Counties)										
Charleston 9/3-9	22	10	21		39	99	11	24	7	87
Florence 9/3-14	89	24	91	4	118	321	22	22	7	83
Oconee 9/9-15	54	9	65		3	178	2	3	2	17
GEORGIA (Counties)										
*Tift 9/14-20	199	35	38		20	97	5	5	5	135
Spalding 9/14-20	80	19	38	1	24	243	5	6	5	71
FLORIDA										
Monticello 9/11	2	1	3			3		3		
Quincy 9/10		6				11		1		
LOUISIANA										
Curtis 9/10-16	50	12	8		16	280	8	4	16	12
Baton Rouge 9/15-20	51	19	12	2	115	42	4	2		23
ARKANSAS										
Hope 9/3-13		1				10				
Stuttgart 8/30-9/18	29	12		15		279				
Fayetteville 9/1-21	49	108				1540				
TEXAS										
Waco 9/15-21	35	10	45	29	13	166	2			
College Station 9/16-20	4		7			24	3			35
Denton 9/1-15	139	68	51			363	1			3
Weslaco 9/1-15	258	37	73	3		40	7			51
Winter Haven 9/1-15	80	18	20	3		390				9

*Alternate nights only, Tift County



VOL. 6 No. 40

OCTOBER 5, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

STALK BORER survey in areas of Texas shows southwestern corn borer dominant species this year. (p. 959).

SOD WEBWORMS unusually prevalent in Willamette Valley, Oregon. Heavy flights of moths in Missouri. (p. 960).

SPOTTED ALFALFA APHID reported in West Virginia for first time. New county records from Virginia, Tennessee, Iowa, North Carolina and South Carolina. Heavy or damaging infestations, mostly local, reported from eight States. (pp. 961, 970).

Distribution of Brood XIII of PERIODICAL CICADAS in 1956. (p. 964).

MELON APHID prevalent on melons at Yuma, Arizona. (p. 965).

BOLLWORMS continue active on cotton in areas of New Mexico and California. (p. 965).

MAPLE LEAF CUTTER has been unusually heavy in southwestern Vermont. (p. 966).

A WEEVIL (Calomycterus setarius) reported from New Hampshire for first time. (p. 970). Two new records on ERIOPHYID MITES from Washington. (pp. 963, 967). AN APHID (Myzaphis bucktoni) collected in Maine, new North American record. (p. 967).

Distribution of RANGE GRASSHOPPERS (p. 972).

ADDITIONAL NOTES (p. 970).

CORRECTIONS (p. 970).

Reports in this issue are for the week ending September 28 unless otherwise designated.

WEATHER BUREAU'S 30-DAY OUTLOOK

October 1956

The Weather Bureau's 30-day outlook for October 1956 calls for temperatures to average below seasonal normals east of the Mississippi. In the remainder of the country above normal temperatures are predicted, with warmest weather in the Southwest.

Precipitation is expected to exceed normal in the North Atlantic States and in the Gulf Coast region. Near normal amounts are indicated in the Great Lakes region, the Middle and South Atlantic States and the Pacific Northwest. In the rest of the nation, subnormal rainfall is anticipated.

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

WEATHER FOR THE WEEK ENDING OCTOBER 1, 1956

At the beginning of the period the storm which had been hurricane "Flossy" was centered over southern Georgia. Continuing slowly northeastward with decreasing intensity, she crossed the coastal areas of the Carolinas as she drifted out over the Atlantic. "Flossy" was responsible for a belt of precipitation extending from southeastern Louisiana to southern New England, in which totals ranged up to more than 10 inches near the Gulf Coast and tapered off to an inch or less in southern New England. While it is too early to assess the full extent of losses caused by "Flossy" Grand Isle, Louisiana reported winds of 90 to 100 m.p.h., tides over 8 feet, and damage estimated at about \$2,000,000. Total damage in Florida (based on preliminary reports) was somewhat higher, with heaviest losses apparently occurring in the Pensacola area.

Most of the remainder of the Nation received little or no rainfall. No rain at all fell during the week in the Ohio Valley, the eastern portions of the Dakotas and most of Minnesota, from Kansas to central Texas, and in most of the Great Basin of the Far West.

The drought worsened in the Great Plains, and in nonirrigated portions of eastern Colorado 8 counties were designated eligible for drought disaster assistance. Heavy marketing of livestock continued throughout the lower Great Plains as the feed and water situation became more critical. In Kansas the Neosho River has ceased flowing in the northwestern portion of Coffey County. Winds stirred up considerable dust in western Oklahoma and Kansas. Another dry week increased the need for rain in much of the Mississippi Valley. From Iowa to northern Louisiana and Mississippi pastures are poor, seeding is held up, and the forest-fire hazard increased in the latter two states. Iowa reports plowing made little headway, and that wheat seeding is making the slowest progress in 10 years. In Arkansas,

(continued on page 971).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - COLORADO - Recent surveys show infestation expected in 1957 on 1, 195, 000 acres of rangeland and 438, 000 acres of cropland. (ARS, Ext. Serv.). NEW MEXICO - Infesting 2, 504, 420 acres of rangeland according to adult survey and 195, 580 acres of cropland. (GHC Proj.). SOUTH DAKOTA - Numerous in alfalfa, especially in most of northeastern area. One field in northern Marshall County had 40 per square yard, of which 95 percent were Melanoplus femur-rubrum. (Hantsbarger). OKLAHOMA - Decreasing but marginal feeding on crops continues. Range populations in roadsides and margins generally run 1 to 10 per square yard. (Coppock).

EUROPEAN CORN BORER (Pyrausta nubilalis) - SOUTH DAKOTA - Infestations averaging 32 percent in northeast and north central regions. Borers average 73 per 100 plants. Forty percent have reached fifth instar. (Hantsbarger). WEST VIRGINIA - Average of 75.3 per 100 plants in Morgan, Berkeley and Jefferson Counties; 27 per 100 in Nicholas County (Dorsey, Hansen). RHODE ISLAND - High infestation of second brood with greatest damage to sweet corn. As many as 25 late instars per plant (including suckers). (Stoner). MISSISSIPPI - Larvae collected from corn plants in Carroll County. (Henderson).

CORN EARWORM (Heliothis zea) - UTAH - Damage still common in sweet corn in north central area. (Knowlton). WEST VIRGINIA - Very light in corn in Jefferson, Berkeley and Morgan Counties. (Dorsey, Hansen). RHODE ISLAND - Second brood not too active but heavy in 20 acres of late corn in northern area. (Stoner). LOUISIANA - Twenty to 60 per 100 sweeps in alfalfa in Bossier and East Carroll Parishes. (Oliver). OKLAHOMA - Very light in most alfalfa. Two per head in sorghum in isolated fields in southwestern area. (Coppock).

Stalk Borer Survey

TEXAS - Surveys from August 20 to September 14 in northeast and panhandle areas showed southwestern corn borer (Zeadiatraea grandiosella) was dominant species of stalk borer in corn in these areas this year. Twelve of 27 counties in northeast showed infestation. Some counties having highest infestations were Cherokee 32 percent, Red River 20, Titus 24, Morris 16. Infestations were found in all but 4 of 23 panhandle counties with infestations in infested counties averaging from 2 to 96 percent. (Turney).

FALL ARMYWORM (Laphygma frugiperda) - TEXAS - Light infestation on peanuts in Madison County. (Garrett). OKLAHOMA - Generally light in alfalfa, 2-14 larvae per 10 sweeps in southern and western counties. (Coppock).

FALSE WIREWORMS (Eleodes spp.) - KANSAS - Non-economic populations in 6 central counties. (Matthew, Gates). OKLAHOMA - Survey in several wheat fields in Ponca City-Blackwell-Tonkawa area showed only 1 larva. No white grubs found. (Henderson).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Scattered in sorghum in western area but thousands per plant in late-planted fields. (Coppock).

JAPANESE BEETLE (Popillia japonica) - MARYLAND - Numerous reports of grub damage to turf in Prince Georges, Montgomery and Baltimore Counties. (U. Md., Ent. Dept.).

WHITE GRUBS (Phyllophaga sp.) - SOUTH DAKOTA - Damaging lawns and golf turfs in Marshall and Roberts Counties. (Hantsbarger).

SOD WEBWORMS - OREGON - More prevalent in Willamette Valley than for several years. Damage in a number of grass seed fields. Lawns at Roseburg attacked. Some damage also in Union County. (Dickason, Every). MISSOURI - Heavy flights of webworm moths in central and south central areas. (Kyd, Thomas).

RICE WEEVIL (Sitophilus oryza) - MISSOURI - Light field infestation in corn in some southeastern counties. (Adkisson).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - MISSOURI - Light to heavy field infestation in corn throughout eastern half of State with heaviest infestations in southeastern area and lighter in northeastern area. (Adkisson, Spangler, Thomas).

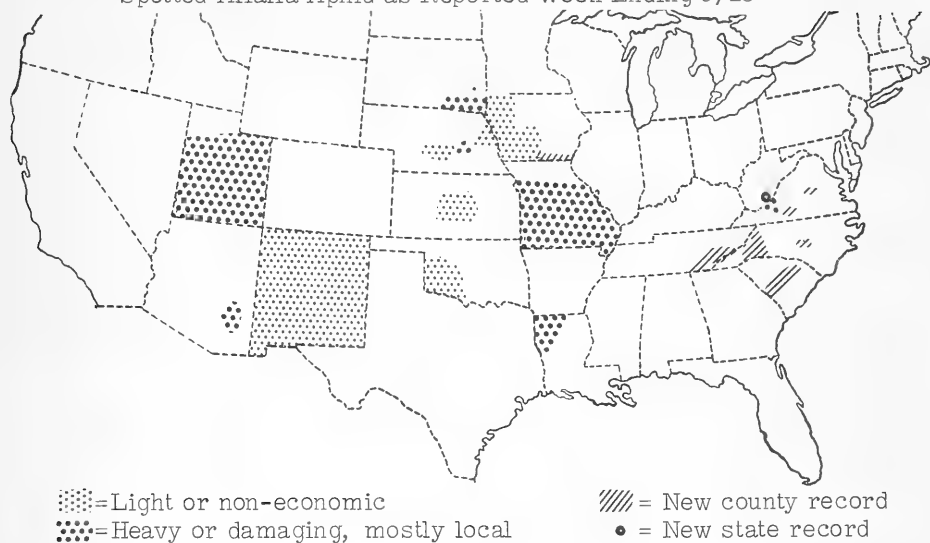
SOUTHERN BEET WEBWORM (Pachyzancla bipunctalis) - FLORIDA - Average of 50 larvae per square foot on lawn grass at Seffner, Hillsborough County, September 13. (Pettigrew).

ASIATIC GARDEN BEETLE (Autoserica castanea) - NORTH CAROLINA - As many as 15-25 larvae per square foot in two acres of bluegrass-white clover pasture in infested area. Large numbers have survived relatively dry summer. (Jones, Farrier).

YELLOW CLOVER APHID (Pterocallidium trifolii) - VIRGINIA - Very light infestation in Amherst and Prince George Counties. Determined by L. M. Russell. (Morris, Manglitz). WEST VIRGINIA - Note under APHIDS CEIR 6(38): 924 refers to this species. (Dorsey).

PEA APHID (Macrosiphum pisi) - SOUTH DAKOTA - Heavy some areas. One field in Clark County had 300 per sweep. (Hantsbarger). UTAH - Damaging a few alfalfa fields in northern area. (Knowlton). MISSOURI - Low numbers, 1-12 per sweep, appearing on alfalfa in west central and northwest areas. (Kyd, Thomas).

Spotted Alfalfa Aphid as Reported Week Ending 9/28



SPOTTED ALFALFA APHID - NEW MEXICO - Remains light over State. (Durkin). ARIZONA - Abundant in alfalfa in Safford area, Graham County. Honeydew becoming heavy. (Ariz. Coop. Rept.). UTAH - Increasing in scattered areas. Damaging alfalfa in some fields as far north as Salt Lake County. (Knowlton). SOUTH DAKOTA - Some damage reports from more heavily infested southern counties. No new areas of infestations this week. (Hantsbarger). IOWA - Collected across State in bottom of tier of counties. In some areas, for example Wayne on southern border and Lyon and Cherokee in northwest corner, specimens easily collected whereas in other counties very intensive sweeping, sometimes of numerous alfalfa fields, was necessary before the aphid was found. (Harris). OKLAHOMA - Continues to build up in isolated irrigated fields in southwestern area, however still light with no more than 450 aphids per 10 sweeps. Heavy build up of lady beetles in a few fields. (Coppock). Generally light in McClain and Garwin Counties but increasing in a few fields. (Meharg). KANSAS - Non-economic to light in alfalfa in 7 central counties, 10-160 per sweep. (Matthew, Gates). MISSOURI - Locally heavy infestations continue to increase in numbers and damage in scattered fields over southern two-thirds of State, from 5-1500 aphids per sweep. Heavily infested fields showing considerable honeydew. Predator populations very low. (Kyd, Thomas). LOUISIANA - Remains heavy in many fields of alfalfa in northwest area. Heavy damage in several fields, complete defoliation. Insecticides applied in a few fields. Good biological control by heavy populations of beneficial insects. (Oliver). TENNESSEE - Collected in Blount, Sevier, McMinn, Meigs and

Hamilton Counties. (Mullett, App). WEST VIRGINIA - Very light infestation on alfalfa in Greenbrier County, September 19. Determined L. M. Russell. New State record. (Dorsey, Hansen). VIRGINIA - Heavy in 3 or 4 fields in Roanoke and Montgomery Counties where low last week. Populations very erratic. (Evans). Collected in Chesterfield and Pulaski Counties. (Morris, Manglitz). SOUTH CAROLINA - Collected in Richland, Kershaw, Saluda, Laurens, and Aiken Counties. (Burkholder, App). NORTH CAROLINA - Collected in Yancey, Watauga, Avery, Haywood, Henderson, Madison, Buncombe, Transylvania and Randolph Counties. (App).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - ARIZONA - Adults very abundant, 1 per square yard, at Safford, Graham County. (Ariz. Coop. Rept.). UTAH - Moderate damage to alfalfa in some fields. Heavy populations of adults in occasional field. (Knowlton).

POTATO LEAFHOPPER (Empoasca fabae) - VIRGINIA - Heavy in alfalfa in Madison County; yellowing in edges of 2 fields where populations 7-30 per sweep. (Morris).

CLOVER ROOT CURCULIO (Sitona hispidula) - VIRGINIA - Damage to alfalfa roots heavy in one Madison County field. (Morris).

A WEEVIL (Sitona scissifrons) - SOUTH DAKOTA - Showing up in alfalfa in northeast region but light, averaging 2 beetles per 10 sweeps. (Hants.).

PLANT BUGS - SOUTH DAKOTA - Lygus bugs numerous in some alfalfa fields. One field in Brown County had 15 per 10 sweeps. (Hantsbarger). ARIZONA - Lygus bugs remain high on alfalfa in Yuma area on fields not regularly treated. Three to ten per sweep in these fields. (Ariz. Coop. Rept.). UTAH - Adelphocoris superbus has been above normal in alfalfa in several counties. (Knowlton).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - WEST VIRGINIA - From 0.1 to 0.5 per sweep in Berkeley, Jefferson, Mason, Pocahontas and Cabell Counties. (Dorsey, Hansen).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - UTAH - Abundant in alfalfa in Washington and Kane Counties. (Knowlton). LOUISIANA - Continues to build up in alfalfa in several areas; 40-650 per 100 sweeps, mainly nymphs. (Oliver).

BEEF ARMYWORM (Laphygma exigua) - ARIZONA - One to 2 per sweep on alfalfa at Yuma. Also damaging about 5 acres of young corn in this area. (Ariz. Coop. Rept.). LOUISIANA - This species and beet armyworm continue to infest alfalfa in Bossier and East Carroll Parishes, 50-200 per 100 sweeps. (Oliver).

A WEBWORM (Loxostege sp.) - MARYLAND - Moderate damage to new seeding of alfalfa in Baltimore County. (U. Md., Ent. Dept.).

BAGWORM(Thyridopteryx ephemeraeformis) - GEORGIA - Larvae feeding heavily on foliage of peanuts in small area in 16-acre field in Irwin County, September 5. (Morgan).

FRUIT INSECTS

ORCHARD MITES - NEW MEXICO - Building up on apples in Lincoln, Rio Arriba, Bernalillo and Valencia Counties. (Durkin, Sept. 22).

WASHINGTON - An eriophyid, Calepitrimerus baileyi, collected on apple at Pullman, Aug. 28. Typical russetting of leaves. First record reported for State. (Kamal).

WOOLLY APPLE APHID (Eriosoma lanigerum) - NEW MEXICO - Building up heavy infestations in orchards throughout State. (Durkin, Sept. 22).

APPLE AND THORN SKELETONIZER(Anthophila pariana) - WASHINGTON - Considerable damage to apple leaves Friday Harbor vicinity. (Baker, Kamal).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - OREGON - Damaging fruit and foliage of unsprayed apple orchards near Corvallis. (Jones).

PEACH TREE BORER (Sanninoidea exitiosa) - VIRGINIA - Damaging lower trunk and roots of peach and plum trees one area of Roanoke County. (Rowell).

PECAN NUT CASEBEARER (Acrobasis caryae) - GEORGIA - Late-season generation feeding in pecan shucks in Peach, Lee and Dougherty Counties. (Osburn, Sept. 18).

FALL WEBWORM (Hyphantria cunea) - SOUTH CAROLINA - Numerous on black walnut, pecan and wild cherry trees in Clemson area. (Anderson). Very serious on old pecan trees in Manning. (Ferree).

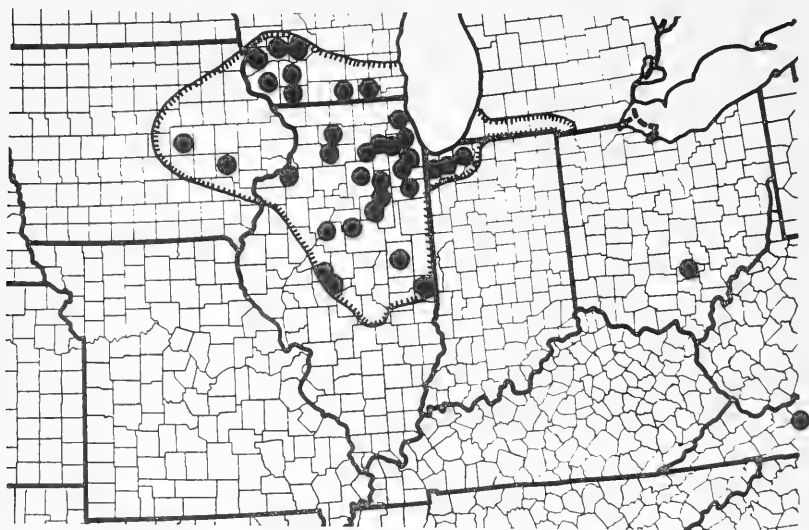
BLACK PECAN APHID (Melanocallis caryaefoliae) - GEORGIA - Heavy infestation developing in some pecan orchards in Dougherty and Lee Counties. (Osburn, Sept. 18).

BLACK-MARGINED APHID (Monellia costalis) - ARIZONA - Heavy infestations in pecan in Maricopa and Graham Counties. (Ariz. Coop. Rept.).

WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) - ARIZONA - Larvae continue abundant on limited grape plantings in Tucson. (Ariz. Coop. Rept.). NEW MEXICO - Infestation reported in CEIR 6(38): 929 as a leaf skeletonizer, Harrisina sp. identified as Harrisina brillians. (Durkin).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - CALIFORNIA - No infestations discovered in survey with 1107 traps in 41 counties. (Cal. Coop. Rept. , Sept. 21).

Distribution of Brood XIII of Periodical Cicadas* in 1956



----- Area expected to occur

● 1956 records

*Magicicada septendecim and M. cassinii were involved. Both are 17-year forms. Records and map by T. E. Moore.

APPLE MAGGOT (Rhagoletis pomonella) - WISCONSIN - Particularly heavy in many locations. Heavily-infested fruit not harvested from many unsprayed trees. (Smith).

TRUCK CROP INSECTS

TOMATO FRUITWORM (Heliothis zea) - COLORADO - Reached an average of 28 eggs per 100 tomato leaves in Prowers, Bent, Otero and Pueblo Counties. Almost three times infestation of previous week, with an average of 9.5. (Exp. Sta.).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - RHODE ISLAND - Heavy infestation on tomatoes, feeding on foliage and fruits. Apparently migrating from harvested potatoes. (Stoner).

A SPIDER MITE (Tetranychus marianae) - TEXAS - Killed about five acres of young tomatoes in Rio Grande City area. Sixty more acres severely infested. Reported in San Benito area. (Wene).

HARLEQUIN BUG (Murgantia histrionica) - VIRGINIA - Medium on lima beans in Amherst area. (Ross, Wilkins).

POTATO APHID (Macrosiphum solanifolii) - WISCONSIN - Populations increased rapidly just before frost in Kenosha-Racine County area. (Smith).

SOUTHERN GREEN STINK BUG (Nezara viridula) - VIRGINIA - Medium on pole lime beans in an Amelia County area. (Boozer).

LIMA-BEAN POD BORER (Etiella zinckenella) - IDAHO - Light infestation in lima beans harvested at Parma. (Scott).

MELON APHID (Aphis gossypii) - ARIZONA - Prevalent on melons in Yuma area. Some fields dusted every five days. Not yet moving into cotton. (Ariz. Coop. Rept.).

IMPORTED CABBAGEWORM (Pieris rapae) - KENTUCKY - Still serious on broccoli in southwestern area. (Rodriguez).

CABBAGE LOOPER (Trichoplusia ni) - NEW MEXICO - Light in fall lettuce in Dona Ana County. Most fields treated. (Durkin, Sept. 22). TEXAS - A problem in every cabbage field in Hidalgo County. (Wene). SOUTH CAROLINA - Damaging collards in Lexington County, Sept. 22. (Nettles). LOUISIANA - Average 12 larvae and eight eggs per broccoli plant in Concordia Parish. (Oliver).

LEAFHOPPERS (Empoasca sp.) - LOUISIANA - Infesting sweetpotato foliage at 338 per 100 sweeps in St. Landry Parish, 85 per 100 sweeps in East Baton Rouge Parish and 128 per 100 sweeps in East Feliciana Parish. (Oliver).

RASPBERRY ROOT BORER (Bembecia marginata) - WASHINGTON - Adults emerging by first week of September in San Juan Island and a few eggs collected in Friday Harbor, Sept. 17. (Kamal, Baker).

COTTON INSECTS

BOLLWORMS (Heliothis spp. et al.) - NEW MEXICO - Light to medium infestations, depending on control measures, in Dona Ana, Eddy and Chaves Counties. (Durkin, Sept. 22). CALIFORNIA - Very active throughout Imperial Valley. Hatching continuing and many buds and small bolls being damaged. Adults noticeable in fields and predator activity good in some fields not recently sprayed. (Cott. Lett., Sept. 20).

PINK BOLLWORM (Pectinophora gossypiella) - NEW MEXICO - Light damage in several fields in southern Dona Ana County, moderate to severe in two fields. (Durkin, Sept. 22).

STINK BUGS - CALIFORNIA - Large populations still persist in Imperial Valley in untreated fields. (Cal. Coop. Rept.).

PLANT BUGS - NEW MEXICO - Lygus sp. and Adelphocoris sp. medium to heavy in cotton and alfalfa in Dona Ana County. (Durkin, Sept. 22). CALIFORNIA - Lygus spp. rapidly increasing in importance throughout Imperial Valley with large nymphal populations in many areas. (Cott. Lett., Sept. 20).

COTTON LEAF PERFORATOR (Bucculatrix thurberiella) - ARIZONA - Injurious to cotton at Yuma in fields not regularly treated. Damage will probably reduce top crop in some fields. (Ariz. Coop. Rept.). CALIFORNIA - Still building up in Imperial Valley with feeding damage noticeable in all areas, heaviest in north end. (Cott. Lett., Sept. 20).

CABBAGE LOOPER (Trichoplusia ni) - CALIFORNIA - Large numbers of eggs and larvae throughout Imperial Valley. Control necessary in some late-planted fields. (Cott. Lett., Sept. 20).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

INTRODUCED PINE SAWFLY (Diprion similis) - NEW HAMPSHIRE - Has been very common on white pine. (Conklin).

RED-HEADED PINE SAWFLY (Neodiprion lecontei) - VIRGINIA - Damaging white pine trees in Bedford County. (Boone, Rowell). Larvae, probably this species, light on pine trees in Shenandoah County. (Coiner).

NANTUCKET PINE MOTH (Rhyacionia frustrana) - VIRGINIA - Damage light and spotted on pines in Hampton area. (Adams). Larvae, probably this species, damaging pines in one area of Amelia County. (Holmes).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - KENTUCKY - Damaging Austrian pines in Campbell County. (Price).

ORANGE-STRIPED OAKWORM (Anisota senatoria) - VIRGINIA - General and damaging oak leaves in Lunenburg County. (Peery). Light and spotted on oaks in Norfolk County and reported from Danville, Pittsylvania County. (Rowell). RHODE ISLAND - Pupation increasing and damage lessening. (Stoner).

ELM LEAF BEETLE (Galerucella xanthomelaena) - NORTH CAROLINA - General throughout Nash County, with many trees severely defoliated. (Jones).

A BUPRESTID (Chrysobothris sp. prob. mali) - IDAHO - Infesting young maple trees in a nursery at Twin Falls. Some older trees infested. (Twin Falls Field Sta.).

MAPLE LEAF CUTTER (Paraclemensia acerifoliella) - VERMONT - Has been unusually heavy in maples in southwestern area of State. Controls applied in one instance. (Scott).

OBSCURE SCALE (Chrysomphalus obscurus) - VIRGINIA - Killing branches of red maple in Franklin, Southampton County. (Amos).

BRONZE BIRCH BORER (Agrius anxius) - SOUTH DAKOTA - Damaging white birch many areas in Brookings vicinity. (Hantsbarger).

MIMOSA WEBWORM (Homadaula albizziae) - VIRGINIA - Extremely heavy in Danville, Pittsylvania County. (Rowell).

SYCAMORE LACE BUG (Corythucha ciliata) - FLORIDA - Nymphs and adults averaging 10 per leaf of two sycamore trees inspected at Gainesville, Alachua County. (Esser). WEST VIRGINIA - Heavy on sycamore trees in Berkeley and Jefferson Counties. (Dorsey, Hansen).

SCALE INSECTS - FLORIDA - Aspidiotus destructor and Chrysomphalus anidum nymphs and adults heavily infesting coconut palms at Miami, Dade County. Many lower fronds being destroyed. (Wolfenbarger).

SADDLED PROMINENT (Heterocampa guttivitta) - NEW HAMPSHIRE - Defoliation on 500 acres was observed in Merrimac County. (Conklin).

Insect Pest Situation, Shelterbelts of Oklahoma

In southwestern and western areas checked for insect populations, showed many trees dying from drought and others in poor condition.

BUPRESTIDS in many elm trees and some cottonwoods. ENGRAVER BEETLES quite extensive in honeylocust, black locust, Chinese elms and cottonwoods. POWDER POST BEETLES most evident in honeylocust and BARK BEETLES numerous in dead and dying cottonwoods, elms and honeylocusts. TERMITES in some dead cottonwoods. Predators of bark beetles common on many cottonwoods. (Coppock).

AN APHID (Myzaphis bucktoni) - MAINE - Collected on swamp rose at Presque Isle September 8, by Hille Ris Lambers. New North American record. (Simpson).

SPIDER MITES - VIRGINIA - Damaging boxwoods at a Brunswick County locality. (Rowell, Marshall). MISSISSIPPI - Infestation of Tetranychus sp. injuring liveoak leaves in Warren County. (Hutchins).

AN ERIOPHYID MITE (Vasates masalongoi) - WASHINGTON - Adults in considerable numbers on undersides of lilac leaves, Aug. 28. Det. H. H. Keifer. First report for Washington. (Telford, Kamal).

GIANT HORNET (Vespa crabro germana) - VIRGINIA - Damaging ornamentals in Scott County. (Barlow).

HOLLY LEAF MINER (Phytomyza ilicis) - OREGON - Infesting leaves of non-commercial holly plantings at Astoria, Sept. 27. Extension of range 100 miles since discovered in 1955. (Larson).

Forest Insect Situation, Southeastern United States

TURPENTINE BEETLES especially active in northeastern Florida and southern Georgia. Elongating shoots of slash pines severely attacked by A CONEWORM (Dioryctria sp.) with as many as 70 percent of growing tips of pulpwood size and larger trees killed in southern Georgia. Increasing reports of pinhole damage to yellow-poplar by COLUMBIAN TIMBER BEETLE in southwestern Virginia and on the Grandfather Ranger District near Lenoir, North Carolina. Overall infestation of 5-10 percent estimated for area. (S.E. For. Ins. & Dis. Newsl.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - RHODE ISLAND - Case of equine encephalomyelitis reported in a horse at Charlestown. (Grennan).

TABANIDS - FLORIDA - Adults averaging ten per hour at Johns Bluff, Duval County. (Mead, Sept. 11). OKLAHOMA - Tabanus sulcifrons, T. abactor larval counts very low in Stillwater area for this time of year. T. atratus larvae abundant and Chrysops sp. larvae common in Payne, Logan and Noble Counties. (Anthony).

CATTLE GRUBS - OKLAHOMA - A check of cattle at Oklahoma City stock yards showed no live grubs present. Carcasses of 141 aged cows inspected showed no live grubs and less than one dead grub per animal. (Coppock).

STORED PRODUCTS INSECTS

CONFUSED FLOUR BEETLE (Tribolium confusum) - IDAHO - Heavy infestation in open bin of mixed grain stored at Eden. (Twin Falls Field Sta.).

CADELLE (Tenebroides mauritanicus) - SOUTH DAKOTA - Infestation of larvae in stored wheat in Roberts County. (Hantsbarger).

INDIAN-MEAL MOTH (Plodia interpunctella) - VIRGINIA - Larval infestation medium in farm-stored wheat in Antioch, Fluvanna County. (Amos, Smith, Rowell).

BENEFICIAL INSECTS

A PHYCITID (prob. Laetilia coccidivora) - NORTH CAROLINA - Larvae feeding on Toumeyella liriodenri in local areas of Wayne and McDowell Counties, with 8-11 larvae per six inches of twig of tuliptree in some infestations. (Kirkman, Rabb, Farrier).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea	Protoparce vires.	sexta quinq.	Laphyg. frugip.
KANSAS									
Manhattan 9/22-28		20				476			
Wathena 9/14-19	30	16				582			
Hays 9/16-23	5	24				222			
Garden City 9/21-26	28	79				654			
Goodland 9/21-25		17				42			
TENNESSEE (Counties)									
Shelby 9/18-24	42	78	27			183	21	15	6
Lawrence	4	11	4	1		22	6	5	
Maury	20	7	12			155	3	3	9
Robertson	20	14	76	4		196	6	6	8
Cumberland	35	7	5	1		273	2	1	1
Knox	7	4	4	2		47			7
Greene	31	3	15	2		96	8	2	
Johnson	107	21	15	12		137			5
MARYLAND (County)									
Montgomery 9/19-26		1		5		13			3
VIRGINIA (County)									
Pittsylvania 9/15-21							24	21	
SOUTH CAROLINA (Counties)									
Charleston 9/10-16	76	10	13		15	58	4	4	56
Oconee 9/16-22	24	6	36	2	2	109	1	5	5
Florence 9/15-21	207	10	115	2	133	350	6	11	25
GEORGIA (Counties)									
Tift 9/21-27	139	21	17		23	18	1	7	1
Spalding 9/21-27	78	8	30		20	114		3	2
Clarke 9/21-29		7						2	2
FLORIDA									
Belle Glade 9/11						7			
Monticello 9/18	3	2	1			1		2	
Quincy 9/17		4			3	7		1	
Gainesville 9/20	1		1		3	6			
LOUISIANA									
Curtis 9/17-23	208	112	56		56	424		8	144
Baton Rouge 9/21-28	58	27	20		75	72		2	54
Franklin 9/20-27	46		32		64	94			44
TEXAS									
College Station 9/24-28	27	5	39			108	5		
Waco 9/22-28	27	25	60	71	54	514	1		96
OHIO									
Athens 9/17-23		1				11			
NEBRASKA (County)									
Lancaster 9/16-22		408				752			

MISCELLANEOUS INSECTS

A FUNGUS GNAT (Bradysia picea) - MISSISSIPPI - Numbers reported from Newton County and in numbers in low lands of Choctaw County. (Murphy).

A WEEVIL (Calomycterus setarius) - NEW HAMPSHIRE - Collected at Walpole, August 4. New State record. (Conklin).

UROPODID MITE - NORTH CAROLINA - Heavy infestation in large commercial earthworm hatchery in Guilford County. (Scott, Farrier).

NORTHERN MOLE CRICKET (Gryllotalpha hexadactyla) - RHODE ISLAND - Quite common in local area of state sanatorium. (Mathewson).

A WHITE-FRINGED BEETLE (Graphognathus sp.) - FLORIDA - Adults averaging 1-2 per plant of coffee weed on a property which was previously treated near Jay, Santa Rosa County. (Tappan, Sept. 20).

CORRECTIONS

CEIR 6(34):859 - CALIFORNIA - Should read A LILY APHID (Macrosiphum scolioi) - M. scolioi has been known on lilies in Oakland and Humboldt Counties for many years; therefore the report is not a new record. (Blanc). It is understood that the taxonomy of this species is under going review.

CEIR 6(37):917 - YELLOW JACKET and FIELD CRICKET notes should be credited to Connecticut.

ADDITIONAL NOTES

OHIO - CORN EARWORM infestation severe in late-planted corn. (C. R. Neiswander).

WISCONSIN - GRASSHOPPERS continue to mate and lay eggs. Melanoplus femur-rubrum heaviest in northwestern counties. CORN EARWORM populations heavy in late, untreated sweet corn. EUROPEAN CORN BORER fall populations less than 50 percent those in 1955 in northeastern and central counties. (Smith).

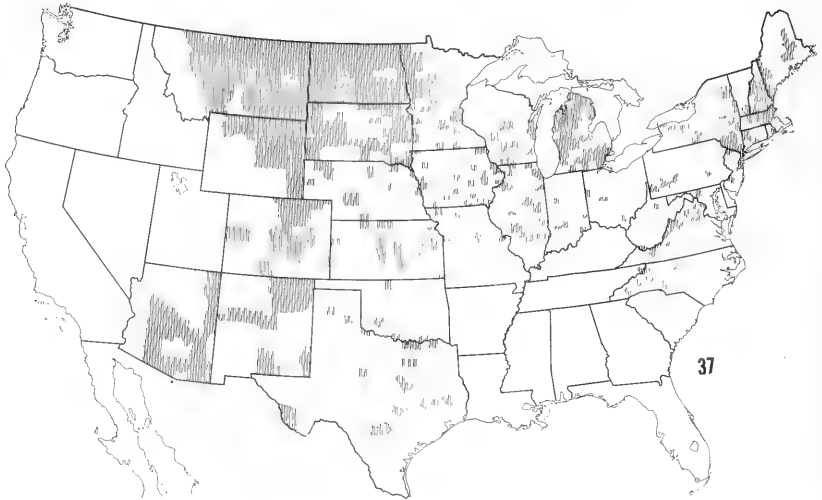
NEBRASKA - SPOTTED ALFALFA APHID building up in Merrick and Polk Counties, with 260-300 per ten sweeps. Honeydew in fields. From 10-25 per ten sweeps in Cuming, Burt, Washington, Douglas and Saunders Counties and counts remain low in middle of Platte Valley. PEA APHID counts still high in Platte Valley area, with 150-233 per ten sweeps. TARNISHED PLANT BUG counts average five per sweep in alfalfa fields left for seed in Platte Valley area in Cuming, Burt and Washington Counties. CORN EARWORM still very abundant in most corn fields in Platte Valley area. Adults 90-672 for one day's catch. EUROPEAN CORN BORER infestation in Platte Valley from 28-92 percent, with 100-250 borers per 100 plants. (Anderson).

and western Missouri rainfall for the entire month of September totaled less than one-half inch.

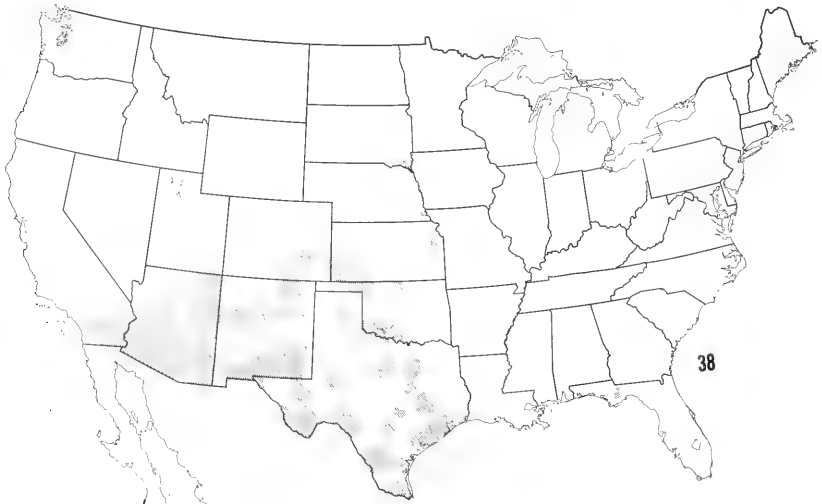
The week was abnormally warm west of the Mississippi. High temperatures which reached 101° as far north as South Dakota soon evaporated the moisture from the few showers received in the central and lower Great Plains. In contrast the week was abnormally cool east of the Mississippi owing to frequent surges of cold Canadian air, which brought unusually low temperatures to northern areas, and to several cloudy days associated with "Flossy" and of cooler air into southern areas following her passage. General freezing over the Northeast on the 26th and 27th ended the growing season for most crops in virtually all areas of New England. The past four weeks have all been abnormally cold in the Northeast and Boston, Massachusetts reported the past month the coldest September there since 1917. (Summary supplied by the U.S. Weather Bureau).

DISTRIBUTION OF RANGE GRASSHOPPERS

Encoptolophus sordidus (Burmeister)



Encoptolophus subgracilis Caudell







VOL. 6 No. 41

OCTOBER 12, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID causing widespread damage in Nebraska and Missouri. Populations increasing in north central Nevada, northeast Nebraska and in Utah. Infestations heavier than last year at this time in areas of Arizona. (p. 978).

Total acreage for range GRASSHOPPER and MORMON CRICKET control in 1956. (p. 976).

MEADOW SPITTLEBUG infestations expected to be higher next spring in Ohio. (p. 977).

May have fall outbreak of FLORIDA RED SCALE on Florida citrus unless controlled. (p. 981).

POTATO TUBERWORM infestations reported from four Utah counties. (p. 981).

Report on abundance of FOXGLOVE APHID on potatoes in northeastern Maine. (p. 982).

GIANT HORNET reported from Tennessee for first time. (p. 983).

MOSQUITOES continue problem in areas of Louisiana and North Carolina. (p. 984).

Distribution of RANGE GRASSHOPPERS. (p. 987).

CORRECTIONS. (p. 985). ADDITIONAL NOTES. (p. 985).

Reports in this issue are for the week ending October 5 unless otherwise designated.

WEATHER FOR THE WEEK ENDING OCTOBER 8, 1956

Frequent temperature changes and uneven rainfall characterized the week's weather east of the Rocky Mountains as alternate high and low pressure systems moved rapidly across the northern portions of the Nation early in the week and cold, dry Polar air overspread the entire area over the weekend. Temperatures for the week, however, averaged above normal everywhere, except in parts of the Northeast and Far Northwest where they were slightly below. Moderate to heavy rainfall was generally limited to parts of California, western Washington, and east of lines joining Dallas, Texas with Galveston, Texas and Sandusky, Ohio. Beneficial showers fell in the South when an area of low pressure moved inland from the Gulf of Mexico on the 3rd, and frontal rains were general in the Northeast on the 4th and 7th. The rains in the East furnished ample to excessive moisture in the South Atlantic States where heavy rains fell during hurricane Flossy's passage the previous week, but were barely sufficient to maintain normal moisture conditions on the western slopes of the southern Appalachians. In Louisiana and Mississippi, general rains, the first there in 6 or 8 weeks, revived grains and pastures.

Except for a few spots, little or no rain fell in the Great Plains as the drought there continued to intensify and spread over additional areas. Soaking rains are now needed over nearly all the area between the Mississippi River and the Cascade and Sierra Nevada Mountains of the Far West. (Summary Supplied by the U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis) - RHODE ISLAND - Second brood attacking ears of late corn in Washington and Providence Counties. Larvae found in pepper near Kingston. (Stoner). VIRGINIA - Damaging sorghum in Lancaster County. (Rowell, McSwain). OKLAHOMA - No borer found in several fields in Okfuskee County and in one field in Ottawa County. (Coppock). SOUTH DAKOTA - Infestation averages 28 percent in central area with average of 3 borers per 100 plants. Approximately 90 percent of borers in fifth instar. (Hantsbarger).

CORN EARWORM (Heliothis zea) - RHODE ISLAND - Still moderately active in late corn. (Stoner). NEBRASKA - Numbers at light trap at Lincoln remain high, 320-560 for a day's catch. (Andersen).

CHINCH BUG (Blissus leucopterus) - OKLAHOMA - From 10-20 per plant in Rogers and Ottawa Counties. (Coppock).

FALL ARMYWORM (Laphygma frugiperda) - NEVADA - General in Churchill County but most infestations non-economic. (Lauderdale, Sept. 29). LOUISIANA - This species and beet armyworm continue to damage and defoliate alfalfa in Bossier and Caddo Parishes. (Oliver). MISSISSIPPI - Large outbreak on a farm in Jones County. Control used. (Pepper).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - LOUISIANA - Very heavy and damaging infestation in hybrid seed corn in Caddo Parish. Severe lodging preventing mechanical harvesting. (Oliver).

ARMYWORM (Pseudaletia unipuncta) - LOUISIANA - Infestation of 75-125 larvae per 100 sweeps in grass in St. John the Baptist Parish. (Oliver).

GREENBUG (Toxoptera graminum) - TEXAS - Found on volunteer wheat in Deaf Smith, Moore, Castro and Swisher Counties. (Daniels).

GRASSHOPPERS - KANSAS - Declining over State, many eggs laid. Melanoplus mexicanus actively feeding on seedling plants in margins of alfalfa and wheat. (Matthew). OKLAHOMA - Decreasing all sections but marginal damage continues, especially to sorghums. (Coppock). ARIZONA - Total of 89,820 acres treated in September in outbreak in parts of Santa Cruz County and adjacent areas of Pima County. The five species present in large numbers, in order of importance, were Morseiella flaviventris, Melanoplus lakinus, Boopedon nubilum, Phoetaliotes nebrascensis and Melanoplus regalis. (Ariz. Coop. Rept.). Protective baiting of fall wheat still being done by farmers in western Kansas, western Nebraska, eastern Colorado, eastern Wyoming and central and eastern Montana. (GHC Proj.).

Cooperative Range Grasshopper Control, 1956

State	: Period : of : Control	Land Ownership (acres)					TOTAL
		: USDA	: Department of Interior	: Non-Fed.:			
		: For. Serv.	: Fsh. & Wildf.:	: BLM	: Ind. Serv. :	: St. & Priv.:	
Ariz.	9/7-18	28,968				85,821	114,789
Calif.	5/9-6/30		1,150		13,472		14,622
Colo.	6/15-7/16	14,320				219,267	233,587
Idaho	6/26-8/3	54,756			6,285	20,516	81,557
Kansas	6/19-7/10					111,049	111,049
Mo.	7/9-9/15		1,760				1,760
Mont.	6/27-8/12	2,780	1,000	22,765	2,500		29,045
Nev.	6/4-8/18		700	8,000		9,640	16,340
New Mex.	6/7-8/18	2,997		12,077		659,540	674,614
No. Dak.	7/26-8/6		960				960
Okla.	5/30-7/13					222,545	222,545
So. Dak.	7/9-7/30	5,200				1,894	6,594
Texas	6/17-7/6	12,425				270,140	282,565
Utah	7/16-8/1	2,020					2,020
Wyo.	6/20-7/29	3,100		2,255	24,600	239,852	269,807

TOTALS 126,566 5,570 49,382 40,572 1,839,764 2,061,854

Cooperative Rangeland Mormon Cricket Control

Acres Baited 1956

State	: Period : of : Control	Land Ownership			Total Acres Baited
		: USDA	: Dept. Int.	: Private	
		: For. Serv.	: BLM	: and State	
Colorado	6/4-7		2,464		2,464
Idaho	7/14-16		2,000	1,080	3,080
Nevada	6/7-15		8,624		8,624
Utah	5/26-6/8	11,450	12,614	10,000	34,064
Wyoming		1,415		6,100	7,515

TOTALS 12,865 25,702 17,180 55,747

BROWN WHEAT MITE (Petrobia latens) - KANSAS - Non-economic infestation on wheat seedlings in central Woodson County. (Matthew).

BEEET WEBWORM (Loxostege sticticalis) - TEXAS - Larvae collected from corn in Dallam County, September 13. Very little damage. (Turney).

A SOD WEBWORM - MISSOURI - Heavy flight of moths continues over most of State. (Kyd, Thomas).

GREEN JUNE BEETLE (Cotinis nitida) - VIRGINIA - Damaging lawns in Alleghany, Pulaski and Giles Counties. (Rowell, et al.). MARYLAND - Several reports of activity in lawns in Montgomery and Prince Georges Counties. (U. Md., Ent. Dept.).

WHITE GRUBS - COLORADO - Damage to wheat in Yuma County. (Ext. Serv.).

A GROUND PEARL (Margarodes meridionalis) - FLORIDA - Nymphs and adults averaged 25 per square inch of sod on centipede grass at Lake Alfred, August 24. (Wesson).

GRASS LOOPERS (Mocis spp.) - FLORIDA - Continue to infest pastures and cover crops over State. (Denmark).

MEADOW SPITTLEBUG (Philaenus leucophthalmus) - OHIO - Adult survey conducted in September. General pattern of sampling was similar to that in 1955 (See CEIR 5(42):973). Pattern of infestation remained about same although general level of infestation increased in every area except the southwest where it remained about like that of 1955. In spring of 1957 infestations of nymphs are expected to be generally higher than those in 1956.

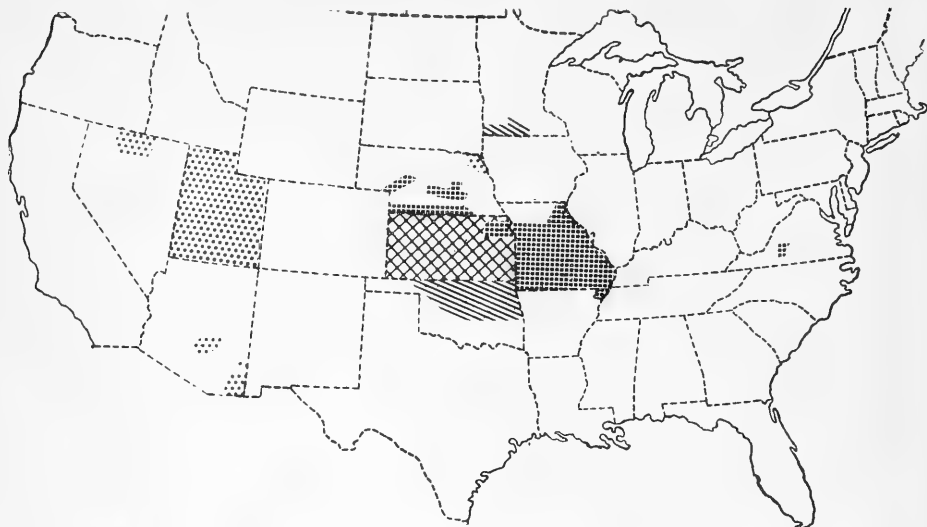
Area	Adults per sweep		Area	Adults per sweep	
	1955	1956		1955	1956
Northeast	0.98	2.14	North central	0.43	1.40
East central	1.60	2.05	Northwest	0.41	0.62
Central	0.98	1.48	Southwest	1.13	0.95

(Weaver, Ware).

PEA APHID (Macrosiphum pisi) - NEBRASKA - Population very high for time of year throughout Republican, Platte, Loup Valleys and north-eastern areas. From 160-300 per 10 sweeps. (Andersen, Hill). SOUTH DAKOTA - High populations continue in alfalfa, up to 200 aphids per sweep in some areas. (Hantsbarger).

PLANT BUGS - NEBRASKA - Average per 10 sweeps in alfalfa in north-east: Adelphocoris lineatus 6, A. rapidus 3. Seven Lygus lineolaris per 10 sweeps in northeast and Loup Valley areas. (Andersen).

Spotted Alfalfa Aphid as Reported Week Ending 10/5



■ ■ ■ ■ = Heavy or damaging

/// = Low or non-economic

⋯⋯⋯ = Increasing

XXXX = General Infestation

SPOTTED ALFALFA APHID - NEVADA - General increase in density of infestations throughout north central area but economic populations generally localized. Area became infested during August. (Galloway, 9/29). ARIZONA - Populations much higher on alfalfa in Salt River Valley, Maricopa County, than last year at this time. Comparisons show 0.1 aphid per trifoliate leaf for late September 1955 and 4.3 for same time in 1956. Populations also heavier than 1955 in Cochise County and Safford area of Graham County. (Ariz. Coop. Rept.). UTAH - Building up in scattered localities since cooler weather. (Knowlton). KANSAS - Infestations continue rather generally throughout State. Continued drought plus heavy aphid feeding in some fields causing retarding of plant growth in many areas. Light to heavy populations in most fields in Kansas River Valley, 15 to about 1200 per sweep. Honeydew abundant in heavily infested fields near Lawrence, Douglas County. Lady beetles building up in some of the more heavily infested fields and in some of these fields apparently controlling aphid. Lady beetle counts ranged from 4-17 per sweep, lacewings from 2-9 per sweep. (Matthew). NEBRASKA - Economic damage occurring from Big Springs, Deuel County eastward to North Platte, Lincoln County and from Kearney eastward to Seward in Seward County in Platte Valley. Economic damage also in Republican Valley from Superior in Nuckolls County westward to Dundy County northward through Frenchman River Valley. Counts in these areas 1,000 plus per sweep. Loup Valley shows increase, 40-150 per sweep. Slight build-up in northeast, 120-200 per 10 sweeps. New counties reporting aphid

include Boyd and Kimball. Fall seedings of alfalfa being damaged in Harlan, Deuel, Merrick, and Polk Counties. Many predators (lady beetles big-eyed bugs, lacewings) in most fields. (Hill, Andersen). SOUTH DAKOTA - No new areas found during week. (Hantsbarger). OKLAHOMA Remain light in eastern and northern counties. Up to 325 aphids per 10 sweeps collected near Bixby, however most population considerably lower. Some fields had no aphids. Slight buildup of predators in Arkansas River floodplain (Coppock). MISSOURI - Heavy populations and damage have developed over much of southern two-thirds of State and in scattered fields in northeast quarter. Extended drought conditions plus heavy aphid populations are causing spots in fields to die in new fall seedings and in established stands. Honeydew heavy in most fields. From 100-500 aphids per sweep in southeast, 250 to over 2,000 in south central and 50-1,500 per sweep in central area. Parasites and predators very low. Two to three lady beetles and 1 to 2 damsel bugs per 10 sweeps. Many lacewing adults but few larvae. (Kyd, Thomas). MINNESOTA - Found in Lincoln, Pipestone, Rock, Nobles, Jackson, Martin, Cottonwood Counties. Not found in every field, however, and sweep counts are very low. (Flaskerd). LOUISIANA - Populations remain static in most fields of alfalfa in Bossier, Caddo and Red River Parishes and declined in some fields due to predators. (Oliver). NORTH CAROLINA - Reported from two new counties: Stanly and Union, September 11. Determined L. M. Russell. (Farrier). VIRGINIA - Damaging a field of newly-seeded alfalfa and 2 fields of old alfalfa in Franklin County. Parasites and predators numerous. (Morris).

VETCH BRUCHID (Bruchus brachialis) - OHIO - Infestation occurred in vetch seed plots at Wooster. (Weaver).

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis) - SOUTH CAROLINA - Light to moderately abundant on soybeans in Charleston area and increasing. Large number of adults in light trap. (Reid, Sept. 25).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - NEVADA - Very heavy deposit of eggs on seedling alfalfa by this and related species. Averaging over 1 egg per seedling, Churchill County. (Lauderdale, Sept. 29).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Average of 250 per 100 sweeps in alfalfa in Caddo Parish and 30-100 per 100 sweeps in Bossier and Red River Parishes. (Oliver). OKLAHOMA - Increasing in alfalfa in Arkansas River floodplain. (Coppock).

FRUIT INSECTS

ORIENTAL FRUIT MOTH (Grapholitha molesta) - OREGON - Two moths collected in September in Portland and four near Salem in commercial orchards. First specimens collected since 1951 when a few specimens were collected at The Dalles. Det. J. F. G. Clarke. (Larson).

APPLE MAGGOT (Rhagoletis pomonella) - RHODE ISLAND - Infestations generally worse than in 1955 in Greenville area. Probably due to large number of fruits left on ground. (Tibbetts).

BUD MOTHS (Spilonota spp.) - RHODE ISLAND - Spotty infestation of light to moderate intensity on apples in Greenville area. (Tibbetts).

WOOLLY APPLE APHID (Eriosoma lanigerum) - IDAHO - Moderate flights in Moscow area. (Barr, Gittins).

CODLING MOTH (Carpocapsa pomonella) - RHODE ISLAND - Light infestation of second brood in scattered orchards in the Greenville area. (Tibbetts).

WESTERN PEACH TREE BORER (Sanninoidea exitiosa graefi) - OREGON - Heavy infestation in 15-acre peach orchard near Portland. (Goeden).

WALNUT HUSK FLY (Rhagoletis completa) - CALIFORNIA - Recorded for first time in Santa Barbara County when 3 adults trapped near Carpinteria, September 24. (Cal. Coop. Rept., Sept. 28).

ORCHARD MITES - MISSISSIPPI - Infesting pecan leaves in Monroe and Noxubee Counties. (Hutchins). RHODE ISLAND - Late infestations of Metatetranychus ulmi on blossom ends of apple in some areas near Greenville. (Tibbetts).

GRASSHOPPERS - TEXAS - Light to medium on grapes in Dimmit and Zavala Counties. (Richardson).

GRAPE LEAF SKELETONIZER (Harrisina americana) - NORTH CAROLINA - A few farms in Pender County with moderate infestations. (Honeycutt, Farrier).

A LEAF ROLLER (Platynota stultana) - FLORIDA - Larvae and pupae on calamondin, North Miami, Dade County. One 5-foot tree heavily infested and several other lightly infested. Orange trees infested at Sebastian, Indian River County. (Kendrick, Sept. 25).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Light infestation in two and very light in one of three groves inspected in Okfuskee County. Up to ten percent of Stuart tree nuts infested. Considerable punctures noted in Okfuskee groves but none recent. Most larvae fairly mature and few weevils had emerged from pecans. No adults found. (Coppock).

Citrus Insect Situation, Florida, Fourth Week of September

Activity of the following pests increased with further increase expected through October: Purple scale, Florida red scale, citrus red mite, and citrus rust mite. Fall outbreak of FLORIDA RED SCALE expected unless prevented by timely sprays. (Pratt, Thompson, Johnson).

TRUCK CROP INSECTS

TOMATO FRUITWORM (Heliothis zea) - COLORADO - Egg counts reached an average of 30 per 100 tomato leaves in Prowers, Bent, Otero, and Pueblo Counties. (Exp. Sta.). TEXAS - Medium to heavy on pole beans in Zavala County. (Richardson).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Larvae averaging six per 100 tomato plants in 30-acre field at Perrine, Dade County, Sept. 26. (Denmark).

WESTERN BEAN CUTWORM (Loxagrotis albicosta) - IDAHO - Attacking tomatoes in southcentral area. New host record for State confirmed through laboratory tests. (Twin Falls Field Station).

POTATO TUBERWORM (Gnorimoschema operculella) - UTAH - Survey of potato fields in southern area showed the following: In the Enterprise-Beryl areas, October 1, all fields showed light to very severe infestations. Some infestations at St. George and Cedar City areas and at Milford. Growers greatly concerned. Infestations ranged from very slight to very severe in Washington and Iron Counties, very light in Millard and Beaver Counties. (Hutchings).

BANDED CUCUMBER BEETLE (Diabrotica balteata) - LOUISIANA - On turnips at 100 per 100 sweeps in St. John the Baptist Parish. (Oliver).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - LOUISIANA - Populations on sweetpotatoes in two fields in East Baton Rouge Parish averaged 53 per 100 sweeps; 115 per 100 sweeps in two fields in St. Landry Parish; and 111 per 100 sweeps in three fields in West Feliciana Parish. (Oliver).

LEAFHOPPERS (Empoasca spp.) - LOUISIANA - Populations of at least six species on sweetpotatoes averaged as follows: 165 per 100 sweeps in three fields in East Baton Rouge Parish; 95 per 100 sweeps in three fields in West Feliciana Parish; 370 per 100 sweeps in two fields in St. Landry Parish. (Oliver).

A LEAF MINER (Bedellia sp.) - CALIFORNIA - A heavy and very local infestation in sweetpotatoes near Madera. Vines riddled. Pest abundant in all stages. (Cal. Coop. Rept., Sept. 28).

CELERYWORM (Papilio polyxenes asterius) - NORTH CAROLINA - Local infestation on celery in Duplin County. (Reid, Farrier).

Abundance of Winged Foxglove Aphids on Potatoes in
Northeastern Maine

Winged foxglove aphids were far more abundant than usual early in September in plots of potatoes at Presque Isle that had not been treated with insecticides. A survey on September 6 and 7 involving 56 field plots of Katahdin potatoes and one of Green Mountains disclosed a range among plots of 0 to 52 in the percent of fourth and fifth instar foxglove aphid nymphs destined to be winged. The overall average of 17 percent for all plots far exceeded their abundance during any of the preceding 15 years, when only trace numbers of the winged forms were found on potatoes at this season during any of these years. It is of interest that this unprecedented abundance has occurred at a time when the numbers of the aphid on its primary host, hawkweed (Hieracium sp.), are at a very low ebb and have been so for about a year. Although the alate forms maturing on potatoes have not definitely been determined as fall migrants, current observations indicate that at least some of these are finding their way to and depositing nymphs on hawkweed. Normally the aphid utilizes hawkweed as a host throughout the year, and alate forms do not develop on the plant in the fall. Recently, a single foxglove aphid nymph with wing pads was observed on hawkweed, however, at one out of 10 sampling stations.

The specific cause of the present unprecedented abundance of alate foxglove aphids cannot be established definitely at this time. There is some likelihood that it may be genetic in nature since some research workers have concluded that two races of strains of the aphid exist in Europe, viz., one that produces fall migrants and one that does not. We do not know whether we have two strains; nor can we suggest the characteristics of progeny should two strains mix. The survey revealed that 34 percent of the foxglove aphid nymphs with wing pads encountered were to have only two wings instead of the usual four. While these two were usually on only one side of the body - frequently but not always on the right side specimens were found with one wing on each side. Some had varying numbers of wing rudiments but usually no rudiments were visible externally when there were only two wings. Several of the alatae and fifth instar nymphs had extra long cornicles. Further study may establish whether two races of the aphid occur locally and whether the specimens with only two wings could result from crossing two such strains or races. (Wave, Shands, Simpson).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Medium to heavy on pole beans in Zavala County. (Richardson). LOUISIANA - Populations remain heavy on cole crops in Plaquemine, East Baton Rouge and St. John the Baptist Parishes with 1-5 per leaf on broccoli, collards and cabbage. (Oliver). NORTH CAROLINA - Larvae still infesting collards and cabbage in Duplin County. (Reid). CALIFORNIA - Heavy hatch in tomato and lettuce fields in Imperial Valley. (Cotton Letter, Sept. 27).

AN APHID (Trifidaphis phaseoli) - MARYLAND - Two adults and numerous young collected on roots of snap beans, Sept. 27 at Lorely, Baltimore County. Det. L. M. Russell. (U. Md., Ent. Dept.).

SPIDER MITES - OREGON - Populations of the two-spotted complex left cane berries in Multnomah County September 25 to October 5. (Rosenstiel).

RASPBERRY ROOT BORER (Bembecia marginata) - OREGON - About one-third of eggs hatched by October 5 in central Willamette Valley. (Rosenstiel).

GARDEN SYMPHYLID (Scutigera immaculata) - IDAHO - Infestation in strawberry planting at Lewiston, with stunting of plants. First record in northern area. (Kambitsch).

SNAILS - NORTH CAROLINA - Damaging lettuce, hollyhocks, sunflowers and grass in Watauga County. (Scott).

COTTON INSECTS

THRIPS - ARIZONA - Large numbers causing noticeable crinkling of leaves on top part of plants on 25 acres at Queen Creek, Maricopa County. Damage unusual for time of year. (Ariz. Coop. Rept.).

Cotton Insect Situation, California, September 27

BOLLWORMS required control in irrigated fields where growth has continued. Still very active throughout Imperial Valley. Counts up to 25 per 100 plants in fields adjacent to heavily-infested corn plantings. Predators very active in some untreated fields. STINK BUGS decreased slightly in Imperial Valley but populations of nymphs still high some areas. LYGUS BUG populations in many fields in Imperial Valley, mostly nymphs. Untreated fields with many damaged flowers. CABBAGE LOOPER eggs and larvae numerous in Imperial Valley. Control necessary in some fields. In California during 1956 cotton growing season 31,542 acres or 4.2 percent of acreage was under supervised control through University of California Extension Service. Cost to growers was \$38,992. This does not include entomological services furnished by ginning companies. (Cott. Lett, Cal.Coop. Rept.).

BROWN COTTON LEAFWORM (Acontia dacia) - LOUISIANA - Infesting several cotton fields in Natchitoches Parish. (Oliver).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

NANTUCKET PINE MOTH (Rhyacionia frustrana) - Light infestation in Jasper County. (Milner, Sept. 27).

MIMOSA WEBWORM (Homadaula albizziae) - VIRGINIA - Very heavy on mimosa trees in Rocky Mount, Franklin County. (Morris, Tucker).

GIANT HORNET (Vespa crabro germana) - TENNESSEE - Collected

from shrubs in Cumberland County, in mid-September. First record for State. (Mullett).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Aedes sollicitans populations very heavy in Plaquemine Parish with at least 100 per minute per person in several areas. Heavy rain and high winds believed partially responsible for heavy populations. (Oliver). NORTH CAROLINA - A. sollicitans continue a problem in Pamlico, Beaufort, Hyde and Dare Counties. Culex taeniorhynchus development potential good for building up in Currituck County. (Cromroy). UTAH - Anopheles sp. common in homes in Cache County. (Knowlton).

TABANIDS - LOUISIANA - At least three species of Tabanus very numerous in cattle herds in Livingston Parish. (Oliver).

CATTLE GRUBS - OKLAHOMA - No infestation found in 82 aged cow carcasses inspected at Oklahoma City meat packing companies, Oct. 1. (Coppock).

SCREW-WORMS - SOUTH CAROLINA - One castrated bull infested, Hampton County. (Gooding).

PUSS CATERPILLAR (Megalopyge opercularis) - ARIZONA - Larger than usual numbers in Tucson area with numerous reports of inflammation due to contact. (Ariz. Coop. Rept.).

STORED PRODUCTS INSECTS

RED-LEGGED HAM BEETLE (Necrobia rufipes) - NORTH CAROLINA - Infestation in stored hams in Edgecombe County. (Scott, Farrier).

STORED GRAIN INSECTS - IDAHO - Special mill inspection at American Falls showed following species present: Trogoderma parabile, Attagenus sp. and other dermestids with some tenebrionids and cucujids. (Evans). OKLAHOMA - Seven bins of farm-stored grain in Ottawa and Craig Counties showed the following infestations per one-quart representative surface sample of grain from each bin. Ottawa: New oats, hundreds of psocids and one dead pea weevil; new barley, two rice weevils, three saw-toothed grain beetles and 50-plus psocids. Craig: New wheat, six rice weevils, five confused flour beetles, two saw-toothed grain beetles, hundreds of mites and 50-plus psocids; new wheat, nothing; new barley, eight rice weevils, five confused flour beetles, one saw-toothed grain beetle, hundreds of mites and a few psocids; new milo, two rice weevils, eight confused flour beetles, a few mites and a few psocids. (Coppock).

BENEFICIAL INSECTS

LADY BEETLES - SOUTH DAKOTA - Four larvae per net sweep in one alfalfa field heavily infested with pea aphids. (Hantsbarger).

MISCELLANEOUS INSECTS

JAPANESE BEETLE (Popillia japonica) - WISCONSIN - Survey, using 170 traps set out from July 24 to September 6, showed no further specimens other than the single beetle captured July 27 in Milwaukee. (PPC).

YELLOW JACKETS - RHODE ISLAND - Continue as problem to householders in Providence area. (Mathewson).

BOXELDER BUG (Leptocoris trivittatus) - SOUTH DAKOTA - Annoying around homes in eastern areas. (Hantsbarger). UTAH - Increasing in homes in many areas with control being used many cases. (Knowlton).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - MARYLAND - Adults numerous at lights at Cumberland. (U. Md., Ent. Dept.).

BROWN-BANDED ROACH (Supella supellectilium) - IDAHO - Heavy infestation in home at Bonners Ferry. First infestation found north of Moscow. (Manis).

CORRECTION

CEIR 6(40): 960 - FLORIDA-SOUTHERN BEET WEBWORM: Should read "Average of 50 adults per square foot...". (Denmark).

ADDITIONAL NOTES

WEST VIRGINIA - EUROPEAN CORN BORER averaged 1.3 to 4 borers per 100 corn plants in 7 counties. MEADOW SPITTLEBUG 5.4 per sweep in red clover in Monongalia County and as follows in alfalfa by county: Barbour, 1.8 per sweep; Wood, 1.7; Ritchie, 2. Averaged 1.8 per sweep in alfalfa and clover in Pleasants County. A SAWFLY (Cephalcia marginata) infestation light to heavy on spruce trees in nurseries of Randolph and Tucker Counties. (Dorsey, Hansen).

LIGHT TRAP COLLECTIONS

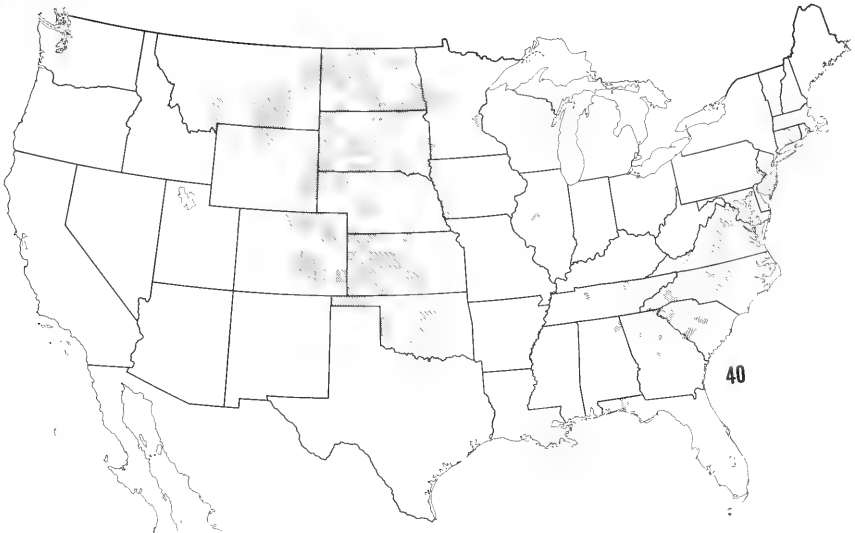
	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea	Protoparce vires.	Protoparce sexta	quing.	Laphyg. frugip.
KANSAS										
Wathena 9/20-26		9				2083				
Manhattan 10/1-6	16	27				344				
Hays 9/22-29		14				647				
Garden City 9/27-10-3	12	54				639				
NEBRASKA (Counties)										
Lancaster 9/23-29		175				2056			3	
NORTH CAROLINA (Counties)										
Johnston 10/3, 4	162	11	53		23	52	2		1	
SOUTH CAROLINA (Counties)										
Charleston 9/17-23	93		16	1	24	113	3	8	2	162
Oconee 9/23-29	21	2	13	1	1	26	1		1	5
Florence 9/22-23	137	11	37	4	37	153	2	2	1	26
GEORGIA (Counties)										
Tift 9/23-10/4	250	14	42		10	55		3		110
Spalding 9/23-10/4	200	10	50	2	10	451	7	2		46
FLORIDA										
Homestead 9/23									2	
Monticello 9/23 & 10/2	10	2	6						1	
Quincy 9/26	35				5	14			1	
Gainesville 9/26	6	1				3				
ALABAMA (Counties)										
Lee 9/15-23	103			62		319	8	12	7	143
Baldwin 9/17, 21, 26	76			20		111		5	1	10
LOUISIANA										
Curtis 9/24-10/1	48	80	96	8	16	1000				
Baton Rouge 9/29-10/5	38	7	16		51	103	3	3	1	40
Franklin 9/23-10/3	49	8	33		21	46	38			89
TEXAS										
Waco 9/30-10/5	71	13	52	57	24	471	1			
College Station 10/1-5	103	14	71			263		2		243
Denton 9/16-30	23	50	17			653				41
Weslaco 9/16-30	335	193	146	5		117		2		81
OHIO										
Athens 9/24-30		4				22				
ALABAMA										
Fairhope 9/23-10/1	7		9			25			9	
Auburn 9/29-10/5	141		33			470	3	3	3	83

DISTRIBUTION OF RANGE GRASSHOPPERS

Eremiacris virgata (Scudder)

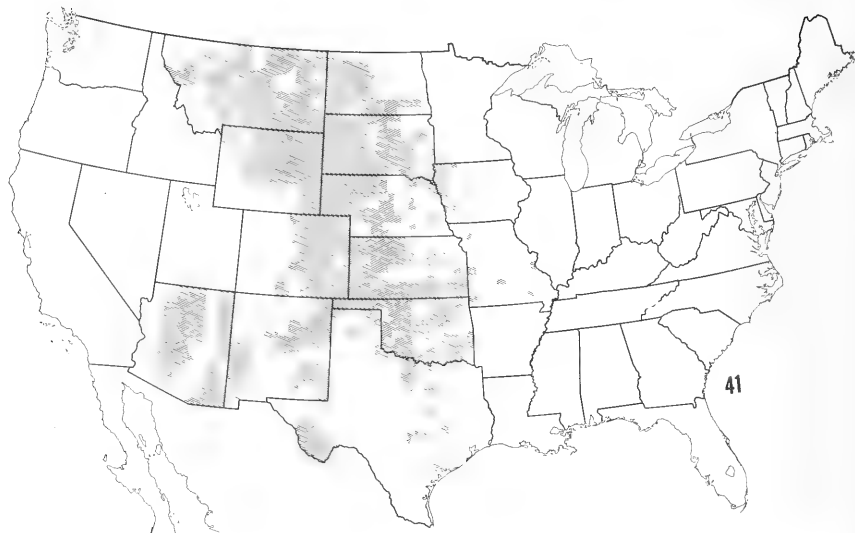


Eritettix simplex (Scudder)

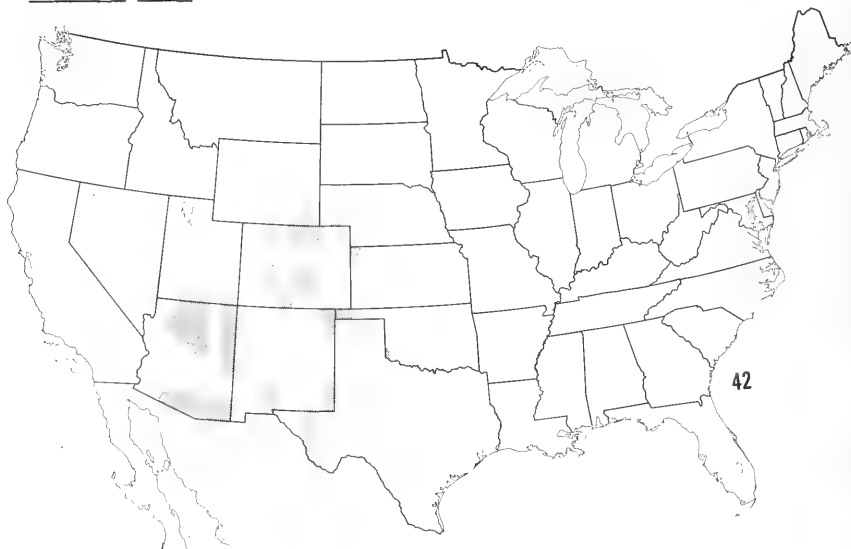


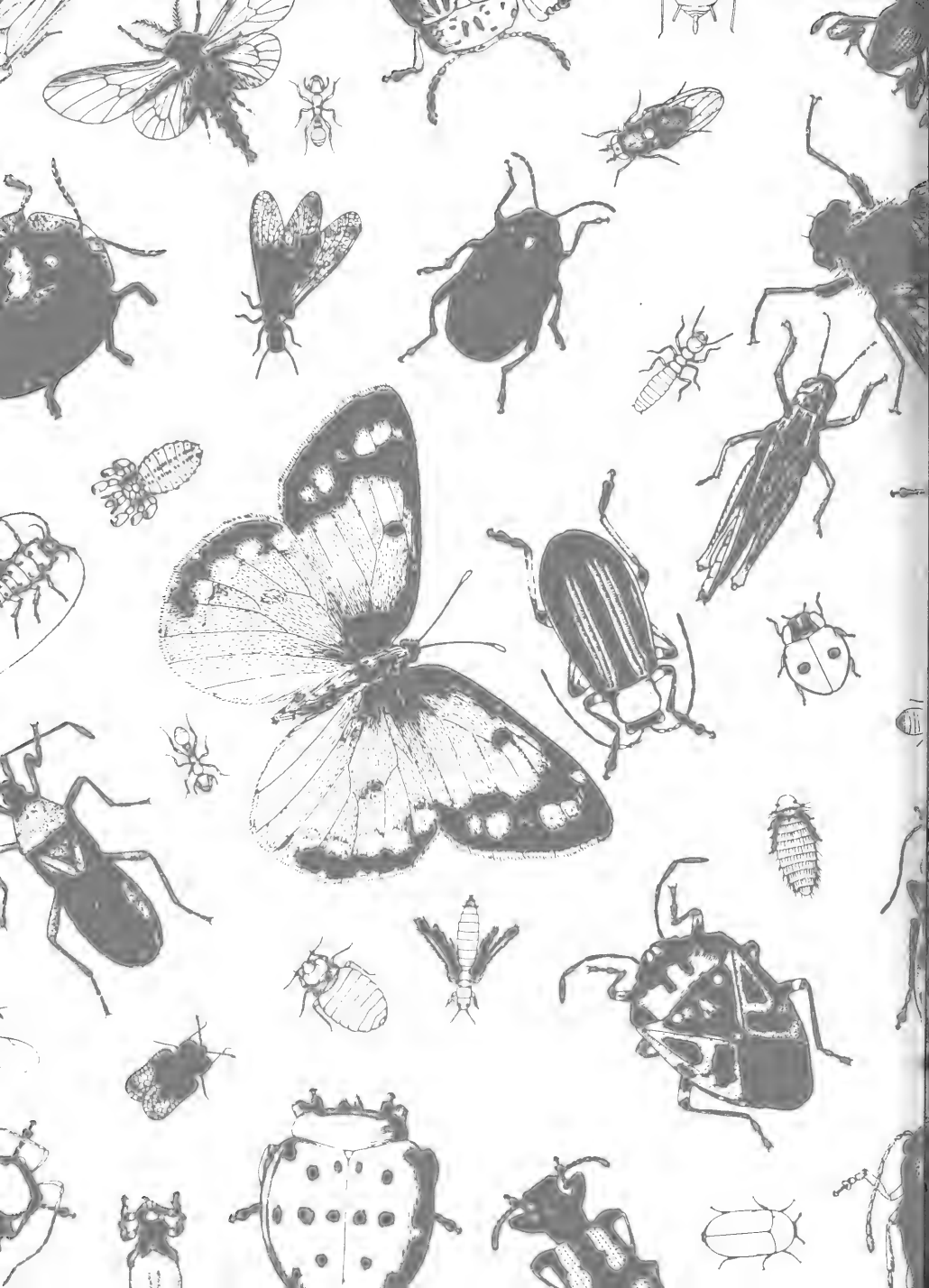
DISTRIBUTION OF RANGE GRASSHOPPERS

Hadrotettix trifasciatus (Say)



Heliaula rufa (Scudder)





VOL. 6 No. 42

OCTOBER 19 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID continues to cause damage in several States including Missouri, Utah and areas of Kansas, Nebraska and New Mexico. Building up in southeast Nebraska and Choctaw County, Oklahoma. New county records from California, Illinois, North Carolina and Minnesota. (pp. 993, 999).

MEXICAN BEAN BEETLE unusually severe on soybeans in some North Carolina counties. (p. 992). Also damaging snap beans in this State and eastern Virginia. (p.996).

ALFALFA CATERPILLAR unusually abundant in Morrow County, Oregon area. (p. 994).

Brief report on MEDITERRANEAN FRUIT FLY situation in Florida. (p. 995).

CABBAGE LOOPER of concern in some areas of Louisiana, New Mexico, Texas, North Carolina and Virginia. (p. 995).

ONION MAGGOT serious in Malheur County, Oregon. (p. 996).

IPS BEETLES building up in southern Arkansas. Serious outbreak in east Texas areas. (p. 997).

WEATHER summary (p. 990), outlook (p. 1001).

CORRECTIONS. (p. 999). ADDITIONAL NOTES. (p. 999).

Distribution of RANGE GRASSHOPPERS. (p. 1002).

Reports in this issue are for the week ending October 12 unless otherwise designated.

WEATHER FOR THE WEEK ENDING OCTOBER 15, 1956

The week's rainfall was nearly all limited to three areas--the Pacific Northwest, the Florida Peninsula, and a belt extending from middle Texas to the Great Lakes and upper Mississippi Valley. Showers were falling in middle Texas and eastern Oklahoma at the end of the period, and a storm centered near Miami, Florida was causing light to heavy rains in that State.

Rainfall exceeding one-half inch fell in southeastern Minnesota, most of Iowa, the northwest corner of Missouri, the eastern half of Kansas, most of Oklahoma, and in north-central and Coastal Bend sections of Texas. Rains in Kansas, the most widespread since August 9 and 10, ranged up to more than 3 inches in the eastern half where they are expected to furnish enough moisture to germinate wheat, but they came too late for pastures and were generally insufficient to relieve critically low stock and municipal water supplies; drought intensified in western portions where winter grain prospects continued to fade. The drought was broken, at least temporarily, in most of Oklahoma.

Drought continued throughout the remainder of the Great Plains and in the Far Southwest and general rains are still needed badly in the area between the Appalachians and the Continental Divide. Typical of the mid-Mississippi and lower Ohio Valley regions, was the report from Indiana that no rain had fallen in most of the State for 30 days and no important amounts in northern portions of the State since Labor Day. Indianapolis, Indiana reports only 0.01 inch of rain during the period September 16 through October 15, 1956, far surpassing any previous 30 day period, for deficiency of moisture.

Although the week was virtually rainless east of the Appalachians, except in Florida, soil moisture is generally ample due to rains of the previous 3 weeks.

In central areas the week was unusually warm. Several stations reporting new record high temperatures for so late in the season included Sioux City, Iowa, 90° on the 11th; Rapid City, South Dakota, 90° on the 12th; and International Falls, Minnesota, 82° on the 15th. The highest temperature reported in the northern Plains was 96° at Vivian, South Dakota on the 12th. (Summary Supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - SOUTH DAKOTA - Survey in southeastern area shows infestation ratings of light to non-economic. Over 90 percent of eggs are Melanoplus femur-rubrum. (Hantsbarger).

EUROPEAN CORN BORER (Pyrausta nubilalis) - WEST VIRGINIA - Found at rate of 1.4 per 100 plants in Braxton County. (Dorsey, Hansen). NORTH CAROLINA - Partially complete survey indicates general occurrence in all counties north of Albemarle Sound with infestation from 0-100 percent of stalks infested and an average of 0-20 larvae per stalk. Increase in infestation in this area. Crews gathering ears after mechanical picking. Infestation in sorghum also noted in Pasquotank County. (Jones, Farrier). ILLINOIS - Survey in 47 counties showed county averages of 1-408 borers per 100 plants. (Ill. Ins. Rept.). NORTH DAKOTA - Forty-one percent of plants infested in Richland County with average of 62.5 borers per 100 plants. (N. D. Ins. Rept.). SOUTH DAKOTA - Average of 47 percent infestation and 75 borers per 100 plants in southeast and south central regions. (Hantsbarger). NEBRASKA - Percent infestation by area: Northeast 71.7, east central 58.4, central, 71.7, southeast 7.3. Borers per 100 plants by area: Northeast 184.4, east central 158.3, central 184.3, southeast 33.3. South central area remains to be surveyed. Infestation in northeast and southeast is down from last year, but up in central and east central areas. (Andersen).

FALL ARMYWORM (Laphygma frugiperda) - NEW MEXICO - Infested 75 percent of stalks in one field of corn in Dona Ana County. (Durkin, Oct. 5). TEXAS - One per sweep in alfalfa in Robertson County. (Randolph, Turney). Medium to heavy infestations on irrigated oats and hegari in Victoria County. (McCombs).

SOD WEBWORMS - OREGON - Light to moderately heavy infestation in bent grass at Clatskanie. (Dickason).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - KANSAS - Very light in southeast area, less than one percent girdled stalks in 14 counties. (Matthew).

CORN EARWORM (Heliothis zea) - NEBRASKA - Adult catches at light trap at Lincoln remain high, from 250-1616 per day. (Andersen). TEXAS - Two per sweep in alfalfa in Robertson County. (Randolph, Turney).

MITES - KANSAS - Additional fields of irrigated wheat in Finney County area being damaged by a mite, probably Oligonychus pratensis. Good control by spraying. Areas in fields receiving permanent injury being replanted. (DePew). UTAH - Mites still severe on field corn in Weber County. (Knowlton).

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis) - SOUTH CAROLINA - Has failed to build up sufficiently to cause heavy infestations. (Nettles).

WHITE-FRINGED BEETLES (Graphognathus spp.) - In MISSISSIPPI, two new counties, Kemper and Neshoba, found infested for first time during September. An infestation involving 520 acres was found in Santa Rosa County, FLORIDA and an isolated infestation was reported from Houston County, ALABAMA. There were some extensions of previously known infestations in NORTH and SOUTH CAROLINA. (WFB Prog., Sept. Rept.).

CARROT BEETLE (Ligyrus gibbosus) - COLORADO - Larvae causing extensive damage to wheat in Phillips and Yuma Counties. Average of less than one to as high as 4-5 per square foot. Seed treatment shows some indication of control. (Ext. Serv., Exp. Sta.).

SEED CHALCIDS - OKLAHOMA - Very abundant in most alfalfa fields. (Coppock).

BEAN LEAF BEETLE (Cerotoma trifurcata) - LOUISIANA - Heavy, 1000-1500 per 100 sweeps, on soybeans in East Carroll Parish. Considerable foliage injury. (Oliver).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Populations remain moderate, 130-300 per 100 sweeps in alfalfa in Red River, Bossier, Caddo and East Carroll Parishes. Also infesting soybeans in East Carroll Parish, 44 per 100 sweeps. (Oliver).

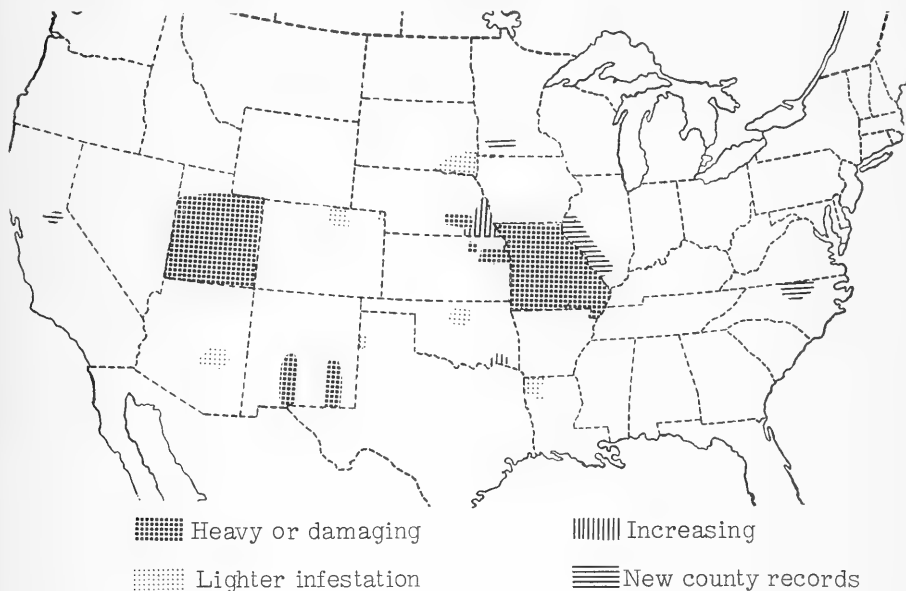
MEXICAN BEAN BEETLE (Epilachna varivestis) - NORTH CAROLINA - Severe general defoliation of soybeans throughout Pasquotank and Duplin Counties. Infestation unusually severe. (Farrier).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - OKLAHOMA - From 3-18 per 10 sweeps in alfalfa in Logan, Kingfisher and Garfield Counties. (Coppock).

PEA APHID (Macrosiphum pisi) - COLORADO - In the opinion of the Insect Detection Committee pea aphid was probably the number one serious insect pest during 1956 in Colorado. Infestations began early and continued throughout the season in the important legume-producing areas. Abundance overshadowed spotted alfalfa aphid for a greater part of the State. Predation and parasitism were extremely high, but in spite of biological control and in many cases chemical control, the aphid's reproductive potential was very high. (Exp. Sta.). UTAH - Scattered injury to succulent alfalfa in many areas. (Knowlton).

APHIDS - COLORADO - The 1956 season is rated by Insect Detection Committee as an "aphid year". Alfalfa, potatoes, corn, sorghums and many ornamentals have been injured by heavy populations of various species. High populations are continuing on roses, asters, willows and other plants. (Exp. Sta.).

Spotted Alfalfa Aphid as Reported Week Ending 10/12



SPOTTED ALFALFA APHID - CALIFORNIA - Infestation found at Ione in Amador County. New county record. (Cal. Coop. Rept., Oct. 5). COLORADO - Average per 100 sweeps by county: Sedgwick 200; Weld (Eaton) 150, (Greeley) 200; Morgan (Wiggins) 200; Larimer (Fort Collins) 1. (Exp. Sta.). NEW MEXICO - Moderate to severe damage to seedling stands of alfalfa in Rio Grande and Pecos River Valleys. Infestations on established stands generally light to medium with heavy infestations spotted throughout Dona Ana County. (Durkin, Oct. 5). UTAH - Damagingly abundant in alfalfa as far north as Salt Lake and Davis Counties. Often associated with high populations of pea aphid. (Knowlton). KANSAS - Activity continues with great range of population intensities over most of State. Survey in 14 southeast counties showed 20 to estimated 800 aphids per sweep, but no honeydew. From 3-17 lady beetles and lacewings per sweep. Spotted alfalfa aphid on fall seedlings vary from light to heavy in Kansas River Valley. Destructive populations in southeast Pottawatomie County. Some alfalfa seedlings in pre-irrigated fields in Cloud County reported destroyed. (Matthew). OKLAHOMA - Increasing in Choctaw County. (Vick). From 135-300 per 10 sweeps in several fields in Logan, Kingfisher and Garfield Counties. (Coppock). TEXAS - Medium infestation in Deaf Smith County. (Clearman). MISSOURI - Damage continues to increase and further increase expected. Some fields involved in nearly all sections of State. (Kyd, Thomas). SOUTH DAKOTA - Still averages over 20 per sweep in southeastern counties. No new areas of infestation. (Hantsbarger). NEBRASKA - No new areas of infestation found during week. Economic damage still

occurring from Seward to Hall County and counts remain high, 1,000 plus per sweep in some areas. In southeastern area, population is building up with counts ranging from 300-1000 per 10 sweeps. Some control measures on fall seedings of alfalfa have not been satisfactory. (Hill, Andersen, Hamilton). ILLINOIS - Survey in 22 counties in the general area between McDonough (western) and Pulaski (southern) showed populations of 0-4500 per sweep. Some of the counties having higher counts were Adams 1160, Pike 2440, Calhoun 1700, Macoupin 1140, St. Clair 2500, Clinton 1200, Randolph 4500. Apparently there was an early migration in the south followed by a migration into western Illinois within past few weeks. Population in one field in Union County decreased from 59 aphids per sweep on September 13 to 0 on October 9. (Ill. Ins. Rept.). NORTH CAROLINA - Found in Nash, Granville, Person, Caswell, Alamance, Orange and Durham Counties. New county records. Determined L. M. Russell. (Farrier). LOUISIANA - Generally light in alfalfa in Red River, Bossier, Caddo, Clairborne and East Carroll Parishes. Heavy populations of predators. Very heavy and damaging population in one alfalfa field in Tensas Parish; insecticides used. (Oliver).

PLANT BUGS - NEBRASKA - Lygus lineolaris ranges from 3-5 per sweep in alfalfa in southeast. (Hamilton). UTAH - Still very numerous in some Washington and Kane County alfalfa. (Knowlton).

BEE T ARMYWORM (Laphygma exigua) - TEXAS - Fourteen per sweep in alfalfa in Robertson County. (Randolph, Turney).

GREEN CLOVERWORM (Plathypena scabra) - TEXAS - Six per sweep in alfalfa in Robertson County. (Randolph, Turney).

ALFALFA CATERPILLAR (Colias philodice eurytheme) - OREGON - Has been problem in northern Morrow County. Some damage and early cutting of hay. Species is more abundant than for several years. (Every).

FRUIT INSECTS

APPLE MAGGOT (Rhagoletis pomonella) - OHIO - Second-generation adults not as numerous as in 1955. (Cutright).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - OHIO - Third-generation larvae less abundant than in 1955. (Cutright).

WOOLLY APPLE APHID (Eriosoma lanigerum) - IDAHO - Abundant flights in Parma and Moscow areas. (Manis).

ORCHARD MITES - COLORADO - Infestations causing concern on apples and peaches in Delta and Mesa Counties. (Exp. Sta.). OREGON - Bryobia praetiosa abundant in apple orchards in central Willamette Valley. Metatetranychus ulmi in large numbers on apples and Tetranychus telarius common in apple and cherry orchards in central Willamette Valley. (Ritcher). UTAH - Injury serious some apple

orchards at Santa Clara. (Knowlton).

GREEN PEACH APHID (Myzus persicae) - OREGON - Migrants in orchards reproducing in The Dalles area, Oct. 5. (Burts).

EYE-SPOTTED BUD MOTH (Spilonota ocellana) - OREGON - With Carpocapsa pomonella common in unsprayed apple orchards. (Ritcher)

PEAR-SLUG (Caliroa cerasi) - UTAH - Causing moderate damage to cherry, pear, hawthorn and plum foliage in various localities. (Knowlton).

SAN JOSE SCALE (Aspidiotus perniciosus) - FLORIDA - All stages medium to heavy on 600 plum trees at Macclenny, Baker County. (Holder, Oct. 2).

MISSISSIPPI - Heavy infestation on peach in Webster County, Oct. 10. (Hester).

BLACK CHERRY APHID (Myzus cerasi) - OREGON - Winged forms common on cherry and apricot trees and reproducing in The Dalles area, Oct. 5. (Burts).

PEAR PSYLLA (Psylla pyricola) - OREGON - Found on pear trees at Ontario, Oct. 4. Not previously reported from Malheur County. (Hammond).

PINK SCAVENGER CATERPILLAR (Pyroderces rileyi) - FLORIDA - Larvae averaging 5-20 on ten grapefruit trees at Alva, Lee County, Oct. 3. (Dekle, Denmark, Murphy).

WALNUT CATERPILLAR (Datana integerrima) - FLORIDA - About one-third of 1000 pecan trees infested with average of two per stem and a few trees up to ten feet tall completely defoliated at Macclenny, Baker County, Sept. 28. (Holder).

FALL WEBWORM (Hyphantria cunea) - FLORIDA - About 100 of 1000 pecan trees heavily infested at Macclenny, Baker County, Sept. 28. (Holder).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Eleven new infestations were found during September in known-infested counties. By September 30, 168 infestations were known in 27 counties. Total of 3,853,674 acres has been treated with bait spray and 26,673 acres have received surface treatment. There were 38,825 traps in the field, mostly in this State, at end of the month. Traps were also being operated in Alabama, California, Georgia, Louisiana, Mississippi and Texas; however, no Mediterranean fruit fly has been found outside of Florida. (PPC, So. Reg. Sept. Rept.).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusi ni) - LOUISIANA - From 3-10 per plant in one 40-acre field of broccoli in Concordia Parish. A virus disease is giving about 90 percent control. (Oliver). NEW MEXICO - Under control

in most lettuce fields in Dona Ana County but egg-laying activity high. (Durkin, Oct. 5). TEXAS - Medium to heavy on cabbage, cauliflower and pole beans in Zavala County. (Richardson). NORTH CAROLINA - Still infesting broccoli and cabbage in Duplin County. (Reid). VIRGINIA - Most troublesome pest on cole crops in eastern area. (Brubaker, Greenwood, Hofmaster, Oct. 5).

TOMATO FRUITWORM (Heliothis zea) - NEW MEXICO - Under control in most lettuce fields in Dona Ana County but moths still active with some egg deposition. (Durkin, Oct. 5).

ARMYWORMS - NEW MEXICO - Eggs numerous on lettuce in Dona Ana County but survival low. (Durkin, Aug. 5).

HARLEQUIN BUG (Murgantia histrionica) - NORTH CAROLINA - Requires control to grow collards in Duplin County. (Farrier).

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - FLORIDA - Adults averaging 75 per eggplant at Macclenny, Baker County, Sept. 28. (Holder).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Five to 25 per sweep with counts running over 100 per sweep in Russian-thistle area on west side of San Joaquin Valley. Approximately 25 percent were overwintering beet leafhoppers. Spraying by air began October 3 and 51,200 acres had been treated by October 6. (Cal. Coop. Rept.). TEXAS - Light on spinach in Zavala and Frio Counties. (Richardson).

POTATO TUBERWORM (Gnorimoschema operculella) - NORTH CAROLINA Larvae attacking stems of a half-acre field in Wayne County, with ten percent of plants dying. (Goforth, Farrier).

POTATO PSYLLID (Paratrioza cockerelli) - UTAH - Adults numerous on rubber rabbitbrush from Beaver to St. George. (Knowlton).

MEXICAN BEAN BEETLE (Epilachna varivestis) - NORTH CAROLINA - Severe defoliation of untreated green beans and some varieties destroyed in local infestation in Duplin County. (Farrier). VIRGINIA - Heavily damaging untreated snap and lima beans in eastern areas. (Brubaker, Greenwood, Hofmaster, Oct. 5).

ONION MAGGOT (Hylemya antiqua) - OREGON - Infestations serious in Malheur County with late brood maggots still in onions. A ten percent loss of crop estimated by County Agent. (Crowell).

APHIDS - UTAH - Abundant on rhubarb at Milford. (Knowlton).

A LEAF MINER (Bedellia sp.) - CALIFORNIA - Following report of heavy infestation in sweetpotatoes in a field near Madera, lighter infestations have been found in three additional fields in Madera County. One infestation is 20 miles from the infestation previously reported. (Cal. Coop. Rept.).

SWEETPOTATO FLEA BEETLE (Chaetocnema confinis) - LOUISIANA - Continues to infest sweetpotatoes; 8 per 100 sweeps in East Baton Rouge Parish, 135 per 100 in East Feliciana Parish. (Oliver).

GREEN JUNE BEETLE (Cotinis nitida) - NORTH CAROLINA - Numerous in soil in strawberries, alfalfa and lawns in Buncombe County and in lawns locally in Surry County. (Palmer, Williams, Farrier).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - During week of Oct. 1, twenty-one larvae were found in Choctaw County and two found in McCurtain County. First report from McCurtain County. Gin stand inspections in following counties showed infestations: Haskell, two inspections, 20 larvae; Love, five inspections, 68 larvae; Coal, two inspections, 20 larvae; Tillman, two inspections 7 larvae and at four lint cleaners, 15 larvae. (State Bd. of Agric.).

A MITE (Tetranychus desertorum) - NEW MEXICO - Defoliating large spots on the edges and corners of several fields in Dona Ana County. Damage relatively light. (Durkin, Oct. 5).

COTTON APHID (Aphis gossypii) - NEW MEXICO - Generally light in Dona Ana County. A few fields with heavily infested spots. (Durkin, Oct. 5).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

IPS BEETLES - ARKANSAS - Apparent build-up in activity in most pine areas in southern half of State. Mortality mostly in scattered single trees or small groups. (Ark. For. Comm., Oct. 1). TEXAS - Serious outbreaks reported in Jasper, Liberty, Hardin, Montgomery, Polk and San Jacinto Counties. Some areas with up to 10 pines per acre. Killing merchantable pines in eastern area. (Texas For. Pest Comm.).

TURPENTINE BEETLES - TEXAS - Continue to kill merchantable pines throughout eastern area. (Texas For. Pest Comm.).

AN APHID (Longistigma caryae) - WEST VIRGINIA - Heavy locally on sycamore in Monongalia County. (Dorsey, Hansen).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - COLORADO - Populations excessive throughout State on ornamentals and unharvested crops. Dry, warm fall probable factor. (Exp. Sta.).

NARCISSUS BULB FLY (Lampetia equestris) - IDAHO - Infesting daffodil bulbs in home flower garden at Kellogg. (Manis).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - NEBRASKA - Serious outbreak statewide, summer of 1956. Principal species in western area were Aedes dorsalis and Culex tarsalis and in eastern area A. vexans. Most serious problem in Morrill County especially in Bayard area. In the eastern area, heavy August rains brought on large populations of A. vexans in late August and September. (Rapp).

AMERICAN DOG TICK (Dermacentor variabilis) - NEBRASKA - Studies during spring and summer indicate that the 1956 populations were lower than in 1955. Specimens from Chadron region found positive for tularemia. (Rapp).

CATTLE LICE - UTAH - Becoming problem in herds in Kane, Garfield, Millard and Sanpete Counties. In Manti area, 1600 cattle dipped. (Knowlton).

CATTLE GRUBS - OKLAHOMA - No live grubs found in 1100 head of cattle inspected in Atoka, Payne and Canadian Counties. (Schomberg).

HORN FLY (Siphona irritans) - OKLAHOMA - Populations 500-800 on cows in Atoka, Payne and Canadian Counties. (Schomberg).

A FLANNEL MOTH - NORTH CAROLINA - Larva severely stung a woman in Surry County. (Scott, Jones).

BLOODSUCKING CONENOSE (Triatoma sanguisuga) - SOUTH CAROLINA - Seriously annoying woman in Greenville, September 17. Determined R. L. Sailer. (McAlister).

STORED PRODUCTS INSECTS

STORED GRAIN INSECTS - OKLAHOMA - Seventy-eight bins representing 22 million bushels of grain in 5 elevators were surveyed in Garfield County. Some of the more abundant pests were rice weevil, saw-toothed grain beetle, flat grain beetle, mites, Indian-meal moth and Angoumois grain moth. Per 2 quart sample, one bin of milo had 37 rice weevils, one bin of wheat had 28 Indian-meal moth larvae and another had 21 flat grain beetles. (Coppock, Owen).

DERMESTIDS - COLORADO - Heavy infestations of Trogoderma sp. in stored grain in Adams, Douglas, and Prowers Counties. (Com. Credit). OKLAHOMA - A very heavy infestation of Trogoderma sp. in a grain warehouse in Shawnee. (Walton).

BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - Populations remain low in central area, mostly in larval stage. (Coppock). CONNECTICUT - Numerous and moving into hibernation after first light frost. (Johnson).

MISCELLANEOUS INSECTS

CARPET BEETLES - OREGON - Judged by reports, more abundant than for several years. (Every).

BLACK WIDOW SPIDER (Latrodectus mactans) - COLORADO - Requests for control measures may indicate above-average populations in northeastern area. (Exp. Sta., Ext. Serv.).

CORRECTION

CEIR 6(40):962 - SPOTTED ALFALFA APHID - WEST VIRGINIA - Should read "Very light infestation on alfalfa in Monroe County...".

ADDITIONAL NOTES

ALABAMA - Several reports of CABBAGE WEBWORM attacking and damaging turnips. (Arant).

ARIZONA - SPOTTED ALFALFA APHID populations decrease in Salt River Valley to an average of 0.55 per trifoliate leaf, at least in part, due to application of insecticides. STINK BUGS at two per sweep in two alfalfa seed fields not recently treated with insecticides at Yuma. LEAFHOPPERS 25-40 per sweep in same fields. CLOVER SEED CHALCID damage of 10-15 percent in two alfalfa seed fields harvested October 9-10 at Yuma on second cutting. CORN EARWORM prevalent on experimental plantings of corn at Yuma and with FALL ARMYWORM abundant on corn near Litchfield, Maricopa County. WESTERN GRAPE LEAF SKELETONIZER defoliating grapes in small plantings at Phoenix, Oct. 8. Damage to young lettuce plants at Yuma by CABBAGE LOOPER especially heavy. Up to 20-30 eggs on small plants. Weekly insecticide treatments have not been adequate some cases, and unusually abundant throughout Maricopa County and on 120 acres of cabbage at Yuma. YELLOW-STRIPED ARMYWORM damaging lettuce near Tolleson, Maricopa County. SALT-MARSH CATERPILLAR migrating to lettuce from cotton at Yuma and foil barriers being used. (Ariz. Coop. Rept.).

RHODE ISLAND - Survey shows EUROPEAN CORN BORER generally distributed in Kent County, moderate infestation. Larvae in late instars or pupating. (Stoner).

MINNESOTA - SPOTTED ALFALFA APHID found in two new counties, Murray and Watonwan, bringing to nine the counties where it has been found. (Flaskerd).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea vires.	Protoparce sexta	quinq.	Laphyg. frugip.
OHIO (County)									
Athens 10/1-7	2	5				6			3
KANSAS									
Garden City 10/4-10	180	191				781			
Hays 9/30-10/4	18	51				426			
Manhattan 10/7-12	24	32				480			
Wathena 10/5-10	43	62				696			
TENNESSEE (Counties)									
Madison 10/2-8	32	16	40			629	3	5	96
Mauzy	4		12			133	7	2	4
Robertson	64	28	60	4		397	2	15	52
Cumberland	28	8	24			372	4	4	4
Knox	26	4	30	2		163	4	19	10
Greene	36	4	24			196	2	10	8
Blount	4	4	4			171	1	4	4
Johnson	142	40	24	8		413	1	1	33
VIRGINIA									
Norfolk 9/23-10/3	87	11	18	5		133	2	1	1
NORTH CAROLINA (Counties)									
Johnston 10/10-11	2	1	3		5	1			
Duplin 10/10-11	11	4							
SOUTH CAROLINA (County)									
Oconee 10/1-6	24	3	30			57	1	1	17
GEORGIA (Counties)									
Spalding 10/5-11	59	1	23	2	6	223	1	1	64
Tift 10/5-11	186	10	17		8	29	1	1	65
FLORIDA									
Belle Glade 10/2&4									
Gainesville 10/10	16	3			2	9			
LOUISIANA									
Curtis 10/1-7	192	96	24		48	720	1	4	48
Baton Rouge 10/6-12	123	15	49		80	127		2	66
Franklin 10/4-10	32	2	62	1	146	66	22		205
TEXAS									
College Station 10/7-11	75	20	25			155	1		91
Waco 10/6-12	53	3	59	89	26	756	1		
ALABAMA (County)									
Lee 10/6-12	57	6	6			156	1	1	30

WEATHER BUREAU'S 30-DAY OUTLOOK

Mid-October to Mid-November 1956

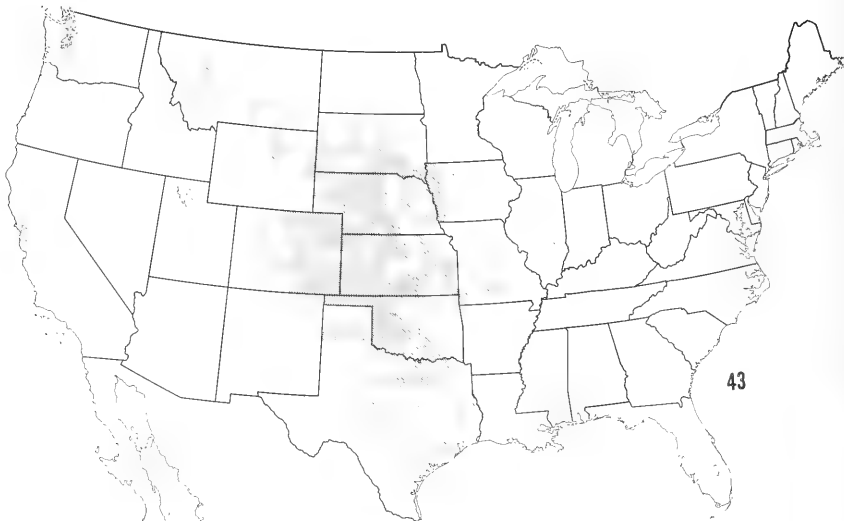
The Weather Bureau's 30 day outlook for the period from mid-October to mid-November calls for temperatures to average above seasonal normals over most of the Nation east of the Continental Divide except for near to below normal in the Southeast. Temperatures not far from normal are anticipated west of the Divide.

Precipitation is expected to exceed normal along the Atlantic Seaboard and also in the Pacific Northwest. Rainfall equal to or greater than normal amounts is expected to be of some help in the drought-stricken central and southern Plains. Subnormal rainfall is indicated over the Southwest and also between the Appalachians and the Mississippi. In areas not specified, near normal amounts are in prospect.

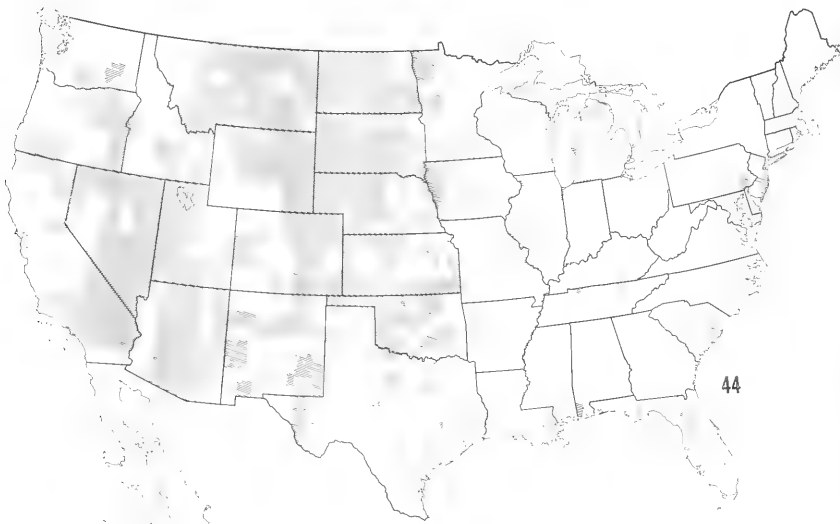
Weather forecast given here is based on the official 30-day "Resume and Outlook", published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D.C. Price \$4.80 a year, \$2.40 for six months.

DISTRIBUTION OF RANGE GRASSHOPPERS

Hesperotettix speciosus (Scudder)

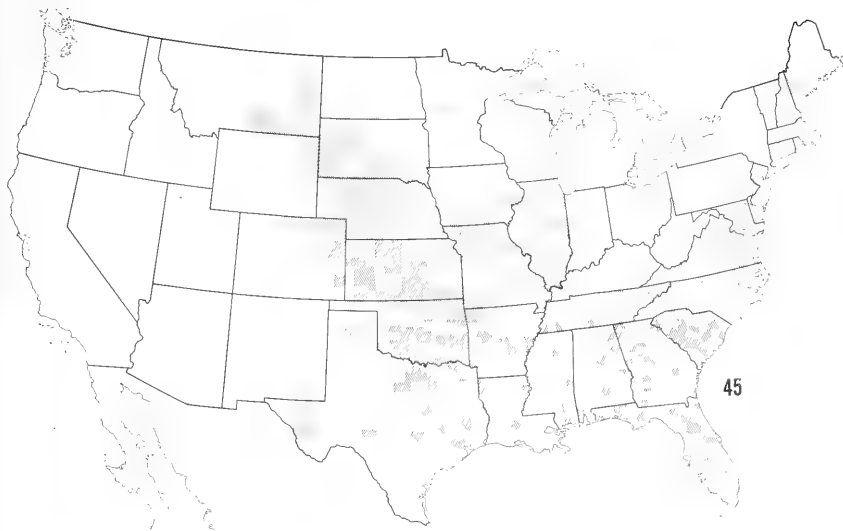


Hesperotettix viridis (Thomas)

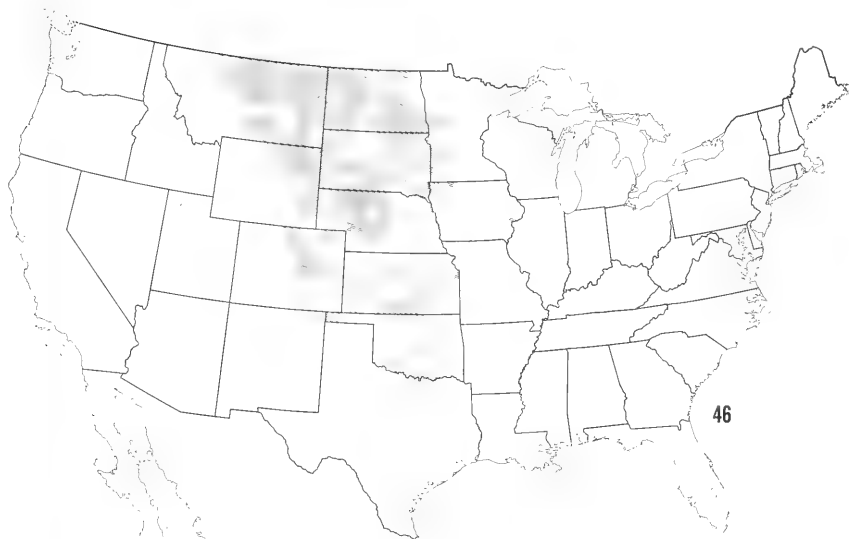


DISTRIBUTION OF RANGE GRASSHOPPERS

Hippiscus rugosus (Scudder)



Hypochlora alba (Dodge)



DISTRIBUTION OF RANGE GRASSHOPPERS

Leprus cyaneus Cockerell



Leprus robustus Hebard





VOL. 6 No. 43

OCTOBER 26, 1956

S B
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID reported from Indiana for first time. Local damage in Tennessee and Georgia. Heavy damage continues in some fields in Missouri and in east central Kansas. Extensive damage in southeast Nebraska. Damage also reported from northern Utah and northeastern Colorado. (pp. 1008, 1009, 1015).

PEA APHID also of concern in alfalfa in areas of Colorado, Illinois, Utah and South Dakota. (p. 1011).

Brief statement on BURROWING NEMATODE control in Florida. (p. 1011).

PINK BOLLWORM survey shows infestation lighter than last year in central and northeast Texas area but more general in east central area. Infestation general in Lubbock area and heavy in El Paso Valley area and along Brazos River. Also heavy in untreated cotton in Dona Ana County, New Mexico. Other reports from Arizona, Louisiana, Arkansas, Oklahoma and Mexico. (p. 1012).

ZIMMERMAN PINE MOTH reported from Indiana for first time. (p. 1013).

ADDITIONAL NOTES. (p. 1015).

SUMMARY OF INSECT CONDITIONS - 1956 - in Massachusetts. (p. 1017).

Distribution of RANGE GRASSHOPPERS. (p. 1019).

Reports in this issue are for the week ending October 19 unless otherwise designated.

WEATHER OF THE WEEK ENDING OCTOBER 22, 1956

With the Polar Front remaining along the Canadian Border during most of the week abnormally warm, Indian summer type weather prevailed over much of the northern and central United States. Average temperatures for the week ranged up to 12° above normal in the North Central Interior, tapering off to near normal in the deep South and Far Southwest. Daytime temperatures, generally were in the 60's and 70's occasionally in the low 80's, throughout the week. Subfreezing minima were mostly limited to the Northeast and the Pacific Northwest Interior and Rocky Mountains when cold air masses overspread those areas late in the period. The week's rainfall was limited almost entirely to northern areas west of the Continental Divide and to southern areas east of the Divide. Rain, occasionally heavy, occurred daily along the north Pacific Coast and during the latter half of the week extended eastward to the Divide. Weekly totals ranged from 2 to 6 inches on the coast, 1 to 3 inches in the western valleys of Washington and Oregon, and from a few hundredths to one-half inch east of the Cascades. Snow began accumulating in the Cascades during the week, and flurries occurred in the Rocky Mountains. The storm centered near Miami, Florida at the beginning of the week moved northward to Virginia before turning out to sea on the 18th. It produced heavy rains along the Atlantic Coast to New Jersey, but amounts tapered off sharply about 50 miles inland from the Coast. In eastern Florida totals for the storm ranged up to 17.30 inches at St. Cloud and unofficial amounts up to 20.00 inches were reported.

As the week ended another area of low pressure was centered over the Southeast and moderate to heavy rains had fallen as far north as the Ohio Valley and westward to Arkansas. These rains greatly relieved the dry soil conditions in Georgia, Alabama, West Virginia and middle and western portions of Kentucky and Tennessee. Parts of Missouri, Arkansas, Mississippi and Louisiana also had beneficial amounts, but much more is needed in these States to restore satisfactory moisture conditions. Showers in the lower Great Plains from the 18th to 20th furnished enough topsoil moisture in many areas to germinate grains and permit resumption of seeding but subsoil moisture is still exhausted and heavy follow-up rains will be needed to bring grains along and rebuild subsoil reserves. Drought continued unabated in most of western Kansas, northwestern Oklahoma, and most of New Mexico, Colorado, Wyoming, and the Far Southwest. And rain is badly needed in the upper Mississippi Valley, Nebraska and the Dakotas. (Summary Supplied by the U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - WYOMING - Expected to be very severe on 827,060 acres of rangeland in 1957. (Spackman).

EUROPEAN CORN BORER (Pyrausta nubilalis) - SOUTH DAKOTA - Fall survey which has been completed for some areas indicates lighter population than last year. Infestation in three regions averaged from 14 to 53 percent and borers per 100 plants averaged from 13 to 88. (Hantsbarger). NORTH DAKOTA - Thirty-four percent infestation and 59.9 borers per 100 plants in Ransom and Sargent Counties. Forty-eight percent infestation and 38.4 borers per 100 plants in Traill and Grand Forks Counties. (N. D. Ins. Rept.). IOWA - Percent infestation and number of borers per 100 plants lower than in 1955. State average for borers per 100 plants in 1956 was 215 compared with 349 in 1955. Percent plants infested this fall is 80.9 compared with 93.2 last year. (Harris). OHIO - Fall survey of 30 counties showed average borer population of 53.3 per 100 stalks. Marked decrease from fall population of last two years. Decrease is attributed to a light August moth flight and a consequent low second-generation infestation. (Rolston, Goleman).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Examination in 67 fields in 13 southwestern counties showed 0-5.5 percent lodging of stalks. (Kyd, Thomas).

A MEALYBUG (prob. Heterococcus graminicola) - WASH. - Damaging Merion bluegrass at Pomeroy. (Brannon).

CUTWORMS AND WEBWORMS - WASHINGTON - Mixed population exceedingly abundant and causing heavy damage to several grass varieties north of Spokane during first week of October. (Harwood, Kamal).

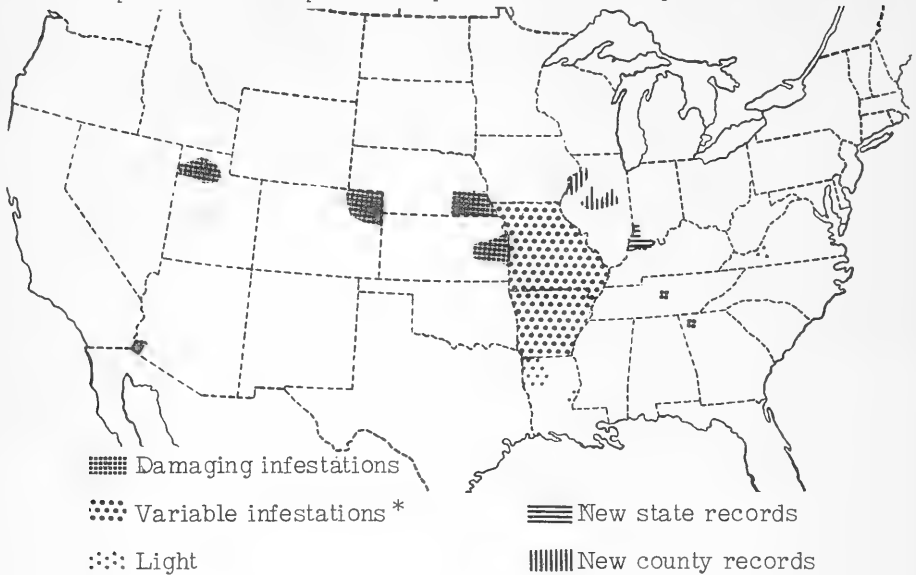
VAGABOND CRAMBUS (Crambus vulgivagellus) - MISSOURI - Sod webworm moths referred to in CEIR 6(40):960 and 6(41):977 identified by H. W. Capps as this species. (Kyd, Thomas).

SORGHUM WEBWORM (Celama sorghiella) - MISSOURI - Heavy in some grain fields in some southeast and south central counties. Ten to 55 percent of heads infested with 4 to over 50 larvae per head. (Kyd, Thomas).

MORMON CRICKET (Anabrus simplex) - WYOMING - Expected to be very severe on 31,700 acres in 1957. (Spackman).

FALL ARMYWORM (Laphygma frugiperda) - TEXAS -Averages 6 per sweep on alfalfa in Robertson County. (Turney, Randolph). LOUISIANA - Occasional larva on newly-planted oats in Livingston, East Feliciana and East Baton Rouge Parishes. (Oliver).

Spotted Alfalfa Aphid as Reported Week Ending October 19



SPOTTED ALFALFA APHID - INDIANA - Found in Knox, Gibson, Posey, Vanderburgh, Warrick, Spencer and Perry Counties. Moderate infestation in most of this southwest area. First records for State. Specimens from Gibson and Posey Counties verified by L. M. Russell. (Wilson). ILLINOIS - Found across central part of State from Pike to Douglas County, 70 per sweep in Pike, 1 per sweep in Douglas. Also found as far north as Carroll County on western side of State. Highest count, 120 per sweep, in Hancock County. (Ill. Ins. Rept.). TENNESSEE - Several reports of damage to alfalfa in Maury County. (Stanley). ARKANSAS - Remains variable though active over State. Actual damage associated with dry weather. Predator numbers also variable, with both aphid and predators lighter in northwest than last week. (Whitcomb, Powell). LOUISIANA - Remains light in alfalfa in Bossier, Red River, Caddo, Tensas and Natchitoches Parishes; heavy populations of predators in most fields. (Oliver). TEXAS - Light to medium on alfalfa in Bowie and Robertson Counties. (Lynch, Randolph). MISSOURI - Varying populations continue over State, 10 to over 1,000 per sweep in central and south central areas. Heavy damage in fields with high populations. Lady beetles and lacewings slowly increasing, 1-4 per 10 sweeps. (Kyd, Thomas). SOUTH DAKOTA - No new areas found during week. (Hantsbarger). KANSAS - Scattered local destructive infestations continue in some east central areas. As high as 1200 per sweep and heavy honeydew in several fields in Kansas River Valley. Some seedling alfalfa has populations requiring control. (Matthew). NEBRASKA - Extensive damage to alfalfa continues from

* Some heavy infestations in Missouri.

Merrick County eastward to Missouri River and in southeast area. In Merrick County, 10-30 per trifoliate leaf on new seedlings, up to 1000-2000 per sweep on old stands. Other southeast counties have 700-1000 aphids plus per sweep. Lady beetles and lacewings average 22 per sweep. (Andersen). UTAH - Damaging alfalfa in Davis, Tooele, Salt Lake and Utah Counties. (Knowlton). ARIZONA - Has almost reached level in Yuma area where insecticides will be necessary. Considerable trouble anticipated in this area during next few months. Heavy infestation in one seedling alfalfa field in Avra Valley, Pima County. Scattered infestations at Fredonia, Coconino County. (Ariz. Coop. Rept.).

JAPANESE BEETLE (Popillia japonica) - NORTH CAROLINA - Worst infestation on record at Bayboro, Pamlico County, this year. Damaged corn silks and other plants. (Stovall). Four to 6 larvae per plant under corn in one field in this county. (Jones, Farrier).

APHIDS - COLORADO - Pea aphid, spotted alfalfa aphid and other species continue in abundance. Heavy damage and large quantities of honeydew on alfalfa in northeastern counties. (Colo. Ins. Det. Comm.).

PEA APHID (Macrosiphum pisi) - SOUTH DAKOTA - Populations remain high in some alfalfa with counts up to 200 per sweep. (Hantsbarger). ILLINOIS - Moderately heavy, averaging several hundred per sweep in some fields, in northwestern and eastern areas. (Ill. Ins. Rept.). UTAH - Damaging succulent alfalfa in northern counties; often associated with injurious populations of spotted alfalfa aphid. (Knowlton).

LESPEDeza WEBWORM (Tetralopha scortealis) - SOUTH CAROLINA - Caused loss of seed crop in untreated sericea lespedeza in Marlboro County. (Nettles).

WEBWORMS (Loxostege spp.) - NEBRASKA - Three to 8 per 10 sweeps in alfalfa in southeast. (Andersen).

ARMY CUTWORM (Chorizagrotis auxiliaris) - NEBRASKA - First instars in alfalfa in Merrick County. Less than one per square yard. (Andersen).

POTATO LEAFHOPPER (Empoasca fabae) - NEBRASKA - Adults and nymphs still active in alfalfa in southeast where counts 5-13 per sweep. (Andersen).

PLANT BUGS - SOUTH DAKOTA - Twenty Lygus spp. per 10 sweeps in one alfalfa field in Spink County. (Hantsbarger). NEBRASKA - From 15-39 Lygus lineolaris per sweep in alfalfa in southeast. (Andersen).

CLOVER ROOT BORER (Hylastinus obscurus) - OHIO - Eleven fields sampled in various areas of State showed average number of borers (all stages) per root was 1.49 contrasted with 3.4 and 3.69 in 1955 and 1954, respectively. Wet, cool spring weather seemed to delay activity; egg-laying and larval development did not proceed at usual rate. Effect of borer on yield was estimated at only 5 percent reduction of second cutting because of reduced populations. (Pruess, Weaver).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Populations remain static, 60-200 per 100 sweeps in four parishes. (Oliver).

ALFALFA WEEVIL (Hypera postica) - NEW JERSEY - Occurred this season in large numbers as far north as Somerset and Hunterdon Counties. Commercial damage was found only in scattered fields in Warren and Morris Counties. Heaviest infestations were found in southern counties. (N. J. Dept. Ag. and Rutgers Univ.).

BEE T ARMYWORM (Laphygma exigua) - TEXAS - Fifteen larvae per sweep on alfalfa in Robertson County. (Turney, Randolph).

FRUIT INSECTS

CODLING MOTH (Carpocapsa pomonella) - COLORADO - Partial third brood developed in apple-producing area of Delta County. (Ag. Chem. Ind., Exp. Sta.).

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - OHIO - Some third-brood larvae now active. (Cutright).

PEAR LEAF BLISTER MITE (Eriophyes pyri) - OREGON - Serious damage caused to orchards at Hood River this season is probably due to lack of dormant spray left out of schedules because trees received winter injury. (Jones).

APHIDS - OHIO - An unusually heavy return flight of migrants to apples throughout northern area. (Cutright).

OLIVE FRUIT FLY (Dacus oleae) - MEXICO - No flies were captured in 50 traps in northern Baja California. Traps were operated in conjunction with Mexican fruit fly traps and were baited with diammonium phosphate attractant. (Mex. Reg. PPC, Sept. 1-30). This fly does not occur in the Western Hemisphere.

CITRUS BLACKFLY (Aleurocanthus woqlumi) - MEXICO - In the northeastern area, 26,977 trees were inspected on 791 properties. One new infestation on three infested leaves of two trees was discovered in the Linares, Nuevo Leon district. No further infestation in Nuevo Laredo. In the northwestern area, 10,076 trees were inspected on 125 properties. An infestation of 64 infested leaves on seven trees was found on one property. (Mex. Reg., PPC, Sept. 1-30). TEXAS - Survey conducted in city limits of Weslaco where several infestations found in August. Survey completed south of Highway 83 where about three-fourths of the citrus trees are located. No new infestations found. (So. Reg. PPC Sept. 1-30).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - In Baja California, 1850 traps were operated on 707 properties and 3334 trap inspections were made with negative results. In the area, 19,575 trees on 2323

properties were sprayed. (Mex. Reg., PPC, Sept. 1-30).

HAWTHORN LACE BUG (Corythucha cydoniae) - FLORIDA - Adults averaging 1-3 per leaf on 40 loquat inspected at Macclenny, Baker County. (Holder, Oct. 11).

Burrowing Nematode Control in Florida

Spreading decline, an important disease of citrus, was first noted in Florida 25 years ago. In 1953, the cause of spreading decline was attributed to the burrowing nematode (Radopholus similis). Only in Florida is the burrowing nematode known to attack citrus. In addition to citrus, approximately 115 species of plants, including ornamentals, are known or suspected hosts of this nematode. While most of the susceptible plants show no recognizable symptoms of decline, they are important as nematode carriers. Surveys conducted by Florida Citrus Experiment Station, State Plant Board and Plant Pest Control Branch indicate that burrowing nematode damage is mainly confined to the light, sandy soils of Florida's central "ridge" area. As of August 1956, infestations had been found on 1497 properties including 1040 groves, 333 nurseries and 124 miscellaneous plantings. It is estimated that 8400 acres of the State's citrus acreage is affected by spreading decline. Through October 11, a total of 2887 acres involving 335 properties had received soil fumigation, 65 gallons of D-D per acre, for control of the pest. The treatment program is conducted by the Florida State Plant Board. (PPC).

SMALL CHESTNUT WEEVIL (Curculio auriger) - MARYLAND - Larvae emerging from chestnuts in Prince Georges and Harford Counties. (U. Md., Ent. Dept.).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Continues to infest cabbage in Rio Grande Valley. (Wene, Deer). LOUISIANA - Moderately damaging cole crops in East Feliciana and Tangipahoa Parishes. Light populations continue on broccoli in Concordia Parish. (Oliver).

PEPPER WEEVIL (Anthonomus eugenii) - TEXAS - Injury noted in two fields of peppers in Rio Grande Valley. (Wene, Deer).

ONION MAGGOT (Hylemya antiqua) - IDAHO - Flies reaching high populations at Parma. Bunching onions for seed 80-90 percent destroyed. (Scott).

LEAFHOPPERS (Empoasca spp.) - LOUISIANA - Continue to infest sweetpotatoes at 116 per 100 sweeps in two fields in St. Landry Parish, 86 per 100 sweeps in two fields of Evangeline Parish, 63 per 100 sweeps in one field of East Feliciana Parish. (Oliver).

TOMATO FRUITWORM (Heliothis zea) - COLORADO - Egg counts 14 per 100 leaves in four counties (Prowers, Bent, Otero and Pueblo) on

tomatoes for week of October 13. Egg parasitism increasing with 47 percent parasitized, Oct. 13. (Exp. Sta.). TEXAS - Damaging tomatoes in many fields in Rio Grande City area. (Wene, Deer).

A MITE - TEXAS - Unidentified species damaging tomatoes in Rio Grande City area. (Wene, Deer).

COWPEA CURCULIO (Chalcodermus aeneus) - TEXAS - Injury in early-harvested peas in Rio Grande Valley. (Wene, Deer).

LEAF MINERS - TEXAS - Destructive numbers on cucumbers in one field and a few on tomatoes in Rio Grande Valley. (Wene, Deer).

STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) - IDAHO - Very abundant on strawberries at Parma. About 60 percent of leaves rolled. (Scott).

SPIDER MITES - IDAHO - Damaging populations on strawberries in Parma area. (Scott). WASHINGTON - Majority of populations of Tetranychus telarius on strawberries examined Sept. 17 near Friday Harbor were overwintering females. (Kamal).

TEN-LINED JUNE BEETLE (Polyphylla decemlineata) - IDAHO - Damaging strawberries north of Caldwell. Plants killed in circles up to 15 feet in diameter. Grubs attacking roots and crowns. Also attacking strawberries in Lewiston area. Moderate populations causing spotted damage. Plants killed in circles up to four feet in diameter. (Scott, Manis).

APHIDS - TEXAS - Large numbers in one field of blackeyed peas in Rio Grande Valley. (Wene, Deer). NORTH CAROLINA - Beginning to be a problem on collards in eastern area. (Scott). COLORADO - Unprecedented flight of Pemphigus balsamiferae in foothills canyon west of Fort Collins, Larimer County, Sept. 29. (Exp. Sta.). WASHINGTON - Unidentified aphids on sugar beets reported in CEIR 6(39):949 identified as mixed populations of Pemphigus balsamiferae and Aphis fabae. Det. E. O. Essig. (Kamal).

A FALSE SPIDER MITE (Brevipalpus lilium) - WASHINGTON - Light to moderate population on wild raspberry on Sept. 12 near Auburn. (Kamal).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - Reported to have caused light damage to cotton at San Simon, Bowie and Elfrida in Cochise County. (Ariz. Coop. Rept.). TEXAS - Gin trash inspection completed in central and northeastern areas. Findings lighter than in 1955 but showed more general infestation in east-central area. Lint cleaner inspection in Lubbock area indicating a widespread and rather general infestation; also indicating heavy infestation in El Paso Valley area. Only a fraction of one percent of the acreage of southern area

standing at end of September and in the Oct. 10 stalk destruction zone. In the other four clean-up zones, work is underway as harvest is earlier than normal. Infestation very heavy in irrigated cotton along Brazos River. LOUISIANA - Gin trash inspection completed in 20 counties with 38 larvae found in Caddo and De Soto Parishes. ARKANSAS - Gin trash inspections completed in 30 counties with 17 larvae found in seven of the counties. All of the counties are within the quarantined area but Crawford, Columbia and Sebastian have new infestations. NEW MEXICO Heavy infestations showing up in untreated fields in Dona Ana County. OKLAHOMA - Gin stand and lint cleaner inspections have been positive in a number of cases. (Southern Reg., PPC Sept. 1-30 Rept.).

Pink Bollworm Situation, Mexico, September 1-30: In the southern part of northeastern Mexico, satisfactory progress was made in cotton field clean-up program. In northern Coahuila, stalk destruction is far ahead of last season. Damage becoming noticeable in later-pick cotton in the Laguna or Torreon district. Infestation much lighter than in 1955 in Delicias section. Green boll inspections and better grades of lint cotton indicate a lighter infestation in northern part of northeastern area. Infestation in the Rio Grande Valley seems to have spread out from the known heavily-infested fields of last season. Untreated fields show considerable damage. During the month, 755 bushels of gin trash inspected with negative results in northwestern area. (Mex. Reg., PPC, Sept. 1-30 Rept.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

ZIMMERMAN PINE MOTH (Diorytria zimmermani) - INDIANA - Infesting red and Scotch pines in LaPorte County. Original record, July 12, 1956. New record for State. (Schuder, Oct. 19).

A PINE TWIG MOTH (Eucosma gloriola) - PENNSYLVANIA - About ten percent of tips of Scotch pine affected in a plantation in Indiana County. (Udine).

SAWFLIES (Neodiprion sp.) - IDAHO - Sawflies of the N. abietis complex caused moderate damage to Douglas-fir trees in the Craters of Moon National Monument. Adults active and egg-laying occurring. (Barr, Clark).

A CATERPILLAR (Datana major) - FLORIDA - Larvae averaging 50 per plant of six azaleas inspected at Ocala, Marion County, Oct. 8. (Condo).

CAMELLIA SCALE (Lepidosaphes camelliae) - FLORIDA - Heavily infesting camellia at Miami, Dade County, Oct. 10. (Dowling).

WHITE PEACH SCALE (Pseudaulacaspis pentagona) - NORTH CAROLINA Ten catalpa trees infested heavily in Onslow County. (Halsey, Farrier).

A FLEA BEETLE (Altica sp.) - IDAHO - Damaging willows along Snake River near Lewiston. (Kambitsch).

AN APHID (Lachnus salignus) - COLORADO - An unusually high infestation on willow in Fort Collins, Larimer County. (Exp. Sta.).

TUPLITREE SCALE (Toumeyella liriodendri) - MARYLAND - Heavy on magnolia in Calvert County. (U. Md., Ent. Dept.).

EUONYMUS SCALE (Unaspis euonymi) - MARYLAND - Crawlers active on euonymus and bittersweet at Grasonville, Queen Annes County. (U. Md., Ent. Dept.).

INSECTS AFFECTING MAN AND ANIMALS

MIDGES (Culicoides spp.) - UTAH - Blue tongue of sheep, suspected of being transmitted by these insects, is appearing at Portage and Fielding. (Knowlton).

HOG LOUSE (Haematopinus suis) - MARYLAND - Light on hogs at College Park. (U. Md., Ent. Dept.).

CATTLE GRUBS - KANSAS - No grubs found on examination of 210 head of cattle near Manhattan, Riley County. (Matthew).

CATTLE LICE - UTAH - Serious problem in some Cache and Box Elder County herds. (Knowlton).

FLEAS (Ctenocephalides spp.) - SOUTH CAROLINA - Unusually abundant this season at Clemson and other places in State. (Nettles).

A SATURNIID (Hemileuca tricolor) - ARIZONA - More abundant than usual in the Tucson area. Several reports of urtication. Feeds on palo verde and mesquite. (Ariz. Coop. Rept.).

STORED PRODUCTS INSECTS

DERMESTIDS (Trogoderma spp.) - IDAHO - Inspection of a grain elevator at Blackfoot for khapra beetle showed numerous Trogoderma spp. but no T. granarium. (Mays, Evans, Smith).

Stored Grain Insect Situation, Arkansas, September

During September, 191 grain storage bins on 83 farms were examined in the Stuttgart-Dewitt area. Only 26 bins were filled with grain but 85 were infested with one or more species of insects as follows: RICE WEEVIL - 1 bin; Tribolium sp. - 18; SAW-TOOTHED GRAIN BEETLE 5; ANGOUMOIS GRAIN MOTH - 19; INDIAN-MEAL MOTH - 12; LESSER GRAIN BORER - 6; CADELLE - 5; FUNGUS BEETLES - 9; DERMESTIDS - 2. (Rouse).

TOBACCO MOTH (Ephestia elutella) - NORTH CAROLINA - Infestation in stored tobacco in Beaufort County. (Williams, Farrier).

BENEFICIAL INSECTS

A GORSE WEEVIL (Apion ulicis) - OREGON - This seed-infesting species has been introduced into Coos County through cooperation of USDA in order to help control gorse. A survey shows that the weevil has successfully completed one part of its life cycle. (Capizzi).

LADY BEETLES - SOUTH DAKOTA - Adults prevalent in alfalfa fields and feeding on pea aphids. Counts average six per 10 sweeps. (Hantsbarger).

MISCELLANEOUS INSECTS

MILLIPEDES - OREGON - Reported migrating into homes several locations on coast, principally in the Otis area. (Every). MARYLAND - Troublesome in homes and gardens at Baltimore and at Elkton, Cecil County. (U. Md., Ent. Dept.).

YELLOW JACKETS (Vespula sp.) - MARYLAND - Unusually annoying around fruit and spice processing plant at Baltimore. (U. Md., Ent. Dept.)

ADDITIONAL NOTES

GEORGIA - SPOTTED ALFALFA APHID heavily infesting alfalfa plots at Experiment Station, Calhoun, Oct. 10. (Tippins).

OKLAHOMA - SPOTTED ALFALFA APHID increasing slightly in Garvin County and in Arkansas River area up to 450-475 per ten sweeps. A LEAFHOPPER (Aceratagallia uhleri) up to 42 per ten sweeps in Garvin County alfalfa. HORN FLY averaged about 400-600 per head on cattle at Oklahoma City. CATTLE GRUBS averaged less than one per head. No live grubs noted. None found in Payne and Canadian Counties. (Coppock, Schoenberg). Severe damage by rice weevil, saw-toothed grain beetle and flat grain beetle in warehouse of stored grain in Logan County. Twenty-eight bins of farm-stored wheat in Sequoyah County had infestation per quart of surface grain as follows: red flour beetle 3-67 in 20 bins; rice weevil 1-11 in 2; lesser grain borer 1-62 in 12; saw-toothed grain beetle 2-43 in 10; mites few to many in 21, psocids few to many in 17 bins. (Coppock).

VIRGINIA - SPOTTED ALFALFA APHID counts low in Roanoke and Montgomery Counties. (Morris, Evans). GREEN JUNE BEETLE larvae heavily damaging 15 acres of fall-seeded alfalfa in Culpeper County, and severely damaging pasture in Brunswick County. (Heltzel et al.). ALFALFA WEEVIL larvae active in Fairfax County. (Morris, Evans). EUROPEAN CORN BORER has injured many fields of corn in Sussex County, about 40 percent of stalks down. EUONYMUS SCALE heavy on euonymus in some areas. (Rowell et al.). MEXICAN BEAN BEETLE continues to cause heavy damage to untreated snap and lima beans in eastern area. CABBAGE LOOPER continues severe on cole crops in eastern area. (Brubaker et al.).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea	Protoparce vires.	Protoparce sexta	Laphyg. frugip.
COLORADO (County) Otero 9/29-10/5 *						4597			
NEBRASKA (County) Scotts Bluff 10/1-7	133	273				329		1	
KANSAS Goodland 9/26-10/5	14	17				235			
Garden City 10/11-17	34	20				146			
Hays 10/7-17	5	14				339			
Manhattan 10/14-20	2	8				144			
OHIO (County) Athens 10/3-14	1	1				3			
NORTH CAROLINA (Counties) Duplin 10/17-18						2			22
Johnston 10/17-18	4					1			
SOUTH CAROLINA (Counties) Oconee 10/7-13	19	1	12			21			6
Florence 10/6-12	311	9	62	4	80	236	2	1	1
Charleston 10/1-7	56	19	12		27	80	5	1	2
FLORIDA Belle Glade 10/9-12					58	118		15	
Monticello 10/9	7					2			
Quincy 10/1-8	11	17			9	22			
LOUISIANA Curtis 10/7-14	960	64	48		64				48
Baton Rouge 10/3-18	5	6	3		36	20	2	1	15
Franklin 10/10-16	12	12	19		59	18	9		54
ARKANSANS Fayetteville 9/16-10/12	36	166		1		6188			
Stuttgart 9/20-10/15	25	13		16		292			
TEXAS College Station 10/12-18	35	13	26			111			46
Weslaco 10/1-15	316	52	97	12		100			84
Winter Haven 10/1-15	179	105	57	5		237	1		6
Waco 10/13-19	32	1	16	33	7	196	2		
GEORGIA (County) Spalding 10/12-18	33	4		2	2	36		1	12
TENNESSEE (Counties) Shelby 10/9-15	6	2				36		2	4
Madison	18	25	8			110	1	1	41
Robertson	20	3	4			140		3	6
Cumberland	25	2	1			238			
Knox	32	1	1			28			3
Greene	12	1	3			21		7	
Blount	5	6	2			40		2	
Johnson	141	28	66	26		69			13
ALABAMA (Counties) Baldwin 10/15	13		2			8			2
Lee	52		1			61	4		14

* Two traps

SUMMARY OF INSECT CONDITIONS - 1956

MASSACHUSETTS

Reported by A. I. Bourne

Cereal and Forage Insects

There was a heavy attack of both first and second brood EUROPEAN CORN BORER (Pyrausta nubilalis). Borer generally more abundant than for many years. Infestations of CORN EARWORM (Heliothis zea) were normal but well controlled by growers who used recommended methods. Attack by WHITE GRUBS was normal.

Truck Crop Insects

APHIDS were abundant all season. First eggs of CABBAGE MAGGOT (Hylemya brassicae) were observed at Waltham, May 13. This was a new record for late appearance and they were about average in abundance. LEAF MINERS on beets and spinach and ASPARAGUS BEETLES were below normal. CABBAGEWORMS were moderate with heavy attacks locally especially of Trichoplusia ni in late summer. Plutella maculipennis caterpillars were abundant in lower Connecticut River Valley in late summer. FLEA BEETLES and ONION THRIPS (Thrips tabaci) were normal. MEXICAN BEAN BEETLE (Epilachna varivestis) showed light attack. Heavy attack of EUROPEAN CORN BORER in potatoes was reported. Attacks of CUCUMBER BEETLES were light generally but heavy locally. CARROT WEEVIL (Listronotus oregonensis) was reported from eastern area. STALK BORER (Papaipema nebris) was serious on peppers and tobacco. One grower reported loss of over one acre of peppers and several reports were received of damage to tobacco. SEED-CORN MAGGOT (Hylemya cilicrura) attack was favored by late, cold, wet spring. One tobacco field was so badly damaged the owner plowed and re-set plants in late June.

Pests of Shade Trees and Ornamentals

BLISTER BEETLES were very abundant in late summer, especially on asters and similar plants. BLACK VINE WEEVIL (Brachyrhinus sulcatus) was more abundant than usual, especially in eastern area. EUONYMUS SCALE (Unaspis euonymi) was very general, and at least normally abundant. BIRCH LEAF MINER (Fenusa pusilla) attack was severe especially in eastern half of the State. TENT CATERPILLARS (Malacosoma americanum and M. disstria) showed a comparatively light attack. Somewhat spotty, local instances of abundance. FALL WEBWORM (Hyphantria cunea) was less than normal generally throughout the State. Judging by number of complaints recorded, there were many different types both of MIDGE and MITE GALLS present and unusually numerous on many different plants. Almost any tree or shrub subject to attack had an abundance of galls this season. APHIDS were abundant throughout season over entire State. MITES were abundant generally on many plants and trees, with SPRUCE MITES especially conspicuous. GYPSY MOTH (Porthetria dispar) caused little or no damage generally. JAPANESE BEETLES were normal generally and heavy locally. ROSE CHAFER was moderately abundant over the State.

Miscellaneous Insects

ANTS caused more than usual number of complaints. EARWIGS were normal, spreading westward from eastern area of infestation. WASPS were unusually abundant over entire State, with many more complaints than usual from all areas. CICADA KILLER (Sphecius speciosus) reported abundant in areas in which it is normally found, and some instances of its presence further north than usual. GIANT HORNET (Vespa crabro germana) apparently normal, but reported found in new locations. TERMITES caused more than usual number of complaints, especially in eastern area.

Insects of Man and Animals

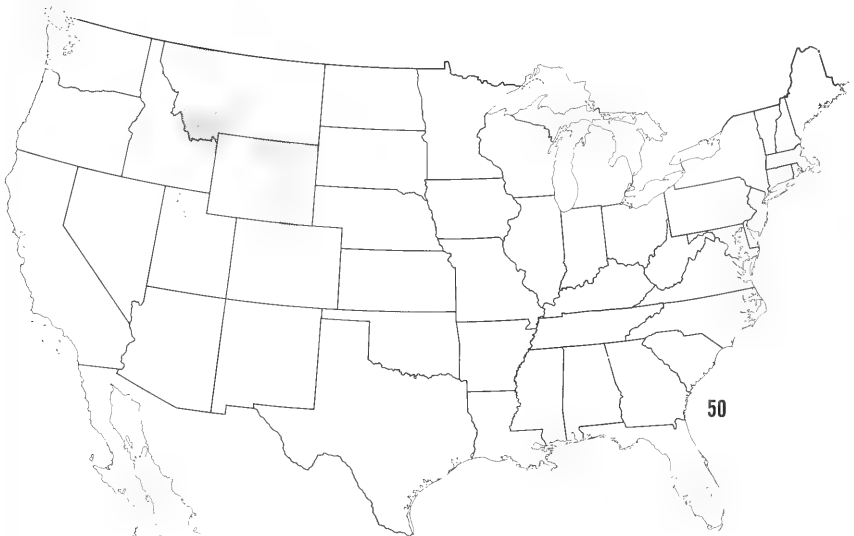
On the basis of observation and complaints recorded, FLEAS were about normal.

DISTRIBUTION OF RANGE GRASSHOPPERS

Leprus wheeleri (Thomas)

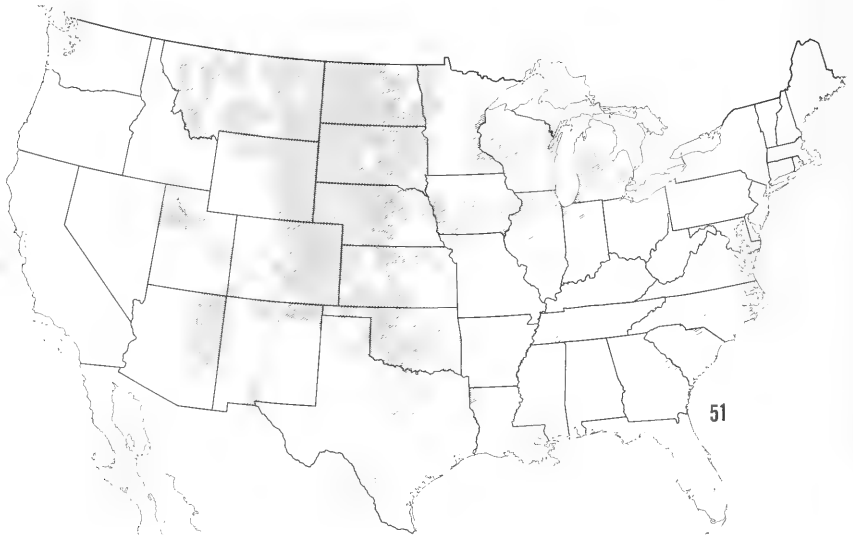


Melanoplus alpinus Scudder



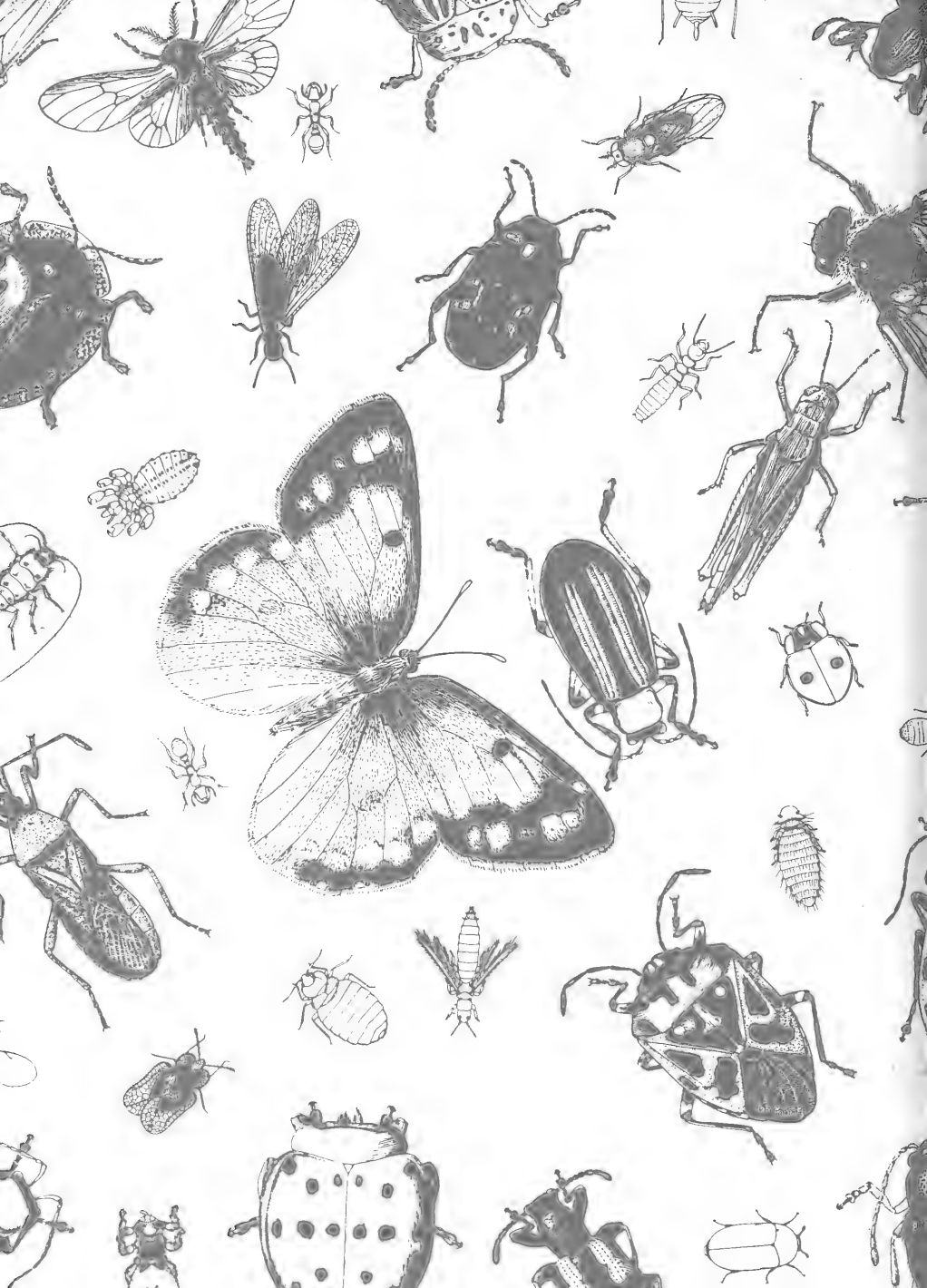
DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus angustipennis (Dodge)



Melanoplus arizonae Scudder





VOL. 6 No. 44

NOVEMBER 2, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID increasing in Lyon County, Nevada, in scattered areas of Oklahoma and northwest Louisiana. Infestations severe in southwestern Illinois. Damage reported in some counties of Tennessee and continues in areas of Utah and Nebraska. (p.1024).

VETCH BRUCHID reported from Kansas for first time. (p.1025).

FIELD CRICKETS causing severe damage to truck crops in Imperial Valley, California. (p.1026).

BOLL WEEVIL combined with dry weather caused poor yield of cotton in two South Carolina counties. (p. 1027).

Brief summary of KHAPRA BEETLE survey and eradication. (p. 1028).

SUMMARY OF INSECT CONDITIONS - 1956 - Delaware. (p.1031).

Distribution of RANGE GRASSHOPPERS. (p.1036).

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

WEATHER OF THE WEEK ENDING OCTOBER 29, 1956

The air, relatively quiet over the United States during most of October, stirred into great activity last week. The result was "Old Man Winter's" first full scale dress rehearsal of the season in the Far West, and widespread precipitation which skipped only the southern portions of the drought areas in the Great Plains and Southwest. The storm centered over the Southeast at the beginning of the period moved up the coast the following 2 days producing 1 to 2 inches of rain in coastal areas and 1/2 inch as far west as the Appalachians. The week's main storm moved into the Pacific Northwest on the 23rd, bringing heavy rains to coastal areas and the first general precipitation to the Great Basin in several months. Precipitation totals ranged from 1/2 to over 1 inch west of the Divide as far south as northern portions of California, Nevada, and Utah, and also in central Wyoming. Much of this moisture fell as snow, particularly in the mountain ranges. In Utah, the total fall during the storm was 19 inches at Alta and 24 inches in the mountains near Tooele. Snow fell also in Colorado, Wyoming, northwestern Kansas, and up to 6 inches was reported in the Black Hills of South Dakota. This storm developed strong intensity over the Mountain States on the 24th, and the flow of cold northern air in its wake lowered the mercury to near the zero point at several stations in the Great Basin and Rocky Mountains. At the same time strong winds (up to 50 m. p. h.) whipped up several duststorms in the western Plains, causing some damage to winter grains before the oncoming showers ended the dust hazard and furnished enough surface moisture for germination and growth of small grains in most sections as far south as Kansas, but much more rain is needed. As the storm continued eastward showers (mostly moderate to heavy) which were general east of the Great Plains were very beneficial from the Mississippi to the Appalachians. As the period ended a second storm had moved into the Great Plains, bringing moderate to heavy amounts as far south as central Texas and light amounts over all of New Mexico and Colorado. And a third storm was moving into the Pacific Northwest where moderate to heavy precipitation was still falling. Temperatures for the week averaged below normal west of a line joining Pembina, North Dakota, and El Paso, Texas with departures as much as 9° in southern Idaho. The week averaged unseasonably mild in the remainder of the country with only slight departures in the South increasing to 6° or 7° in the Great Lakes region and Northeast. (Summary Supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - SOUTH DAKOTA - Egg survey of northeastern area showed non-economic ratings but one stop in Day County and two stops in Grant County showed ratings light to threatening. Melanoplus femur-rubrum dominant species. (Hantsbarger). UTAH - Still moderately numerous on rangeland in mountains of Cache and Rich Counties. (Knowlton).

EUROPEAN CORN BORER (Pyrausta nubilalis) - SOUTH DAKOTA - Fall infestation survey shows a lower population than in 1955. Averages for areas not previously reported are as follows: northeast, 32 percent with 44 per 100 plants and north central, 32 percent and 48 borers per 100 plants. (Hantsbarger). NORTH DAKOTA - Fall abundance survey in four districts showed average infestations of 48, 47, 34 and 36 percent. Population down considerably in major corn counties. (Goodfellow). VIRGINIA - Average number of borers per 100 plants in 20 counties was 171 compared with 158 in 22 counties in 1955. (Morris).

SOUTHERN CORNSTALK BORER (Diatraea crambidoides) - NORTH CAROLINA - Survey in four eastern counties showed as high as 11 of 25 stalks examined infested. Highest counts in Wilson County. (Farrier).

CORN EARWORM (Heliothis zea) - NEVADA - Severe populations in most field corn in Moapa Valley, Clark County. (Gallaway). SOUTH CAROLINA - Some fields of soybeans completely destroyed, largely by this species, September. (Nettles).

FALL ARMYWORM (Laphygma frugiperda) - TEXAS - Medium local infestation on oats in Washington County. (Stufflebeme). LOUISIANA - Occasional larva in oats and wheat in East Feliciana and East Baton Rouge Parishes. (Oliver).

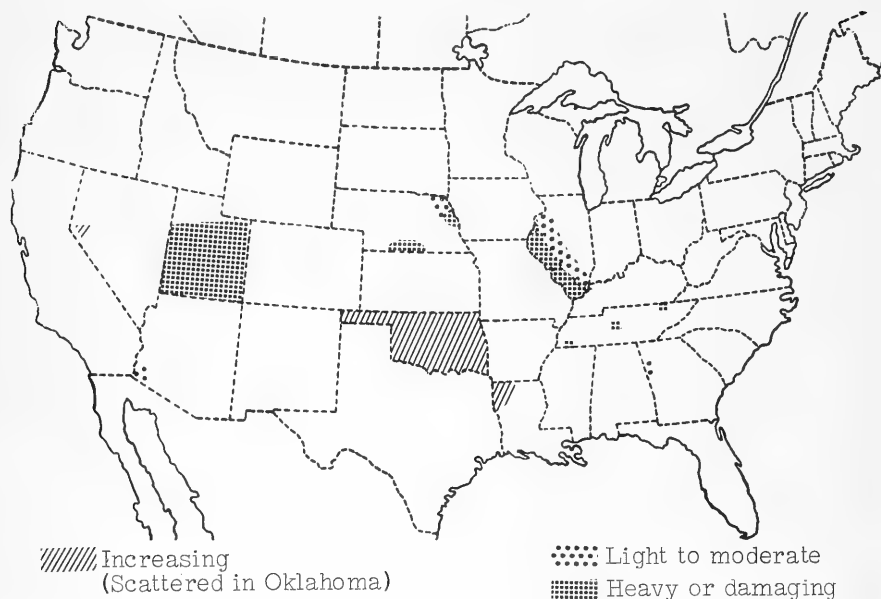
BROWN WHEAT MITE (Petrobia latens) - UTAH - Appearing on some fall wheat in Salt Lake County. (Knowlton).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Hundreds per plant on late-planted, green sorghum in Blaine County. (Coppock).

CHINCH BUGS - OKLAHOMA - Present some fields of late sorghum in northern and central areas. No heavy populations. (Coppock).

A CHINCH BUG (Blissus leucopterus insularis) - FLORIDA - Nymphs and adults 100 per square foot of sod with a webworm, Pachyzancla phaeopteralis, at one per square foot of St Augustine grass at Winter Haven, Polk County, October 14. (Wesson).

Spotted Alfalfa Aphid as Reported Week Ending October 26



SPOTTED ALFALFA APHID - NEVADA - Very rapid build-up to economic numbers in Lyon County, first found infested week of Sept. 8. (Batchelder). SOUTH DAKOTA - Found for first time in Lyman County at two per ten sweeps bringing total to 22 counties infested. (Hantsbarger). ARIZONA - Sticky-board traps indicate some flights in Yuma area. Survey last September and first of October showed occasional field with ten per trifoliolate leaf in Yuma area with most fields infested. Where insecticides used during summer, populations were not heavy. (Ariz. Coop. Rept.). OKLAHOMA - Populations non-economic most areas but building up scattered areas. Highest populations in northern and western areas were 475 per ten sweeps in Payne County. Lady beetles static most areas. (Coppock). NEBRASKA - Damage to alfalfa continues in Republican Valley with counts 100-1000 plus per sweep in most fields. In the northeast, populations diminished somewhat with counts 28-90 per ten sweeps. Some fall seedings through Dodge, Burt and Thurston Counties had 0-8 per trifoliolate leaf. A portion of a heavily infested field in Merrick County completely free of aphids due to huge populations of Hippodamia convergens, averaging 50 per crown area. (Hill, Andersen). ILLINOIS - Survey showed the following: severe infestation in counties in area south and southwest on diagonal from White to Hancock County moderate in area further north from Lawrence northwest to Mercer and north to Whiteside; and none to light in area north of this line from Edgar County to Woodward and north to Carroll. (Ill. Ins. Rept.). GEORGIA - Light infestation in Polk and Carroll Counties

Oct. 19. (Johnson). LOUISIANA - Building up in alfalfa in northwestern area. Most fields examined have moderate infestations, considerable increase from previous week. Huge populations of Hippodamia convergens, Collops balteatus, Nabis ferris, Chrysopa oculata and syrphid flies. (Oliver). MINNESOTA - Found for first time in Brown County, bringing total counties infested to ten. (Minn. Ins. Rept.). UTAH - Populations continue high on succulent alfalfa many parts of State as far north as Davis County. (Knowlton). TENNESSEE - Found in three more counties, Rutherford, Scott and Fayette. Damaging seeds in these counties. (Mullett).

PEA APHID (Macrosiphum pisi) - UTAH - Populations continue high on succulent alfalfa, often with spotted alfalfa aphid. (Knowlton).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Populations remain static with 126-200 per 100 sweeps in alfalfa in Bossier and Caddo Parishes. (Oliver).

POTATO LEAFHOPPER (Empoasca fabae) - OKLAHOMA - Up to three adults per ten sweeps in Logan County alfalfa. (Coppock). NEBRASKA - "Hopperburn" evident most alfalfa fields throughout northeastern area with counts of leafhoppers 3-6 per plant. (Andersen).

LYGUS BUGS (Lygus spp.) - NEBRASKA - Counts of L. lineolaris remain high in Republican Valley and average 22 per sweep in alfalfa fields. In northeast area, counts average 15 per sweep. (Andersen).

CLOVER SEED CHALCID (Bruchophagus gibbus) - UTAH - Damaged alfalfa seed crops this season. (Knowlton).

VETCH BRUCHID (Bruchus brachialis) - KANSAS - Light but general infestation on vetch one farm near Altamont, Labette County, Sept. 12. Collection made in Pottawatomie County earlier. (Matthew). According to available files, first report of this species from Kansas.

A WHITE GRUB (Ligyris subtropicus) - FLORIDA - Larvae infesting several types of lawn grasses in Redlands area of Dade County. Apparently becoming more prevalent there. (Denmark, Oct. 16).

BEAN LEAF BEETLE (Cerotoma trifurcata) - LOUISIANA - On green soybeans at about 200 per 100 sweeps in Tensas Parish. (Oliver).

FRUIT INSECTS

APPLE MAGGOT (Rhagoletis pomonella) - WEST VIRGINIA - Heavy on apples in Webster County. (Dorsey, Hansen, Gillespie).

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - CALIFORNIA - In 41 counties, 1211 traps have captured no specimens. (Cal. Coop. Rept., Oct. 20).

SPIREA APHID (Aphis spiraeicola) - FLORIDA - Nymphs and adults averaging 75-100 per leaf of loquat at Macclenny, Baker County, Oct. 11. (Holder).

TRUCK CROP INSECTS

CABBAGE LOOPER (Trichoplusia ni) - LOUISIANA - Populations declined on cole crops but remain threat some areas of Concordia, Tangipahoa and East Feliciana Parishes. (Oliver).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - From Oct. 3-17, 210,000 acres of Russian-thistle were sprayed by airplanes in Kern, Kings and Fresno Counties. Counts show 98-99 percent kill of leafhoppers in area. (Cal. Coop. Rept., Oct. 20).

DARKLING BEETLES - NEVADA - Over 1000 beetles taken in black traps in two hours in a Clark County sugar beet field. (Gallaway).

SUGAR-BEET ROOT APHID (Pemphigus betae) - UTAH - Damage to sugar beets moderate to light in many recently-dug fields. (Knowlton).

TOMATO RUSSET MITE (Vasates lycopersici) - TEXAS - Light local populations on several tomato plants in Smith County and heavy local infestation on tomato plants in Cherokee County. (Young).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - ALABAMA - Additional infestation in Conecuh and Monroe Counties. Several properties in Baldwin and Mobile Counties released from quarantine. (Owen). MISSISSIPPI - Infested sweetpotatoes received Adams County, Oct. 19. Extent of infestation being determined. (Hutchins).

SOUTHERN GREEN STINK BUG (Nezara viridula) - LOUISIANA - Infesting fall potatoes in Tangipahoa Parish and causing considerable damage. (Oliver).

MELON FLY (Dacus cucurbitae) - CALIFORNIA - Over 8000 traps in service in Los Angeles County and maintained by State, Federal and County personnel. No finds have been made since one female collected in August 1956. (Cal. Coop. Rept., Oct. 20).

FIELD CRICKET (Acheta assimilis) - CALIFORNIA - Upward of 800,000 acres reported infested in Imperial Valley with severe damage to numerous truck crops. (Cal. Coop. Rept., Oct. 20).

Spinach Insect Situation, Bixby Experiment Station, Oklahoma
Foliage collections from 200 spinach plants showed eight eggs and ten larvae of Hylemya cilicrura and 11 first and second-instar larvae of Pachyzancla bipunctalis. Examination of soil from six linear feet of row revealed no infestations of H. cilicrura. (Walton, Arbuthnot).

A MUSHROOM MAGGOT - NEVADA - Serious damage to cultivated mushrooms at Las Vegas. (Lauderdale).

COTTON INSECTS

BOLL WEEVIL (Anthonomus grandis) - SOUTH CAROLINA - Cotton crop about 50 percent off due to weevils and dry weather in Anderson County. Crop very poor in Spartanburg due to same combination. (Nettles et al.).

BOLLWORMS (Heliothis spp. et al.) - NEVADA - Economic populations in individual fields of Clark County and very light in Nye County, Oct. 7. (Galloway).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Cotton gin trash surveys for pink bollworm underway in Kern, Kings, Tulare and Fresno Counties. Boll inspections also being made. No pink bollworm has been found in California. (Cal. Coop. Rept., Oct. 20). NEVADA - Field inspection of 2231 green bolls from 2088 acres in southern area showed no infestation, week of Oct. 7. (Galloway). TEXAS - Light infestation in cottonseed in the field in Erath County. (Sanchez). OKLAHOMA - A total of 57 samples from 219 bushels of trash in the 16 major cotton-producing counties produced 1669 live and 504 dead larvae. In 14 counties, 27 gin stand inspections yielded two live and 515 dead larvae and in eight southern and western counties, 24 lint cleaner inspections yielded one live and 162 dead larvae. (Fed. -State PBW Prog.). ALABAMA - Gin trash and lint cleaner inspections completed in 35 counties in southern, western and northern areas were all negative. (Owen).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

APHIDS - NEVADA - Severe infestation on black willow trees at Truckee Meadows, Washoe County. (Galloway).

AN APHID (Longistigma caryae) - FLORIDA - Nymphs and adults averaging many per stem of laurel oak at Bartow, Polk County, Oct. 14. (Haddox).

CITRUS WHITEFLY (Dialeurodes citri) - VIRGINIA - Heavy on outdoor gardenias at Norfolk. (Rowell).

CAMELLIA SCALE (Lepidosaphes camelliae) - VIRGINIA - Heavy on outdoor camellias at Norfolk. (Rowell).

A PHALANID (Melipotis acontioides) - FLORIDA - Larvae averaging 1000 per royal poinciana on three inspected at Ft. Pierce, St. Lucie County, Oct. 8. (Campbell).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Populations of Aedes sollicitans, Aedes spp. Anopheles sp. and Culex sp. heavy in Livingston and Cameron Parishes. (Oliver).

BLACK FLIES - UTAH - Have been unusually numerous in parts of Salt Lake, Weber, Box Elder and Cache Counties in recent weeks. (Knowlton)

A STRATIOMYIID (Hermetia illucens) - ARIZONA - Larvae recovered from stools of Tucson resident in early October. Larvae pupated and emerged a week later. (Ariz. Coop. Rept.).

STORED GRAIN INSECTS

Khapra Beetle Progress Report

Khapra beetle survey has been conducted in 35 States with total of 40,672 sites being inspected. Of this total, 37,620 sites have been in the three known infested States of Arizona, California and New Mexico. Some sites have been reinspected two or more times for a total of 17,275 reinspections. Additional inspections have been made on approximately 1,000 sites in Mexico. Survey activities are being increased this fall and winter. The table below shows the cumulative treatment summary for khapra beetle eradication. The figures are as of September 30.

State	Tot. Inf. Sites	Tot. Vol. Cu. Ft.	Sites Tr. & Released	Vol. Tr. & Released	Methyl Br. Used lbs.
Ariz.	125	52,500,500	82	39,912,226	251,438
Cal.	278	70,957,000	244	61,259,082	529,616
N. M.	5	415,400	5	415,400	3,680
Mexico	38	11,580,000	11	2,603,473	20,360
Totals	446	135,452,400	342	104,190,181	805,094

(PPC).

Additional Note on Khapra Beetle

CALIFORNIA - Between October 8-20, two new infestations were found, one in a dairy in Fresno County and one in stock-feeding business in Kern County. Eight properties fumigated and eight released from regulation during this period also. (Cal. Coop. Rept.).

STORED GRAIN INSECTS - OKLAHOMA - Three seed and feed warehouses inspected week of Oct. 8 in Garfield County showed severe infestation of COWPEA WEEVIL in cowpeas in one site. A light infestation of ANGOUMOIS GRAIN MOTH present in all three warehouses. (Coppock, Owen). NORTH CAROLINA - About five percent of newly-harvested corn from eastern counties received at a large elevator was damaged by weevils. Infestation particularly in early-maturing varieties and damage overall 2-3 times worst than in 1955. (Jones, Farrier).

BENEFICIAL INSECTS

LADY BEETLES - UTAH - Adults and sometimes larvae still-moderately numerous in some aphid-infested alfalfa fields, with Chrysopa sp. also present in some fields. (Knowlton).

A PARASITE (Aphytis maculicornis) - CALIFORNIA - Based on freedom from olive scale attack, olive scale was reduced to non-economic proportions where no outside interference from insecticides occurred and where parasites had four years to build up. (Cal. Coop. Rept., Oct. 20).

MISCELLANEOUS INSECTS

YELLOW JACKETS - UTAH - Numerous and entering homes and sometimes annoying deer hunters in mountains. (Knowlton).

CLOVER MITE (Bryobia praetiosa) - NEVADA - Migration into homes sufficient to require control in Washoe County. (Galloway).

TERMITES - WEST VIRGINIA - Causing floor to collapse in high school gymnasium in Roane County. (Dorsey, Hansen, Gillespie).

BOXELDER BUG (Leptocoristivittatus) - NEVADA - Dense swarms invading homes in western area. (Galloway). VIRGINIA - Large masses in rural retreat area of Wythe County. (Vaugh, Morris).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliolithis vires.	Protoparce sexta quind.	Laphyg. frugip.
NEBRASKA (Counties)								
Scotts Bluff 10/15-20	19	33			57			
Lincoln 10/14-20	28	50			585			
TENNESSEE (Counties)								
Shelby 10/16-22	36	16		6	186			3
Madison	6	1			6			
Mauzy	34	8	4		114		3	6
Robertson	15	6		1	70		2	6
Cumberland	3	6		2	17		1	5
Knox	28	1	1	1	1			
Greene	65	8	17	4	37	1	4	5
Blount	16	7	3		28	1		8
Marion	6	15			17			7
Johnson	104	14	20	13	3			5
NORTH CAROLINA (Counties)								
Duplin 10/24-25	4				3			
Johnston 10/24-25	1	1			7			
SOUTH CAROLINA (Counties)								
Oconee 10/14-20	5		3					1
Florence 10/13-19	122	12	14	4	22	1		2
Charleston 10/8-14	18	26	8		18	4	2	8
GEORGIA (Counties)								
Spalding 10/19-26	41	13		3	13			27
Tift 10/19-25	25	2			3			
FLORIDA								
Belle Glade 10/17-19								
Homestead 10/19					6			
Quincy 10/15	9	15			7			
Gainesville 10/17	9	4			4		1	
ALABAMA (Counties)								
Lee 10/20-26	70							12
Baldwin 10/17	4							1
LOUISIANA								
Curtis 10/15-21	277							
Baton Rouge 10/19-26	16	16		4	80	4	2	12
Franklin 10/18-24	5		9	2	58	2		8
TEXAS					49	2		28
College Station 10/20-26	12	3	4	15	18			12
Waco 10/20-26	4		2		150			

SUMMARY OF INSECT CONDITIONS - 1956

DELAWARE

Reported by H. E. Milliron

Corn Insects: EUROPEAN CORN BORER (Pyrausta nubilalis) survival was heavy in stalks and stubble in late March-early April. Injury by small borers heavy on sweet and advanced field corn in the Harrington-Bridgeville area by June 9-15, thereafter becoming conspicuous throughout State, especially on sweet corn. The fall-abundance survey revealed about same heavy population (243 borers per 100 plants) as in the preceding season and an estimated loss of approximately 660,000 bushels valued at \$950,000. DULL SAP BEETLE (Carpophilus lugubris) adults first appeared during last week of June; more abundant and destructive than usual on corn throughout State. SEED-CORN MAGGOT (Hylemya cilicrura) was less destructive to corn than usual. ARMYWORM (Pseudaletia unipuncta) caused no serious losses anywhere. CORN FLEA BEETLE (Chaetocnema pulicaria) was very prevalent in late July and early August. Less destructive generally than in preceding season. CORN EARWORM (Heliothis zea) was responsible for usual injury to early sweet corn, less on mid-season varieties and generally severe in late garden plantings. Except for early infestations in whorls and tassels, notably much less abundant generally in field corn than for past six seasons. Estimated total season's cost due to this pest was about \$100,000, including all crop loss and control expenditures. CUTWORMS (Agrotis ypsilon and A. gladiaria) injury was very light compared with 1955. GRASSHOPPERS (Melanoplus spp.) caused light damage at some places in July. JAPANESE BEETLE (Popillia japonica) was troublesome in northern Sussex County on silks and leaves during July. CORN LEAF APHID (Rhopalosiphum maidis) was more destructive throughout the State than for past six seasons. FALL ARMYWORM (Laphygma frugiperda) was lighter than normal.

Cereal and Forage Insects: ARMYWORM was somewhat less abundant than last season; light, spotty infestations in wheat, barley and rye. Moderate injury to rye and wheat noted on Primehook Neck during early June. ALFALFA WEEVIL (Hypera postica) inflicted moderately heavy to severe damage to untreated, first-growth alfalfa throughout the State in May and early June, later to second growth at numerous locations. Pest prompted much early cutting to prevent heavier losses. Estimated hay lost was 4000 tons, valued at \$126,000; control expenditures approximately \$24,000. PEA APHID (Macrosiphum pisi), though abundant everywhere on alfalfa and clovers in May, much less destructive generally than in 1955. CLOVER LEAF WEEVIL (Hypera punctata) was less severe than in preceding season. LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) was season's most important pest of red clover. Very injurious to tips and buds in late May and early June, causing a loss of at least 50 per cent of blooms at some places. MEADOW SPITTLEBUG (Philaenus leucophthalmus) was unusually abundant or destructive on forage legumes. TARNISHED PLANT BUG (Lygus

lineolaris) was more numerous than for several years in alfalfa and clovers throughout season. MEADOW PLANT BUG (Leptoterna dolabratus) was unusually abundant in red clover and clover grass mixtures during May. POTATO LEAFHOPPER (Empoasca fabae) population on forage legumes heavier than in preceding season; severe yellowing of alfalfa noted. GREEN CLOVERWORM (Plathypena scabra) caused light to moderately heavy injury to alfalfa generally.

Soybean Insects: STRAWBERRY SPIDER MITE (Tetranychus atlanticus) was light generally in Sussex County, with only moderately severe injury near Bridgeville, in contrast to numerous instances of severe damage the preceding season. BEAN LEAF BEETLE (Cerotoma trifurcata) was numerous throughout Kent and Sussex Counties without causing serious damage except to seedlings. GRASSHOPPERS (Melanoplus spp.) was responsible for partial defoliation at many widely scattered locations. JAPANESE BEETLE (Popillia japonica) usual numbers fed heavily on foliage at some locations. POTATO LEAFHOPPER (Empoasca fabae) was abundant everywhere, July and August.

Vegetable Insects: CABBAGE APHID (Brevicoryne brassicae) was very destructive to small plantings in Georgetown area. IMPORTED CABBAGEWORM (Pieris rapae) was somewhat more numerous generally than in 1955; major lepidopterous pest of cabbage and kale during most of season. AN INTRODUCED FLEA BEETLE (Phyllotreta cruciferae) was responsible for about same degree of statewide damage to cole crops reported previous year. CABBAGE LOOPER (Trichoplusia ni) was troublesome on cruciferous crops and infested tomatoes generally causing noticeable foliage injury. MEXICAN BEAN BEETLE (Epilachna varivestis) was chiefly a problem on beans in home gardens. Few cases of light, to moderately severe, spotty injury to commercial snap and lima beans. BEAN APHID (Aphis fabae) was less troublesome than in preceding season. GREEN CLOVERWORM (Plathypena scabra) caused light defoliation of limas generally. BEAN LEAF BEETLE (Cerotoma trifurcata) was not unusually abundant or destructive to beans. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) occurred in moderate numbers on beans. PEA APHID (Macrosiphum pisi) was light to moderately abundant in commercial peas from Middletown southward in June. Required considerable control. TOBACCO HORNWORM (Protoparce sexta) was unusually light throughout the State on tomatoes, except in large acreages near Canterbury. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) was a common, destructive pest on untreated potatoes and tomatoes throughout State, requiring much control. Numerous cases of partial to complete defoliation of tomatoes in Sussex County. POTATO APHID (Macrosiphum solanifolii) was more prominent throughout season on tomatoes generally than for past several years. Widespread on potatoes, requiring control in few cases. CUTWORMS (Agrotis ypsilon and Feltia subgothica) destroyed plants of cabbage, tomato, potato and sweet corn at many places in Kent and Sussex Counties. Estimated 10 percent loss of some tomato plantings. SEED-CORN MAGGOT (Hyalemya cilicrura) caused spotty germination of commercial snap beans east of Bridgeville. Destructive to commercial sweet corn in the Georgetown area, necessitating about 30 percent reseeded. CUCUMBER BEETLES

(Acalymma vittata and Diabrotica undecimpunctata howardi) - Former statewide severe pest of untreated cucurbits throughout season. Latter was noticeably less abundant than in preceding season. SQUASH BUGS (Anasa tristis and A. armigera) - Common in Kent and Sussex Counties on cucurbits, without unusual damage anywhere. SQUASH VINE BORER (Melittia cucurbitae) caused serious loss to pumpkin-squash in the vicinity of Dover. POTATO TUBERWORM (Gnoriomoschema operculella) reported from Harbeson area, February 16. GARDEN SPRINGTAIL (Bourletiella hortensis) - Early injury prevalent generally on potatoes and tomatoes. Unusually abundant everywhere. POTATO LEAFHOPPER was heavy throughout State on potatoes and beans, beginning mid-June; tipburn common on untreated potatoes in Sussex County. EUROPEAN CORN BORER attacked potatoes generally; numerous severely infested plantings. Also infested pepper near Bridgeville.

Fruit Insects: STRAWBERRY WEEVIL (Anthonomus signatus) was less troublesome generally than in 1955. STRAWBERRY ROOT APHID (Aphis forbesi) injurious in two plantings in Sussex County. GRAPEVINE APHID (Aphis illinoisensis) abundant on new growth late in season near Newark. CODLING MOTH (Carpocapsa pomonella) attack on unsprayed apples heavy by late June. Injury by second-brood larvae generally more severe than that of first. UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) distributed throughout State, was troublesome in May on unsprayed apple foliage in Sussex County. ORIENTAL FRUIT MOTH (Grapholitha molesta) caused usual amount of damage to peaches and apples. PLUM CURCULIO (Conotrachelus nenuphar) occurred in normal numbers. APPLE APHIDS (Rhopalosiphum fitchii, Anuraphis roseus and Aphis pomi) infestations about average except former species more abundant than usual early in the season. ORCHARD MITES (Metatetranychus ulmi and Tetranychus telarius) was prevalent locally; generally less destructive than in 1955. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) was responsible for some injury to apple foliage. A WOOLLY APHID (probably Eriosoma lanigerum) was recorded killing young apple trees in Kent County. AMERICAN PLUM BORER (Euzophora semifuneralis) destructive to apple at Woodside and Bridgeville. PEAR BORER (Thamnospehia pyri) numerous in outer bark of apples, associated with American plum borer at Woodside and Bridgeville. FALL ARMYWORM (Hyphantria cunea) was more conspicuous on apple generally than in 1955. EUROPEAN CORN BORER infested numerous apple twig terminals and fruits at Bridgeville, mid-June.

Forest, Ornamental and Shade Tree Insects: PINE TUBE MOTH (Argyrotaenia pinatubana) caused conspicuous amount of injury on white pine at Dover in late Jan. A MIDGE (Retinodiplosis inopis) damaged Virginia pine at Petersburg. PINE TORTOISE SCALE (Toumeyella numismaticum) destructive to seedling Virginia pine in the Redden State Forest. PINE NEEDLE SCALE (Phenacaspis pinifoliae) - Some loblolly and Virginia pines heavily infested in the Redden State Forest. PINE SAWFLIES (Neodiprion spp.) caused light to moderately heavy defoliation generally. Less severe than in preceding season. PALES WEEVIL (Hylobius pales) infested Virginia pine seedlings at Petersburg, causing

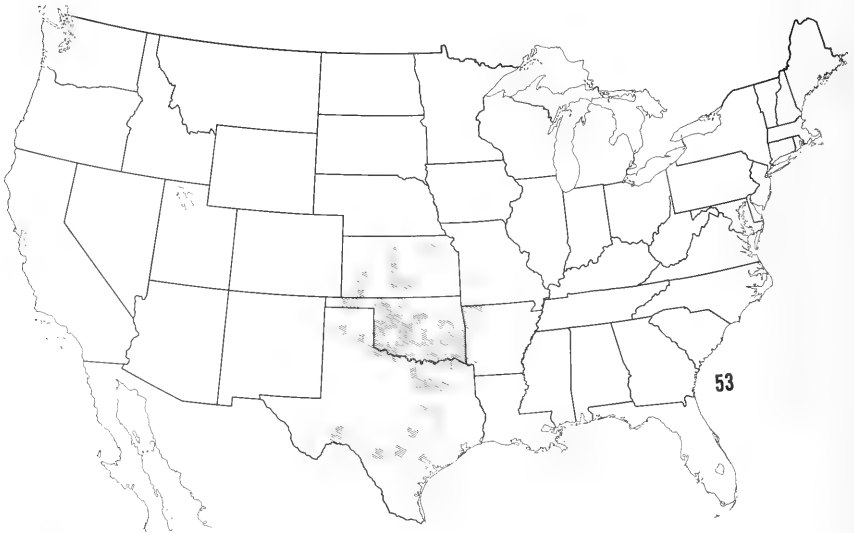
death of some. NANTUCKET PINE MOTH (Rhyacionia frustrana) destroyed growing tips of many loblolly pines over northern two-thirds of the State. PINE APHIDS (Cinara spp.) were abundant on Virginia and loblolly pines in Kent and Sussex Counties. BAGWORM (Thyridopteryx ephemeraeformis) was more destructive than last year on evergreens and deciduous trees throughout State. EASTERN TENT CATERPILLAR (Malacosoma americanum) was more prevalent than last year on wild cherry. BUCK MOTH (Hemileuca maia) defoliating white oak at Petersburg and in Redden State Forest, early June. A BIRCH APHID (Calaphis betulella) was very abundant on Betula nigra at Petersburg during June. ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) adults caused light to moderate damage to oak and chinquapin foliage. WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma) was severe on sycamore from Smyrna southward. SWEETGUM WEBWORMS (Salebria afflicta and Tetralopha melanogrammos) were serious on ornamental plantings in vicinity of Dover and southward, less so northward and in all natural stands. WOOLLY ELM APHID (Eriosoma lanigerum) was heavy on many elms in the Smyrna area, June 16. ELM LEAF APHID (Myzocallis ulmifolii) was very abundant and injurious to American elm at Smyrna, early July. ELM LEAF BEETLE (Galerucella xanthomelaena) was abundant and destructive to ornamental elms as usual. JAPANESE BEETLE was severe on rose and on certain trees. SYCAMORE TUSSOCK MOTH (Halisdota harrisii) was important defoliator of ornamental trees in Smyrna area. MIMOSA WEBWORM (Homadaula albizziae) was severe at many locations. NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) produced conspicuous injury in natural stands at Petersburg and in the Redden State Forest. AN OECOPHORID (Psilocorsis faginella, det. by J. F. Clarke) severe on beech in northern Delaware, commonly destroying as much as 50 percent of foliage. ASIATIC GARDEN BEETLE (Autoserica castanea) adults injurious to herbaceous ornamentals some areas. POPLAR TENT MAKER (Ichthyura inclusa) - Aspen and silver poplar partially to completely defoliated. A NOTODONTID (Cerura borealis) defoliated silver poplar at Petersburg in July. GREEN-STRIPED MAPLEWORM (Anisota rubicunda) numerous on red maple at Petersburg. HICKORY TUSSOCK MOTH (Halisdota caryae) caused considerable defoliation of black walnut at Newark. WALNUT CATERPILLAR (Datana integerrima) was severe on black walnut throughout the State. LOCUST LEAF MINER (Chalepus dorsalis) was destructive at Summit Bridge. LOCUST TWIG BORER (Ecdytolopha insiticiana) weakened numerous branches of smaller trees at many locations. YELLOW-NECKED CATERPILLAR (Datana ministra) caused light to severe foliage loss on oaks. More destructive than for several years. ORANGE-STRIPED OAKWORM (Anisota senatoria) responsible for partial defoliation of white oak some areas. BROWN ANISOTA (Anisota virginensis) was prevalent on various oaks. RED-HUMPED OAKWORM (Symmerista albifrons) unusually common on oaks from Newark to Bridgeville. VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) - Local outbreaks caused complete defoliation of oaks. A MTE (Oligonychus bicolor) was heavy on willow oak at Petersburg; elsewhere less destructive than in 1955. FALL WEBWORM (Hyphantria cunea) caused considerably more damage to deciduous trees than in preceding season.

Household and Structural Insects: TERMITES (Reticulitermes spp.) A statewide problem, costing close to a \$1,000,000 annually. At least two, and possibly three, species involved. CLOVER MITE (Bryobia praetiosa) was nuisance in many homes in the Newark-Wilmington areas.

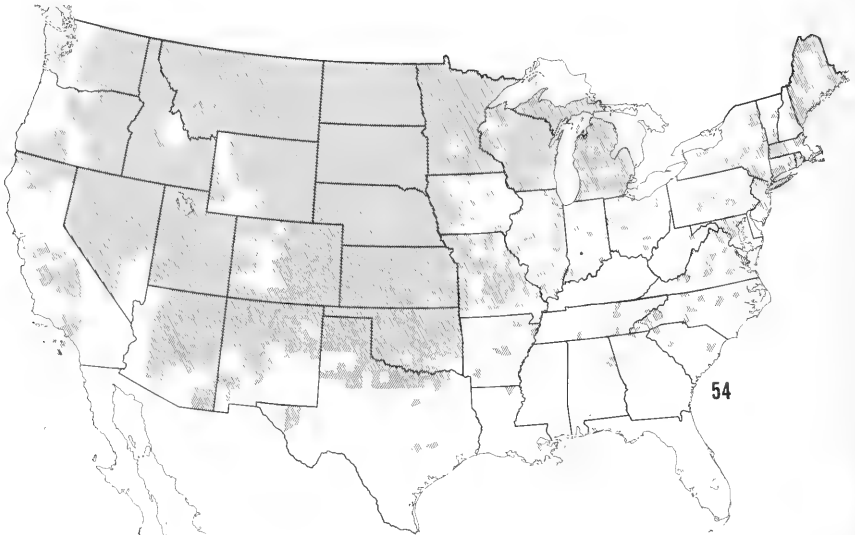
Insects Affecting Man and Animals: BROWN DOG TICK (Rhipicephalus sanguineus) - Several infestations on dogs in Newark area. AMERICAN DOG TICK (Dermacentor variabilis) was abundant in forested area, Petersburg in early May; numerous reports received during spring and early summer. BLACK FLIES (Prosimulium hirtipes, Cnephia mutata and Simulium decorum) were annoying to man during late April-early May. SALT-MARSH MOSQUITO (Aedes sollicitans) was unusually abundant and annoying in Kent County during late July. TROPICAL RAT MITE (Bdellonyssus bacoti) numerous in house at Georgetown, following rodent control.

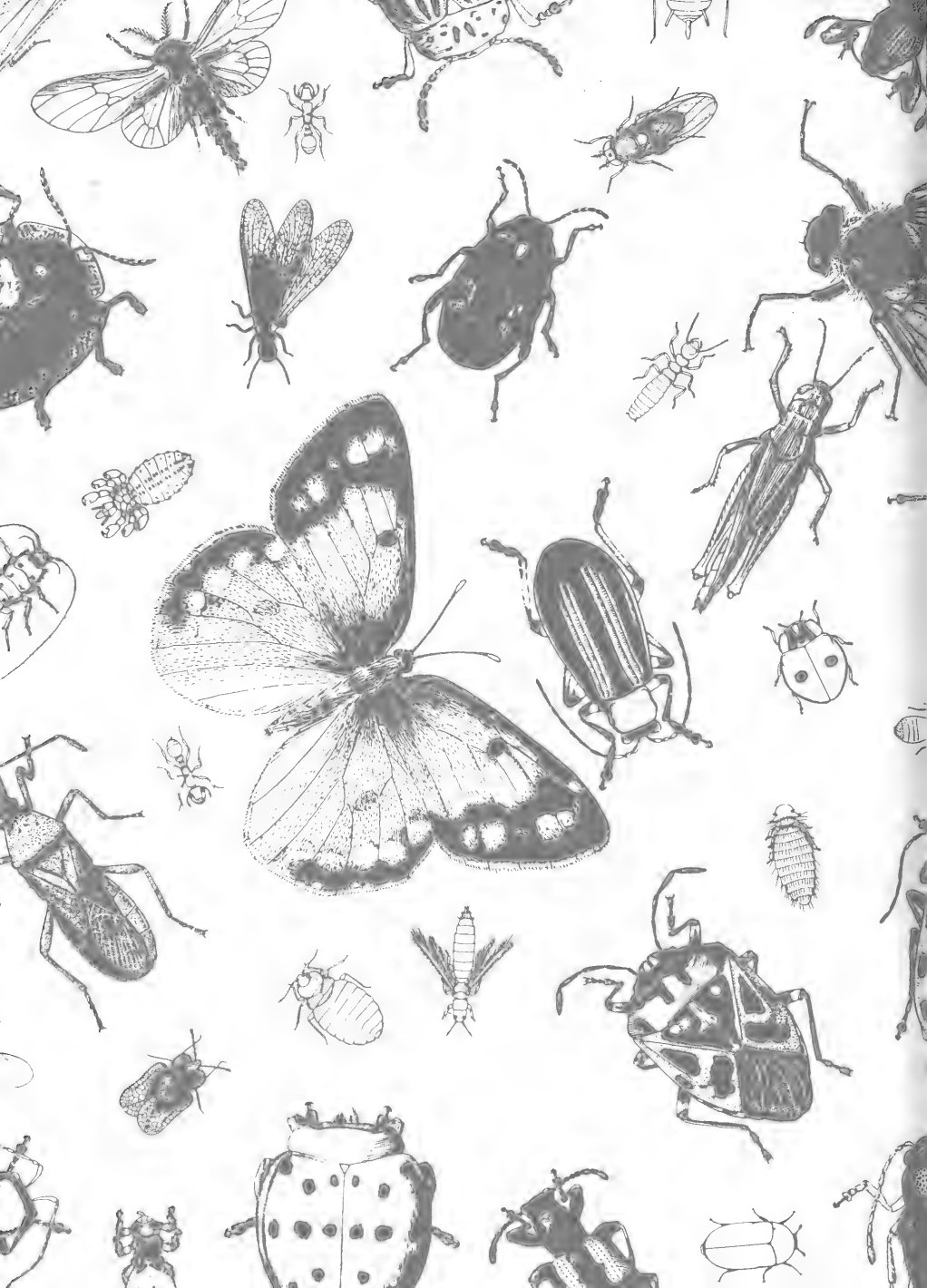
DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus bispinosus Scudder



Melanoplus bivittatus (Say) Two-striped grasshopper





VOL. 6 No. 45

NOVEMBER 9, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID continues to cause damage in areas of Tennessee, Nebraska, Kansas and Utah. New county records from California and Nebraska. (pp. 1039, 1044).

PEA APHID severe in many alfalfa fields in central Illinois. Abundant also in northwestern Nebraska and northern Utah. (p. 1040).

A TORTRICID (Acleris lipsiana) collected in Oregon. First United States record. (p. 1041).

A DERMESTID (Trogoderma parabile) reported from Nevada for first time. (p. 1043).

FRUIT INSECT conditions in New York and New England in 1956. (p. 1046).

Distribution of RANGE GRASSHOPPERS. (p. 1050).

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

WEATHER BUREAU'S 30-DAY OUTLOOK

NOVEMBER 1956

The Weather Bureau's 30-day outlook for November calls for temperatures to average below seasonal normals over most of the country between the Rockies and the Appalachians, in marked contrast to the unseasonably warm weather which has prevailed during the past two weeks. Near normal temperatures are expected over the eastern seaboard with cool periods becoming increasingly frequent as the month progresses. The only areas in which above normal temperatures are in prospect are the West Coast states and northern portions of the Great Lakes and New England. Precipitation is anticipated to exceed normal over most of the nation east of the Continental Divide, providing further alleviation of the drought in many areas. West of the Divide precipitations amounts are expected to be below or not far from normal.

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

WEATHER OF THE WEEK ENDING NOVEMBER 5, 1956

Widespread precipitation with heavy beneficial amounts in the Great Plains, unusually cold, stormy weather in the western half of the Nation and unseasonably mild temperatures in the East were the week's main weather features. A north-south low pressure trough straddling the North American Continent brought moderate to heavy rains to the greater portion of the Great Plains on October 29 and 30. At the same time a low pressure area moved up the Atlantic Coast producing heavy rains in middle Atlantic coastal areas and lighter amounts elsewhere in the East. In the meantime, a second low pressure trough, first felt in the Pacific Northwest on October 30, moved eastward to the Mississippi where it was stalled from November 2 until the end of the period by high pressure in the East. A severe storm, developing over the central Rockies and central Great Plains, was accompanied by high winds and heavy snow, and moderate to heavy rains fell from the eastern Great Plains to the Mississippi River.

Snowfall of 8 inches at Salt Lake City, Utah, was the heaviest there for so early in the season. In east-central Wyoming snow depths ranged up to 12 inches, 1 to 8 inches covered Colorado, New Mexico reported heavy snow in the higher mountains, 6 to 8 inches fell in northwestern Kansas, 3 to 6 inches were reported in the western Dakotas, and there were unofficial reports of 2 to 4 feet of new snow in the Black Hills. In eastern Colorado and western portions of Nebraska and South Dakota the storm was described as a blizzard. Following this storm, freezing occurred at higher elevations to the Mexican Border, and 14° at Salt Lake City on November 2 equaled the lowest ever recorded there so early in the season. In the Cascades the snow cover extended down to the 1,500-foot level and accumulations reached 3 feet at the 5,000-foot level.

(Weather continued on p. 1044.)

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - KANSAS - Nearly all activity stopped. A few second-generation Melanoplus mexicanus still present some alfalfa fields. (Matthew).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Populations increasing in fall-planted oats with 36 larvae per 100 sweeps in East Feliciana Parish, 18 per 100 sweeps in Livingston and seven per 100 sweeps in East Baton Rouge Parish. (Oliver).

ERIOPHYID MITES - KANSAS - Populations, probably Aceria tulipae, found on wheat in Marshall County. (Matthew).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Diapause eggs hatching following rain Oct. 14. Newly-hatched mites widely scattered over Payne County. (Henderson).

SOUTHWESTERN CORN BORER (Zea diatraea grandiosella) - OKLAHOMA - Sampling at Stillwater showed over 90 percent of larvae in winter stage. (Hensley, Arbutnot). KANSAS - Survey showed borers in Geary, Clay and Cloud Counties. Percent of girdled stalks was 0-2 per infested field. County average less than one percent. (Matthew).

SPOTTED ALFALFA APHID - CALIFORNIA - First collection from Rutherford, Napa County, Oct. 24. Infestation heavy in alfalfa. (Cal. Coop. Rept., Oct. 26). NEBRASKA - Found in all of Nebraska. Very light and spotted infestations throughout sandhill counties in northwestern area, with counts 2-5 winged forms per 25 sweeps. In western Platte Valley, east to Kearney, Buffalo County, counts from 20 to 115 per sweep. In Hall, Hamilton, York and Seward Counties, counts up to 1000 per sweep. Lady beetle populations completely eliminated populations in some fields of eastern area. Large aphid populations still occur in southeastern area. Continue to damage fall seedlings. New county records are Brown, Keya Paha, Cherry, Sheridan, Dawes, Box Butte, Sioux, Grant, Hooker, Thomas, Arthur, McPherson and Blaine. (Andersen, Hill). UTAH - Still abundant in some alfalfa fields of Washington, Utah, Davis, Salt Lake and Box Elder Counties. (Knowlton). KANSAS - Local, severe populations quite destructive to seedling plants in Republican and Kansas River Valleys. Insecticides required to insure stands in several fields. Populations on established stands from 100 to 1200 aphids per sweep and on seedlings 5-60 per plant. Honeydew abundant in more heavily-infested fields. (Matthew). FLORIDA - Nymphs averaging 15 per 200 sweeps on alfalfa at Hague, Alachua County, Oct. 24. Second report from county. (Denmark). LOUISIANA - Populations static in fields checked in Natchitoches, Red River, Bossier and Tensas Parishes. Heavy predator populations believed checking infestations. (Oliver). TEXAS - Light to medium on alfalfa in Brazos River bottoms. (Randolph). ILLINOIS - Predators increasing and helping stabilize or reduce populations. Winged migrants heavy in many fields. (Ill. Ins. Rept.).

PEA APHID (Macrosiphum pisi) - NEBRASKA - Large populations exist throughout the sandhill and panhandle counties, northwestern area. Counts 75-150 per sweep. (Andersen). UTAH - Remains abundant on alfalfa some northern counties. Seriously reduced alfalfa seed production this season in Duchesne and Uintah Counties. (Knowlton). ILLINOIS - Severe in many alfalfa fields in central area. Populations 500-1000 per sweep common. Individual plants killed in many fields. (Ill. Ins. Rept.).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - LOUISIANA - Populations remain 100-250 per 100 sweeps of alfalfa in Natchitoches, Bossier, Tensas and Red River Parishes. (Oliver).

TARNISHED PLANT BUG (Lygus lineolaris) - NEBRASKA - Counts average seven per ten sweeps in panhandle counties in alfalfa left for seed. (Andersen). KANSAS - High populations in alfalfa fields of north central and northeastern areas. Counts 7-18 per sweep. Also numerous in some fall seedlings. (Matthew). LOUISIANA - Building up several fields of alfalfa in Bossier Parish. (Oliver).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - TEXAS - Reported attacking vetch and Austrian winter peas in Lubbock County. (Sherrill).

FIELD CRICKET (Acheta assimilis) - CALIFORNIA - Of the 800,000 acres infested in Imperial Valley, 475,000 are in agricultural production. In absence of control, an estimated 50 percent loss would occur in alfalfa, sugar beets, young lettuce and ten percent in young cotton from fall and spring migrations. Los Angeles County sold 90 tons of bait for control. (Cal. Coop. Rept., Oct. 26).

COWPEA CURCULIO (Chalcoedermus aeneus) - FLORIDA - Larvae averaging 100 per linear foot of row of cowpeas at Belle Glade, Palm Beach County, Oct. 20. (Denmark).

APHIDS - MARYLAND - Infestation of Trifidaphis phaseoli on roots of soybeans and stunting plants in Caroline County. (U. Md., Ent. Dept.).

NORTHERN MASKED CHAFER (Cyclocephala borealis) - MARYLAND - Grubs light to moderate in turf of golf course in Prince Georges County. (U. Md., Ent. Dept.).

YELLOW SUGARCANE APHID (Sipha flava) - FLORIDA - Nymphs and adults averaging 25-50 scattered colonies in several acres of pangola grass inspected at Ft. Pierce, Indian River County, Oct. 15. (Denmark).

FRUIT INSECTS

SAN JOSE SCALE (Aspidiotus perniciosus) - NEW JERSEY - Heavy build-up on a large apple and peach farm at Towaco, Morris County.

First heavy build up noted in many years. (Kostal, Oct. 22).

CITRUS RED MITE (Metatetranychus citri) - CALIFORNIA - Recently appeared in a few orchards in San Gabriel Valley, Los Angeles County, for first time in a year. (Cal. Coop. Rept., Oct. 26).

Citrus Insect Situation, Florida, Fourth Week of October

Activity of PURPLE SCALE unchanged with small increase expected in next week or two. FLORIDA RED SCALE activity increased with further increase expected. CITRUS RED MITE activity increased with not much change expected. CITRUS RUST MITE increased and level on leaves and fruit expected to continue high. (Pratt, Thompson, Johnson).

A TORTRICID (Acleris lipsiana) - OREGON - Moths collected at Bandon during September in cranberry bogs identified by J. F. G. Clarke as this species. New record for U. S. Larvae believed to be this species found feeding in cranberry at Bandon. Food plants in Europe list as Myrica and Vaccinium. (Capizzi).

Walnut Husk Fly Suppression, California, as of October 26

From early July to Oct. 1 over 5000 traps were in service. Of this number 2000 were maintained in Sonoma County and in adjacent portions of Marin and Napa Counties, with the balance in 35 other counties north of the Tehachapis. A total of 242 flies were trapped on 358 properties in Sonoma area. Major extensions of distribution were shown by capture of a single fly near Kenwood in Bennett Valley, one near Santa Rosa in Sonoma County, one at Calistoga and one near St Helena in Napa County. A fly was found for first time in Santa Barbara County and repeat collections made in Frazier Park, Kern County. A new find made at Bodfish, Kern County. A total of 83,053 host trees were sprayed with bait spray on 2146 properties. Soil applications of insecticides were made in each area where maggot infestations recorded over a limited area around each of the outside fly collection sites. Nearly 1000 gallons of soil insecticides mixture applied beneath 50 host trees on 50 properties. (Harper).

TRUCK CROP INSECTS

CABBAGE APHID (Brevicoryne brassicae) - MARYLAND - Heavy on broccoli at Hyde, Baltimore County. (U. Md., Ent. Dept.).

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - TEXAS - Attacking peas in Martin County. (Hanson).

MORNING-GLORY LEAF MINER (Bedellia sommulentella) - CALIFORNIA - Reported as Bedellia sp. in CEIR 6(41):981 as heavy but local infestation on sweetpotatoes in Madera County. Collections since on sweetpotatoes at Sanger and Fresno in Fresno County. (Cal. Coop. Rept., Oct. 26).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - LOUISIANA - One field in East Baton Rouge Parish showed 20-25 percent roots heavily infested where no control used. (Oliver).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - TEXAS - Populations high in late, untreated, irrigated cotton in Brazos River bottoms. (Monk).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

Southern Forest Insect Situation, as of October 26

SOUTHERN PINE BEETLE infestations in southwest Butler County, Alabama in late August are under control by salvage crews. Very little activity in Tallapoosa and Coosa Counties, Alabama. BLACK TURPENTINE BEETLE outbreaks are being controlled in the Sam Houston, Davy Crockett and Sabine National Forests in Texas; the Kisatchie National Forest in Louisiana and the Homochitto National Forest in Mississippi. Control in Biloxi district of the DeSoto National Forest, Mississippi progressing satisfactorily. Dry weather in southern and southwestern Arkansas increased activity of IPS BEETLES. Heavy mortality of pines in dry areas of north and west central Louisiana and extremely severe in drought-stricken portions of southeastern Texas. An aerial reconnaissance in late September over private holdings showed dead and dying pines in groups of 1-15 trees closely scattered over Liberty, Hardin, Tyler, Polk and San Jacinto Counties, Texas. Up to ten pines per acre were estimated to be dead in the Fuqua-Votaw section and the region southeast and west of Cleveland. RED-HEADED PINE SAWFLY caused scattered defoliation in four-year-old loblolly pines throughout summer near Denning, Texas. (So. For. Pest Repr.).

APHIDS - IDAHO - Several complaints of heavy populations on chrysanthemums. (Twin Falls Field Sta.). UTAH - Severely infesting willows. Populations include Lachnus salignus in Utah and Weber Counties. Periphyllus lyropictus extremely abundant at Bountiful. (Knowlton). MISSISSIPPI - Rather heavy infestation of Rhopalosiphum rufomaculatum reported from Pontotoc County, Oct. 29. (Hutchins).

LEAFHOPPERS - OKLAHOMA - Very abundant on many elms in central and eastern areas. (Henderson).

A PINE TIP MOTH - LOUISIANA - Larvae heavily infesting several pine trees in Tensas Parish. (Oliver).

LIMA-BEAN POD BORER (Etiella zinckenella) - IDAHO - Infesting bladder-senna pods in southern area. Det. J.F.G. Clarke. (Twin Falls Field Sta.).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - LOUISIANA - Heavy populations of Aedes sp. continue in Livingston and Tangipahoa Parishes. Lighter in Tensas and East Baton Rouge Parishes. (Oliver).

BLACK FLIES - UTAH - Very abundant and annoying to hunters in parts of Logan Canyon area of Cache and Rich Counties. (Knowlton).

CATTLE GRUBS - OKLAHOMA - Larvae found in less than five percent of more than 600 cattle examined in Harper and Osage Counties. A maximum of seven grubs found in one animal. (Howell, Schomberg).

Heel fly activity noted in Pushmataha County, October 28. (Goin).
FLORIDA - Larvae of Hypoderma lineatum averaging three per animal and infesting 42 of 104 cattle inspected at Belle Glade, Palm Beach County, Oct. 20. (Denmark).

CATTLE LICE - UTAH - Injurious abundant some herds in Utah and Box Elder Counties. Fall control contemplated several cases. (Knowlton).

HORN FLY (Siphona irritans) - OKLAHOMA - Populations average 250 per animal on mature cows and 300 on yearling steers. (Howell, Schomberg).

EAR TICK (Otobius megnini) - OKLAHOMA - Average 19 per ear in 40 yearling steers, 21 in 60 cows and eight in 12 bulls in Canadian County. (Howell, Schomberg).

SHEEP BOT FLY (Oestrus ovis) - VIRGINIA - Found in nostrils of yearling ewe in Montgomery County and more infestations expected. (Turner).

BROWN DOG TICK (Rhipicephalus sanguineus) - TEXAS - Numerous in several lawns in Brazos County. (Price).

STORED PRODUCTS INSECTS

A DERMESTID (Trogoderma parabile) - NEVADA - Collected Sept. 21 in cereal foods at wholesale grocer in Las Vegas, Clark County. Det. R. S. Beal. (Nichols). New record for State.

MISCELLANEOUS INSECTS

TERMITES - OKLAHOMA - Flights of reproductive forms of Reticulitermes flavipes occurred October 31. (Hensley, Arbuthnot).
IDAHO - R. hesperus infesting an apartment in Twin Falls. (Twin Falls Field Sta.).

OLD HOUSE BORER (Hylotrupes bajulus) - VIRGINIA - Damaging homes in Timberville and Nokesville. (Morris).

CARABIDS - MARYLAND - Larvae annoying homeowners in Allegany and Baltimore Counties. (U. Md., Ent. Dept.).

BENEFICIAL INSECTS

PARASITES - IDA.- Following dipterous larvae taken from beet webworm and clover cutworm larvae in southern area: Achaetoneura achippivora, Voria ruralis and Phorocera claripennis. (Twin Falls Field Sta.).

ADDITIONAL NOTES

ARKANSAS - SPOTTED ALFALFA APHID light to moderately heavy in alfalfa fields in the Hempstead, Miller and Lafayette County area. Predators active most fields. BLACK TURPENTINE BEETLE active in local areas of southwest. (Warren).

TENNESSEE - SPOTTED ALFALFA APHID seriously damaging alfalfa in a few fields across State. (Mullett).

Weather continued from p. 1033. Precipitation brought considerable relief from the prolonged dry spell from Minnesota to northern Louisiana and from the Dakotas southward including most of Texas, but was far too light in western Texas, New Mexico and Arizona. Rains were also too light north of the Ohio River where the soil continues very dry. Temperatures for the week averaged well above seasonal levels in the eastern half of the Country and well below in the western half, with a departure range of 30° between Lansing, Michigan and Flagstaff, Arizona. (Summary Supplied by U. S. Weather Bureau).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea vires.	Protoparce quinq.	Laphyg. frugip.
KANSAS								
Wathena 10/11-24	73	103	35			962		
Manhattan 10/28-11/3	1	3	2			17		
Garden City 10/18-24	10	7	1			183		
TENNESSEE (Counties)								
Shelby 10/23-29	10	12	2			34		6
Madison	26	14	6	1		193		9
Lawrence	11	18	1			25		1
Robertson	20	18	2	3		105	1	10
Cumberland	12	9		2		51		
Knox	38	12	5	4		11		3
Greene	108	15	17	2		31	3	6
Elount	20	7	4			94		10
Johnson	176	61	5	19		42		1
NORTH CAROLINA (County)								
Duplin 10/31-11/1	3	5	2			3		
FLORIDA								
Belle Glade 10/23-24						20		
Monticello 10/23		1			5	1		
Quincy 10/22	7	2			4	3		
Gainesville 10/23		3				2		
SOUTH CAROLINA (Counties)								
Oconee 10/27	12	2	6		1	3		2
Florence 10/20-26	126	14	4		27	26		7
Charleston 10/21	23	7	1		19	5		8
GEORGIA (Counties)								
Tift 10/26-11/1	9	2			5	17	1	9
Spalding 10/26-11/1	165	93	4	5	40	68		94
LOUISIANA								
Curtis 10/22-28	56	40			56	264		40
Baton Rouge 10/27-11/2	13	12	4		37	42		2
Franklin 10/25-31	4	7	16	9	41	21	3	7
TEXAS								
College Station 10/27-11/2	17	4	3			37		
Winter Haven 10/16-31	119	24	12	13		290		3
Waco 10/27-11/2	41	1		17	13	104		
ARKANSAS (Counties)								
Stuttgart 10/18-31	39	32		15		91		
Vanner 9/30-10/23	66	80				243		
Fayetteville 10/19-11/2	29	17				449		
ALABAMA (Counties)								
Baldwin 10/22, 25, 26	45		7			53		6
Lee 10/27-11/1	107		4			47		21

FRUIT INSECT CONDITIONS - 1956
 NEW YORK - NEW ENGLAND STATES
 New York - New England Fruit Spray Specialists' Conference
 November 1, 1956

This summary has been compiled from reports submitted by cooperators in each state or area. (E. H. Wheeler).

Symbols: G - of general concern as contrasted to L - of local importance only. O - negligible; 1, slight (less than 5% losses and/or injury) minimum effort gave satisfactory protection; 2, moderate (5-20% losses) satisfactory control required full program with good timing; 3, serious (20% up) special effort or emergency treatments required above and beyond a normal full program of preventive measures.

CROP AND PEST	Me.	N. H.	Vt.	Mass.	R. I.	Conn.	New York Hudson Valley
<u>APPLE</u>							
Plum curculio	L-2	G-3	2-3	G1-2	-1	G-2	G-1
Apple maggot	G-3	G-3	-1	L-2	-2	G-2	G-2
Codling moth	L-1	L-3	1-2	L-2	-1	L-3	G-1-2
R. B. leaf roller	G-1	G-1	0-1	L-2	-1	L-3	G-1
Apple sawfly				L-0		G-1	L-2 G-1
Bud moth	G-1	G-1	-0	L-1	-1	L-1	L-1
Rosy apple aphid			-0	L-1		G-3	G-1
Apple aphid	G-2	G-3	-0	G-2	-2	G-3	G-2
White apple leafhopper	L-2	L-2	-0	L-1		G-0	L-1
European red mite	G-1	G-2	-1	G-1	-1	L-3	G-2
2-spotted mite		G-1	-1	L-2	-3	L-3	L-2
Clover mite			-0	G-0	-1	G-0	L-0
Yellow mite		L-1	-0	L-0		L-0	L-0
Red bug & Tarn-ished plant bug	G-1		-0	G-1		G-0	L-1
San Jose Scale		L-1	-0	L-1		L-3	L-1
Oystershell scale	L-1	L-1	-0	L-1		L-0	L-1

CROP AND PEST (Continued)	Me.	N. H.	Vt.	Mass.	R.I.	Conn.	New York Hudson Valley
<u>APPLE (Cont.)</u>							
Japanese leafhopper			-0			L-0	
Fruit tree leaf roller							G-1
Woolly apple aphid	L-2						
Apple mealybug	L-1						
Apple leaf curling midge		G-1					
<u>PEAR</u>							
Pear psylla	G-2	G-2		G-1	-1	G-1	G-1
Pear midge						L-0	L0-1
Blister mite		G-1		L-2		L-2	L-0
Codling moth				G-1		G-1 L-3	L-1
R. B. leaf roller				L-1			
<u>PEACH</u>							
Plum curculio		G-3		G-1	-1	G-2	G-1
O. fruit moth		L-3		G-1 L-2	-2	G-3	G-1
Peach tree borers		L-1		G-1		G-1 L-2	L-2
2-spotted mite		G-1		G-1	-2	G-1	L-1
European red mite		G-1		L-1		G-1 L-2	L-1
Plant bugs	L-2	G-2		G-1		G-1	L1-2
European fruit lecanium				L-0			
<u>CHERRY</u>							
fruit flies	L-1						L-1
Plum curculio		G-3				G-2	G-1
Black aphid		L-3		G-1 L-2		G-2	G-1 L-1
Leaf miner							L-0
<u>PLUM AND PRUNE</u>							
Plum curculio		G-3		L-2*		G-2	G-1
Plum aphid		G-3				G-3	L-0
European red mite		G-1				G-1	G-2
<u>GRAPE</u>							
Berry moth				G-1 L-2	-1	G-3	G-1

*on beach plum

CROP AND PEST	Me.	N.H.	VT.	Mass.	R.I.	Conn.	New York Hudson Valley
GRAPE (Cont.)							
Cane girdler				L-1		G-2	L-0
Leafhopper		G-1		L-1		L-0	L-2
Tomato & blister galls				G-1			
		G-1		L-3	-1	G-2	G-2
BLUEBERRY (cult.)							
Acrobasis vaccinii		G-3		L-1		G-0	
Anthonomus musculus				L-2		G-0	
Stem borer	L-1			L-1		L-1	
				L-3			
Blueberry maggot		L-1		G-1	-0	G-2	
Cherry fruitworm				G-2			L-2
BLUEBERRY (wild)							
Blueberry maggot	L-2	G-1		G-1	-1		
STRAWBERRY							
Weevil	G-2	L-1		L-1	-0	G-1	L-2
Rootworm		L-1		L-1	-0	G-1	
White grubs	L-2	L-1		L-1	-0	L-2	
						G-0	
Spittlebugs	G-1				-1	L-2	G-1
						G-0	
Leaf roller				L-1	-0	L-2	L-1
2-spotted mite				L-1	-0	G-2	L-1
Cyclamen mite		G-3		L-3	-0	L-3	
Cutworms				L-1	-0	L-2	
Tarnished plant bug			G-2				
RASPBERRY							
Fruitworm (Byturus sp.)				L-1		G-1	
Cane borer	L-1	G-1		L-1	-0	G-0	L-1
						G-1	
2-spotted mite				L-1	-1	L-2	
GENERAL FEEDERS				G-1		G-1	
Japanese beetle		L-1		L-3	-1	L-3	L-1
				G-1		G-1	
Rose chafer		G-1		L-2	-1	L-3	L-1

New Distribution Records: MASSACHUSETTS - Asiatic garden beetle in suburban Boston for first time. Japanese beetle extended general range into north central and northeastern area.

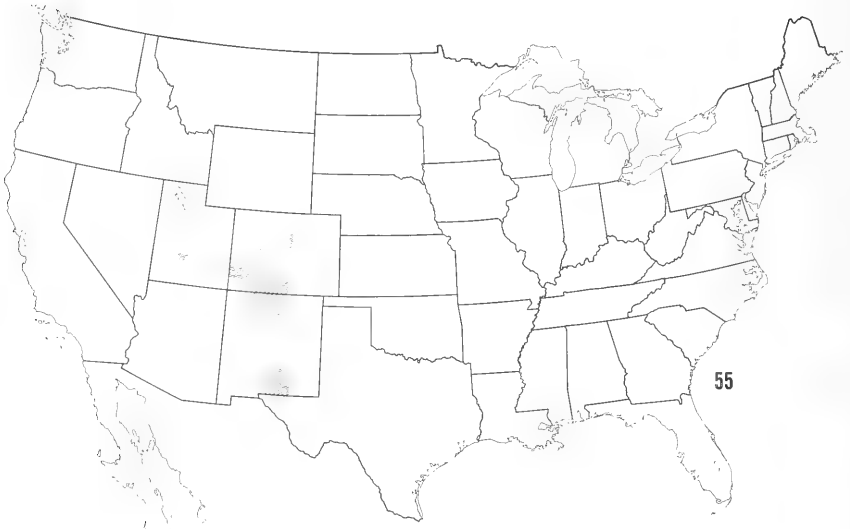
Unusual Outbreaks: MAINE - White apple leafhopper and woolly apple aphid - Monmouth. Apple aphid statewide. Plum curculio damage quite heavy in certain localities. Apple mealybug outbreak at Livermore. Tarnished plant bug heavy in spots all over State. NEW HAMPSHIRE - Yellow jackets - worst in 25 years, also wasps. Exceedingly severe aphid season. Present on almost every kind of plant. MASSACHUSETTS - General increase in codling moth and San Jose scale. Rose chafer unusually abundant. European fruit lecanium on peach. Mites and aphids more prevalent and on more different plants than usual. CONNECTICUT - Aphids in general. HUDSON VALLEY (N. Y.) - First-brood codling moth very severe in a few scattered orchards. Mites did not cause 20 per cent loss, but did require special effort and emergency treatments.

Abnormal Seasonal Occurrences: MAINE - Extremely late apple maggot emergence and oviposition. Two females observed ovipositing in McIntosh on October 2 in Monmouth area. Several growers found heavy infestations in mid-season fruit in spite of at least 2 insecticide applications. Very active adults observed in Searsport-Belfast area on September 4. VERMONT - Hot weather at calyx time favored curculio activity. MASSACHUSETTS - Extension of apple maggot active period. CONNECTICUT - Late appearance of two spotted and European red mites in numbers sufficient to cause damage.

Unusual Contributing Factors: MAINE - Cold, wet summer delayed fruit maturation and apple maggot fly emergence. Emergence curve more than 10 days behind 1955 on August 12; probably further behind later in season. MASSACHUSETTS - Quick hot spell right after an extended late-bloom period created a curculio problem. CONNECTICUT - Hurricanes, excessive rains in fall of 1955, cold temperatures injured and killed many young peach trees.

DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus bohemani (Stal)

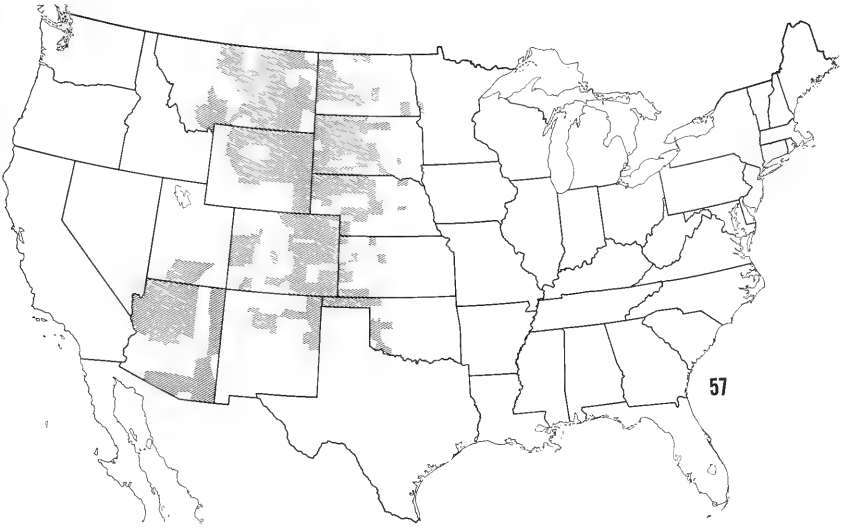


Melanoplus borealis (Fieber)

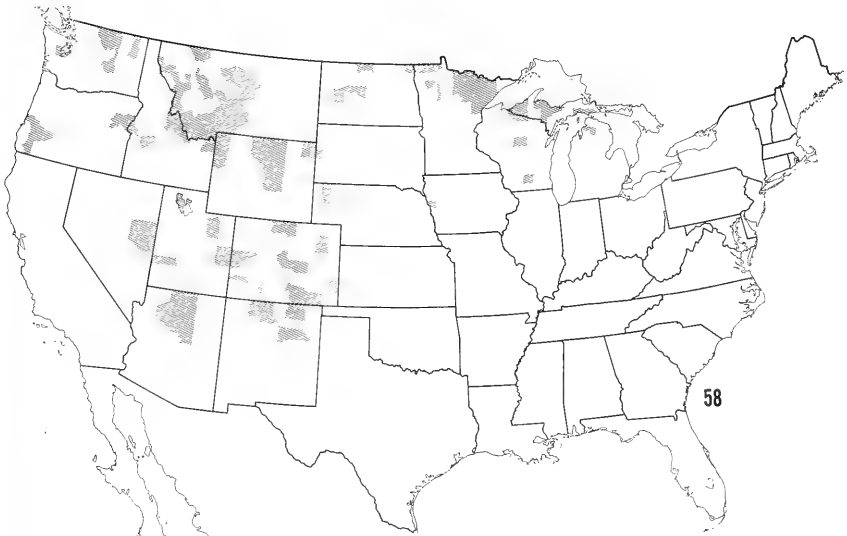


DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus bowditchi Scudder

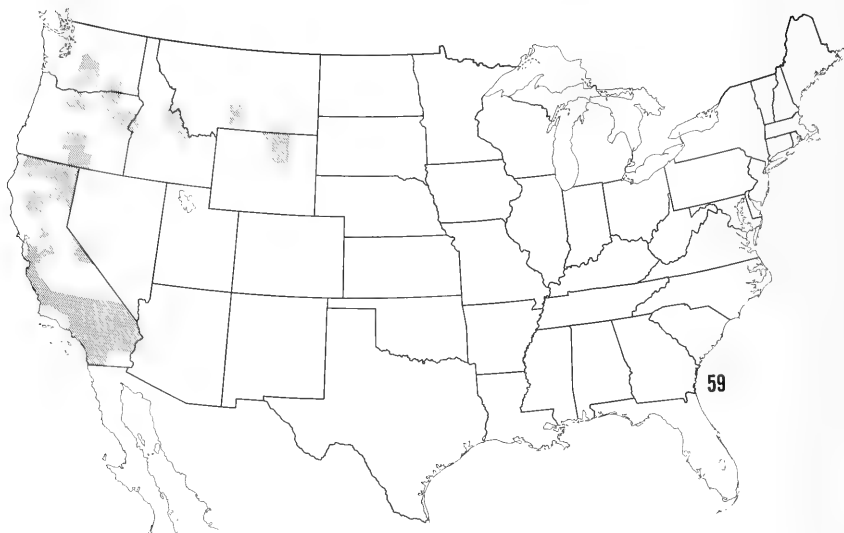


Melanoplus bruneri Scudder

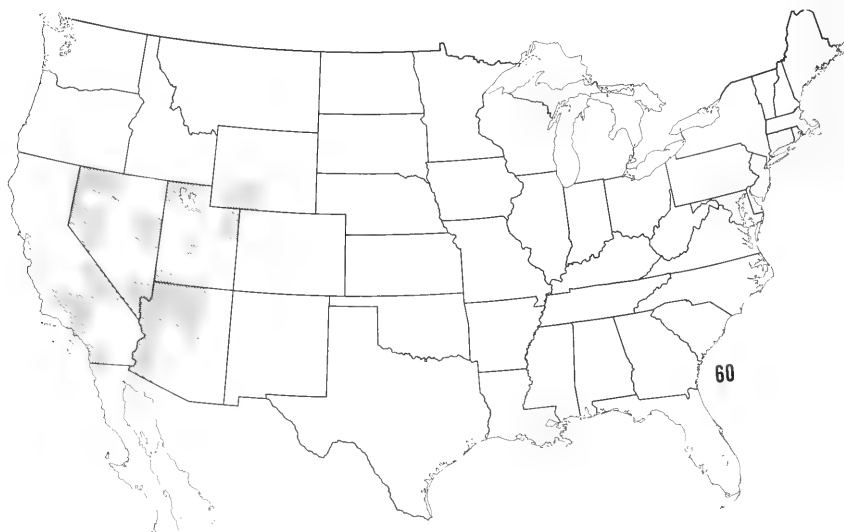


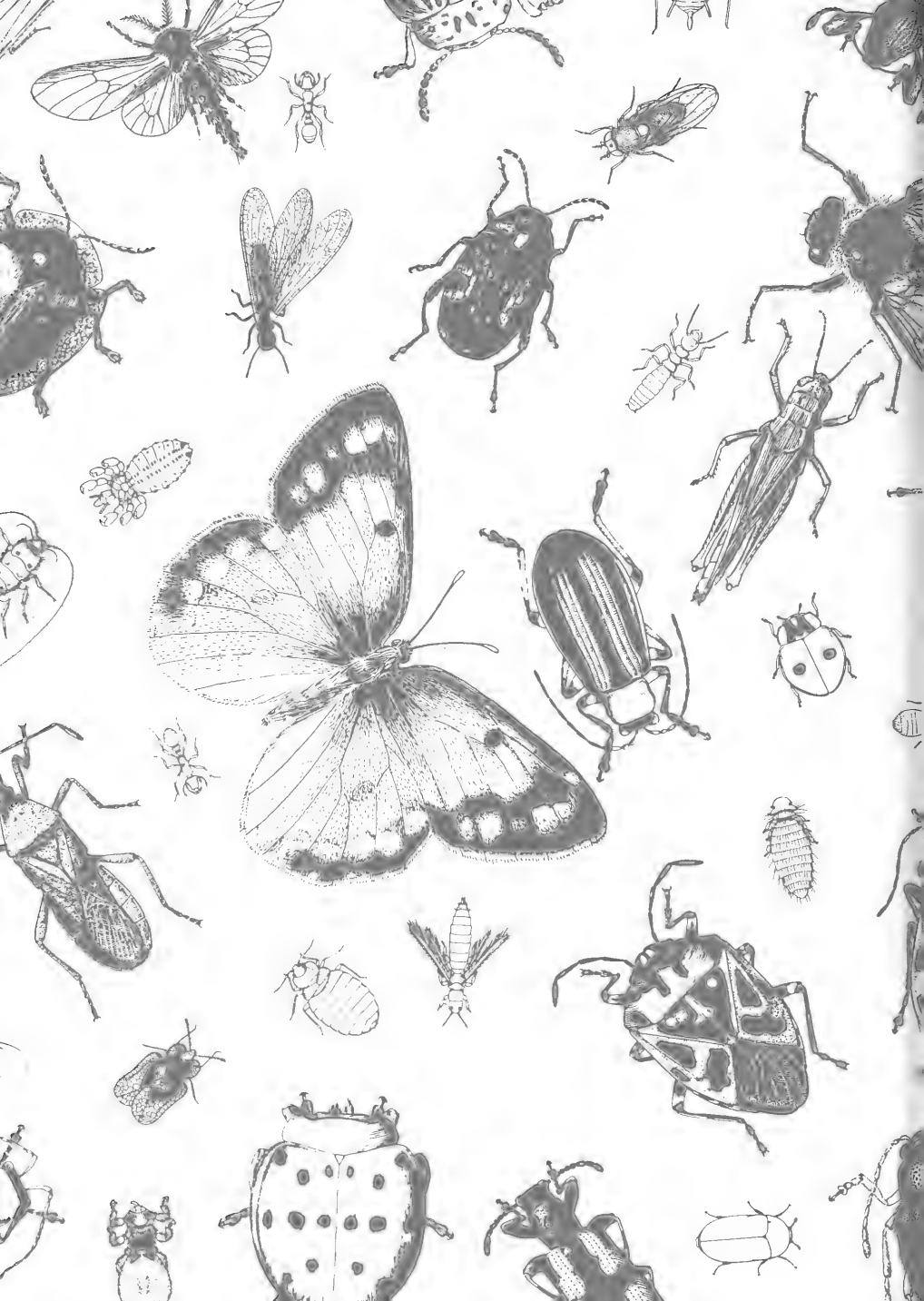
DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus cinereus Scudder



Melanoplus complanatus Scudder





VOL. 6 No. 46

NOVEMBER 16, 1956

S13
825
c77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID continues active in several States. (p. 1055).

SPINACH LEAF MINER locally heavy on spinach in Maryland. (p. 1056).

BOLL WEEVIL numbers may be high going into hibernation in Arkansas. (p. 1057).

SCREW-WORM cases reported from South Carolina, Oklahoma and Louisiana. (p. 1058).

MOSQUITOES show increase in some eastern North Carolina counties. (p. 1058).

Status of imported parasites of SPOTTED ALFALFA APHID in California. (p. 1059).

AN APHID (Hoplochaitophorus quercicola) reported from Utah for first time. (p. 1057).

SUMMARY OF INSECT CONDITIONS - 1956 - Arizona. (p. 1061).

CORRECTION. (p. 1056).

Reports in this issue are for the week ending November 9 unless otherwise designated.

WEATHER OF THE WEEK ENDING NOVEMBER 13, 1956

An early season freeze in the deep south and a late season heat wave in the far southwest were the main temperature features of the week. Precipitation was very light over most of the country with moderate to heavy amounts limited to sections in the Mississippi Valley and deep south and parts of Virginia and North Carolina. Most of the week's precipitation fell in the eastern third of the country, during the first half of the week as a low pressure trough moved eastward from the Mississippi Valley. Cold air moving in behind the trough covered all of the nation except the far southwest by the week end. Temperatures dropped to 32° or below in south central and southeastern Texas and to near the Gulf Coast from Louisiana eastward. Freezing occurred in some colder locations in central Florida and scattered frost was reported in the Everglades. Jacksonville and Miami, Florida reported their lowest temperatures on record for so early in the season on the 10th, 31° and 49° respectively. On the 11th, temperatures fell to record low level for so early in the season in the northeast at a number of locations including Putnam and Hartford, Connecticut 8° and 12° respectively, and Providence, Rhode Island, 16°. Following a cold spell in the far southwest, near the end of the previous week during which the first freeze of the season occurred in California's Imperial Valley, temperatures rose rapidly reaching unseasonably high levels on the 7th and the following two or three days. Late season highs included 95° at Los Angeles on the 8th and 74° at Winnemucca, Nevada on the 9th. Also the late season record was 75° for Flagstaff, Arizona was equaled on the 11th. Warmer weather in the west melted much of the snow which fell during the previous week's blizzard in the northern Great Plains. The snow cover in the Cascades also melted below the 3500 foot level. But depth remained at 20-30 inches at 5000 feet. Snow flurries were quite general in northern areas east of the Rockies. The first snowfall of the season in many sections but the only accumulations reported were some two inch depth in northern New England. (Summary Supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis) - NEW JERSEY - Larvae averaged 381 per 100 plants in fall 1956 over State as compared with 167 per 100 plants in fall of 1955. (N. J. Dept. Ag. & Rutgers Univ.). NEBRASKA - Larvae averaged 131 per 100 plants in 62 counties in fall survey. Highest average was in northeast, 255 larvae per 100 stalks and smallest in southeast, 50 larvae per 100 stalks. (Andersen).

GRASSHOPPERS (Melanoplus sp.) - IDAHO - Spotted infestations 10 to 15 adults per square yard along upper southern exposed slopes of lower Clearwater Canyon. (Barr).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - KANSAS - Infestations at St. John, Stafford County and near Nickerson, Reno County average around 90 percent. (Painter). OKLAHOMA - Ninety-five percent of larvae at Stillwater were winter forms and summer forms remaining or molting to winter forms. One live pupa found November 7. (Hensley, Arbuthnot).

ARMYWORMS - LOUISIANA - Pseudaletia unipuncta and Laphygma frugiperda lightly infesting oats and wheat in East Baton Rouge, East Feliciana, West Feliciana, Saint Helena and Washington Parishes. (Oliver).

A CHINCH BUG (Blissus leucopterus insularis) - FLORIDA - Heavily infesting 100 acres of St. Augustine grass pasture in Hendry County. Pasture flooded in attempt to control infestation. (Genung, Oct. 10).

LEAFHOPPERS - SOUTH CAROLINA - Unusually abundant on small grain near Beaufort. (Nettles).

SPOTTED ALFALFA APHID - MINNESOTA - Found in Lyon and Redwood Counties for first time. Total of 12 counties infested to Nov. 6. (Flaskerd). UTAH - Active and often numerous in southern counties. Survived recent cold of 14 to 18 degrees F. in Salt Lake City. Moderately numerous in all succulent alfalfa fields in Davis, Salt Lake, Juab and Utah Counties. (Knowlton). TEXAS - Light local infestation on alfalfa in Rockwall County. (Hawkins). LOUISIANA - Populations in alfalfa fields very light in Natchitoches, Red River, Bossier and Claiborne Parishes. Heavy populations of predators keeping infestations in check. (Oliver). VIRGINIA - Collected for first time in Fluvanna County. Inspections in Albemarle and Orange Counties were negative. (App, Manglitz, Bissell). MISSISSIPPI - Destroying stand of small alfalfa in Pontotoc County. (Young). KANSAS - A few heavy populations in local northeast areas. Lower populations general in this area. (Matthew).

PEA APHID (Macrosiphum pisi) - UTAH - Survived recent snow storms and frost. Moderately numerous in all succulent alfalfa fields in northern area. (Knowlton).

RUSTY PLUM APHID (Hysteroneura setariae) - ARIZONA - Heavy flights in Salt River Valley beginning in late September, peak in late October and continuing to present. Some fields grain sorghum have been very heavily infested. (Ariz. Coop. Rept.).

ALFALFA WEEVIL (Hypera postica) - WEST VIRGINIA - Adults and larvae easily collected by sweeping alfalfa in Berkeley and Jefferson Counties. (Dorsey, Hansen, Gillespie).

ERIOPHYID MITES - KANSAS - Colonies of eriophyids, probably Aceria tulipae, found in wheat fields in Marshall and Washington Counties. (Matthew).

TARNISHED PLANT BUG (Lygus lineolaris) - LOUISIANA - Populations building up in northwestern parishes. Counts per 100 sweeps were 60 in Natchitoches Parish, 80 to 120 in Bossier and Red River Parishes. (Oliver).

FRUIT INSECTS

PURPLE SCALE (Lepidosaphes beckii) - FLORIDA - Peak hatch expected on citrus in late November. (Pratt, Thompson, Johnson).

PECAN WEEVIL (Curculio caryae) - OKLAHOMA - Larvae emerging from pecans to enter ground. (Flora).

TRUCK CROP INSECTS

SPINACH LEAF MINER (Pegomya hyoscyami) - MARYLAND - Local heavy infestations in all spinach-growing sections. Growers concerned. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - MARYLAND - Light to moderate on spinach in all spinach-growing sections. (U. Md., Ent. Dept.).

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Light widespread populations on kale crops in Dimmit and Zavala Counties. (Richardson).

BET LEAFHOPPER (Circulifer tenellus) - TEXAS - Light to heavy widespread populations on spinach and beets in Zavala County. (Richardson).

GARDEN WEBWORM (Loxostege similalis) - TEXAS - Light to heavy widespread populations on spinach in Zavala County. (Richardson).

CORRECTION

CEIR 6(44): 1028 - Khapra Beetle Progress Report - Figures for Arizona under Vol. Tr. & Released column should read 29, 912, 226; and Totals for same column should read 94, 190, 181.

COTTON INSECTS

BOLLWORMS (Heliothis spp.) - SOUTH CAROLINA - Summary of black light trap catches of Heliothis at Florence during 1955 and 1956 from April 16 to October 15 was as follows: Heliothis zea 47, 120 (1955), 41, 189 (1956); H. virescens 716 (1955), 2840 (1956). (Walker).
ARKANSAS - Infestations remaining active in succulent second-growth cotton in southwestern and northeastern counties. (Warren).

BOLL WEEVIL (Anthonomus grandis) - ARKANSAS - Infestations have remained active in succulent second-growth cotton in southwestern and northeastern counties. In some areas, particularly northeastern counties, infestations greater and more widespread than in early September. In general, conditions favored increase over State. Number going into hibernation may be high in many local areas. (Warren).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - To November 2, 32, 330 green cotton bolls examined and 9, 737 bushels of gin trash inspected in San Joaquin Valley with no indication of infestation. (Cal. Coop. Rept.).

COTTON LEAFWORM (Alabama argillacea) - ARKANSAS - Late season infestations very light and occurrence local in southwestern counties. (Warren).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

AN APHID (Hoplochaitophorus quercicola) - UTAH - Heavily infesting young oak trees in Utah, Salt Lake and Davis Counties this fall. New State record. Det. E.O. Essig. (Knowlton).

IPS BEETLES - ARKANSAS - Decreasing activity generally due to rain and lower temperatures. Greatest activity in southwestern area. (Ark. For. Comm., Nov. 1).

COTTONY CUSHION SCALE (Icerya purchasi) - NORTH CAROLINA - General and extensive on pyrocantha and mimosa around Southport in Brunswick County. Crawlers hatched and moving on November 3. (Aycock, Farrier).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS - OKLAHOMA - Surveys in Woodward, Harper, Osage, Payne, Coal and Cherokee Counties indicated that 20 to 30 percent of cattle have grubs in backs. (Howell). In Canadian County, 12 of 52 cattle examined grubby. Buyers at stock yards begun to discount for infested cattle. (Flora). KANSAS - Examination of herd of 50 cattle averaging 900 to 1200 pounds in Ellis County averaged 1.2 grubs per animal. Another herd of 128 head averaging 400 to 600 pounds averaged 3.2 grubs per animal. (Matthew).

CATTLE LICE - UTAH - Abundant and injurious in herds in several counties. Dipping and spraying in number of localities. (Knowlton).

EAR TICK - OKLAHOMA - Cattle heavily infested in Canadian County. (Howell).

FLIES - OKLAHOMA - Stable flies and house flies greatly reduced in number around farm buildings. (Howell).

MOSQUITOES - NORTH CAROLINA - Severe outbreak of Psorophora ciliata in Dare County second week of October. Populations of Aedes sollicitans decreasing in Dare, Hyde, Currituck, Tyrrell and Beaufort Counties. Populations increase in Pamlico and Onslow Counties with sharp increase in New Hanover and Brunswick Counties. Increase attributed to large amount of rainfall. (Cromroy, Nov. 2).

SCREW-WORM (Callitroga hominivorax) - SOUTH CAROLINA - On cattle in Blackville, Barnwell County. First report in two years in county. (Shelley, October 22). Reported on cattle in Allendale County. (Rogers). OKLAHOMA - Reported from Lincoln and Stephens Counties. (Flora). LOUISIANA - Found in wounds of two cows in herd of 150 in Bossier Parish. (Oliver).

TABANIDS - OKLAHOMA - Extensive surveys in central and eastern areas indicate that numbers of larvae commonly found in drier areas greatly reduced and those closely associated with free water approximately the same. Tabanus atratus larvae most often found in central area and T. atratus and T. trimaculatus in eastern area. Almost all larvae nearly mature. (Flora).

STORED PRODUCTS INSECTS

MEDITERRANEAN FLOUR MOTH (Anagasta kuhniella) - OREGON - Infested several pounds of lavender used in manufacture of sachets at Salem. (Capizzi).

Stored Grain Insect Situation, Arkansas: In Stuttgart-Dewitt area, 115 bins on 72 farms examined. Of these, 28 located on 16 farms infested. Only 4 of 115 bins held oats, with remainder filled with rice. Infestations were as follows: Tribolium sp. - 6 bins; saw-toothed grain beetle - 13 bins; flat grain beetle - 1 bin; Angoumois grain moth - 8 bins; Indian-meal moth - 1 bin; fungus beetles - 5 bins; and psocids - 8 bins. (Rouse). Twenty bins of corn, rice, oats, wheat, milo and barley examined on 8 farms in St. Francis, Clay and Randolph Counties. Screening of gallon top samples showed following infestations: Tribolium sp. - 6 bins; saw-toothed grain beetle - 5 bins; lesser grain borer - 2 bins; Angoumois grain moth - 5 bins; rice weevil - 3 bins; flat grain beetle - 6 bins; and cadelle - 1 bin. Examinations of ear corn unloaded at elevator in St. Francis County showed evidence of infestation to 3 out of 10 ears by Angoumois grain moth. (Warren, Harrendorf, Barnes). Numerous reports of field infestation of corn in eastern area. (Warren).

MEAL MOTH (Pyralis farinalis) - NORTH CAROLINA - Almost complete destruction of undetermined quantity of iris bulbs in New Hanover County. (Aycock, Rabb).

BENEFICIAL INSECTS

GREATER WAX MOTH (Galleria mellonella) - OREGON - Uncommonly prevalent in hives near North Plains. (Goeden).

KLAMATH WEED BEETLES (Chrysolina spp.) - IDAHO - Egg deposition extremely heavy this fall on goat weed throughout lower Clearwater drainage. (Barr).

Imported Parasites of the Spotted Alfalfa Aphid in California: In recent months there has been a dynamic change in field status of imported parasites, Praon palitans, Trioxys utilis, Aphelinus semiflavus of the spotted alfalfa aphid. By far the most promising development has taken place in the Antelope Valley, Los Angeles County, where P. palitans and T. utilis have multiplied to tremendous abundance in vicinity of the release site and have spread over a considerable area. The spread of P. palitans has been particularly rapid, this species now being distributed over an estimated 50 square mile area while T. utilis occurs over a 5 to 10 square mile area. Where the two species are coextensive, T. utilis has developed to greater abundance, an indication that it may eventually develop to a status of greater importance than P. palitans despite its slower rate of dissemination. The third parasite, A. semiflavus, has not followed the performances of P. palitans and T. utilis and has only been recovered in very small numbers in the vicinity of the original colonization site. Field colonization of parasites has been given a great boost through dissemination of parasite-bearing alfalfa from the Antelope Valley. In this way, upwards of thirty million parasites have been distributed at a number of places in seven counties, and substantial parasite recoveries has been made at most of the release sites. Distribution of the Antelope Valley parasite material, which has been carried out in cooperation with the various agricultural commissioners, will continue until cold weather ends the current growing season. (Pest Cont. Rev., U. of Cal., van den Bosch, Hall; October).

MISCELLANEOUS INSECTS

BOXELDER BUG (Leptocoris trivittatus) - UTAH - Entering many homes in northern and central areas. (Knowlton).

FIELD CRICKET (Acheta assimilis) - IDAHO - Abundant in homes in Moscow area. (Manis).

A MOTH (Synnoma lynosyrana) - IDAHO - Abundant flights in Gooding and Shoshone areas. Attacking rabbitbrush. (Barr).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marq.	Feltia subt.	Heliothis zea	Chor. aux.	Laphyg. frugip.
NEBRASKA(Countries)								
Lincoln 10/6-7	16	96				856		
Lincoln 10/17-30	168	58				587	25	
Lancaster 10/21-11/3	99	171				1894	6	
KANSAS(Countries)								
Mannhattan 11/5-10	2	8				5	59	
Hays 10/18-31	6	6				215	11	
Garden City 10/25-31								
TEXAS								
College Station 11/6-8	53	15	5	11		29		12
Weslaco 10/30-31	31	16	9	1		29		18
LOUISIANA								
Curtis 10/29-11/4	28	24		4	40	56		
Franklin 11/1-7	6	14	4	4	47	5		11
Baton Rouge 11/3-8	13	31	13	1	32	13		4
ARKANSAS								
Hope 9/14-10/13		68				401		
Stuttgart 11/1-7	20	15		10		16		
Varner 10/30-11/5	5	10				4		
Fayetteville 11/3-9	8	10				96		
TENNESSEE(Countries)								
Shelby 10/30-11/9	38	110	4	4		106		6
Madison	31	14				95		21
Robertson	24	50	2	3		67		21
Knox	49	48	3	3		11		4
Greene	95	15	11	1		77		17
Blount	27	18		1		48		22
Johnson	107	11	1	4		22		
GEORGIA(County)								
Spalding 11/2-8	148	49	4	5	31	39		73
FLORIDA								
Belle Glade 10/30-11/2	6					25		
Monticello 10/30	1				4	3		
Quincy 10/29	8					19		
Gainesville 11/8			3		4			
SOUTH CAROLINA(Countries)								
Oconee 10/28-11/3	10	6	3		2	3		3
Florence 10/27-11/2	146	24	13	1	47	60		
Charleston 10/22-28	9	13	3		11	21		10

Other collections: Louisiana - Franklin 11/1-7 *Heliothis virescens* -4;
 South Carolina - Charles County 10/22-28 *Heliothis virescens* - 2.

SUMMARY OF INSECT CONDITIONS - 1956

ARIZONA

Reported by F. G. Werner

Highlights: A heavy infestation of GRASSHOPPERS developed on rangeland in Santa Cruz County in August and September. CORN EARWORM damaged 10-45 percent of grain sorghum in Salt River Valley in mid-August. THREE-CORNERED ALFALFA HOPPER reached record numbers on alfalfa at Yuma in July, affecting alfalfa seed production. PEA APHID reached high numbers on alfalfa in Maricopa and Pinal Counties in April, for first time in three years. SPOTTED ALFALFA APHID reached high numbers on alfalfa in May, third week in July and late August and September; much heavier in September 1956, than in September 1955, in the Salt River Valley and southeastern counties. Reduced in early October at least in Salt River Valley. LYGUS BUGS reached high numbers by mid-July on alfalfa and cotton and continued for most of season. BOLLWORMS started on cotton in late July and continued to be a major problem until mid-August and later in a few areas. Numbers less than in 1955. THRIPS started late on cotton but did damage in mid-June. COTTON LEAF PERFORATOR caused some damage to cotton in all the main areas but damage was heaviest in Yuma County, Buckeye and Eloy. CABBAGE LOOPER became abundant on cotton east of Phoenix to Eloy in August but apparently was reduced by a disease. SPIDER MITES and APHIDS caused only scattered, localized damage to cotton during the season. RHODES-GRASS SCALE was found in the State for the first time.

Cereal and Forage Insects: GRASSHOPPERS - A heavy infestation of Morseiella flaviventris, Melanoplus lakinus, Boopedon nubilum, Phoetaliotes nebrascensis and Melanoplus regalis, in order of abundance, developed in August in Santa Cruz County. Total of 89,000 acres were involved in a control program on rangeland early in September. ENGLISH GRAIN APHID (Macrosiphum granarium) and CORN LEAF APHID (Rhopalosiphum maidis) populations became high on barley and wheat from Yuma to Pinal County from mid-March to the end of April and did local damage. The heaviest populations developed too late to cause severe damage. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) caused light to moderate damage to grain sorghum in the Salt River Valley and at Yuma from mid-July into early August. This insect also caused some damage to soybeans at Phoenix in mid-July. SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) caused moderate to severe damage to grain sorghum plantings in the Salt River Valley and in Graham County in late July and early August. CORN EARWORM (Heliothis sp.) caused damage to from 10 to 45 percent of the stalks of grain sorghum in the Salt River Valley in mid-August. This insect caused consistent damage to sweet corn. THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) reached a population of 2 to 4 per sweep in alfalfa seed fields at Yuma in mid-July, the heaviest in three years. Populations remained high at Yuma and in the Salt River

Valley through August. A BROWN STINK BUG (Euschistus impictiventris) built up to 66 per 100 sweeps in alfalfa seed fields at Yuma in early August, increasing to 100 per 100 sweeps by the end of August. PEA APHID (Macrosiphum pisi) built up to very high numbers on alfalfa in Maricopa and Pinal Counties during April, to several hundred per sweep early in May, reducing by late May. This was the worst infestation in the area for three years. SPOTTED ALFALFA APHID was, in general, lighter than in 1955 during the early part of the year, with only scattered heavily infested fields. During the first week of April there was a rapid increase at Yuma, the only area where significant infestations could be found. By the third week in April there were high infestations from Yuma to Santa Cruz County and at Safford, Graham County. Populations averaged 2.8 per trifoliate leaf in the Salt River Valley May 5. Numbers continued to increase during May but there was a rapid drop at Yuma May 21 and at about the same time in the Salt River Valley, correlated with increase of Hippodamia convergens larvae. Infestations became damaging again the third week of July but decreased at Yuma and in the Salt River Valley the end of July and early August. Populations rose again during the second and third weeks in August in the Salt River Valley and the southeastern counties; and during September, reached higher numbers than during this period in 1955. In the Salt River Valley during early September there were 3.36 per leaf (0.21 in 1955) and during late September there were 4.36 (0.12 in 1955). Populations in early October down to 0.55 per leaf in Salt River Valley. LYGUS BUGS (mainly Lygus hesperus) populations became very high on alfalfa in all of southern area by mid-July and remained high at least through September. Counts as high as 10 per sweep were recorded during this period in fields not regularly treated with insecticides. This was the main pest in seed fields in Maricopa and Pinal Counties as early as the last week in June. A LEAF MINER (Liriomyza sp.) became extremely abundant on alfalfa in Pinal and Maricopa Counties by the third week in June and was abundant from Yuma to Pima County by mid-July, continuing into early August. The heavy infestations came later than in 1955. ALFALFA CATERPILLAR (Colias philodice eurytheme) became abundant on alfalfa at Yuma in mid-July, continuing to the end of the month. Counts of up to 50 per 100 sweeps were recorded.

Fruit Insects: CITRUS THRIPS (Scirtothrips citri) was general on citrus at Yuma by May 15 and continued on new growth of lemon at least until July 15, causing damage where not treated with insecticides. A MITE (Eotetranychus yumensis) caused damage to 2 citrus groves at Yuma mid-July. COTTONY CUSHION SCALE (Icerya purchasi) caused severe damage to one citrus grove in the Mesa area, Maricopa County early in the summer.

Truck Crop Insects: BEET ARMYWORM (Laphygma exigua) unusually abundant in the Salt River Valley in October, on beets, cabbage and lettuce. CABBAGE LOOPER (Trichoplusia ni) unusually abundant on lettuce in the Salt River Valley and Yuma in October. GREEN PEACH APHID (Myzus persicae) became abundant on lettuce in the Salt River Valley during the first week of April. MELON APHID (Aphis gossypii) reached high numbers in several fields of watermelon in Pima County the

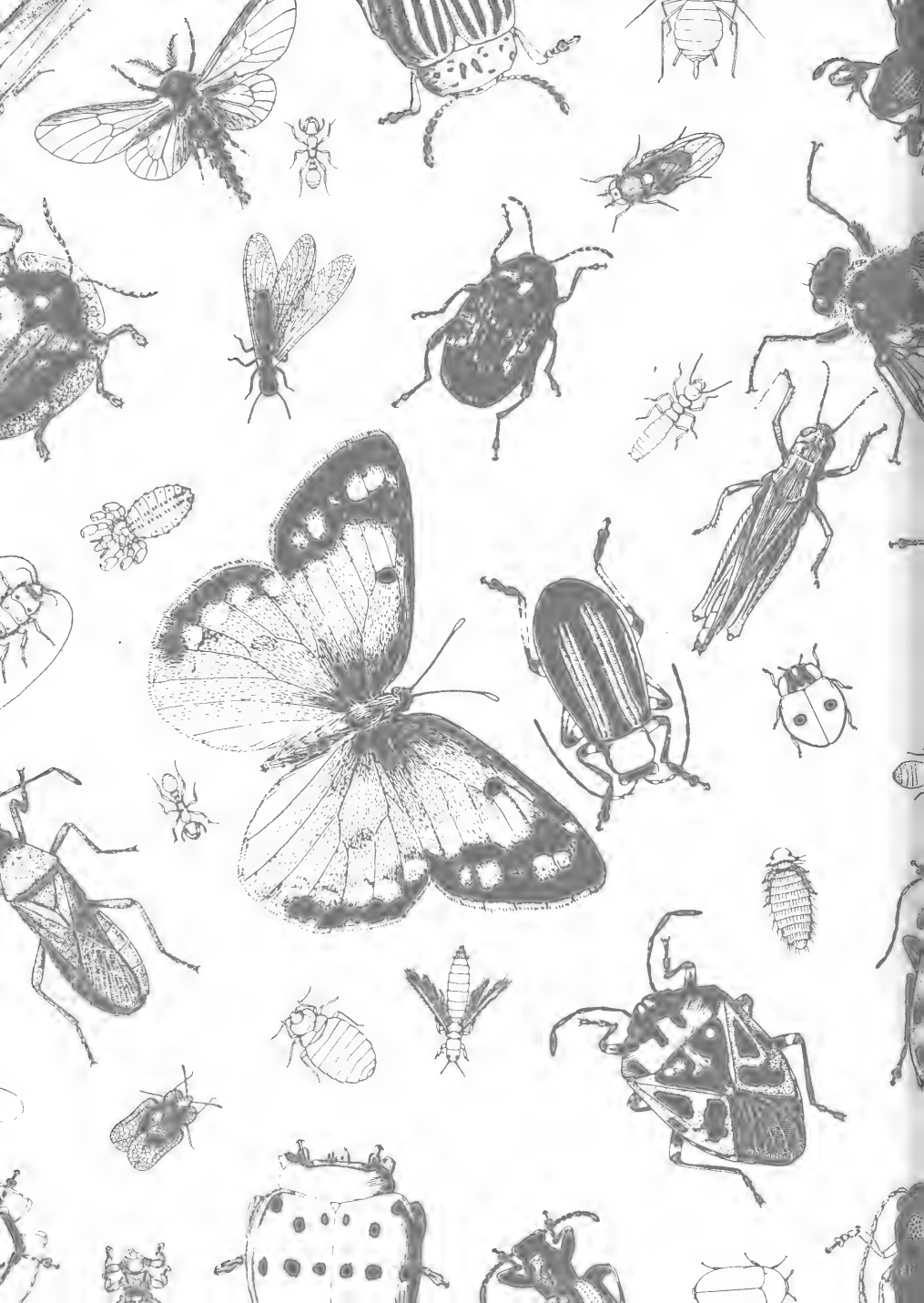
third week in July and was generally abundant on melons in the Yuma area toward the end of September, necessitating regular insecticide applications. HORNWORM (Protoparce sp.) caused damage to tomato plantings at Bowie, Cochise County during the end of July and early August.

Cotton Insects: BOLLWORM (Heliothis sp.) was first reported in Pima County May 25 and began increase in all areas by early July. Oviposition heavy in Pima and Pinal Counties July 26. Increase general until mid-August but with some evidence of partial natural control in Pima and Santa Cruz Counties. High counts of 8 to 20 per 100 plants recorded early in August. Populations dropped in most areas in mid-August but continued to be a problem in the Buckeye area of Maricopa County and near Eloy, Pinal County well into September. Fifty larvae per 100 plants recorded for Eloy September 22. The general level of the populations was lower than in 1955, when a severe infestation apparently resulted from a prolonged rainy period. LYGUS BUG (mainly Lygus hesperus) populations increased rapidly on cotton in all areas in mid-July, to about 30 per 100 sweeps, and remained high or increased until mid-August when up to 100 per 100 sweeps were reported. Many applications of insecticides made. There was a general decrease after mid-August but some fields in Maricopa and Pinal Counties had damaging infestations until the end of the month. BLACK FLEAHOPPERS (Spanogonicus albofasciatus and Rhinacloa forticornis) became abundant on cotton in all areas by mid-July, with average high counts about 15 per 100 sweeps. High numbers at Yuma than in past years. THRIPS (Frankliniella occidentalis and F. gossypiana) were lighter than usual on cotton early in the season but built up in mid-June, causing heavy damage. Highest at Yuma in several years. COTTON LEAF PERFORATOR (Bucculatrix thurberiella) was reported on cotton in a number of localities in Yuma, Maricopa, Pinal, Pima, Santa Cruz and Graham Counties. Damage was heaviest in Yuma County, Buckeye region of Maricopa County and at Eloy in Pinal County. High populations starting the third week in July and continuing into September. There were a few reports of earlier damage in and near "stub" fields. CABBAGE LOOPER (Trichoplusia ni) developed high populations on cotton in Pinal County and in the region east of Phoenix about the first week in August. Large numbers continued through August in some fields but a disease reduced numbers, at least in the Eloy area of Pinal County by the end of the month. A LEAFHOPPER (Platynota stultana) was reported on cotton in the Buckeye-Tolleson area of Maricopa County the last week in May; egg masses abundant in mid-June and significant damage from mid-July into early September. Populations up to 85 per 100 plants reported by the end of the season in this area. SALT-MARSH CATERPILLAR (Estigmene acrea) began appearing on cotton in Yuma and Maricopa Counties about the middle of August and populations increased into September. STINK BUG damage to cotton was reported in two areas during the season. Euschistus impictiventris reached 5 to 24 per 100 plants at Yuma the end of July and Chlorochroa sayi reached 10 per 100 plants at Gila Bend, Maricopa County the end of July. A WHITEFLY (Trialeurodes abutilonea) caused some stunting of cotton plants in scattered fields from Maricopa to Santa Cruz Counties from mid-July to early August. SPIDER MITES were generally light

during the year on cotton, with scattered fields developing infestations. Tetranychus atlanticus became severe in several fields in the Eloy area, Pinal County during the middle of September, continuing to the end of the month. T. atlanticus and T. telarius became relatively severe in the Tempe-Higley area, Maricopa County in mid-August, on about 100 acres. APHIDS were, in general, light on cotton during the season, only a few fields reported to have had any heavy infestations. One field at Bowie, Cochise County, developed high populations of cotton aphid the third week in August.

Forest, Ornamental and Shade Tree Insects: ELM LEAF BEETLE (Galerucella xanthomelaena) developed high populations on Chinese elm in the Phoenix area from June into August, defoliating many trees. RHODES-GRASS SCALE (Antonina graminis) was discovered on St. Augustine grass in the Phoenix area at three locations during the summer. This is a new pest for Arizona.

Insects Affecting Man and Animals: BROWN DOG TICK (Rhipicephalus sanguineus) became abundant at Yuma and Tucson late in August, continuing into September. Probably also in other large cities. AN EYE GNAT (Hippelates collusor) became very abundant in the Yuma region about the middle of May, causing great annoyance. CONENOSE BUGS (mainly Triatoma rubida uhleri) adults were first reported in the Tucson area the middle of May. These continued to be a nuisance into June. FIELD CRICKET (Acheta assimilis) long-winged adults became a nuisance in the Yuma area the end of August, by flying to lights and into houses in great numbers. A PUSS CATERPILLAR (Megalopyge sp.) became more abundant than normal in the Tucson area early in October. Several cases of stinging reported.



VOL. 6 No. 47

NOVEMBER 23, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID reported from Wisconsin for first time. Becoming more widespread in areas of Arizona and still heavy in sections of Nebraska. Disease increasing in aphids in this State and this control factor reported on from California. (pp. 1067, 1071).

PEA APHID continues very abundant in alfalfa in Nebraska areas. (p. 1067).

SWEETCLOVER APHID collected in Wisconsin for first time. (p. 1068).

PINK BOLLWORM inspection reports. (p. 1069).

GYPSY MOTH expected to be heavier next year in Connecticut. (p. 1069).

A SAWFLY (Arge scapularis), which defoliated elms in Pierce County, Wisconsin during the summer, has been identified. First record for State. (p. 1070).

Distribution map of the ALFALFA WEEVIL. (p. 1073).

SUMMARY OF INSECT CONDITIONS - 1956 - in Alabama. (p. 1074).

Reports in this issue are for the week ending November 16 unless otherwise designated.

WEATHER BUREAU'S 30-DAY OUTLOOK

Mid-November to Mid-December 1956

The Weather Bureau's 30-day outlook for the period from mid-November to mid-December calls for temperatures to average below seasonal normals over most of the nation except for above normal in West Coast States and in the Northern Plains. Greatest departures are indicated in states bordering the Gulf of Mexico. Precipitation amounts in excess of normal are expected along the Gulf Coast and Atlantic Seaboard. Subnormal amounts are predicted west of the Continental Divide and in the upper Mississippi Valley. In other areas about 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 for six months.

WEATHER FOR THE WEEK ENDING NOVEMBER 19, 1956

Snows in the Northern and Central Rocky Mountain and Plain States, the upper Great Lakes region and New England and freezing temperatures, which occurred on at least 1 day in interin areas except in most extreme southern sections, were prominent weather features this week. Frontal systems which moved into the extreme Northwest late in the last period and again on Saturday caused considerable fluctuations in temperature. The first of these systems marked the leading edge of the cold air which brought a record minimum of 17° for the day at Prescott, Arizona and sub-zero values to mountain areas of Idaho, Wyoming and Colorado on the 15th, and a -11° at Ladelle, South Dakota, on the following day. At the same time the southerly flow ahead of the system brought record daily maxima to stations in Connecticut and Rhode Island, and warming to the entire eastern-half of the country. Here, in the East, weekly temperatures averages were generally above normal as they were along the Canadian Border as far west as central Montana. Average temperature departures ranged from as much as 6° below normal in Arizona to as much as 6° above in Massachusetts.

These two systems were also responsible for the heavy snowfalls of the week. The first brought up to 12 inches in Minnesota, 13 inches in Wisconsin, 3 inches in northern Pennsylvania, and 6 inches in the middle Hudson Valley of New York while New England reported its first moderate to heavy snowstorm of the season over the weekend with falls of 1 to over 6 inches. The second system, now extending north-south through the center of the country, has already brought a snow cover of 4 to 6 inches from southeastern Wyoming to western Iowa, and falls to 12 inches were reported in eastern Colorado. Snow depths continue to increase at higher elevations with Washington observing snow covers as low as 1500 feet in the Cascades, and depths of 30 inches and 45 inches at 3,000

Weather continued on p. 1076.

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - CALIFORNIA - As a result of adult surveys, an estimated 1,100,000 acres of land will have economic populations in 1957, requiring an estimated 650,000 acres of control activity. Counties with potentials for infestations of particular economic importance during 1957 are as follows: Alpine, Butte, Calaveras, El Dorado, Humboldt, Kern, Kings, Monterey, Nevada, San Benito, San Diego, San Luis Obispo, Shasta, Siskiyou and Tehama. (Cal. Coop. Rept.).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Fall population lower than usual due to late storms and lack of fall wheat growth. (Knowlton). OKLAHOMA - Nymphs and adults up to 20 per linear foot of row in areas of Kingfisher County and none noted in surrounding counties. (Coppock).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - With an occasional larva of Pseudaletia unipuncta, larvae continue to be taken from oats and barley in East Baton Rouge, East Feliciana and Livingston Parishes. (Oliver).

APHIDS - WYOMING - Very heavy infestation on red clover in Park County and causing concern due to difficulty in harvesting seed crop with heavy honeydew deposits. (Spackman, Nov. 1). NORTH CAROLINA - Local spotty infestations killing oats in Pender, Sampson and Duplin Counties. (Scott).

ALFALFA WEEVIL (Hypera postica) - MARYLAND - Survey of seven alfalfa fields in Frederick County showed adults average 4.5 per ten sweeps and larvae 3.0 per ten sweeps. Light damage by small larvae to new growth. (U. Md., Ent. Dept.).

PEA APHID (Macrosiphum pisi) - UTAH - Has survived snows and freezing weather in northern counties. (Knowlton). MARYLAND - Averaged 3-12 per sweep on alfalfa in Frederick County. (U. Md., Ent. Dept.). NEBRASKA - Still very abundant in Platte and Republican Valleys. In northeastern area, counts 110-300 per sweep. (Hill, Andersen).

SPOTTED ALFALFA APHID - ARIZONA - Building up in some alfalfa fields in Yuma area and declining other fields. Becoming more widespread than at end of summer. In almost all alfalfa fields, appearing suddenly many cases. Winged forms proportionately high in most fields. Newly-planted alfalfa not as severely attacked as in 1954. Hippodamia convergens prevalent in infested areas now but expected to be reduced by cold weather. Lacewings, mainly Chrysopa plorabunda and damsel bugs, Nabis ferus and fewer N. alternatus apparently very important in control of the aphid. (Ariz. Coop. Rept.). UTAH - Survived snows and freezing weather in northern counties. (Knowlton). ILLINOIS - Infestations dropping off rapidly due to cold weather. (Ill. Ins. Rept.). OKLAHOMA - No aphids in alfalfa fields in Major, Kingfisher, Blaine, Canadian and Oklahoma Counties. (Coppock). VIRGINIA - Favorable weather for build-up. One field in Montgomery County with 30 per 100 sweeps. Infestations in Grayson and Carroll Counties. (Morris). NEBRASKA - Populations through

Republican and Platte Valleys varied and spotted. Abundant on new growth with much honeydew present, and some fields with black appearance. Many fall-seeded fields still with high populations. In northeastern counties, populations static with counts 25-100 per sweep. Many predators. In Platte and Republican Valleys, and northwestern area, large numbers aphids dying from disease. (Hill, Andersen). LOUISIANA - Populations remain low in alfalfa in northwestern area. Heavy populations of predators include Hippodamia convergens, Chrysopa oculata, Nabis ferus and syrphid flies. (Oliver). TEXAS - Light infestations in alfalfa in Wharton, Matagorda and Colorado Counties. (Turney). WISCONSIN - First identification of specimens in Wisconsin on Nov. 7 from collections made in Rock County about Nov. 1. (Smith).

SWEETCLOVER APHID (Myzocallidium riehmii) - WISCONSIN - Specimens from Crawford County, Nov. 2. (Smith). As far as known, first record for State.

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - Up to 18 per ten sweeps in scattered fields of Blaine and Major Counties. (Coppock). NEBRASKA - Counts averaged eight per sweep in northeastern area. (Andersen). LOUISIANA - Populations continue to build up on several alfalfa fields in Bossier and Caddo Parishes. (Oliver).

A TREEHOPPER (Vanduzeeia triguttata) - NORTH CAROLINA - Six to eight per stem causing moderate leaf drop on lespedeza in local area of Lee County, Sept. 27. Det. L. M. Russell. (Cope).

FRUIT INSECTS

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - A heavy build-up in Sutter County, reported killing some peach trees. (Cal. Coop. Rept.).

MEXICAN FRUIT FLY (Anastrepha ludens) - MEXICO - During October, 688 traps were operated on 274 properties and 2755 trap inspections made with one fly taken October 1 in Tijuana. The thirty-second spray was completed at Tijuana, the thirty-fifth at Ensenada, and the seventeenth at Tecate. In Baja California area, 2291 trees were sprayed on 2478 properties. (So. Reg., PPC, Oct. 1-31).

TRUCK CROP INSECTS

SEED-CORN MAGGOT (Hylemya cilicrura) - OKLAHOMA - Level of leaf infestations of spinach rose slightly during October 25 to November 14 in the Bixby area with 16 percent and seven percent of plants infested with eggs and larvae respectively. (Walton, Hensley).

SOUTHERN BEET WEBWORM (Pachyzancla bipunctalis) - OKLAHOMA - Populations declining from 30 to 15 larvae per 100 plants on spinach from October 25 to November 14. (Walton, Hensley).

STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) - NORTH CAROLINA - Moderate infestation over entire field in Columbus County. (Raper, Rabb).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - In San Joaquin Valley, 3545 bushels of gin trash inspected and 6885 green bolls examined showed no infestation. To date, 13,282 bushels of gin trash and 39,215 mature green bolls have been examined during the harvest season in San Joaquin Valley with no infestations found. (Cal. Coop. Rept., Nov. 9). OKLAHOMA - Populations in western third of the State averaged lower this year than in 1955 while populations in central and eastern portions were slightly above normal. (Bower, Howell). During October, inspections of 1408 bushels of gin trash showed 7042 larvae. In August, September and October, 124 lint cleaner inspections showed 410 larvae, 228 gin stand inspections showed 1313 larvae and 893 green bolls from 12 fields showed six of the fields infested. During same period, 422 dry boll showed three infested with six larvae. (Bower). In Lincoln County, ten larvae were found on two gin stands; 71 larvae on lint cleaners at one gin stand in Choctaw County and 21 larvae found at one gin in Bryan County. (Vick). One larvae found on lint cleaner in Kiowa County. (Hatfield).

Pink Bollworm Situation in Eight Southern and Southwestern States: Type, number of inspections and results in eight states: 16,784 gin trash with 11,473 larvae; 1054 lint cleaner inspections with 40,970 larvae; 228 gin stand inspections with 1313 larvae; and 10,084 boll inspections with 3588 larvae. All larvae found were in regulated areas of Texas, Oklahoma, Arkansas and Louisiana and results in Tennessee, Alabama, Mississippi and South Carolina were negative. (So. Reg., PPC, Oct. Rept.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

GYPSY MOTH (Porthetria dispar) - CONNECTICUT - Preliminary scouting shows that the heavily-infested area is about double the size found in 1956. Heavy infestation on 50,000 acres indicated. (Johnson, Turner).

A SCALE (Matsucoccus resinosae) - CONNECTICUT - Infestations on red pine in Fairfield County have increased in radius by about five miles since last survey in 1953. (Johnson).

A SAWFLY (Arge scapularis) - WISCONSIN - First record for State from Pierce County where larvae were defoliating elm trees in July. Farthest west reported. (Smith).

LEAF CRUMPLER (Acrobasis indigenella) - NORTH CAROLINA - Local infestation on pyracantha in New Hanover County. (Scott, Rabb).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - VIRGINIA - Encephalitis, a mosquito-borne disease, reported in one animal on each of 4 farms in Essex County, one on each of 5 farms in King George County, one animal in Lee County and one in Princess Anne County during September. (Va. Livestock Health Bul.). NORTH CAROLINA - Aedes sollicitans biting at 250 per square foot in 10 minutes in Beaufort County and breeding from Stumpy Point in Dare County to Engelhard in Hyde County. Heavy increase in light traps on Outer Banks in Dare County and increasing in New Hanover and Brunswick Counties, due to rains and flooding. Severe increase in all coastal areas expected unless checked by frosts. (Cromroy).

SCREW-WORM (Callitroga hominvorax) - LOUISIANA - Case in a dog in East Feliciana Parish. (Oliver).

CATTLE GRUBS - OKLAHOMA - Survey of carcasses of undetermined origin in an Oklahoma City slaughtering house averaged the following grubs per animal: 17 in 95 calves; 1.4 in 47 cows. In Payne County, 128 yearling steers averaged 19 grubs per animal. (Coppock).

CATTLE LICE - UTAH - Control underway several counties with 1500 head dipped at Nephi and others at Callio. (Knowlton).

SHEEP BITING LOUSE (Bovicola ovis) OREGON - Heavily infesting two flocks of sheep in Linn County. (Goulding, Nov. 9).

ITCH MITES - ALABAMA - Severe infestations in farm house on farm near Auburn. Individual with hive-like eruptions over entire body with headaches and fever following exposure to mites. (Owen).

STICKTIGHT FLEA (Echidnophaga gallinacea) - NORTH CAROLINA - Heavy infestation in a flock of chickens in Washington County. (Jones, Farrier).

STORED PRODUCTS INSECTS

RICE WEEVIL (Sitophilus oryza) - TEXAS - Medium local infestations with undetermined grain moths in stored wheat in Deaf Smith County. (Clearman).

CADELLE (Tenebroides mauritanicus) - MARYLAND - Moderate in stored barley and oats, Washington County. (U. Md., Ent. Dept.).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - MARYLAND - Heavy in 2-year-old ear corn and light in stored barley and oats, Washington County. (U. Md., Ent. Dept.).

Stored Grain Insect Situation, Oklahoma: In ten bins of 1956 wheat in Blaine County, a survey, using a five foot probe showed infestations per quart of grain as follows: SAW-TOOTHED GRAIN BEETLE in seven bins, RICE WEEVIL in one, RED FLOUR BEETLE in two and LESSER GRAIN BEETLE in four. A similar survey of 12 bins of 1956 wheat in Kingfisher County showed SAW-TOOTHED GRAIN BEETLE in one bin, RICE WEEVIL in four, RED FLOUR BEETLE in three and FLAT GRAIN BEETLE in two. (Coppock).

MISCELLANEOUS INSECTS

EUROPEAN EARWIG (Forficula auricularia) - UTAH - Serious infestation found one home at Ogden. (Knowlton).

OLD HOUSE BORER (Hylotrupes bajulus) - MARYLAND - Larvae infesting wood of house, Baltimore County. (U. Md., Ent. Dept.).

MILLIPEDES - MARYLAND - Troublesome in homes in Montgomery and Baltimore Counties. (U. Md., Ent. Dept.). VIRGINIA - Entering homes and buildings in Warwick and Charlottesville. (Sedivy, Scott).

A CLOTHES MOTH (Tinea bisselliella) - NORTH CAROLINA - Moderate infestation in rugs at furniture dealer in Rockingham County. (Scott, Rabb).

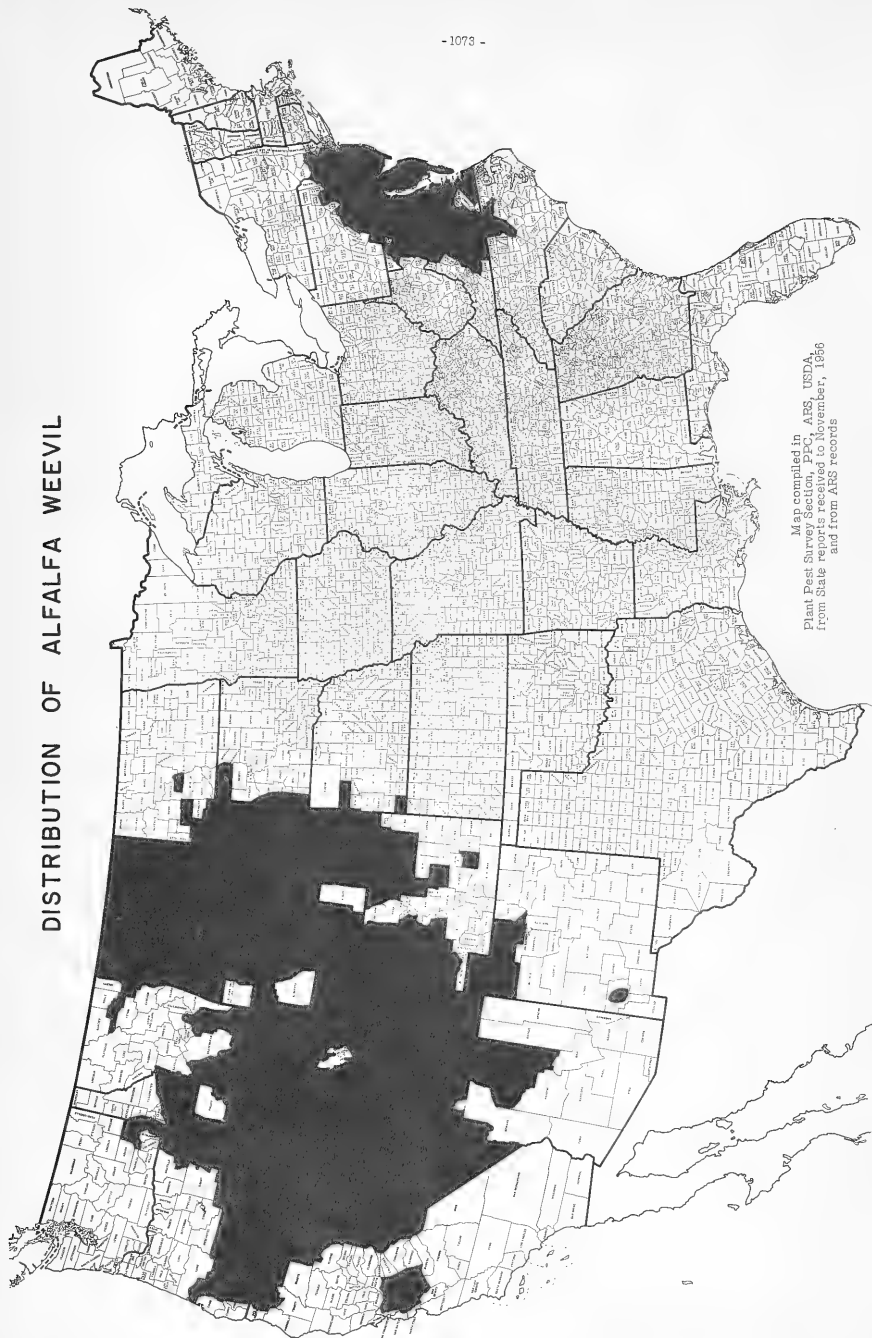
ADDITIONAL NOTES

CALIFORNIA - Pathogenic species of fungi continued to show ability as biological agents against spotted alfalfa aphid in many areas. Spread by natural means aided by artificial distribution programs in which about 1800 cultures were placed in infested fields in 12 counties, has resulted in widespread control of the aphid by the fungi in counties where no diseases were observed during the spring and early summer. The fungi showed ability to become distributed quite rapidly throughout a field and to reappear when aphid build-up starts after a lengthy host-free period. (Pest Cont. Rev., U. of Cal. Ext. Serv.).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt. zebra	Heliothis viresc.	Laphyg. frugip.	Protoparce sexta	Protoparce cing.
TEXAS									
Waco 11/3-9	54			19		13			
College Station 11/12	3	2							
Winter Haven 11/1-15	55	11	11	7	181		2		
LOUISIANA									
Curtis 11/5-12	14	20	2		9	6			
Baton Rouge 11/12-16	7	17	2		40	1			
Franklin 11/8-15	2	8	5		10		6		
TENNESSEE(Counties)									
Madison 11/6-12	2	13				16			
Maury	16	29	6			26	8		
Robertson	64	122	4			46	13		
Cumberland	38	100	1			52	16		
Knox	21	13	3			2	1		
Greene	71	11	4			30	13		
Blount	9	11	2			21	21		
Johnson	92	18	10			29	28		
ALABAMA(Counties)									
Lee 11/2-8	31					28	14		
Baldwin 10/30, 31-11/1&6	24		12			27	2		
FLORIDA									
Belle Glade 11/6						6			1
Quincy 11/5						3			
GEORGIA(Counties)									
Spalding 11/9-15	34	5	1		2	5	3		
Tift 11/2-8	37	13	3		23	127	16		1
SOUTH CAROLINA(Counties)									
Oconee 11/3-9	12	6	7		105	6	3		
Florence 11/3-9	64	19	8		31	42	8		
Charleston 10/29-11/4	15	10	2			16	4		

DISTRIBUTION OF ALFALFA WEEVIL



Map compiled in
Plant Pest Survey Section, P.P.C., ARS, USDA,
from State reports received to November, 1956
and from ARS records

SUMMARY OF INSECT CONDITIONS - 1956

ALABAMA

Reported by F. S. Arant

Highlights: Insect populations in Alabama in 1956 varied from heavy to light. BOLL WEEVIL was more abundant and more destructive than in any year since 1950. Damage to cereal and forage crops was somewhat below normal; however, BLISTER BEETLES were abundant on some legume crops. MEXICAN BEAN BEETLE was present in unusually large numbers on beans and related crops. In general, the population of FRUIT insects was below normal. SOUTHERN PINE BEETLE caused damage in several areas. HOUSE FLY, and pest mosquitoes were not serious problems. SCREW-WORM populations were of little concern. SERPENTINE LEAF MINER caused severe damage to vegetables for the first time.

Cereal and Forage Insects: CORN EARWORM (Heliothis zea) caused more loss to cereal and forage crops than any other pest in Alabama in 1956. The damage to corn, including sweet corn, has been estimated at \$1,935,450 and to grain sorghum \$27,900. Estimates on damage to forage are not available. Adults were present in practically every light trap collection made at three locations in the State. FALL ARMYWORM (Laphygma frugiperda) was important on cereal and forage crops, particularly in the southern part of the State. Damage to corn from this insect has been estimated at \$193,545 and to grain sorghum \$2,790. Damage to peanuts has been estimated at approximately \$250,000. EUROPEAN CORN BORER (Pyrausta nubilalis) was found in one additional county in northern Alabama during the season and is now known to occur in the following counties: Blount, Cherokee, Colbert, Cullman, DeKalb, Etowah, Franklin, Jackson, Lauderdale, Limestone, Lawrence, Madison, Marshall, Morgan and Winston. Damage was primarily to corn and grain sorghum. The estimated damage to corn was \$150,000 and to grain sorghum \$27,900. CORN ROOTWORMS (Diabrotica undecimpunctata howardi and D. balteata), LESSER CORNSTALK BORER (Elasmopalpus lignosellus) and WIREWORMS attacked corn, grain sorghum, peanuts and other crops in localized areas. Damage to corn was estimated at \$354,000 and to peanuts at \$450,000. MAIZE BILLBUG (Calendra maidis) damaged corn on river bottom lands in central area to the estimated extent of \$32,250. Several species of BLISTER BEETLES, the THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) and several species of LEAFHOPPERS caused damage to forage and cereal crops in the northwestern fourth of the State. ARMYWORM (Pseudaletia unipuncta) was of minor importance.

Insect control measures were practiced on cereal and forage crops to a considerable degree, particularly on sweet corn, grain sorghum, peanuts, alfalfa and soybeans. Savings from control procedures is estimated at approximately \$625,000.

Fruit Insects: SAN JOSE SCALE (Aspidiotus perniciosus) infestations were unusually heavy in commercial peach plantings in Blount County.

Apple trees were also infested. The LEAF-FOOTED BUG (Leptoglossus phyllopus) was abundant in some areas on peaches. In general, fruit insects in Alabama were not abundant in 1956. PEACH TREE BORER (Sanninoidea exitiosa) is present in 50-75 percent of the peach trees in east central Alabama. BLACK PECAN APHD (Melanocallis caryaefoliae) was abundant in the fall, causing some damage to 100 percent of the foliage on pecan trees.

Truck Crop Insects: MEXICAN BEAN BEETLE (Epilachna varivestis) infestations were extremely heavy. The most severe damage from the insect was in the northern two-thirds of the State. Figures on the dollar value of the damage are not available. SOUTHERN GREEN STINK BUG (Nezara viridula) caused severe losses on beans, peas, tomatoes and sweet corn in localized areas of southern Alabama. SQUASH BUG (Anasa tristis) was unusually abundant on watermelons over a wide area extending from Chilton County, northward. TOMATO FRUITWORM caused severe damage to tomatoes in some localized areas. EUROPEAN CORN BORER infestations occurred in pimentos; however, plantings of this crop were small. TORTOISE BEETLES and WIREWORMS caused some damage to sweetpotatoes. SERPENTINE LEAF MINER (Liriomyza sp.) was more abundant in 1956 than in any other year. Severely infested crops included okra, squash, tomatoes, beans, cantaloupes, pumpkins, and field peas. In some instances, an estimated 80-95 percent of the leaf surface area on the plants was destroyed. Cabbage, potatoes, eggplants and other crops were attacked to a much lesser degree.

Cotton Insects: BOLL WEEVIL (Anthonomus grandis) was more abundant in 1956 than in any year since 1950. Damage was general over the State. It is estimated that this insect caused a loss of \$16,000,000 in Alabama. An estimated \$44,000,000 worth of cotton was saved through control efforts. BOLLWORM (Heliothis zea) and COTTON APHD (Aphis gossypii) were of minor importance, but caused some damage. SPIDER MITES were rather general in northern areas on cotton during the latter part of the season and also were responsible for some reduction in yield.

Forest, Ornamental and Shade Tree Insects: SOUTHERN PINE BEETLE (Dendroctonus frontalis) caused considerable damage. The insect was active in the Talladega and Bankhead National Forests and on private lands in east central area. A new outbreak of the insect was reported from Butler County in September. BLACK TURPENTINE BEETLE (Dendroctonus terebrans) also was rather common. Three species of BARK BEETLES (Ips avulsus, I. grandicollis, I. calligraphus) were active over the State. TEA SCALE (Fiorinia theae) was probably the most important pest of ornamental plants, particularly in nursery areas. CITRUS WHITEFLY (Dialeurodes citri) was also abundant.

Insects Affecting Man and Animals: HORN FLY (Siphona irritans) was among the more important pests of domestic animals in 1956. DOG FLEA (Ctenocephalides canis) and CAT FLEA (C. felis) were also serious problems around some homes and farms. HOUSE FLY (Musca domestica) and MOSQUITOES were not present in large numbers and were not serious problems.

Stored Products Insects: RICE WEEVIL (Sitophilus oryza) ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) and INDIAN-MEAL MOTH (Plodia interpunctella) were among the most important stored products insects in 1956. It is estimated that their damage to grain alone was approximately \$6,500,000.

(Continued from p. 1066). and 4,000 feet respectively. Smaller lakes in northern and central Minnesota are reported frozen over with a thin layer of ice.

Precipitation totals were generally moderate to heavy in the snowfall areas, as well as in the Middle Atlantic States, the southern Appalachian Mountains, Tennessee, Arkansas, western Kentucky, southern Indiana and Illinois, and along the coasts of Washington and Oregon. In contrast, much of California, most of Arizona and New Mexico and the western two-thirds of Texas and Oklahoma were without significant amounts, as were Florida and southeastern Georgia. (Summary Supplied by U.S. Weather Bureau).



VOL. 6 No. 48

NOVEMBER 30, 1956

S13
823
C77
Ent

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

Light infestations of BROWN WHEAT MITE in several north central Texas counties. Widespread in Kingfisher County, Oklahoma. (p. 1079).

MEDITERRANEAN FRUIT FLY reported from Hernando County, Florida. (p. 1080).

BOLL WEEVIL hibernation counts in Mississippi show lower population than in fall of 1955. (p. 1080).

Status of KHAPRA BEETLE eradication in California. (p. 1081).

CORRECTIONS. (p. 1082).

SUMMARY OF INSECT CONDITIONS - 1956 - Utah (p. 1084) Tennessee (p. 1088).

Distribution of RANGE GRASSHOPPERS. (p. 1090).

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

WEATHER OF THE WEEK ENDING NOVEMBER 26, 1956

A Thanksgiving Day storm brought heavy snow to the Great Lakes region with communities along the eastern shores of Lakes Erie and Ontario reporting falls of 1 to 2 feet from Erie, Pennsylvania to western New York and Carthage, New York, recorded over 40 inches. An earlier cold front passage on the evening of the 21st in the New England States, accompanied by gale winds, heavy rains and tornadic activity, resulted in damages estimated at more than \$1,000,000, including \$75,000 from a possible tornado at Clinton, Massachusetts, and \$30,000 from a verified tornado at Merrimac, Massachusetts. In the dry Southwest, a 15,000 acre forest fire in the San Bernardino Mountains of California was brought under control late in the week, but another 32,500 acre fire 10 miles north of Descanso remains uncontrolled. These events and unseasonably cold weather were the primary features of this week.

To the rear of the Great Lakes storm center, Arctic air funneling into the country dropped North Dakota, Minnesota and Iowa temperatures to sub-zero levels for the first time this fall, and brought to most of the eastern third of the Nation the coldest weather of the season. In Florida, cold air entered the state on Thursday, and on Friday morning freezing temperatures, some in the lower 20's were reported in northern areas. Weekly temperature averages were mostly below normal; except slightly above in Montana, southeastern Texas, and coastal California. Greatest average departures were observed in Virginia, South Carolina, Iowa, Nevada, Oregon and Washington where these values were as much as 8° to 10° below normal.

Precipitation totals for the week were moderate to heavy in one extensive area covering Arkansas, the middle Mississippi and Ohio Valleys, the Great Lakes Region, and the North Atlantic States. West of the Continental Divide the week was dry, and sunny skies prevailed. Also without precipitation were southwestern Texas, southeastern New Mexico, central Oklahoma, south-central Kansas and western Florida.

Strong winds were reported in many sections of the country with some slight damage to crops or some soil erosion in South Dakota, Oklahoma, Texas, Arizona and California.

Snow cover reports on Monday indicated that ranges were covered in Wyoming, mountain pastures and ranges were covered in Colorado, and snow was in patches in South Dakota except for the Black Hills which are covered. In The Great Lakes region, depths ranged from 1 to 2 inches in the more southerly areas, and from 4 to 18 inches in the north. West Virginia reported adequate cover to protect grasses and grains. With no precipitation in the Far West, little change has taken place there during the past week. (Summary Supplied by U.S. Weather Bureau).

CEREAL AND FORAGE INSECTS

BROWN WHEAT MITE (Petrobia latens) - TEXAS - Light infestations in grain fields in Denton, Dallas, Collin, Wise and Cooke Counties. (Chada). OKLAHOMA - From 0-10 mites, mostly nymphs, per linear foot of row in most fields in Kingfisher County. (Coppock).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light infestation in volunteer grains and in fields continuously cropped in grains in Denton, Dallas, Cooke and Collin Counties. (Chada).

GREENBUG (Toxoptera graminum) - TEXAS - No infestations found in grain fields examined in 9 north central counties. (Chada). OKLAHOMA - No infestations found in 14 northern and western counties. (Coppock).

ARMYWORMS - SOUTH CAROLINA - An outbreak in Piedmont area, Nov. 12 in early seeded pastures on 40-acre field with 30 acres damaged. Extensive damage to 60 acres of Coastal Bermuda grass in November at Bluffton. (Nettles).

EUROPEAN CORN BORER (Pyrausta nubilalis) - MINNESOTA - Fall abundance surveys show a reduction in borer abundance. State average is 58 borers per 100 plants compared with 96 in 1955. (Minn. Ins. Rept.).

CHINCH BUG (Blissus leucopterus) - NEBRASKA - With eight counties out of the 28 completed, counts range from 150 to 1600 per foot in little bluestem and big bluestem grasses growing along sorghum and corn fields in southeastern area. (Andersen).

CUTWORMS - SOUTH CAROLINA - Several acres of rye being eaten at Aiken, Nov. 13. Population estimated at 175,000 per acre. (Mellette).

GREEN JUNE BEETLE (Cotinis nitida) - VIRGINIA - Causing considerable damage to some ladino clover-orchard grass pastures and lawns in southeastern Virginia. (Clark).

TARNISHED PLANT BUG (Lygus lineolaris) - OKLAHOMA - One to four per square foot of alfalfa crown in most fields of northern and northwestern areas. (Coppock).

A SCARABAEID (Dyscinetus morator) - FLORIDA - Moderate infestation in pangola grass pastures in Hendry County, October 30. (Esser).

SPOTTED ALFALFA APHID - TEXAS - Light infestations in every field examined in Denton, Dallas, Collin, Rockwall, Hunt, Fannin, Grayson, Cooke, Wise, Brazos, Burleson and Fort Bend Counties. (Chada, Turney, Randolph). OKLAHOMA - Populations remain low in northwestern counties. Averages are as follows: Payne, 400 aphids per square foot of crown; Kay, 100; Alfalfa, 250; Harper, Woods and Ellis, less than 25; Garfield and Major, 50; Logan, 350. New growth is generally less than two inches in length. (Coppock). NEBRASKA - Winged adults and very small young could be found in large numbers under snow in southeastern area. (Andersen).

INDIANA - Infestations found for first time in Parke, Vermillion and Vigo Counties. (Wilson, Nov. 13).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - OKLAHOMA - Averaged about three per square foot of alfalfa crown in Ellis County, less elsewhere. (Coppock).

A MITE (Siteroptes graminum) - OREGON - Found on grasses in cherry orchards at the Dalles, Nov. 9. Thought to be associated with "silver top" disease of grasses. Det. G.W. Krantz. (Capizzi).

FRUIT INSECTS

MEDITERRANEAN FRUIT FLY (Ceratitis capitata) - FLORIDA - Found at Brooksville, Hernando County. New county record. (So. PPC Reg., Nov. 15 Rept.).

PURPLE SCALE (Lepidosaphes beckii) - TEXAS - Medium to heavy infestations on citrus trees in lower Rio Grande Valley. (King).

CHAFF SCALE (Parlatoria pergandii) - TEXAS - Medium infestations on citrus trees in lower Rio Grande Valley. (King).

TRUCK CROP INSECTS

LESSER CORNSTALK BORER (Elasmopalpus lignosellus) - FLORIDA - Larvae averaged one per 100 young cabbage plants near Moore Haven, Glades County, Nov. 13. (Denmark).

PICKLEWORM (Diaphania nitidalis) - FLORIDA - Larvae averaging five per fruit of acorn squash in Alachua County, Nov. 2. (Hunter).

COTTON INSECTS

Boll Weevil Hibernation Counts, Mississippi, Fall, 1956: Collections of woods trash were begun Nov. 12 and completed Nov. 16. Two square yards were included in each sample and three samples taken from each seven or eight locations in each county. The State was divided into four areas: 1. Lower delta including Sharkey, Issaquena, Yazoo and Humphries Counties. 2. Central delta including Washington, Bolivar, Sunflower, and Leflore Counties. 3. North delta including Coahoma, Tunica, Quitman and Panola Counties. 4. Hill section including Amite, Madison, Noxubee and Monroe Counties. Ninety samples were collected in each area. The average number of weevils from the four areas was 2379, 1814, 2516 and 1655 respectively. The State average was 2091 compared with an average of 5054 per acre in fall, 1955. Range was from 0 to 35,719 per acre compared with 0 to 27,830 in 1955. (Merkl, Furr, Lloyd, Cleveland, Watkins, King).

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - By counties, the specified number of bushels of gin trash yielded as follows: Stephens, six bushels, 15 larvae; Washita, five bushels, 12 larvae; McIntosh, four bushels, 29 live and 5 dead larvae; Custer 11 bushels, one dead larva; Jackson, three bushels, 22 live and 6 dead larvae; Kiowa, ten bushels, 32 live and 16 dead larvae. Five inspections of gin stands in Beckham, Canadian, Grady, Jackson and Logan Counties yielded 28 dead larvae. Twenty-two inspections of lint cleaners in Beckham, Grady, Greer, Harmon, Jackson, Roger Mills and Washita Counties yielded 349 dead larvae. (Coop. Fed. -State PBW Cont. Prog.).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS - OKLAHOMA - From Payne County, 400 mature cattle averaged five grubs per animal and 80 calves, 14 grubs per animal; 60 yearlings from Coal County averaged two per animal and 40 yearlings from Canadian County averaged 16. (Howell).

EAR TICK (Otobius megnini) - OKLAHOMA - From Payne County, 400 mature cattle averaged 0.5 ticks per animal and 80 calves averaged seven; 60 yearlings from Coal County had none; and 40 yearlings from Canadian County averaged 12. (Howell).

SHEEP SCAB MITE (Psoroptes equi ovis) - VIRGINIA - Infesting one flock of sheep in Montgomery County. (Morris).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

MITES - OREGON - Tyrophagus linteri and Histiosoma americanum infested five percent of several thousand potted African violets in a Portland nursery, Nov. 13. Det. G. W. Krantz. (Capizzi).

STORED PRODUCTS INSECTS

KHAPRA BEETLE (Trogoderma granarium) - CALIFORNIA - Infestations total 279 in 18 counties with a cubic footage of 71, 561, 501. Of the total, 260 sites have been treated with a cubic footage of 66, 415, 664. Six sites with 1, 957, 666 cubic feet are under contract, 9 sites of 1, 542, 600 cubic feet are held for a year's inspection and four sites with 1, 645, 571 cubic feet are to be scheduled for treatment. (Cal. Coop. Rept.).

BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - Numerous in most fields with aphid populations. A preponderance of larvae noted this week. Counts about 50 per square foot of alfalfa crown in Alfalfa County, 60 in Logan County and less elsewhere. (Coppock).

MISCELLANEOUS INSECTS

MILLIPEDES - MARYLAND - Causing concern to home owners by entering houses in Montgomery, Howard and St. Marys Counties. (U. Md., Ent. Dept.).

CORRECTIONS

CEIR 6(8): 144 and CEIR 6(12): 249. NORTH CAROLINA - FLORIDA WAX SCALE (Ceroplastes floridensis) should read A WAX SCALE (Cerplastes sp.). (Farrier).

CEIR 6(45): 1041 under Walnut Husk Fly Suppression, California. The number of flies trapped, 242, were taken from 35 properties while the 50 host trees treated with soil insecticide were on 12 properties. (Harper).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea	Heliothis viresc.	Laphyg. frugip.
TEXAS.								
College Station 11/19-23	9		4					
Westaco 11/1-15	162	90	46	20		115	1	25
SOUTH CAROLINA(Counties)								
Oconee 11/10-16	2	3						
Florence 11/10-16	17	9	2		23	3		
Charleston 11/5-11		1			6	3		1
FLORIDA								
Belle Glade 11/14	2							
Monticello 11/14	1							
Bradenton 11/13						3		
Quincy 11/13	1				1	1		
Gainesville 11/14	2				1			
ALABAMA (Counties)								
Lee 11/11-17						3		2
Baldwin 11/2-8	1					1		

SUMMARY OF INSECT CONDITIONS - 1956

UTAH

Reported by
G. F. Knowlton, D. W. Davis, H. E. Dorst, H. F. Thornley, D. R.
Parker, F. C. Harmston, L. E. Fronk, G. A. Mail, G. H. Kaloostian,
and County Agricultural Agents

The spotted alfalfa aphid, pea aphid, grasshoppers, corn earworm, alfalfa weevil, lygus bugs, army cutworm, yellow-striped armyworms, spider mites, mosquitoes, cattle lice, forest bark beetles, and heleid flies were among the conspicuously troublesome pests in Utah during the current season.

Cereal and Forage Insects: GRASSHOPPERS again caused substantial crop and range losses in a number of counties, estimated at \$481,660. Considerable control effort resulted in a saving estimated at \$277,500. Control was carried out largely by farmers, ranchers, orchardists and home gardeners. The most damaging grasshopper species were Melanoplus mexicanus, M. bivittatus, M. femur-rubrum, Camnula pellucida, Aulocara elliotti and M. packardii. MORMON CRICKER (Anabrus simplex) was aircraft-baited on 46,900 acres of rangeland in time to prevent economic losses. Damage was severe to 15,000 acres in Dagget County, Bear Mountain area. The SPOTTED ALFALFA APHID caused spotted but extensive damage to alfalfa crops over most of the State. Estimated loss of alfalfa hay, seed, and new plantings is placed at \$500,000, compared with a \$780,000 loss during 1955. Only Cache, Rich and Dagget Counties have not been found infested. PEA APHID (Macrosiphum pisi) caused substantial losses of forage alfalfa hay and reduced seed production measurably in the Uintah Basin. Populations were low in late spring, but outbreaks developed in early summer and continued until late fall, wherever alfalfa was succulent. Damage to canning peas was light. LYGUS BUGS (largely Lygus elisus, L. hesperus, and L. desertus) were very abundant on alfalfa. SUPERB PLANT BUG (Adelphocoris superbus) was above normal in numbers in several counties in alfalfa. SWEETCLOVER WEEVIL (Sitona cylindricollis) spread to practically all parts of Utah, except Dagget County. Damage was less conspicuous than in 1954 and 1955. ALFALFA WEEVIL (Hypera postica) severely damaged much of the untreated alfalfa acreage. Losses are estimated to exceed \$280,000. The ALFALFA CATERPILLAR (Colias philodice eurytheme) caused local crop injury in a few counties. ARMY CUTWORM (Chorizagrotis auxiliaris) damaged alfalfa over several thousand acres, largely in southern and central Utah and caused some damage to small grains and range plants. WESTERN YELLOW-STRIPED ARMYWORM (Prodenia praefica) damaged alfalfa, tomatoes and other truck crops, particularly in Cache, Box Elder, Weber, and Davis Counties. Crop damage was estimated at \$85,000. Damage by YELLOW-STRIPED ARMYWORM (P. ornithogalli) occurred in some southern and central areas. BROWN WHEAT MITE (Petrobia latens) was less damaging, particularly after spring rains. Early spring control was necessary in Washington County and some damage also occurred in northern counties.

CORN LEAF APHID (Rhopalosiphum maidis) caused approximately one-half as much damage to small grains during 1956 as in 1955, requiring control on barley some areas. Injury to corn was moderate. CORN EARWORM (Heliothis zea) damaged sweet corn extensively and moderately injured field corn throughout Utah. Infestations varied from 10 to 100 percent, where no control was applied. Early market sweet corn averaged about 12 percent infestation compared with one percent in 1955. Infestations in canning corn mounted to 75 percent in Utah County but averaged about 35 percent. Davis, Weber, and Box Elder Counties averaged 25 percent and Cache County less than 5 percent. Canning costs were increased due to the infestation. Corn was rather frequently damaged by the TWO-SPOTTED SPIDER MITE (Tetranychus telarius). WESTERN HARVESTER ANT (Pogonomyrmex occidentalis) kept several thousand acres of range and forage crop lands bare of vegetation. CLOVER SEED CHALCID (Bruchophagus gibbus) caused economic damage in most alfalfa seed-growing areas. Seed in Cache County was approximately 30 percent infested and 6-8 percent infested in the Delta area.

Fruit Insects: Aphid infestations generally were below normal, other than WOOLLY APPLE APHID (Eriosoma lanigerum), which was more damaging in several localities. CODLING MOTH (Carpocapsa pomonella) infestation in well-sprayed orchards often exceeded five percent and in unsprayed orchards about 100 percent. Numerous unsprayed home orchards apparently are responsible for this condition. MITES were generally more severe in orchards than in 1954-55 and severe on some berry crops. CLOVER MITE (Bryobia praetiosa) was generally present in orchards and severe where poor or no delayed dormant spray was applied. A MITE (Eotetranychus williamettei) was more general than previously known, especially on apples and damaging from Provo southward and in some Cache Valley orchards. A MITE (Tetranychus mcDanieli) was highly injurious in many apple and sour cherry orchards in Weber and Box Elder Counties. PEAR LEAF BLISTER MITE, PEACH SILVER MITE and CHERRY RUST MITE were occasionally damaging, being severe in a few Weber County pear orchards. LEAFHOPPERS varied from scarce to numerous on apple, plum and prune. PEAR SLUG (Caliroa cerasi) caused moderate damage to sour cherry, pear and plum foliage. CALIFORNIA PRIONUS (Prionus californicus) killed some fruit trees in Salt Lake County. CATFACING INSECTS caused only moderate damage. PEACH TREE BORER (Sanninodiea exitiosa) and the WESTERN PEACH TREE BORER (S. exitiosa graefi) damaged stone fruit trees throughout State. CLIMBING CUTWORMS damaged orchards in Box Elder and Weber Counties with scattered local damage elsewhere. WESTERN GRAPE LEAF SKELETONIZER (Harrisina brillians) again was almost completely controlled by insect parasites and predators. GRAPE BERRY MOTH (Paralobesia viteana) damaged grapes in a few Washington County vineyards. CURRANT APHIDS caused less damage than normal. STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) caused above-normal injury in northern and central areas. STRAWBERRY ROOT WEEVILS (Brachyrhinus ovatus, B. rugosostriatus and sometimes B. sulcatus) damaged many strawberry patches with moderate injury to raspberry and other cane fruits.

Truck Crop Insects: TOMATO FRUITWORM(Heliothis zea) in tomatoes averaged less than 0.5 percent. TOMATO RUSSET MITE (Vasates lycopersici) was observed in only one tomato field in 1956 in a canning crop area. LYGUS BUGS (Lygus elisus predominately) on sugar beet seed were light in southern area and moderate in northern area near Avon and Paradise. BEET LEAFHOPPER (Circulifer tenellus) spring migration was first detected May 21. Late winter and early spring surveys indicated the migration would be light. Curly top in sugar beets in the district from Sevier to Gunnison averaged five percent, but from Payson to Garland it was less than 0.4 percent. Curly top in tomatoes from Payson to Garland averaged 4 percent compared with eight percent in 1955. Early market tomatoes near St. George and Hurricane in southern Utah showed about 50 percent loss of plants. The sugar beet seed yield in southern area in July was reduced approximately one third, principally by curly top. The aggregate population averaged 0.7 leaf-hopper per foot of beet row by mid-October and was considered light to moderate. Some curly top beets were observed in poor stands by late October. DROSOPHILA population on canning tomatoes was markedly low in 1956. APHIDS were below normal, generally, on potatoes, beans, peas, carrots, celery, cabbage and corn. However, about 300 acres of potatoes intended for seed certification could not be certified due to aphid-borne types of virus diseases. SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons), A LEAFHOPPER (Empoasca filamenta) and the POTATO PSYLLID (Paratrioza cockerelli) caused occasional damage in local areas; generally below normal in numbers. FLEA BEETLE damage generally was moderate to below normal in potato and sugar beet fields. The POTATO TUBERWORM (Gnorimoschema operculella) again appeared after a season of rarity with infestations up to 80 percent, but infestations in Iron and Washington Counties were from one to two percent, with some fields running to 10 and 15 percent. Light local infestations were reported in Beaver and Millard Counties. MEXICAN BEAN BEETLE (Epilachna varivestis) caused damage in a number of counties, being injurious in Cache County for the first time. CUCUMBER BEETLES caused light to moderate damage on infested farms. ASPARAGUS BEETLES (Crioceris asparagi and C. duodecimpunctata) caused damage in several counties. The latter was found in Uintah County for the first time and its range and damage was greater this year than ever before. WESTERN YELLOW-STRIPED ARMYWORM damaged tomatoes and beets substantially in Cache, Box Elder and Weber Counties. HORNWORMS (Protoparce spp.) caused light damage to tomatoes and potatoes.

Forest Insects: BLACK HILLS BEETLE (Dendroctonus ponderosae) has been epidemic in the Dixie National Forest and Bryce Canyon National Park for the past few years. While over-all conditions have improved, the bark beetle is still active in some centers. A MEALYBUG (Puto sp.) infested about 60,000 acres of Englemann spruce stands in the Dixie National Forest in southern Utah. A NEEDLE MINER(Epinotia meritana) caused considerable damage to white fir in Bryce Canyon National Park and adjoining lands in the Dixie National Forest. DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) caused significant losses in most stands of Douglas-fir and rather heavy losses in isolated stands in

southern area. MOUNTAIN PINE BEETLE (Dendroctonus monticolae) is in epidemic status on the Wasatch and Ashley National Forests and infested areas at least equal the area infested in 1955 when more than 100,000 lodgepole pine trees were killed on the north side of these two forests. A TENT CATERPILLAR (Malacosoma fragilis) increased sharply in aspen stands of southern Utah and injured ornamentals in Washington County.

Shade Tree Insects: A BLOTCH LEAF MINER (Paraleucoptera albella) damaged cottonwoods, with greater variance than in 1955 in the Sevier-Piute County area. Willows were rather commonly infested with APHIDS, sometimes severely. BOXELDER PSYLLID (Psylla negundinis) was damaging in Wasatch County. A MITE (Eotetranychus weldoni) caused some injury to weeping willow foliage in several areas.

Insects of Ornamentals: LEAFHOPPERS (Erythroneura ziczac, E. elegans and others) again damaged Virginia creeper foliage during late summer and fall. ROSE LEAFHOPPER (Edwardsiana rosae) commonly discolored foliage of cultivated roses unless controlled and was numerous on spirea in the fall. EUROPEAN EARWIG (Forficula auricularia) again caused annoyance about homes and garden over most of Utah.

Insects Affecting Man and Animals: MOSQUITO populations in the Cache Valley area of northern Utah were much higher during the spring and autumn of 1956 than during the same periods in 1955 but lower in 1956 during the period July-August, which was the peak season of production for four major species: Culex tarsalis, Aedes vexans, A. nigromaculis and Mansonia perturbans. Culex erythrothorax, another important pest species in Cache Valley, was more abundant throughout the 1956 season than in 1955 and was highly pestiferous in some areas of Weber County. Evening biting collections taken throughout the 1956 season at two locations in Cache Valley showed Culex tarsalis 74 percent, Aedes nigromaculis 13 percent, Aedes vexans 8 percent, and Mansonia perturbans 3 percent. Aedes dorsalis was particularly troublesome in several northern counties in spring, and again in fall when waste water was turned into gun-club lands while fall temperatures still were high. In Weber County 23,800 acres were sprayed for Culex tarsalis and other species; 15,050 gallons of insecticide were used for fogging, 20,000 Gambusia fish were released in ponds and streams, 8,600 feet of new ditches were dug, and 1,700 feet of ditches were cleaned. Mosquito problems were equally serious at least part of the season, in several other counties. CATTLE LICE caused extensive but normal damage generally over the State, with some herds severely infested. CATTLE GRUBS (Hypoderma lineatum and H. bovis) caused normal damage. HORN FLY (Siphona irritans), STABLE FLY (Stomoxys calcitrans), TABANIDS, HOUSE FLIES, and BLOW FLIES caused about average annoyance to livestock. POULTRY MITES, POULTRY LICE and HOG LICE were fairly common, sometimes present in great abundance. EAR TICK (Otobius megnini) was less troublesome than during 1954 or 1953. TICKS, particularly Dermacentor andersoni, were numerous during spring on cattle and horses, and attacked persons on rangelands. Larvae of A SARCOPHAGID (Wohlfahrtia opaca) sometimes attacked

livestock, kit mink and other animals. A SNIPER FLY (Symphoromyia hirta) seriously annoyed man and cattle in a number of canyons. SHEEP KED (Melophagus ovinus) was abundant and injurious generally, particularly in winter and to lambs.

Miscellaneous Insects: HOUSE FLY (Musca domestica) was frequently numerous in cities, towns, on farms and in food establishments. CLUSTER FLY (Pollenia rudis) invaded many homes in fall. COCKROACHES (Blattella germanica, Blatta orientalis, Supella supellectilium and occasionally Periplaneta americana) infested many commercial establishments and some homes, hospitals, etc. CLOVER MITE, EUROPEAN EARWIG and BOXELDER BUG commonly caused household annoyance, with the clover mite being particularly troublesome in many counties. SUBTERRANEAN TERMITES damaged many homes and other buildings in all parts of the State.

SUMMARY OF INSECT CONDITIONS

TENNESSEE

Reported by R. P. Mullett

Cereal and Forage Pests: ARMYWORMS (Pseudaletia unipuncta) again appeared this spring although they were not nearly so abundant as in previous years. A survey was conducted in infested areas and about 35,000 acres were infested. Of this infested acreage, 10,000 acres were very lightly infested and sustained little or no damage; 13,000 acres had controls applied for a saving of \$260,000. Loss of approximately 2,000 acres was estimated at \$40,000. The major infestation occurred in central and northwest areas. Widespread infestation of SUGARCANE BEETLE (Euethola rugiceps) occurred all across the State in corn. Large acreages sustained loss of stand but only scattered fields of corn required replanting. The loss of stand in other fields caused reduction and poor yields. This insect also attacked tobacco and cotton locally. EUROPEAN CORN BORER (Pyrausta nubilalis) was prevalent across the State. CORN EARWORM (Heliothis zea) appeared in the spring on corn and was severe in local areas across the State. Considerable control efforts were applied against this pest. MEADOW SPITTLEBUG (Philaenus leucophthalmus) which has been occurring in the eastern third of the State is slowly expanding its area of infestation. SPOTTED ALFALFA APHID was first found the latter part of summer in Maury County. Since then, it has been found in various counties in all sections of the State. It is believed this insect is in almost all counties. A few fields were damaged. SORGHUM WEBWORM (Celama sorghiella) has caused scattered heavy damage on sorghum over the State. The damage was not as severe as in 1955. Control efforts were applied in many areas. CLOVER LEAF WEEVIL (Hypera punctata) built up in scattered portions of the State on alfalfa this year. Serious defoliation occurred in a few instances.

Cotton Insects: Heavy infestation of the BOLL WEEVIL (Anthonomus grandis) existed in eight of the southeastern counties of the State. The infestations were scattered. Widespread control efforts were applied

throughout the season for its control. Minor damage resulted from the BOLLWORMS. PLANT BUGS caused local damage in some sections of the Cotton Belt. A few fields damaged from SPIDER MITES. A few LEAFWORMS were found in the State but caused no damage.

Vegetable Insects: All the common vegetable insects were present during the summer and in normal numbers over the State.

Tobacco Insects: TOBACCO BUDWORM (Heliothis virescens) was the serious tobacco pest, being present over the tobacco area. Controls were widely practiced. TOBACCO HORNWORMS (Protoparce spp.) were not much of a problem. In a few fields, there was damage from aphids.

Tree Insects: Extremely large numbers of ELM LEAF BEETLE (Galerucella xanthomelaena), LOCUST LEAF MINER (Chalepus dorsalis) and MIMOSA WEBWORM (Homadaula albizziae) caused considerable defoliation of respective host trees across the State. BAGWORMS were present in very heavy numbers and caused death of many juniper trees in the State. BAGWORM (Thyridopteryx ephemeraeformis) attacked all varieties of shrubbery this year.

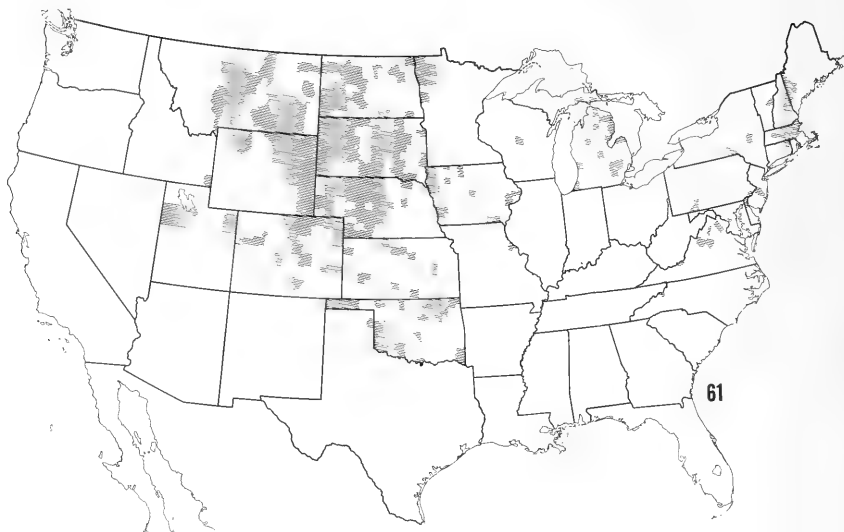
Cattle Pests: HORN FLY (Siphona irritans) was prevalent over the State. CATTLE GRUBS were present in large numbers. No cases of SCREW-WORM were reported. HOUSE FLIES (Musca domestica) and the LITTLE HOUSE FLY (Fannia canicularis) were prevalent all across the State. LICE were few and scattered.

Household Pests: FLEAS were extremely numerous generally in homes and yards. TERMITE infestation appeared to be much below normal this year.

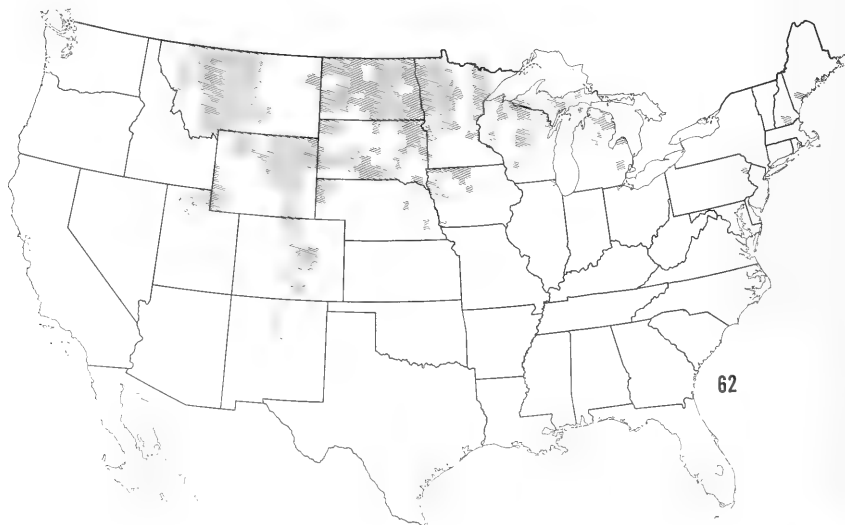
Miscellaneous: Numerous infestations of the EUONYMUS SCALE (Unaspis euonymi) were found on euonymus. The controls applied by the State Department of Agriculture to the JAPANESE BEETLE (Popillia japonica) infestation in Johnson County gave exceptionally good control. Very few beetles were found this season in that area. It was anticipated at the time of application of the control efforts that a few beetles had already pupated and a few would emerge this spring. Another infestation of the JAPANESE BEETLE was found in Coker County. Control measures were applied to the infested area by the State Department of Agriculture. Heavy infestations of STRAWBERRY LEAF ROLLERS were found in north central and also in eastern areas.

DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus confusus Scudder

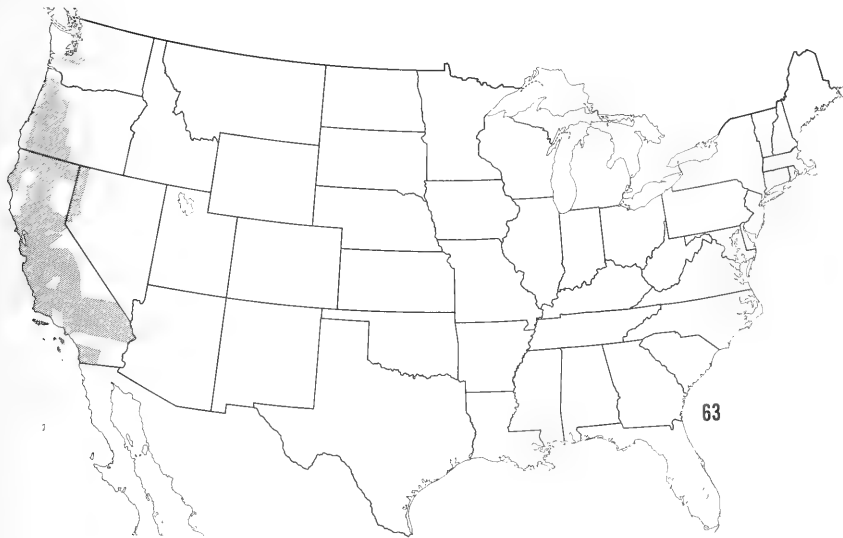


Melanoplus dawsoni (Scudder)

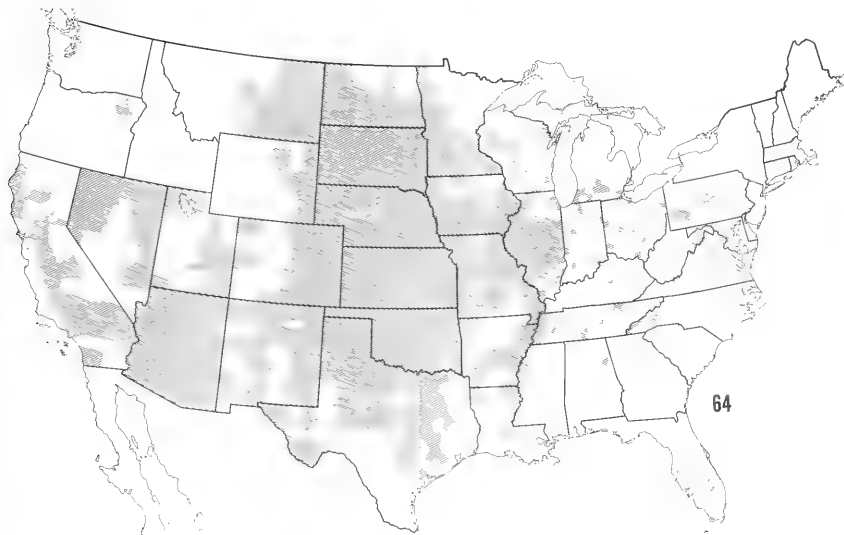


DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus devastator Scudder Devastating grasshopper



Melanoplus differentialis (Thomas) Differential grasshopper

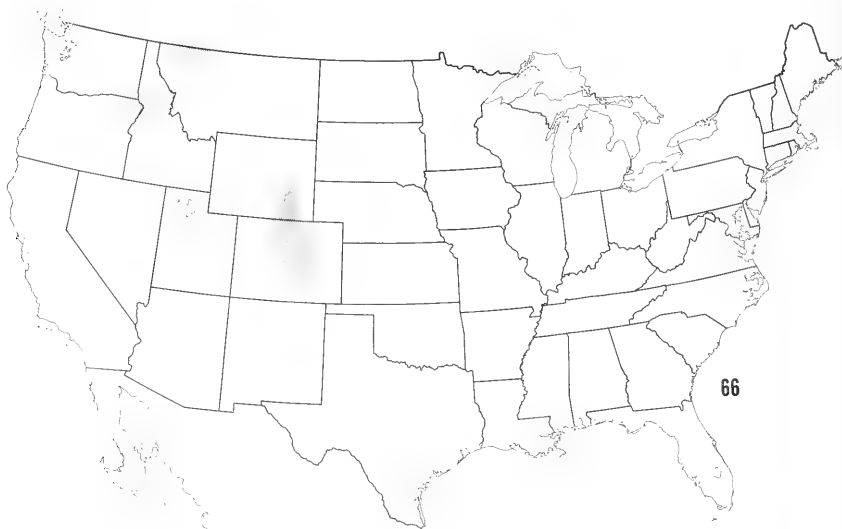


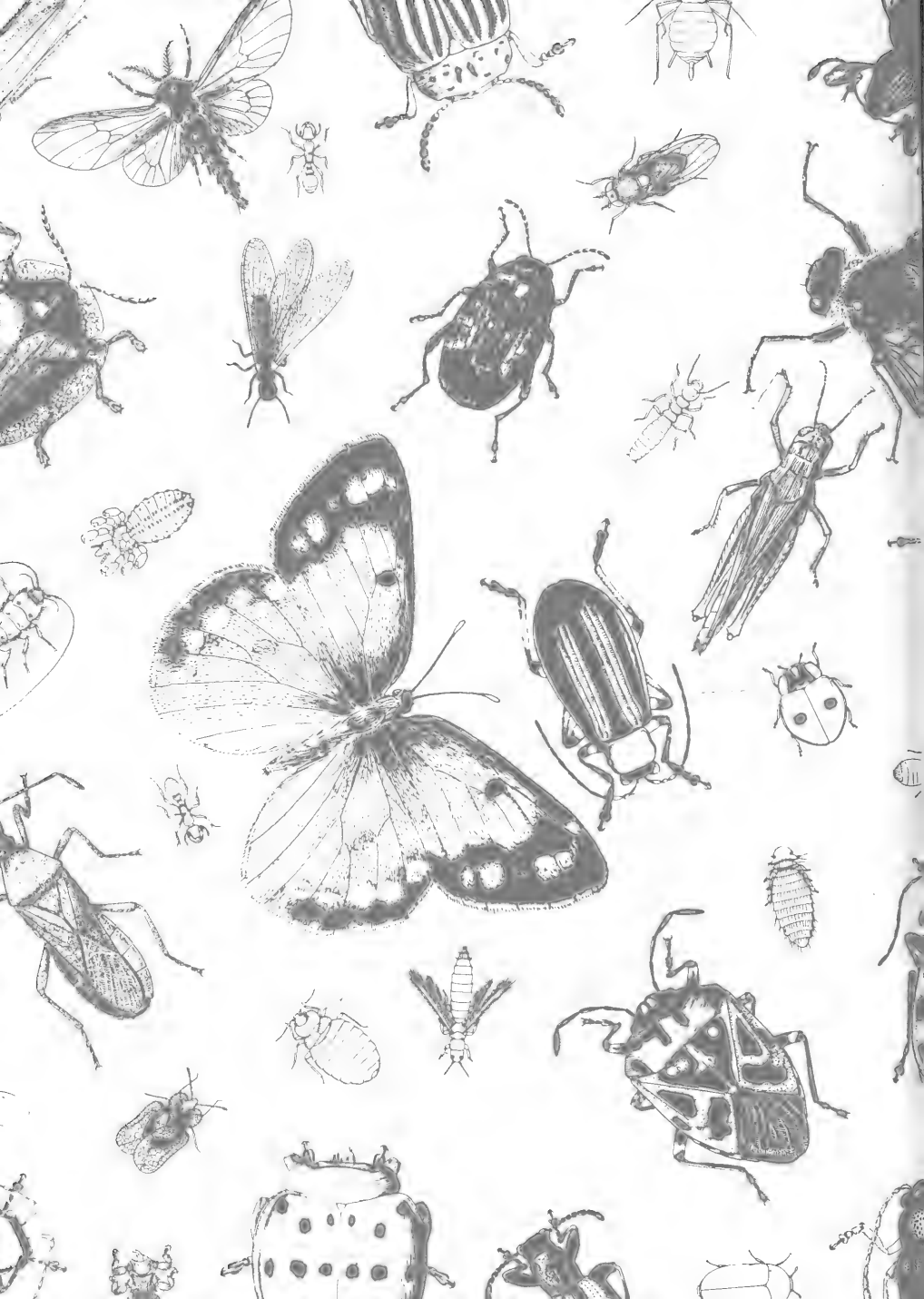
DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus discolor (Scudder)



Melanoplus dodgei (Thomas)





VOL. 6 No. 49

DECEMBER 7, 1956

SB
823
c77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

First report of SPOTTED ALFALFA APHID in Alabama. New county records from Virginia and Mississippi. Populations moderate to heavy in southeastern Kansas and building up in some fields in central Oklahoma. (p. 1095).

SOYBEAN CYST NEMATODE reported from Tennessee for first time. (p. 1096).

First record of a DERMESTID (Trogoderma parabile) for Virginia. (p. 1098).

SUMMARY OF INSECT CONDITIONS - 1956 - Vermont (p. 1100), Rhode Island (p. 1100).

SURVEY METHOD for determining insect damage on shade-grown tobacco. (p. 1104).

CORRECTIONS. (p. 1099).

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

WEATHER BUREAU'S 30-DAY OUTLOOK

December, 1956

The Weather Bureau's 30-day outlook for December calls for a continuation of below normal temperatures over the eastern third of the nation. West of the Continental Divide temperatures averaging not far from seasonal normals are expected, except for above in the far Southwest. In the Great Plains slightly above normal temperature averages are indicated, but with large fluctuations.

Precipitation is expected to be subnormal over most of the country except for near to above normal amounts over the Northeast quarter and also west of the Continental Divide. Central and Southern West Coast areas, which have had very little rainfall during November, are expected to become appreciably wetter as December advances.

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

WEATHER OF THE WEEK ENDING DECEMBER 3, 1956

Climatologically speaking, winter began December 1, but there were no radical changes from the weather of previous weeks. Somewhat unusual for any season was the extensive below normal precipitation condition which existed throughout the country with only a few isolated stations in Minnesota, New York, New England and Florida reporting slightly above normal totals for the period. Temperature conditions on the Nationwide scale were more varied, averaging above normal in the extreme Southwest and in the central and northern Plain States, and below normal in the Northwest and East. As a result of a cold Polar air mass which moved in from Canada early in the period and stagnated west of the Continental Divide, weekly temperature averages were below seasonal normals by as much as 11° except that they were above in extreme southern sections. In these sections and east of the Divide to a line extending from southwestern Texas to northwestern Minnesota, weekly temperatures averaged above normal with unseasonably warm daytime maxima, but cool nighttime minima. In the East the week was mostly cold with some southeastern areas reporting the coldest weather of the season. Temperatures dropped to the low 20's in the north-central Peninsula of Florida on one night. As the period ended, an extremely cold Arctic air mass was pushing in over the North-Central States, but ahead of this leading edge of cold air unseasonably warm weather prevailed. Although a weak coastal disturbance brought rain to the Southeast, and snow flurries prevailed over the Great Lakes region on most days and occasionally extended into the Northeast, weekly precipitation totals were mostly less than one-half inch east of the line extending from Williston, North Dakota to Memphis, Tennessee, thence southward to the central Louisiana coast. The only significant weekly totals being observed along the eastern lake shores of Ontario and Erie, and coastal New England. West of this line, the weather was dry. Fog and

continued on page 1103

CEREAL AND FORAGE INSECTS

EUROPEAN CORN BORER (Pyrausta nubilalis) - KANSAS - Survey of 22 counties showed a range of 0-60 percent infestation with 0-210 borers per 100 stalks. Heaviest infestations occurred in Jefferson, Wyandotte, Leavenworth and Atchison in eastern area. (Matthew).

GRASSHOPPERS - CALIFORNIA - Counts indicate an average of ten per square yard in some places on south slopes of hills in Tehama County. Species were Melanoplus devastator and Oedaleonotus borckii prob. pacificus. Oviposition principally by M. devastator. (Cal. Coop. Rept., Nov. 23).

ALFALFA WEEVIL (Hypera postica) - VIRGINIA - First report from Prince George County. A few active in Southampton County. (Morris).

SPOTTED ALFALFA APHID - OKLAHOMA - Populations building up in scattered fields in central area due largely to green growth. Counts in Oklahoma County were 1200-14,500 aphids per square foot of crown area. (Coppock). Populations in southeastern counties were generally low. Generally less than 50 per square foot of crown area in Choctaw and McCurtain Counties with one field having 3200 per square foot. (Coppock, Goin). KANSAS - At the end of November, live aphids were found in Cloud, Republic, Washington, Clay, Riley, Pottawatomie and Geary Counties. Moderate to heavy populations in southeastern area. (Matthew). VIRGINIA - Reported for first time from Wythe, Brunswick, Greensville, Sussex, Dinwiddie and Prince George Counties. All light infestations, with 1-22 per 100 sweeps except in Greensville where counts ran one per sweep. No infestations found in Southampton, Charles City and Henrico Counties. (Morris). MISSISSIPPI - Observed recently feeding on alfalfa in Leflore County. (Hunsucker). ALABAMA - Collected on alfalfa in Lee County, Oct. 9. Determined L.M. Russell. First report for State. (Guyton).

APHIDS - NORTH CAROLINA - Severe infestation on 20 acres of oats with most killed in Duplin County. A field in Pender had many dead and dying plants. (Honeycutt, Jones).

RICE WEEVIL (Sitophilus oryza) - NORTH CAROLINA - Averaged 14 weevils per ear in a field in Carteret County with 25-30 percent of kernels punctured. Over 50 adults per ear in Craven County field, Oct. 31. (Jones, Farrier).

PINK SCAVENGER CATERPILLAR (Pyroderces rileyi) - NORTH CAROLINA - Observed in stalks and ears in most eastern counties in October. (Farrier, Jones).

A GRASSWORM (Mocis sp. prob. latipes) - FLORIDA - Larvae averaging three per square foot of Bermuda grass at Miami, Dade County, Nov. 13. (Daigle).

Soybean Cyst Nematode Found in Tennessee

The following statement has been received from H. L. Bruer, Director of Entomology and Plant Pathology, Tennessee Department of Agriculture, Nashville.

"This will advise that soybean cyst nematode Heterodera glycines has been found in Lake County, Tennessee. This nematode was first identified in a sample taken by Mr. James Epps of the West Tennessee Experiment Station at Jackson, Tennessee from a commercial field of soybeans just south of Ridgely, Tennessee. Immediately on identification of this nematode arrangements were made for a cooperative survey to determine the extent of the infestation. This survey is now under way. Extensions of infested land have been found for approximately two miles south of the originally known infested field. The survey is continuing in Lake County and those adjacent, and you will be kept advised of current information with reference to the extent of this infestation, and appropriate measures will be taken to prevent dissemination of the nematode from this area.

"Lake County is composed entirely of a typical delta soil that is devoted to large scale farming in which cotton and soybeans are the major crops. Other crops grown are corn, alfalfa and some winter grain. No root crops are produced in this county, and there is no existing enterprise in nursery production or other plant movement from the area. There seems, then, little chance of long distance spread being accomplished by artificial means. Weather conditions for survey are, of course, not favorable at this time, and it is uncertain exactly how extensive a survey can be made during the current winter. It is hoped, however, that some overall idea will be secured as to the area involved."

FRUIT INSECTS

Citrus Insect Situation, Florida, Second Week of November:

PURPLE SCALE, with 91 percent of groves checked infested, increased in activity with further increase expected. A reduction in activity of FLORIDA RED SCALE but activity still high in Ridge, Bartow and Orlando districts. CITRUS RED MITE, with 62 percent of groves infested, continued to increase with further increase expected. A reduction in activity of CITRUS RUST MITE with 80 percent of groves infested. Level will remain very high through December. (Pratt, Thompson, Johnson).

HALL SCALE (Nilotaspis halli) - CALIFORNIA - A third and final post-fumigation inspection of the Oroville area, previously infested, was completed Nov. 23 and no live scale insects were found. (Cal. Coop. Rept., Nov. 23).

TRUCK CROP INSECTS

MELON FLY (Dacus cucurbitae) - CALIFORNIA - County, state and

federal inspectors serviced 6984 traps in Los Angeles County during the week and no flies were taken. (Cal. Coop. Rept., Nov. 23).

BEET LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Late fall spraying was continued in San Joaquin Valley breeding grounds. A total of 4730 gallons of spray was applied to 3459 acres. Only an occasional leafhopper was found in Shandon area of San Luis Obispo County. Counts averaged three per ten sweeps in Carriso Plains in canyons running to McKiltrick in Kern County. Populations were 4-6 per sweep in Fresno County and somewhat higher in Stanislaus and Merced Counties. (Cal. Coop. Rept., Nov. 23).

A GELECHIID MOTH (Aristotelia disconotella) - NORTH CAROLINA - Larvae injuring crowns of strawberries in Macon County, Sept. 24. Det. H. W. Capps. (Scott).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Gin trash inspections completed in San Joaquin Valley, Nov. 22. A total of 18,124 bushels of trash were inspected with no pink bollworm or boll weevil found. (Cal. Coop. Rept., Nov. 23). OKLAHOMA - Inspection of 82 bushels of gin trash from Beckham, Cleveland, Custer, Dewey, Greer, Harmon, Jackson, McIntosh and Roger Mills yielded 202 larvae. (Fed. -State PBW Cont. Prog.). Inspection of lint cleaners in Tillman County yielded 113 larvae. (Hatfield).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

TULIPTREE SCALE (Toumeyella liriodendri) - MARYLAND - Heavy on magnolia, Towson, Baltimore County. (U. Md., Ent. Dept.).

A PHYCITID (Diorytia sp.) - ALABAMA - Causing damage to pine trees. (Arant).

SAWFLIES - FLORIDA - Neodiprion excitans larvae reported on slash pine at Osceola National Forest, Baker County, Nov. 20. (Denmark). N. lecontei larvae reported on longleaf pine in same area, Nov. 20. (Hetrick).

A LEAF MINER (Profenusa sp.) - CALIFORNIA - Reared from sycamore in southern coastal area. (Eads). Larvae submitted from leaf blisters on plane tree on May 16, 1952 from Lakeport, Lake County by W. F. Cruickshank. (Cal. Coop. Rept., Nov. 23).

A BUD MITE (Aceria paradianthi) - CALIFORNIA - Found for first time in nurseries in San Mateo and Alameda Counties. (Pritchard). Known in Santa Barbara, Los Angeles and Orange Counties since 1952. (Cal. Coop. Rept., Nov. 23).

IPS BEETLES (Ips spp.) - OKLAHOMA - A study of shortleaf pines near Broken Bow showed light infestations. An estimated tree per two acres was dead or dying, probably due to drought and was infested. Species were I. avulsus, I. grandicollis and I. calligraphus. (Coppock, Goin).

COTTONY-CUSHION SCALE (Icerya purchasi) - ALABAMA - Causing serious damage to boxwood in Monroe and Clark Counties. (Owen).

INSECTS AFFECTING MAN AND ANIMALS

CATTLE GRUBS - OKLAHOMA - Survey of cattle at Oklahoma City slaughtering houses showed the following: 51 mature cows averaged 3.5 grubs per animal with 0-32 range; 62 yearling steers and heifers averaged 31 per animal and 0-100 range. (Coppock). Spraying underway in Roger Mills County. (Hudson). SOUTH CAROLINA - Small number present in early examinations of cattle in mid-State. (Goodwin).

CATTLE LICE - UTAH - Most important pests in many counties. Spraying and dipping, in progress several counties. (Knowlton).

STORED PRODUCTS INSECTS

Stored Grain Pest Situation, Washington, November 1-26
Survey of 28 stored grain establishments in Walla Walla, Benton, Franklin, King and Pierce Counties were negative for KHAPRA BEETLE and LESSER GRAIN BORER. Tribolium castaneum and Oryzaephilus surinamensis were most common followed by Sitophilus granarius and S. oryza. In general infestations were light but several sites at Pomeroy, Waitsburg and Prescott had heavy populations. Increased populations expected in next few months. (Kamal).

DERMESTIDS (Trogoderma spp.) - VIRGINIA - Light infestation of T. parabile found in Richmond warehouse storing vegetable seed. Infestation heaviest in beet and lettuce seeds. Tomato seeds also infested. Determined W. H. Anderson. First report of species for State. (Matheny, Davis, Rowell). CALIFORNIA - Trogoderma boron occurring in heavy infestation at Bakersfield. Specimens collected from mud daubers nests in Yuba County. (Cal. Coop. Rept., Nov. 23).

GRAIN WEEVILS - SOUTH CAROLINA - A large percentage of oats samples submitted for grading at Columbia was graded weevily. (Siedschlag, Nov. 21).

A MYCETOPHAGID (Litarqus balteatus) - CALIFORNIA - Reported as heavy in grain warehouse in Modesto, Stanislaus County. (Cal. Coop. Rept., Nov. 23).

BENEFICIAL INSECTS

SYRPHID FLIES - ARIZONA - In survey of crop areas for three years, Eupeodes volucris was most abundant aphidophagus syrphid representing 19 percent and most abundant during winter, spring and early summer. Others according to occurrence were Allograpta fracta, 11 percent and A. obliqua, 9 percent--both more abundant in summer. Scaeva pyrastris occurred in 0.9 percent of the samples. Commonest in samples at 20 percent, was Mesogramma marginata. A total of 443 samples were taken. (Ariz. Coop. Rept.).

MISCELLANEOUS INSECTS

CLOVER MITE (Bryobia praetiosa) - UTAH - Invading homes in scattered areas during warm weather. (Knowlton).

A SOLDIER FLY (Hermetia illucens) - NORTH CAROLINA - Large infestation under caged layer in Sampson County. (Jones, Farrier).

CLUSTER FLY (Pollenia rudis) - KENTUCKY - Very abundant for the first time in 6-8 years. Determined C. W. Sabrosky. (Thurston).

CORRECTION

CEIR 6(36):387. NORTH CAROLINA - CHINCH BUG (Blissus leucopterus) should read (Blissus leucopterus insularis). Det. R. I. Sailer. (Farrier).

LIGHT TRAP COLLECTIONS	Pseud. unipun.	Ag. ypsa.	Prod. orn.	Feltia subt.	Heliothis zea
SOUTH CAROLINA (Counties)					
Oconee 11/17-23	2	3		1	
Florence 11/17-23	8	3		11	5
Charleston 11/22-28	1	8		8	2
GEORGIA (County)					
Spalding 11/23-29	1	1		1	
FLORIDA					
Bell Glade 11/20					1
Alva 11/22			1		
Monticello 11/27		1			1
Quincy 11/26		1			
Homestead 11/20				4	
Gainesville 11/19		1	1		
ALABAMA (Counties)					
Lee 11/18-24		5			1
* Baldwin 11/14, 15, 20, 21		7			8

* Also includes 3 Laphygma frugiperda.

SUMMARY OF INSECT CONDITIONS - 1956

VERMONT

Reported by J. W. Scott

Cereal and Forage Insects: EUROPEAN CORN BORER (Pyrausta nubilalis) counts made in corn fields throughout the State were comparable to those made last year with an average of 4 percent of the stalks infested. Complaints from individuals regarding corn borers in home market corn were more numerous but it is felt that CORN EARWORM (Heliothis zea) was the culprit and not the corn borer. CUTWORMS in corn plantings were numerous statewide in the spring. SEED-CORN MAGGOT was quite heavy in Grand Isle, Orleans and Orange Counties. ROSE CHAFER (Macrodactylus subspinosus) populations were greater than usual throughout the State. Some damage to truck crops and ornamentals

Forest, Ornamental and Shade Tree Insects: JAPANESE BEETLE (Popillia japonica) infestation has moved up further north on the Connecticut Valley side of the State. MAPLE LEAF CUTTER (Paraclesia acerifoliella) made an unusually noticeable appearance. Large areas in Barnet and Pownal received very heavy damage. FOREST TENT CATERPILLAR (Malacosoma disstria) outbreak of the previous two years declined even more rapidly than anticipated. There was essentially no defoliation by this insect in 1956. EASTERN TENT CATERPILLAR (Malacosoma americanum) was practically non-existent after about five years of prominence. GYPSY MOTH (Porthetria dispar) infestation declined rapidly on the eastern side of the State. Defoliation in the western part continued in areas of especially favorable growth from Arlington north to Addison County areas. A PINE LEAF APHID (Pinus pinifoliae) attack on white pine in 1955 was very noticeable throughout the State in 1956. The galls are now present on the alternate host, spruce.

Fruit Insects: Fruit insects were in general less severe. EUROPEAN RED MITE (Metatetranychus ulmi) and TWO-SPOTTED SPIDER MITE (Tetranychus telarius) were more prominent.

Miscellaneous Insects: FLIES were unusually light throughout the State.

SUMMARY OF INSECT CONDITIONS - 1956

RHODE ISLAND

Reported by P. C. Steve
W. N. Stoner

Cereal and Forage Insects: ARMYWORMS were present in small numbers, but no outbreaks were observed this season. STALK BORER (Papaipema nebris) in large numbers in sweet corn throughout the State caused light to

moderate damage along the borders of most fields. The first brood of the CORN EARWORM (Heliothis zea) was plentiful and caused extensive damage to sweet corn plantings. In August, infestations of marketable ears ran as high as 60 percent with light to moderate damage from second-brood larvae in late-maturing varieties and in late plantings in September and October. First-brood EUROPEAN CORN BORER (Pyrausta nubilalis) was heavy causing light to moderate damage to tips of ears in most plantings. Stalk boring and fall incidence seemed somewhat higher than in 1955. Severity of attack seemed to depend upon the variety, regardless of insecticidal treatment. Light damage from the second brood occurred in September and the first part of October. This was especially noticeable in late-maturing varieties and late plantings. A relatively large, late population of JAPANESE BEETLE (Popillia japonica) caused moderate damage to a wide variety of hosts until unseasonably severe frosts in early October. TARNISHED PLANT BUG (Lygus lineolaris) was abundant throughout the season.

Fruit Insects: Well-planned spray schedules kept pests at a minimum in commercial orchards. APPLE MAGGOT (Rhagoletis pomonella) populations were high with several peaks of adult emergence, extending from mid-July to early August. Most growers reported good control but in neglected groves fruits contained as many as 60 oviposition punctures. Constant spraying kept APHIDS and MITES at a minimum, with damage on only a few trees which were missed or excluded from the spray program. PLUM CURCULIO (Conotrachelus nenuphar) damage to unsprayed trees was heavy, but commercial growers reported successful control of the pest. RED-BANDED LEAFROLLER (Argyrotaenia velutinana) in light numbers only, caused some late damage to fruit in the northern section. CODLING MOTH (Carpocapsa pomonella) populations were high and severely damaged neglected trees, but growers achieved control and kept injury at a minimum.

Truck Crop Insects: Overwintering adults of POTATO FLEA BEETLE (Epitrix cucumeris) emerged in large numbers and fed heavily on potato, bean and tomato seedlings. This pest remained as the main insect problem for potato growers and demanded constant spraying throughout the season. STALK BORER (Papaipema nebris) was very abundant in potatoes and caused considerable damage to plants in marginal rows. Light damage by this pest was observed in peppers. IMPORTED CABBAGE WORM (Pieris rapae) and CABBAGE LOOPER (Trichoplusia ni) were early pests of cabbage in large numbers necessitating constant control. STRIPED CUCUMBER BEETLE (Acalymma vittata) was abundant and general in distribution on cucumbers and required control measures. MEXICAN BEAN BEETLE (Epilachna varivestis) on beans was light to moderate. Most growers employed control measures. Heavy defoliation of tomato plants by the TOBACCO HORNWORM (Protoparce sexta) occurred in smaller plantings during late August. SQUASH BUG (Anasa tristis) was very abundant causing light to moderate damage to squash and other cucurbits during late August, September and October. Heavy damage to squash plantings was caused by the SQUASH VINE BORER (Melittia cucurbitae) during September and October.

Forest, Ornamental and Shade Tree Insects: RHODODENDRON LACE BUG (Stephanitis rhododendri) was heavy this season requiring control measures in South Kingstown areas. WHITEFLIES were unusually heavy on azaleas in nurseries as was the BOXWOOD LEAF MINER (Monarthropalpus buxi). Heavy numbers of the ROSE CHAFER (Macrodactylus subspinosus) caused light to moderate damage to rose plantings and other ornamentals. ELM LEAF BEETLE (Galerucella xanthomelaena) was common throughout the State with heaviest damage on trees in the Johnston area. Good control of the GYPSY MOTH (Porthetria dispar) was achieved with only one serious infestation in the Narragansett area. First generation of BIRCH LEAF MINER (Fenusa pusilla) caused severe damage to gray birches with complete "bronzing" of most trees. Injury by the second generation did not appear to be as heavy as that of the first generation. Injury to locusts by the LOCUST LEAF MINER (Chalepus dorsalis) was widespread but not severe. SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) was active as indicated by 1,452 positive cases of Dutch elm disease reported this year. Black willow trees suffered light to moderate damage and weeping willows light damage by the IMPORTED WILLOW LEAF BEETLE (Plagiodera versicolora). PINE NEEDLE MINER (Exoteleia pinifoliella) activity was extensive on pitch pines in the southern section. Considerable defoliation to roadside oaks was caused by ORANGE-STRIPED OAKWORM (Anisota senatoria). WHITE PINE WEEVIL (Pissodes strobi) was very active this season, causing injury to large numbers of white pine in the Smithfield area. Red spruce was also damaged by this pest. SPRUCE SPIDER MITE (Oligonychus ununguis) was abundant, causing light damage to ornamental plantings. Blue spruces in northern sections were heavily damaged by the COOLEY SPRUCE GALL APHID (Chermes cooleyi)

Turf Insects: Damage caused by the larvae of the JAPANESE BEETLE (Popillia japonica) and other scarab grubs was light. Populations of SOD WEBWORMS (Crambus spp.) were also light. Numerous complaints were received on the CLOVER MITE (Bryobia praetiosa).

Insects Affecting Man and Animals: DOG FLEA (Ctenocephalides canis) and CAT FLEA (C. felis) caused annoyance during August and September, to homeowners in several locations. Fewer reports than usual were received of annoyance by the BED BUG (Cimex lectularius). Populations of HOUSE FLY (Musca domestica) did not appear to be above normal. BLACK FLIES (Simulium spp.) were biting fiercely during May and June as developmental conditions became favorable. TABANIDS were plentiful and caused nervousness in cattle throughout the season. Large numbers of DEER FLIES (Chrysops spp.) caused considerable annoyance to animals, woodsmen and campers during July and August. WASP annoyance was common during August, September and October. YELLOW JACKETS and the BALD-FACED HORNET (Vespula maculata) were the species most often involved. August and September were months of high populations of the STABLE FLY (Stomoxys calcitrans) which fed heavily and caused considerable annoyance of cattle. MOSQUITOES (Aedes spp. and Culex spp.) were very abundant throughout the season, and large populations caused particular complaints from the Narragansett and Davisville areas. Equine encephalomyelitis was first reported this year during the week ending

September 21 with a loss of 700-800 birds in a commercial pheasant flock. Confirmed infections were reported from chucker partridge, hawk, sparrow, chicken, horse and random samples of wild birds. Unseasonable early frosts in October apparently checked further development of this disease. NO-SEE-UMS were common along the coastal marshes and were the cause of many local complaints by vacationers and shore residents. AMERICAN DOG TICK (Dermacentor variabilis) was abundant in May, June and early July. Later in the season several reports were received of BROWN DOG TICK (Rhipicephalus sanguineus) infesting pets and homes.

Household pests: EUROPEAN EARWIG (Forficula auricularia) was very abundant invading many homes, especially in the Middletown area. EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) was active in all areas, causing extensive damage to many homes. Several infestations of HOUSE CRICKETS (Acheta domestica) were reported. Many infestations of BLACK CARPET BEETLE (Attagenus piceus) were reported. Congregations of ELM LEAF BEETLE (Galerucella xanthomelaena) in the attics of many homes created a nuisance. Establishment of the BROWN-BANDED ROACH (Supella supellectilium) is indicated by an increased number of reports of occurrence from pest control operators. Reports of OLD HOUSE BORER (Hylotrupes bajulus) seem to have increased this year. The SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) was the primary stored-food pest in homes. NORTHERN MOLE CRICKET (Gryllotalpa hexadactyla) was reported once. It should be noted this species is considered rare in Rhode Island.

List of Cooperators: J. H. Ball, C. H. Beckman, N. E. Caroselli, K. E. Hyland, T. W. Kerr, T. J. Grennan, J. A. Mathewson, J. E. Panone, H. W. Peabody, and G. B. Tibbetts.

Continued from page 1094 drizzle prevailed over the Northwest but falls associated with this condition were insignificant. Northern California reported the driest and warmest November since 1936, and the San Diego area since 1904. Fire danger continued in southern California although winds diminished over the week end. The fire north of Descanso was brought under control on the 30th after burning 44,000 acres in a perimeter of approximately 90 miles. Snow cover at lower elevations is limited mainly to the Great Lakes region where depths of 20 inches or more are reported along Superior and the eastern shores of Erie and Ontario, and where depths of 1 to 2 inches are reported along the southern boundaries. At higher elevations in the Cascades of Washington, depths range from 30 to 36 inches at 4,000 feet. (Summary Supplied by U. S. Weather Bureau).

A METHOD OF INSECT DAMAGE DETERMINATION ON SHADE-GROWN TOBACCO

During the year 1937 a field method of determining insect damage was developed for shade-grown, cigar-wrapper tobacco at Quincy, Florida. Its application apparently gave a fairly reliable index of the damage caused by hornworms, budworms, and flea beetles. The method was based upon the local tobacco packing house breakage grade system. The sales value of cigar-wrapper tobacco has advanced greatly, and the breakage grade system has undergone some changes since 1937, but the same principles of damage determination should be applicable today.

The breakage grade system assumes that four cigar wrapper cuts will be taken from each uninjured leaf. Very small holes close to the margin or midrib do not prevent the leaf from being classified in the first or "uninjured" grade. Leaves having about 25 and 50 percent of their area injured are placed in the second and third grades, respectively. All injury below the third grade places the leaves in the fourth or "broke" grade. The average percent reduction in value in the three grades is shown in the table below.

Average Percent Reduction in the Value of Wrapper Tobacco in Breakage Grades 2, 3, and 4

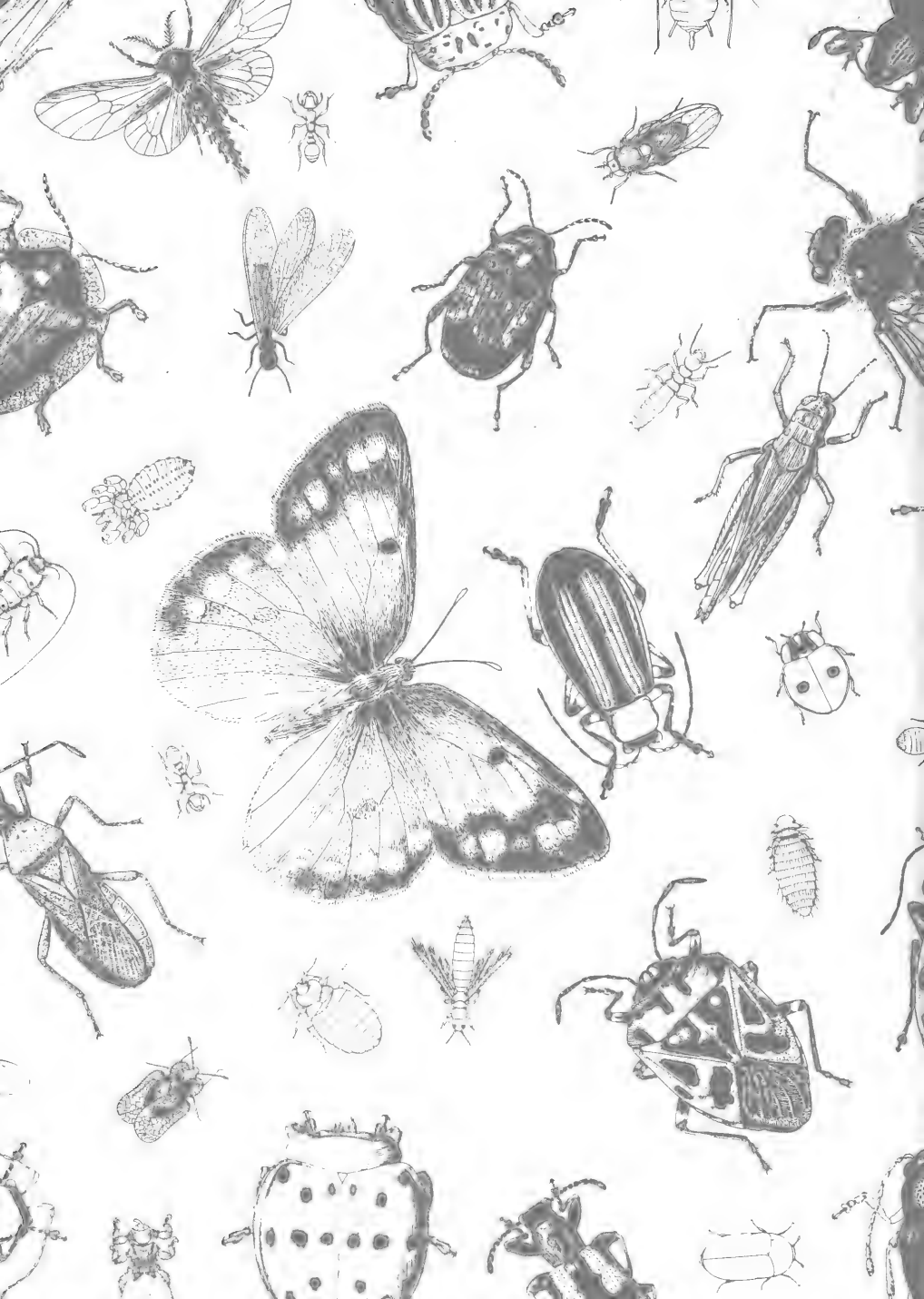
Holes and Breakage	Grade	Av. selling price Length in inches					Average percent reduction in value
		12	13	14	15-20	Av.	
Leaves av. 95-100% uninjured	1st	.50	.75	1.25	1.75	1.06	0
About 25% of leaf- surface damaged	2d	.40	.55	.75	1.00	.68	36
About 50% of leaf- surface damaged	3d	.25	.40	.60	.85	.52	51
All below 3d grade "broke"	4th	.08	.08	.08	.08	.08	92

Cured and sweated wrapper tobacco is graded for insect damage and other breakage in the packing houses by ordinary labor. The same grading can be performed in the field for purposes of damage estimation. In the latter case the inspector must be able to differentiate between injuries caused by the feeding of hornworms, budworms, and flea beetles, and the injuries produced by other causes. Discrimination between these different types of injury is performed most easily in the field.

In practice the scoring of insect injuries was performed in each field on five lots of ten plants each. Four of these lots were located 25-30 feet from each of the four respective corners of the field. The fifth lot was chosen near the center of the field. The leaves on the fifty plants were first counted and then scored separately for observable injuries produced by hornworms, budworms, and flea beetles. The average reduction in value caused by the respective insects was easily computed.

The accuracy of the described method could doubtless be improved by sampling and statistical procedures. (F. S. Chamberlin).





VOL. 6 No. 50

DECEMBER 14, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

SPOTTED ALFALFA APHID increasing rapidly in northern Oklahoma. New county records from Wisconsin. (p. 1107).

BEET LEAFHOPPER report from California, Nevada and Texas. (p. 1109).

Fall abundance of eggs of potato-infesting APHIDS in northeastern Maine. (p. 1108).

A FIR APHID reported from Oregon for first time. (p. 1110).

Status of MEDITERRANEAN FRUIT FLY eradication and regulatory program in Florida. (p. 1113).

SUMMARY OF INSECT CONDITIONS - 1956 - South Carolina (p. 1114), Mississippi (p. 1119).

Distribution of RANGE GRASSHOPPERS. (p. 1122).

Reports in this issue are for the week ending December 7 unless otherwise designated.

WEATHER OF THE WEEK ENDING DECEMBER 10, 1956

Sharply contrasting characteristics of two air masses exerted pronounced influences on the week's weather. The extremely cold Alaskan air penetrating into the North Central States last period extended its effects to most of the Nation by the weekend. As this air mass made relatively slow progress against the unseasonably warm one to the south and south-east, a portion of the cold air was forced southward west of the Divide. Temperatures averaged below normal in the North Central and West, while in the South Central and East the picture was reversed. Departures were greatest in central Montana where weekly averages were 18° or more below the normal, while in the East the adjacent portions of Ohio, Kentucky, Tennessee, North Carolina, Virginia and West Virginia observed averages above normal by 15° or more. For both areas these departures were approximately 11° in excess of the seasonal standard deviation. Subzero minima were reported throughout the northern Plains, and northern and central Rocky Mountain states. A -26° at Ralph was the lowest temperature this season in South Dakota. Ahead of the frontal boundary daily maxima were equalled or exceeded at many stations. At Indianapolis, Indiana, an 84 year record of 69° for the month was equalled.

Precipitation in the form of rain, sleet, or snow was associated with the frontal activity between the two air masses. Heavy rains at lower elevations and snow in the mountains accompanied two pronounced storm centers of the Northwest, and a less well defined cyclonic center in southeastern Canada brought snows to the Great Lakes and New England areas. Weekly totals were moderate to heavy along the west coast from central California northward and in a band, about 300 miles wide, extending from Oklahoma to the extreme Northeast.

Glaze and sleet storms were reported in many of the Great Plain States. The most disastrous of these struck Oklahoma Friday night and Saturday leaving a 1 to 4 inch deposit on the ground and causing hundreds of auto accidents which resulted in 7 deaths and 60 injuries. Also, one person froze to death. Extensive damage was reported to utility lines, trees, and shrubs, and south of Oklahoma City an airport hanger collapsed under the weight of the ice, damaging 15 small planes.

Snow cover at lower elevations is somewhat limited. A band about 200 miles wide extending from central Missouri into the New England States is the most significant, but some cover also exists along the extreme border and spotty conditions are reported in the Northwest. The greatest depth for lower elevations is 19 inches at Houghton, Michigan. Higher levels in the West are mostly covered with Mount Baker Lodge, Washington reporting 45 inches; Soda Springs, California, 20 inches; Crater Lake, Oregon, 28 inches; and Bright Angel, Arizona, 12 inches. (Summary Supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light to heavy on oats in Hill, Ellis, Johnson and Kaufman Counties. (Hawkins, Davis). Heavy infestation on about 25 acres of oats in Hunt County. (Hawkins, Nov. 28).

BROWN WHEAT MITE (Petrobia latens) - UTAH - Rarely in evidence due to dry soil conditions and little growth of winter wheat. (Knowlton).

SUGARCANE BORER (Diatraea saccharalis) - FLORIDA - Larvae average one per corn stalk of 30 inspected at Cutler, Dade County, Nov. 20; pupae averaging one per stalk of two inspected at Goulds, Nov. 21; averaging one per stalk on 10 inspected at Homestead, Dade County, Nov. 20. (Swanson, Daigle).

PEA APHID (Macrosiphum pisi) - WISCONSIN - Fall weather favorable for exceptionally large build up on alfalfa and clover. (Smith).

SWEETCLOVER APHID (Myzocallidium riehmi) - TEXAS - Medium infestation on sweetclover in Burleson County. (Randolph). WISCONSIN - In addition to Crawford County, specimens have been identified from Vernon and Grant Counties. (Smith).

SPOTTED ALFALFA APHID - UTAH - Still present in Kane County wherever alfalfa is still green. (Knowlton, Rose). TEXAS - Medium to heavy on alfalfa in Burleson and Brazos Counties. (Randolph). Light to medium on alfalfa in Delta County. (Hawkins). Light infestations on alfalfa in Navarro and Kaufman Counties (Randolph, Turney, Nov. 28). OKLAHOMA - Infestation building up rapidly in most northern counties, but heavy populations not in all fields. Infestations of 7000-10,000 per square foot of alfalfa crown are common in northern part of Washington County, with slightly lower counts in Pawnee and Noble Counties. Newly-planted alfalfa in Washington County showing severe damage due to aphids and dry weather, with one field averaging 44 aphids per linear foot of row. (Coppock). WISCONSIN - Collections from eleven counties in addition to Rock County showed infestations: Buffalo, Trempealeau, La Crosse, Vernon, Crawford, Grant, Lafayette, Green, Dane, Iowa, Sauk. (Smith).

A SCARABAEID (Aphodius sp.) - NEVADA - Causing severe damage to native pastures in Ruby Valley, Elko County. About five acres destroyed. (Menke, Lauderdale, Dec. 1).

LEAFHOPPERS - TEXAS - Light to medium on oats in Kaufman County. (Hawkins).

TRUCK CROP INSECTS

AN APHID (Micromyzus formosanus) - CALIFORNIA - Heavy infestation on shallots at Berkeley, Alameda County. Previously submitted to Sacramento from Contra Costa, Merced, Orange, San Bernardino, Santa Clara and Tuolumne Counties. (Cal. Coop. Rept., Nov. 30).

Fall (1956) Abundance of Aphid Eggs on Overwintering Hosts of Four Species of Potato-Infesting Aphids in Northeastern Maine.

A survey was conducted November 5 to 9, 1956, in northeastern Maine, to determine the abundance of fully distended aphid eggs on the more important primary hosts of three species of potato-infesting aphids, including buckthorn, green peach, and potato aphids, Aphis abbreviata, Myzus persicae, and Macrosiphum solanifolii, respectively. Similar data for the foxglove aphid, Myzus solani were obtained on November 27 and 28. Eggs of the buckthorn aphid found on buckthorn at all 8 sampling stations, were nearly twice the 10-year fall average and about 3 1/2 times that at the same stations a year ago. Early season populations of stem mothers in 1957 could be larger than usual. Aphid eggs on Canada plum, a host of the green peach aphid, were found in 38 percent of the 26 thickets sampled. While egg-infested thickets were less common than usual, and the egg population only 27 percent of the 10-year fall average, the overall egg abundance was more than 1 1/3 times that of a year ago. A greater than usual proportion of the eggs present may have been deposited by the green peach aphid since numbers were about 10 times as large as a year ago. Although still rather low, fall abundance of the aphid on this host increased sharply during the past two years. With favoring conditions, spring 1957 abundance of the aphid on this plant should be greater than during either of the past two years. Aphid eggs on swamp rose, most important primary host of the potato aphid, were found at all 12 sampling stations. Abundance was but 78 percent of that of a year ago and only 70 percent of the 10-year fall average. Periodic counts showed that except at one station, fall populations on this rose were largely potato aphid. Because considerable warm weather occurred after the fall count, egg populations starting the winter were likely larger than on date of survey. Early-season populations of the potato aphid on roses in 1957 could be above normal. Aphid eggs on hawkweed, important primary host of the foxglove aphid, are very scarce, but slightly more abundant this fall than during the fall of 1955. (Shands, Simpson and Wave).

STRAWBERRY SPIDER MITE (Tetranychus atlanticus) - NORTH CAROLINA - Numerous in a Pender County strawberry field. (Jones, Farrier).

TOMATO RUSSET MITE (Vasates lycopersici) - TEXAS - Light to medium infestations on tomatoes in Dimmit County. (Richardson, Nov. 28).

MELON FLY (Dacus cucurbitae) - CALIFORNIA - Servicing of 9500 traps in Los Angeles area failed to show any specimens. (Cal. Coop. Rept., Nov. 30).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Regular fall spraying of perennial and annual hosts was completed in San Joaquin Valley. A total of 10,101 acres involved. (Cal. Coop. Rept., Nov. 30). NEVADA - Populations per foot of row of seedling sugar beets for seed production in Clark County were as follows: In Virgin Valley Oct. 5-0.30 and Oct. 15-0.60; in Moapa Valley, Oct. 5-0.40 and Oct. 15-0.40. Curly top incidence ranged from 5-10 diseased beets per 100 foot of row on Nov. 12. (Dorst, Dec. 1).

Summary of the Beet Leafhopper Infestations in Areas of Texas - 1956

Average Population of Nymph and Adult Beet Leafhoppers on Russian-thistle in 100 Sweeps

County	June 26-29	July 31-Aug. 3	Sept. 4-7	Oct. 2-5
Concho	5	10	14	4
Tom Green	19	10	17	9
Sterling	74	6	33	12
Howard	94	148	49	56
Dawson	78	17	26	23
Lubbock	52	15	44	59
Crosby	38	29	47	36
Hale	20	65	133	81
Castro	71	32	52	38
Parmer	33	7	16	6
Lamb	34	24	13	25
Hockley	165	48	12	19
Terry	61	8	63	121
Gaines	32	-	72	210
Andrews	35	80	16	220
Martin	6	4	0	0
Ector	-	38	10	14
Midland	278	171	120	306
Upton	0	8	6	22
Crane	46	20	32	74
Crockett	16	0	0	-
Pecos	26	9	10	70
Reeves	32	12	5	4
Floyd	-	2	4	-
Bailey	19	6	44	23
Jeff Davis	57			
Brewster	35			
Terrell	170			
Kimble		2	0	

(Richardson)

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - In the Imperial Valley, 2238 bushels of gin trash were collected from one

machine at El Centro and one at Calipatria . No larvae found. From 11 fields totaling 1860 acres, 2058 unopened bolls were examined with no larvae found in the Calexico, Heber and El Centro districts. (Cal. Coop. Rept., Nov. 30).

A LEAF ROLLER (Platynota stultana) - CALIFORNIA - Occasional larvae taken boring into bolls of cotton. One field had considerable damage to lint, seeds and squares with 3-4 larvae in some bolls with 35 bolls out of 150 infested. A pteriphorid and tortricid larvae also present. (Cal. Coop. Rept., Nov. 30).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

APHIDS - OREGON - Two new species, Cinara setulosa and C. sonata collected on Shasta red fir in Mt. Ashland area, Jackson County, September, 1954. (Gentner). Cinara chinookiana was collected for first time in Oregon on Alpine fir in Crater Lake National Forest, Jackson County, October 2. (Gentner).

A SCARABAEID (Cyclocephala sp.) - NEVADA - Damaged elm trees in Las Vegas by girdling two inches below soil line. (Lauderdale, Dec. 1).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - OREGON - Heavy infestation on chrysanthemums in a Salem greenhouse, Dec. 3. (Bock).

A WAX SCALE (Ceroplastes sp.) - NORTH CAROLINA - Heavy infestation locally on ornamental hemlock in Richmond County. (Wray).

PINE WEBWORM (Tetralopha robustella) - SOUTH CAROLINA - Infesting tips of pine trees at Clemson. (Nettles, Dec. 3).

BLACK TURPENTINE BEETLE (Dendroctonus terebrans) - MISSISSIPPI - Recently found in a few trees in a 1000-acre pine forest in Forrest County. (Broome).

SAN JOSE SCALE (Aspidiotus perniciosus) FLORIDA - All stages averaging many per stem of 150 flowering quinces at Glen St. Mary, Baker County, Nov. 27. (Holder).

INSECTS AFFECTING MAN AND ANIMALS

SHEEP SCAB MITE (Psoroptes equi ovis) - VIRGINIA - In three flocks of sheep totaling 200 in Clarke County. (Gerkin). In November, 359 of 609 head of sheep inspected were infested and 287 were dipped. Thirty-seven markets were disinfested. (Va. Livestock Health Bul., Nov.).

LARGE CHICKEN LOUSE (Goniodes gigas) - TEXAS - A heavy population reported in one flock of chickens in Williamson County. (Huckabee).

CATTLE LICE - UTAH - Building up in Tooele, Box Elder, Weber, Utah and Davis Counties. A number of herds have been treated several localities. (Knowlton).

A RABBIT FUR MITE (Cheyletiella parasitivorax) - NORTH CAROLINA - Taken from heavy dandruff of six weeks old cocker pup in Guilford County. (Cooperrider, Farrier).

STORED PRODUCTS INSECTS

KHAPRA BEETLE (Trogoderma granarium) - SOUTH DAKOTA - One milling company and a seed company surveyed at Sioux Falls showed no infestation. (Hantsbarger).

INDIAN-MEAL MOTH (Plodia interpunctella) - SOUTH DAKOTA - Heavy infestation in stored sorghum seed at a seed company in Sioux Falls, Minnehaha County. Other infestations reported from Lake County on shelled corn. (Hantsbarger).

STORED GRAIN INSECTS - TEXAS - A total of 165 bins examined in ten counties in vicinity of Houston, Nov. 5-16 showed the following number of bins infested by pests: Mites, 1 bin; psocids, 27 bins; rice weevil, 4; confused flour beetle, 4; Angoumois grain moth, 6; saw-toothed grain beetle, 6; rice moth, 4; Indian-meal moth, 37; and none found in 91 bins. (Gaines, Nov. 28). OKLAHOMA - Fourteen steel bins of farm stored wheat, barley and oats in Washington County showed following infestation: lesser grain borer in 5 bins with infestation range of 5-210 per quart sample; saw-toothed grain beetle in 7 bins with range of 2-160 per sample; red flour beetle in 5 bins with 4-180 per sample; rice weevil, 81 per sample was found in one bin and flat grain beetle, 20 per sample in one bin. Damage was very severe in two bins. (Coppock).

MISCELLANEOUS INSECTS

BROWN-BANDED ROACH (Supella supellectilium) - UTAH - Infesting additional homes at Provo, Utah County. (Knowlton). NORTH CAROLINA - Heavy infestation in home in Wake County. (Wray).

CLUSTER FLY (Pollenia rudis) - VIRGINIA - In large numbers in some Blacksburg homes and causing concern. (Amos).

SCORPIONFLIES (Boreus spp.) - UTAH - Specimens of Boreus prob. unicolor taken from moss in Logan Canyon Oct. 28. Det. S. Parfin. Others taken in Blacksmith Fork Canyon and in Logan Canyon during November were identified as B. coloradensis. Det. G. W. Byers. First record for family and genus in State. (Knowlton).

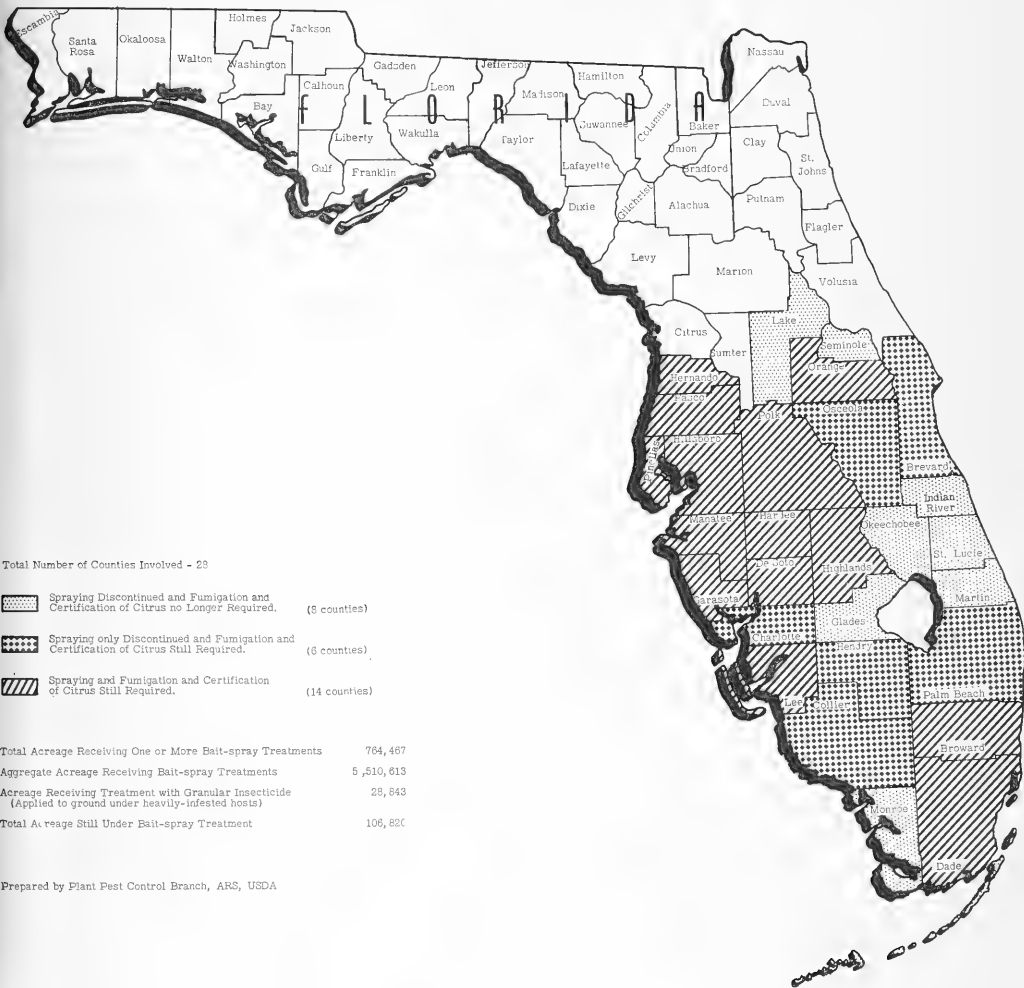
CORRECTIONS

CEIR 6(44):1033 under Fruit Insects should read FALL WEBWORM (Hyphantria cunea).

LIGHT TRAP COLLECTIONS

	Pseud. unipun.	Agrotis ypsilon	Prod. ornith.	Perid. marg.	Feltia subt.	Heliothis zea	Laphyg. frugip.
TEXAS							
College Station 11/28-12/7	84	2	4	1	5	2	18
Weslaco 11/16-30	70	30	22	23	65	8	13
Winter Haven 11/16-30	47	10	2	19	17		
SOUTH CAROLINA(Counties)							
Florence 11/24-30	2				1	1	1
Charleston 11/24-30	3	8		1	9		
FLORIDA							
Belle Glade 11/22, 28-30	12	6	2		1	3	
Ft. Myers 11/27			1		2		
Hornestead 11/27-12/3		4			8		
Monticello 12/4	1	1					
ALABAMA(County)							
Baldwin 12/4-5	14						
GEORGIA (County)							
Spalding 11/30-12/6	3			2	3		1

STATUS OF MEDITERRANEAN FRUIT FLY ERADICATION AND REGULATORY PROGRAM DECEMBER 1, 1956



SUMMARY OF INSECT CONDITIONS - 1956

SOUTH CAROLINA

Reported by W. C. Nettles *

Highlights: SPOTTED ALFALFA APHID first noted and is widespread. LESPEDEZA WEBWORM damage heavy downstate. LESSER CORNSTALK BORER damage heavy in eastern area to soybeans, grain sorghum, and cowpeas. CUTWORMS damaged forage crops. CORN EARWORM number one pest of cereal and forage crops. Next to the BOLL WEEVIL it is the most serious pest of the State. PEACH TREE BORER is the most serious insect of peaches. CODLING MOTH and APHIDS were much less numerous on apples. There appears to be some build-up of SCALE, especially FORBES. The PEPPER MAGGOT reported for the first time on pimienta pepper. Some fields showed 50 percent of the peppers injured. SOUTHERN POTATO WIREWORM caused some serious losses to potatoes. STINK BUGS cause serious damage to tomatoes and watermelons. CABBAGE LOOPER caused unusual injury to tomatoes. TOBACCO BUDWORM most important pest.** CABBAGE LOOPER caused grower concern to tobacco. TOBACCO FLEA BEETLE and TOBACCO HORNWORM less damaging than during previous several years. TOBACCO WIREWORM losses reduced. GREEN PEACH APHID and CUTWORMS were below normal in abundance. For the Coastal section 1956 might be termed a moderate to light BOLL WEEVIL year. In the Piedmont area BOLL WEEVIL infestations were moderate to heavy. In the Savannah River Valley populations were about the same as last year. Among the pests of forest, ornamental, and shade tree more numerous than usual were FALL WEBWORM, OAK GALLS, CARPENTERWORM, PINE SAWYER, BAGWORM on arborvitae, SPIDER MITES, CAMELLIA and WAX SCALES. Twenty to thirty percent of hides damaged by CATTLE GRUBS December through February. HORN FLY, HORSE and DEER FLIES, MOSQUITOES, and SCREW-WORMS more abundant than usual. Resistance troubles noted with DOG FLEAS and GERMAN ROACH. BEDBUGS and TERMITES show increase. GIANT HORNET continues to spread. STORED PRODUCT INSECTS were less numerous than in years past, but much damage still encountered.

**on tobacco.

*With cooperation of the following: Norman Allen, J. A. Berly, W. F. Chamberlin, J. H. Cochran, W. J. Goodwin, V. M. Kirk, Frances McAlister, J. K. Reed, T. E. Skelton, L. M. Sparks, C. H. Thomas, R. L. Walker, W. J. Reid, F. P. Cuthbert, Jr. and Augustine Day.

Cereal and Forage Insects: THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) was not as abundant as in 1955. ARMYWORMS occurred in Piedmont area in a small endemic population. Some damage by WHITE GRUBS can be expected in fields planted to legumes during the summer. In several locations in the Coastal Plain area white grubs were damaging to pastures during the fall. SPOTTED ALFALFA APHID Found in State for first time. Heavier populations occurring in Piedmont area but damage has been negligible. CRIMSON CLOVER WEEVILS - Damage has been more than generally suspected. Even small populations of adults have reduced the seed yield to below 50 percent of the potential. LESPEDEZA WEBWORM (Tetralopa scortealis) damage was generally slight, less than in 1955. Some very serious damage has occurred to sericea lespedeza about mid-way downstate near the North Carolina line. Some heavy localized infestations of CUTWORMS occurred early in the season in the Savannah River Valley. CORN EARWORM (Heliothis zea) was the number one pest in this crop category in the Pee Dee area. Losses were estimated at 1-2 million dollars on corn alone. No way of estimating the loss in grain sorghum or the legumes, but it was considerable. Soybean pods were seriously damaged, with many fields ruined. SORGHUM MIDGE (Contarinia sorghicola), of special interest in the Pee Dee area, caused considerable loss of yield of sorghum. Most of the "lack of seed-set" was caused by this midge, rather than poor pollination. The midge was less destructive in the Piedmont area than during 1955. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) caused rather serious losses to stands of soybeans. In several instances fields as large as 75 acres were virtually ruined. CORN SAP BEETLES seriously damaged sweet corn, especially in the Piedmont. VELVETBEAN CATERPILLAR less than usual damage to soybeans during this season. Moth catches as indicated by trap lights were somewhat later than average. STRIPED BLISTER BEETLES caused serious localized damage to soybeans. SOD WEBWORMS were serious on Bermuda grass, especially when highly fertilized.

Fruit Insects: Control of insects on peaches was generally effective in South Carolina in 1956. PLUM CURCULIO (Conotrachelus nenuphar) was practically absent in the State this year, due to insecticide control and severe freeze in March 1955. ORIENTAL FRUIT MOTH (Grapholitha molesta) was not a serious pest on peaches this year. Probably the most serious pest on peaches in South Carolina at the present time is the PEACH TREE BORER (Sanninoidea exitiosa). Trunk sprays, when properly applied, have been giving excellent control of this insect in the Piedmont but not as good control in the Ridge area as would be expected. CODLING MOTH (Carpocapsa pomonella) was less destructive than usual to apple which reflects the effectiveness of insecticides and the virtual loss of a crop from a freeze during 1955. Severe damage from SPIDER MITES was noted in several orchards. APHIDS are much less numerous since use of organic phosphates was started. SCALE INSECTS, appeared to be more numerous because of failure to spray with phosphates during the summer of 1955. RED-HUMPED CATERPILLAR (Schizura concinna) caused some leaf damage on apple, usually not noted in State. WEBWORMS were numerous on species such as persimmon, pecan, and others throughout the State. This was a year of unusual infestation.

PECAN WEEVIL (Curculio caryae) definitely fewer than in past years. CARPENTERWORM (Prionoxystus robiniae) damage to pecan trees was widespread.

Truck Crop Insects: PEPPER MAGGOT (Zonosemata electa) was reported for first time damaging pimiento pepper in Piedmont. In some fields 50 percent of the peppers were injured. STINK BUGS caused serious injury to tomatoes and were numerous on main crop of water-melons. SEED-CORN MAGGOT (Hylemya cilicrura) was not abundant, but there is a growing recognition of its damage on all crops. SOUTHERN POTATO WIREWORM caused extensive damage to the commercial potato crop in Charleston County in the spring. Of 1,035 lots (estimated to be 75 percent of the spring crop) inspected by the Federal-State Market Inspection Service, 35.6 percent showed 3 to 6 percent wireworm damage, and 30 percent showed damage in excess of 6 percent. The current tolerance allowed for all defects in the case of U.S. Grade 1 is 6 percent. WIREWORM damage in excess of 6 percent occurred in one or more lots from at least 44 farms in spite of the use of a chlorinated hydrocarbon soil insecticide in a majority of the fields. CABBAGE LOOPER was abundant and very difficult to control on late-spring cabbage in Charleston County and also did considerable feeding on tomatoes in some fields during June. The looper was moderately abundant on young collards and cabbage during fall. Extensive control measures were required to check the infestations in some plantings. MEXICAN BEAN BEETLE (Epilachna varivestis) infestations were normal during the spring season and losses negligible. Unusually high populations passed the summer on soybean and cowpea cover crops and unprotected fall snap beans plantings suffered considerable damage, particularly in the Summerville area. CABBAGE APHID (Brevicorynae brassicae) infestations were light to moderate during February in most commercial cabbage plantings in Charleston area. IMPORTED CABBAGEWORM (Pieris rapae) infestations were light to moderate on spring and fall cabbage plantings in Charleston area. Control measures were effective. PICKLEWORM (Diaphania nitidalis) necessitated general use of insecticides on fall cucurbit plantings. Measures were effective and little or no loss occurred in Charleston area. TOMATO FRUITWORM (Heliothis zea), in spite of the general use of insecticides, caused some injury to tomatoes, snap beans, cabbage and sweet corn in Charleston area. GREEN PEACH APHID (Myzus persicae) was generally light on spinach, but control measures were required in a few cases in Charleston area. LESSER CORNSTALK BORER was a serious pest of cowpeas and injured young snapbeans during the fall in a few fields. Damage less extensive than during several preceding years, in Charleston area.

Tobacco Insects: TOBACCO BUDWORM (Heliothis virescens) was the most important insect pest of tobacco during the season despite the fact that it was below normal in abundance in 1955. In a large number of fields the infestation consisted of tobacco budworm and the CORN EARWORM (Heliothis zea). Both species appeared in large numbers in the early season and continued to be a major pest throughout the growing period. CABBAGE LOOPER appeared on tobacco throughout the belt and caused more grower concern than during any time since it first

appeared in numbers in 1954. TOBACCO FLEA BEETLE (Epitrix hirtipennis) caused considerable damage to newly-set plants throughout most of the tobacco belt, and some damage later in the season, but they were of less importance than during any one of the past three years. TOBACCO HORNWORM (Protoparce sexta) was less troublesome than during the past several years, probably due to the widespread use of more effective insecticides. TOBACCO WIREWORMS (Conoderus vespertinus) caused less damage due to widespread use of insecticides. POTATO TUBERWORM (Gnorimoschema operculella) occurred in scattered infestations where potatoes are grown near tobacco fields. VEGETABLE WEEVIL (Listroderes costirostris obliquus) occurred in isolated outbreaks in plant beds, but of no importance on field plants. CUTWORMS were below normal in abundance.

Cotton Insects: (Pee Dee area) BOLL WEEVIL (Anthonomus grandis) infestations appeared to be more localized than normal in the coastal section. For the coastal section as a whole 1956 might be termed a moderately light boll weevil year. In some areas weather conditions during the growing season afforded considerable climatic control. In four experimental fields at Florence gains in yields in plots treated with the standard recommended insecticides over the untreated check plots averaged 437 pounds of seed cotton per acre, ranging from 214 to 801 pounds. Due to the spotted infestations this year it is difficult to estimate actual losses caused by the BOLL WEEVIL for a portion of the State. However, this average increase might serve as a rough estimate of the damage caused by the boll weevil in the coastal section of the State. During 1956 no economic pests other than the BOLL WEEVIL caused any appreciable damage to the crop. This was the first year in many that no reports of BOLLWORM trouble were received at the Pee Dee Experiment Station. Infestations of APHID, THRIPS, and SPIDER MITES were extremely light in the Florence area; no reports of control measures for these pests. (Piedmont Region) - COTTON APHID (Aphis gossypii) occurred in a few scattered light infestations. Moderate infestations of THRIPS occurred on seedling cotton. FLEA BEETLES occurred in spotted and local infestations, moderate to heavy. Moderate to heavy infestations of BOLL WEEVIL proved hard to control in some localities. BOLLWORMS appeared earlier than usual with infestations scattered and moderate. SPIDER MITES built up early enough in some fields to cause loss in yield and were difficult to control. (Savannah River Valley) - BOLLWORM infestations very high early in the season. Some fields had as high as 35 percent infestation. Insecticides gave satisfactory control. BOLL WEEVIL population was about the same as last year. Early in the season when plants were 6-12 inches high some fields had as high as 3,000 weevils per acre. On untreated check plots at Edisto, average infestation for the year was 73 percent.

Forest, Ornamental and Shade Tree Insects: PINE BARK BEETLES - There appeared to be fewer reports of pine beetle damage during the season. OAK GALLS of several different types are being noticed more and more. One gall in particular on the water oak along the coast seems to be causing considerable damage. ELM LEAF BEETLE (Galerucella xanthomelaena) was very serious in some localities, especially on Chinese elm. A PINE SAWYER (Monochamus carolinensis) infested new homes and lumber piled in lumber yard. SPIDER MITES appeared to be more numerous than average on boxwood, camellia, and azalea. TEA SCALE appears to be somewhat reduced on camellia, but CAMELLIA SCALE (Lepidosaphes camelliae) and WAX SCALES are either more numerous or are being noticed more. BAGWORM (Thyridopteryx ephemeraeformis) damage to conifers and arborvitae was the most serious on record. LACE BUGS on azalea were serious in areas where plants were growing in full sunlight.

Insects Affecting Man and Animals and the Household: COMMON CATTLE GRUB (Hypoderma lineatum) remains the most important pest of cattle in the State. A survey conducted last winter revealed that 20-30 percent of hides from cattle slaughtered during the period of December through February were damaged by grub holes. HOUSE FLY (Musca domestica) was numerous in some areas, but in most cases effective controls greatly reduced populations. HORN FLY (Siphona irritans) occurred in relatively large numbers where adequate control measures are not employed. Several species of HORSE and DEER FLIES occurred frequently in the lower part of State. SALT-MARSH MOSQUITO (Aedes sollicitans) was abundant around Charlston and Beaufort. MOSQUITOES were quite numerous during the early spring in various locations in the Coastal Plain area. DOG FLEA (Ctenocephalides canis) and CAT FLEA (C. felis) have developed resistance to chlordane and were abundant in many parts of State. BROWN DOG TICK (Rhipicephalus sanguineus) abundant in West Columbia during September. More cases of SCREW-WORMS were reported in the southeastern area of the State than during past three or four years. GERMAN COCKROACH (Blattella germanica) has become resistant to chlordane in Charleston and is quite numerous in this area. The BROWN-BANDED ROACH (Supella supellec-tilium) causing increasing concern in the Piedmont. CHICKEN BODY LOUSE (Menacanthus stramineus) is the most abundant species of lice found on chickens in the State. NORTHERN FOWL MITE (Bdellonyssus sylviarum) was more abundant than CHICKEN MITE (Dermanyssus gallinae). AN EYE GNAT (Hippelates sp.) was slow in emerging but became unusually annoying in most of the Coastal Plain area during late August and September. Complaints received of PUSS CATERPILLAR were fewer than usual. BEDBUGS increased in Coastal Plain counties, reflecting the cessation of spraying with DDT by the public health agencies. TERMITES have increased judging by the activity of termite exterminators. GIANT HORNET (Vespa crabro germana) has spread south to Anderson and east to Winnsboro. Many complaints of ANT infestations were reported during the season.

Stored Products Insects: SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) has probably been the most important insect in stored small

grain and occurred in certain varieties of corn this fall in fields. ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) has been found in grain storage though probably no more numerous than usual. RICE WEEVIL (Sitophilus oryza) in corn and small grains is much less numerous than during the late 1940's.

SUMMARY OF INSECT CONDITIONS - 1956

MISSISSIPPI

Reported by R. E. Hutchins & J. M. Langston

Cereal and Forage Insects: ARMYWORM (Pseudaletia unipuncta) larvae were found in pastures in February and March, and in oat fields in April and May with up to 10 to 15 per square foot in some oat fields in the southern part of the Mississippi Delta. CUTWORMS were reported numerous in March. A small population of BLACK CUTWORM (Agrotis ypsilon) and YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) occurred in pastures. VARIEGATED CUTWORM (Peridroma margaritosa) was feeding on vetch in April. CLOVER MITE (Bryobia praetiosa) caused damage to clover in various parts of the State during March, April and May. SUGARCANE BEETLE (Eutheola rugiceps) caused damage, in most cases to corn, during May and early June, and control measures were recommended to prevent the loss of stands. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) reduced stands in some cornfields in early June, in sorghum fields in August, and in field peas in October. CORN EARWORM (Heliothis zea) infested soybeans the last of June. SOUTHERN CORNSTALK BORER (Diatraea crambidoides) infested corn in August and September; while SUGARCANE BORER (Diatraea saccharalis) infested sugarcane in George County in September. A GROUND PEARL (Margarodes sp.) was found on roots of lawn grass in May, July and August. FALL ARMYWORM (Laphygma frugiperda) was recorded as feeding on grass in pastures in August and October. EUROPEAN CORN BORER (Pyrausta nubilalis) was infesting corn plants from June 15 to the last of September, being found in all counties north of Highway 82 in Mississippi. SPOTTED ALFALFA APHID was found in Washington County June 22 and afterwards.

Fruit Insects: Colonies of EASTERN TENT CATERPILLAR (Malacosoma americanum) were found on peach and cherry trees in March and on apple trees in April. WOOLLY APPLE APHID (Eriosoma lanigerum) was infesting apple in June, and SAN JOSE SCALE (Aspidiotus perniciosus) was found on peach in October. WALNUT CATERPILLAR (Datana integerrima) damaged the leaves of pecan and walnut trees in June. PECAN BUD MOTH (Gretchena bolliana) destroyed buds on young pecan trees in May and July. FALL WEBWORM (Hyphantria cunea) infested pecan and forest trees from June till September. BLACK PECAN APHID (Melanocallis caryaefoliae) infested a few pecan trees in late summer. PECAN PHYLLOXERA (Phylloxera devastatrix) was received from Leake County in May. This is unusual for this insect to injure pecan trees in hilly

sections. A SPIDER MITE (Tetranychus sp.) was found on pecan trees in August and October. A PHYLLOXERA (Phylloxera castanea) was first recorded from this State on chinquepin in August.

Truck Crop Insects: VEGETABLE WEEVIL (Listroderes costirostris obliquus) damaged turnips in March. MEXICAN BEAN BEETLE (Epilachna varivestis) damaged beans in May and June. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) caused some damage to tomato plants in May. COWPEA CURCULIO (Chalcodermus aeneus) was reported damaging cowpeas in June and July. PICKLEWORM (Diaphania nitidalis) caused damage to cucumbers and melons in late July. A BLISTER BEETLE (Epicauta sp.) was feeding on sweetpotato leaves in August. TOMATO FRUITWORM (Heliothis zea) was causing damage to tomato fruits in June. LEAF-FOOTED BUG (Leptoglossus phyllopus) was reported causing damage to cowpeas and tomatoes in September. HARLEQUIN BUG (Murgantia histrionica) damaged crucifers in April and other PENTATOMIDS were reported damaging lima beans in August. FALSE CHINCH BUG (Nysius sp.) caused damage to turnips in July. STALK BORER (Papaipema nebris) was reported destroying tomato plants in May. TORTOISE BEETLES feeding on sweetpotatoes in May and June included Chelymorpha cassidea, Mettriona bicolor and Agroiconota bivittata.

Cotton Insects: BLACK CUTWORM was reported in cotton fields in May. Adults of BOLL WEEVIL (Anthonomus grandis) were found in fields in Amite County, May 11. Infestations began in early June and by the last of the month were numerous as far north as Grenada County and spotted further north. General infestations of BOLLWORMS (Heliothis spp. et al.), were reported June 22, with light to medium infestations to July 13. In early June several infestations of STALK BORER were reported. THRIPS were reported June 1, and a few larvae of COTTON SQUARE BORER (Strymon melinus) were recorded August 3.

Forest, Ornamental and Shade Tree Insects: ERIOPHYID MITES were reported on live oak in June and September. AN APHID (Cinara tujafilina) on arborvitae was reported in February. COTTONWOOD LEAF BEETLE (Chrysomela scripta) was feeding on cottonwood and willow in March, April and May. FALL WEBWORM (Hyphantria cunea) infested shade and forest trees in May, June and July. BAGWORM (Thyridopteryx ephemeriformis) damaged arborvitae and cedar in February, June, July and August. A SCALE (Lecanium quercifex) was found on oak in March, April and May. AZALEA BARK SCALE (Eriococcus azaleae) was reported on azaleas in May. MIMOSA WEBWORM (Homadaula albizziae) was infesting mimosa in May. CARPENTERWORM (Prionoxystus robiniae) infested willow in June. ELM LEAF BEETLE (Galerucella xanthomelaena) was infesting elm trees in Marshall County in June and September. A CATERPILLAR (Datana major) was feeding on azalea in September. SPINY OAK-WORM (Anisota stigma) was found on oak in Jackson County, September 28.

Man, Animal and Household Insects: COMMON CATTLE GRUB (Hypoderma lineatum) at the rate of 11 grubs per animal was found in cattle examined in February. LONG-NOSED CATTLE LOUSE (Linognathus vituli) and A

CATTLE LOUSE (Solenopotes capillatus) were found in small numbers on the same animals. LONE STAR TICK (Amblyomma americanum) and GULF COAST TICK (A. maculatum) were found on cattle in Hinds and Jasper Counties. A FUNGUS GNAT (Bradysia picea) appeared in numbers in several localities in September. A TERMITE (Reticulitermes sp.) winged forms appeared in Washington County on March 30. IMPORTED FIRE ANT (Solenopsis saevissima richteri) was found in Choctaw County in May.

Stored Grain Pests: INDIAN-MEAL MOTH (Plodia interpunctella) was found infesting red pepper in February. CIGARETTE BEETLE (Lasioderma serricorne) was reported infesting red pepper in June. POTATO TUBER-WORM (Gnorimoschema operculella) infested stored potatoes in Pike County in August.

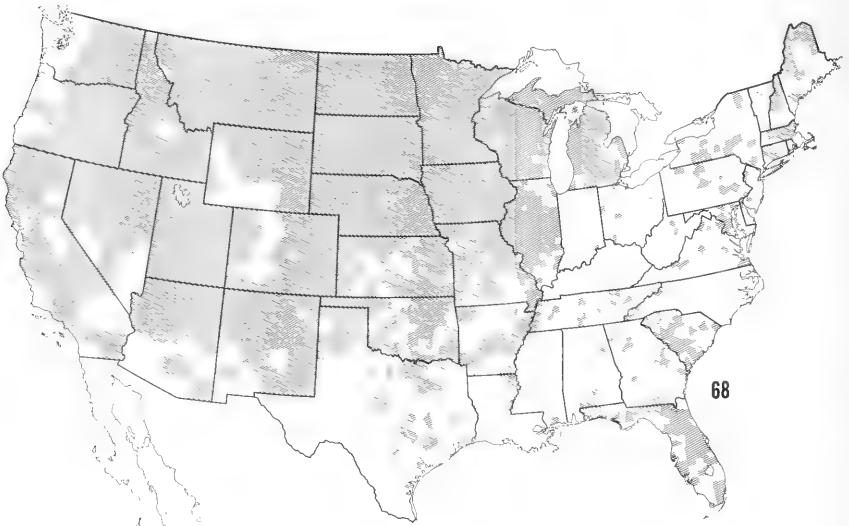
Beneficial Insects: LADY BEETLES were feeding on eggs and pupae of Chrysomela scripta in Washington County in May.

DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus fasciatus (F. Walker)

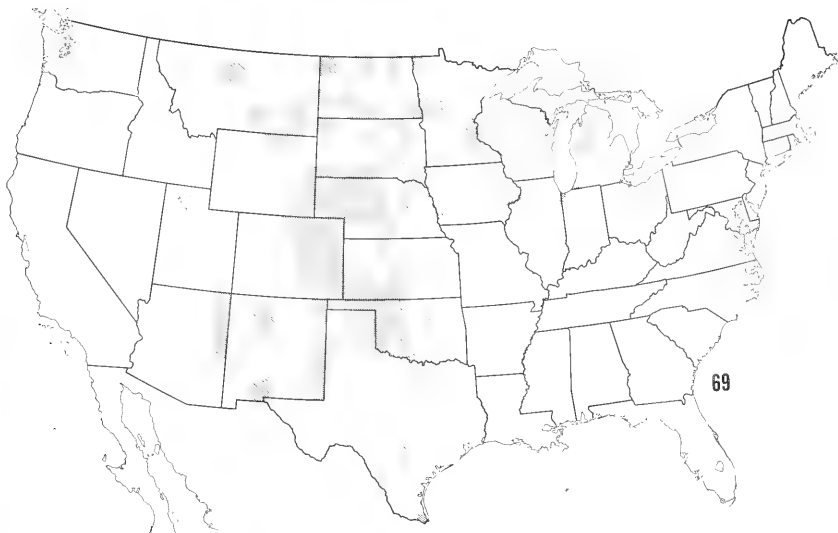


Melanoplus femur-rubrum (De Geer) Red-legged grasshopper

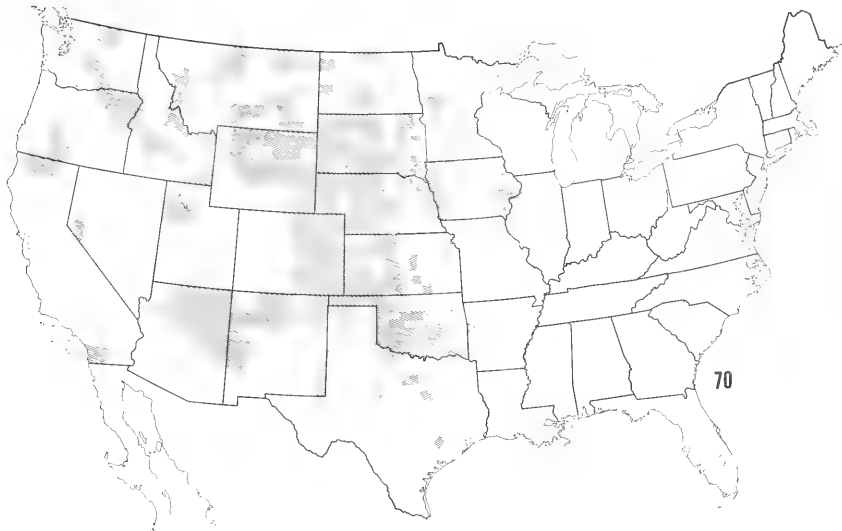


DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus flavidus Scudder

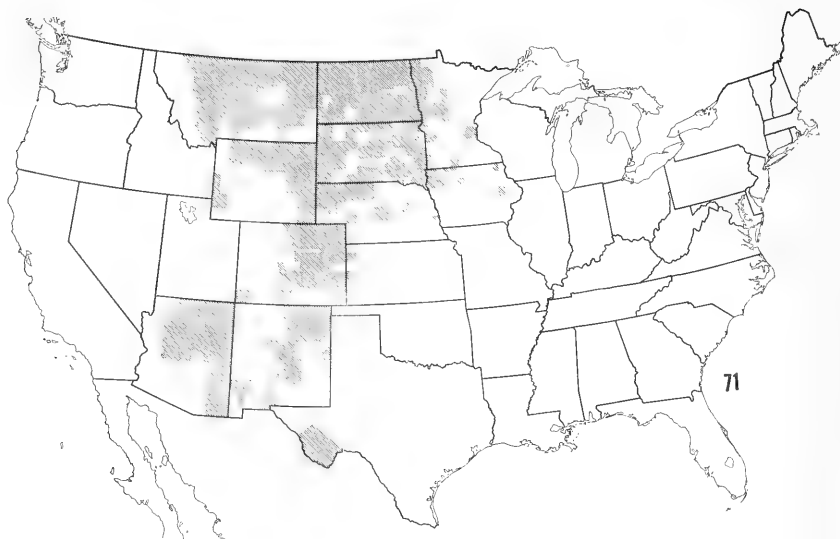


Melanoplus foedus Scudder

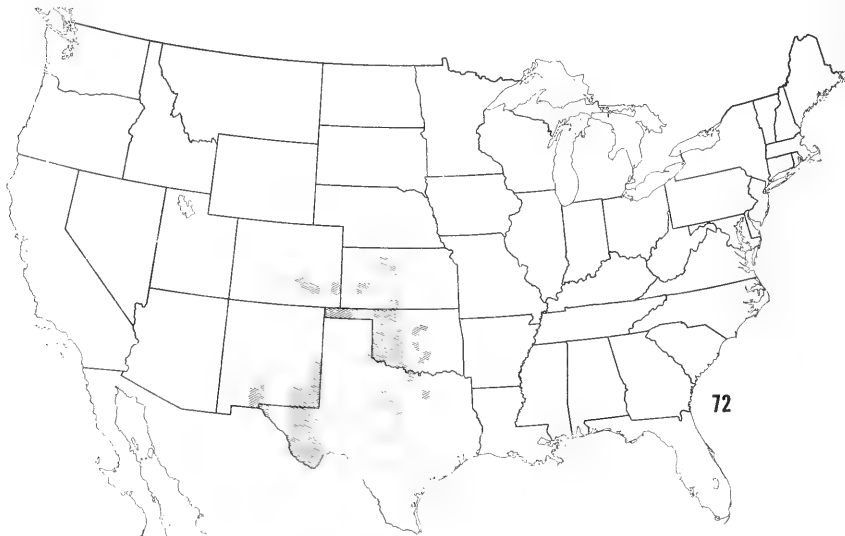


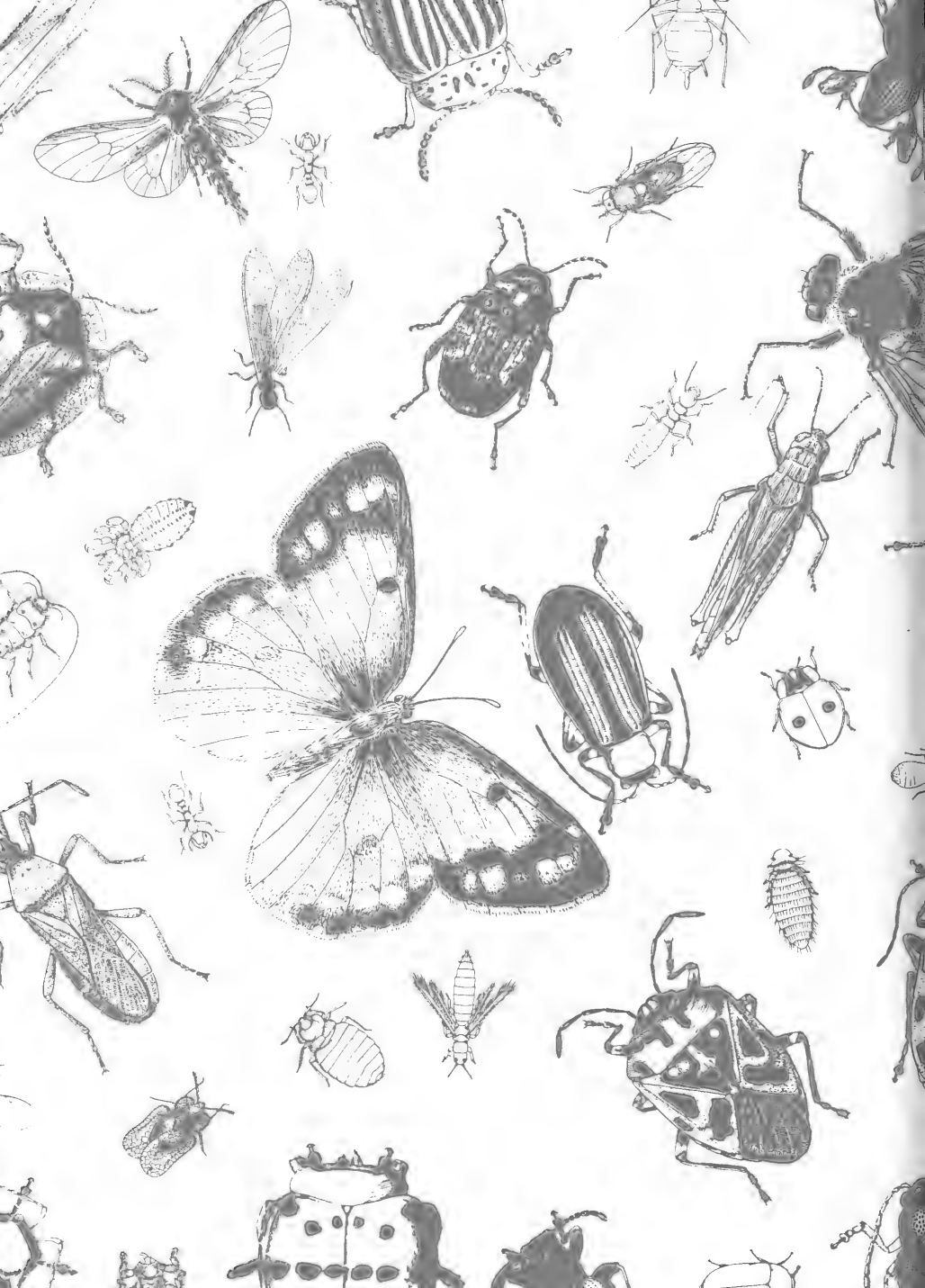
DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus gladstoni (Scudder)



Melanoplus glaucipes (Scudder)





VOL. 6 No. 51

DECEMBER 21, 1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT



Highlights of Insect Conditions

SOYBEAN CYST NEMATODE found in Missouri. Additional report from Lake County, Tennessee. (p. 1125).

BOLL WEEVIL hibernation counts in Louisiana lower than in 1955. (p. 1127).

SUMMARY OF INSECT CONDITIONS - 1956 - Texas (p. 1132), Maryland (p. 1134).

Distribution of ORIENTAL FRUIT MOTH. (p. 1131).

Reports in this issue are for the week ending December 14 unless otherwise designated.

WEATHER BUREAU'S 30-DAY OUTLOOK

Mid-December to Mid-January 1956 - 1957

The Weather Bureau's 30-day outlook for mid-December to mid-January calls for temperatures to average below seasonal normals over northern portions of the nation lying between the Appalachians and the Continental Divide. Above normal temperatures are expected to prevail along the Gulf Coast, in the Southeast, and also over the far Southwest. In areas not specified near normal averages with large fluctuations are in prospect.

Precipitation is predicted to equal or exceed normal over most of the nation except for subnormal amounts in the Northern Plains and the Southwest. Much of the precipitation in Central and Northern areas will be in the form of snow.

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

Weather continued on p. 1130.

CEREAL AND FORAGE INSECTS

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Mature mites common in fall-planted wheat near Hydro and Hinton. Large numbers of red winter eggs found under clods in several fields. No white diapause eggs seen. (Henderson). TEXAS - Light infestations in winter grain in north central area but no damage. (Chada).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - General light infestations occurred over most of the north central area with one field of oats in Navarro County with a heavy infestation. (Chada, Burleson).

GREENBUG (Toxoptera graminum) - TEXAS - No infestations observed in north central area. (Chada).

SPOTTED ALFALFA APHID - TEXAS - Infestations on seedling alfalfa increasing and heavy infestation occurring on older plants in Burleson and Brazos Counties. (Randolph). Medium infestations on alfalfa in Kaufman and Rockwall Counties. (Hawkins).

WHEAT CURL MITE (Aceria tulipae) - WASHINGTON - Infesting Merion bluegrass at Pomeroy. First collected Nov. 1 and still present in moderate numbers. (Harwood).

Soybean Cyst Nematode Found in Missouri

The following statement, dated December 13, 1956, has been received from J.R. Anderson, State Entomologist, Missouri State Department of Agriculture, Jefferson City.

"The soybean cyst nematode, Heterodera glycines Ichinohe, has been positively identified by a Federal Specialist from soil samples taken in the vicinity of Hayti, Missouri, Pemiscot County. This single positive find was the result of an immediate survey by State and Federal Entomologists upon receipt of the notification of the infestation in Tennessee. Extensive soil surveys will be conducted with all possible speed to ascertain the extent of the infestation and proper regulatory action as advised by Federal Officials will be taken. All regulatory officials will be kept informed as to current information and action.

"Pemiscot and neighboring counties are largely delta farming areas and devoted mainly to cotton and soybean production. There is very little movement of nursery stock, root crops, or other plant movement from this area during this part of the year. "

Soybean Cyst Nematode Situation in Lake County, Tennessee

Soybean cyst nematode has been confirmed from 12 locations representing about 1,600 acres, all in Lake County. Samples from 5 additional Lake County locations have been tentatively identified as Heterodera glycines. If these latter samples are confirmed, the known-infested acreage will be increased to approximately 2,200. (Bruer, December 14).

FRUIT INSECTS

MEXICAN FRUIT FLY (Anastrepha ludens) - TEXAS - A gravid female collected in a grove in eastern part of Cameron County, Nov. 23 and one male collected in central part of Hidalgo County a few days later. Unusually early for gravid females in this area. (PPC, So. Reg., Nov. 1-30).

CALIFORNIA PRIONUS (Prionus californicus) - OREGON - Larvae presumed to be this species damaging cherry trees at The Dalles, Dec. 5. (Capizzi).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Reported from Orland, Glenn County. While not a new county record, the find represent a new extension to the north and comes closer to the large commercial olive district near Corning in Tehama County where infestation has never been found. (Cal. Coop. Rept., Dec. 7).

A FILBERT LEAF ROLLER (Archips rosana) - OREGON - Especially heavy egg depositions in Eugene area. (Capizzi).

A WAX SCALE (Ceroplastes sp.) - NORTH CAROLINA - Local general infestation on blueberry in Sampson County. (Scott, Farrier).

BURROWING NEMATODE (Radopholus similis) - FLORIDA - During November, 15, 195 root samples collected from 169 groves, 306 nurseries, 7 ornamentals nurseries and three dooryard and miscellaneous plantings in 13 counties. Of 16, 682 samples examined, 578 were found infested. New infestations totaled 45 properties. Infestations are located in Hardee, Highlands, Orange, Palm Beach, Polk and Seminole Counties. (PPC, So. Reg., Nov. 1-30).

A PHALAENID (Pseudoplusia includens) - CALIFORNIA - Three adults reared by C. A. Fleschner from larvae collected on avocado leaves in San Diego County. An unusual host record. (Cal. Coop Rept., Dec. 7).

TRUCK CROP INSECTS

BEEF LEAFHOPPER (Circulifer tenellus) - UTAH - Monogerm male-sterile sugar beets, being grown for seed at St. George, showed curly top incidence ranging from 18 to 54 beets per 100 feet of row, with an average of 30. (Dorst).

Sweetpotato Weevil Situation, October-November: During the two-month period 716 new infestations were found in infested States including three new counties. This compares with 1200 new infestations and nine new counties found during same period in 1955, a decrease of 40 percent. Reduction occurred in all states except Louisiana and South Carolina where slight increases occurred. (PPC, So. Reg., Nov. 1-30).

GREEN PEACH APHID (Myzus persicae) - WASHINGTON - Recovered in flight at Union Gap. (Landis).

APHIDS - TEXAS - Attacking spinach in one large spinach farm in Dimmit County. Medium local infestation becoming widespread. (Richardson).

MELON FLY (Dacus cucurbitae) - CALIFORNIA - No flies captured during the week nor have any been taken since the capture of a single fly in July. (Cal. Coop. Rept.).

A. WHITEFLY Aleyrodes spiraeoides) - WASHINGTON - Winged forms quite abundant at Union Gap. (Landis).

COTTON INSECTS

Boll Weevil Hibernation Survey, Louisiana, Fall 1956: Collections made from Nov. 19 to Dec. 6. Ground trash collected near Tallulah, Madison Parish, showed an average of 2622 live weevils per acre, slightly under the average of 2914 for the location in past 20 years, and about one-fifth as many as found in fall, 1955, the year of highest count. Number per point (3 samples) ranged from 0 to 8070. In northeastern area, including East Carroll, Madison and Tensas Parishes, an average of 2596 live weevils per acre were found and none in Tensas samples. This area showed largest number per acre of the four areas sampled. In north central area including Richland, Morehouse and Ouachita Parishes, weevils found in all three parishes and averaged 1255 per acre. Northwestern area including Natchitoches, Bossier and Red River Parishes, averaged 628 live weevils per acre, all in Natchitoches. South central area, including St. Landry, Rapides and Avoyelles Parishes, averaged 528 live weevils per acre with weevils found in all three parishes. For the State, weevils were found in nine of the 12 parishes where collections made and at average rate of 1344 weevils per acre. This was only about one-seventh as many as were found in fall of 1955. (Smith, Pfrimmer).

PINK BOLLWORM (Pectinophora gossypiella) - OKLAHOMA - Six larvae found on lint cleaners at Elk City. (Hatfield). CALIFORNIA - Gin trash inspection continued in Imperial County, completed in Riverside County where 1479 bushels of gin trash inspected. Boll inspection continued in Imperial County and was completed in Fresno County where 39,400 bolls examined. No pink bollworm found in any inspection. (Cal. Coop. Rept., Dec. 7).

A LEAF ROLLER (Platynota stultana) - CALIFORNIA - Considerable number of larvae taken in boll examinations for pink bollworm. (Cal. Coop. Rept., Dec. 7).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

PINE TORTOISE SCALE (Toumeyella numismaticum) - WEST VIRGINIA - Heavy infestation in jack pine in young trees in eastern panhandle. (Dorsey, Hansen, Gillespie).

COTTONY-CUSHION SCALE (Icerya purchasi) - NORTH CAROLINA -

Heavy local infestation on camellia in Edgecombe County. (Wray).

SOFT SCALE (Coccus hesperidum) - FLORIDA - All stages averaging many per leaf of oleander at Macclenny, Baker County, Dec. 7. (Holder). Infesting lignumvitae at Miami, Dade County, Oct. 19. (Dowling).

AZALEA BARK SCALE (Eriococcus azaleae) - MISSISSIPPI - Infested azalea twigs received from Lincoln County. (Hutchins).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - FLORIDA - All stages averaging 25 per leaf of croton of 600 inspected at Tampa, Hillsborough County, Dec. 3. (Hale).

SPIDER MITES - OKLAHOMA - Numerous on junipers in Jackson County. (Hudson).

INSECTS AFFECTING MAN AND ANIMALS

BROWN DOG TICK (Rhipicephalus sanguineus) - OKLAHOMA - Very light infestation on 25 dogs inspected at Lawton. (Schomberg).

CATTLE GRUBS - OKLAHOMA - A herd of 26 past-yearling bulls at Fort Reno averaged 11.7 grubs each. At Coalgate, 76 calves averaged 25.3 grubs each. (Schomberg).

CATTLE LICE - UTAH - Unsprayed cattle in Kane County heavily infested. (Rose, Knowlton).

SALT-MARSH MOSQUITO (Aedes sollicitans) - NORTH CAROLINA - Adults emerging in numbers in Dare County during warm weather of Dec. 3-7. (Cromroy).

NORTHERN FOWL MITE (Bdellonyssus sylviarum) - MISSISSIPPI - Specimens from chickens received from Pearl River County. (Hutchins).

LITTLE HOUSE FLY (Fannia canicularis) - WASHINGTON - Larvae recovered from infant's stool and urine at Spokane. (James).

STORED PRODUCTS INSECTS

KHAPRA BEETLE (Trogoderma granarium) - WEST VIRGINIA - Survey of State about one-half completed. No khapra beetle found. (Dorsey, Hansen, Gillespie).

MISCELLANEOUS INSECTS

SMALLER YELLOW ANT (Lasius claviger) - DELAWARE - Annoying in several homes at Wilmington and Newark, Dec. 5-8. (MacCreary).

CARPET BEETLES - OREGON - Inquiries about control continue numerous. Infestations evidently much heavier than usual. (Capizzi)

A DERMESTID (Trogoderma versicolor) - NORTH CAROLINA - Specimen taken in home in Wake County. (Smith, Farrier).

LIGHT TRAP COLLECTIONS

	Pseud. unipu.	Agrotis ypsil.	Prod. orn.	Perid. marg.	Fel. sub.	Hel. zea
TEXAS						
College Station 12/10-14*	14	2	5		3	2
NORTH CAROLINA(County)						
Duplin 12/1-7	1	1			2	
GEORGIA(County)						
Spalding 12/7-13	11	3	2	3	14	1
FLORIDA						
Belle Glade 12/4-5	10	15	1		7	1
Gainesville 12/6	1	3				

* Laphygma frugiperda, 6.

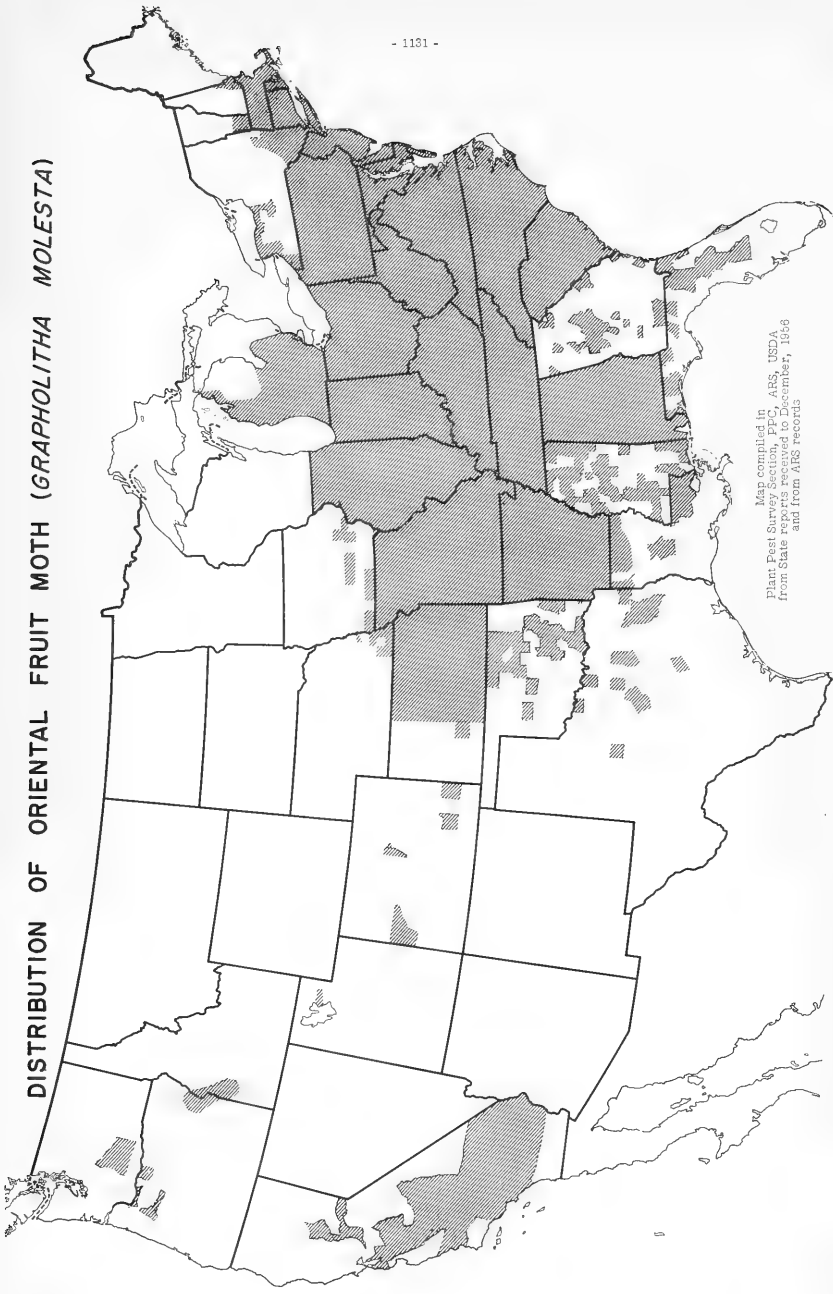
WEATHER OF THE WEEK ENDING DECEMBER 7, 1956

Excessive rains and warm weather in the Northwest, unseasonably cold outbreaks in the central and northern Great Plains, a glaze and snow-storm in the Northeast, dry sunny weather in the Southwest, heavy rains extending from Louisiana into the southern Appalachians, unseasonably warm temperatures in the South Atlantic States, and extensive fog over much of the East and Southeast for several days were the highlights of a varied weather pattern. The northeastern storm of snow, sleet, and freezing rain interrupted communications extensively and resulted in traffic accidents, totaling some 19 deaths, along its course. Beginning in New Jersey on Thursday and extending into southern Maine and New Hampshire by Friday its effects were felt through Sunday. Snow depths ranged to 1 foot in the more northern areas. Heavy snows were experienced earlier in the period in the northern Great Lakes region. Storm centers entered the Northwest early and late in the period, and weekly precipitation totals were moderate to heavy west of the Divide southward into northern California, Nevada, and Utah. Warm temperatures in addition to the rains melted some snow pack in mountain areas, resulting in high river stages and some minor flooding with no extensive damage. Some flooding was also reported in Kentucky and central Tennessee. Several stations in the latter State reported weekly totals of over 8 inches.

Temperatures for the week averaged below normal in the southern Rocky Mountain region as they did between one line extending from Brownsville, Texas to Sault Ste. Marie, Michigan, and another extending from Del Rio, Texas to Huron, South Dakota, thence northwestward to Cutbank, Montana. Elsewhere they were above normal, with greatest departures being observed in western Oregon and North Carolina where they averaged as much as $+12^{\circ}$ and $+15^{\circ}$ respectively. At Wilmington, North Carolina, the daily record maxima were exceeded on 5 days while an 85 year extreme for the month was equaled on Thursday when the 80° mark was reached. Cold air, penetrating the north-central regions, dropped minima to sub-zero values as far south as Kansas and Iowa. A temperature of -31° was reported at Hibbing, Minnesota, and one of -24° at Danbury, Wisconsin during the period.

The snow cover at lower elevations now covers the area north of a line extending from central Montana to southern Iowa and northeastward to northern Michigan; also the northeastern area as far south as southwestern New York. Greatest depths exist in the northwestern Great Lakes region. Warming eliminated the snow cover in the winter wheat area of Washington while at 4,000 feet 20-30 foot depths are still reported in the southern Cascades and 40 to 60 foot depths in the northern Cascades of that State. Other depths at higher elevations include 75 inches at Paradise Ranger Station, Washington, 26 inches at Steamboat Springs, Colorado, and 29 inches at West Yellowstone, Montana. (Summary Supplied by U.S. Weather Bureau).

DISTRIBUTION OF ORIENTAL FRUIT MOTH (*GRAPHOLITHA MOLESTA*)



Map compiled in Plant Pest Survey Section, P. C., USDA, from State and from ARS records

SUMMARY OF INSECT CONDITIONS - 1956

TEXAS

Reported by H. A. Turney*

(This report is for the period November 1, 1955 to November 1, 1956.)

Cereal and Forage Insects: Infestations of WINTER GRAIN MITE (Pentaleus major) was generally light with a few heavy isolated spots. Light infestations of BROWN WHEAT MITE (Petrobia latens) occurred in the north central part of the State. GREENBUG (Toxoptera graminum) infestations were light with only a few isolated fields having heavy infestations. The aphid was collected from volunteer wheat in Deaf Smith, Castro, Moore and Swisher Counties in a survey conducted September 13-26, 1956. This is the first record of its occurrence at this time of year. CORN EARWORM (Heliothis zea) caused some damage to corn, grain sorghums, peanuts and forage crops. FALL ARMYWORM (Laphygma frugiperda) caused very little damage. LESSER CORNSTALK BORER (Elasmopalpus lignosellus) caused medium to heavy damage to beans, peanuts and grain sorghums in Waller, Mason and Erath Counties and in the Fort Worth-Dallas area. GRASSHOPPERS (many species) occurred over much of Texas. There were 4, 883, 000 acres where the infestation ranged from threatening to very severe. An area covering 282, 565 acres of rangeland was sprayed this year. SPOTTED ALFALFA APHID infestations were 2 to 3 times worse than in 1955. Drought conditions along with this insect have drastically reduced the alfalfa acreage in this State. Spotted local infestations of cutworms, armyworms, cabbage loopers, alfalfa loopers, webworms, alfalfa caterpillar, false wireworms, sod webworms, white grubs, range termites, red-necked peanutworm, vetch bruchid, clover leaf weevil, blister beetles, rice water weevil, pea aphid, aphids, corn leaf aphid, chinch bugs, stink bugs, lygus bugs, three-cornered alfalfa hooper, thrips, leaf miners and seed-corn maggot were reported in damaging numbers. SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) was light in corn in the northeastern part of Texas and heavy in irrigated corn in the panhandle area. Considerable damage occurred on corn and rice in the Gulf Coast area from the SUGARCANE BORER (Diatraea saccharalis).

Fruit and Nut Insects: SAN JOSE SCALE (Aspidiotus perniciosus) caused very little damage. PLUM CURCULIO (Conotrachelus nenuphar) and CATFACING INSECTS were heavy in the northeastern part of the State. PEACH TREE BORER (Sanninoidea exitiosa) and LESSER PEACH TREE BORER (Synanthedon pictipes) were light to medium in northeast Texas. PEACH TWIG BORER (Anarsia lineatella) caused very little damage. PECAN NUT CASEBEARER (Acrobasis caryae) was heavy over most of the pecan-producing area of the State. HICKORY SHUCKWORM (Laspeyresia caryana) was present in a large number of orchards. DRIED-FRUIT BEETLE (Carpophilus hemipterus) populations were heavy in central Texas and along the Gulf Coast.

* George T. Davis, Jr., worked as survey entomologist from November 1, 1955, to April 1, 1956.

Truck Crop Insects: CORN EARWORM (Heliothis zea) caused damage throughout the year on corn, tomatoes, lettuce and other vegetable crops. CABBAGE LOOPER (Trichoplusia ni) caused considerable damage to lettuce, cabbage, cauliflower and turnips in the vegetable-growing areas. SERPENTINE LEAF MINERS (Liriomyza sp.) continued to do some damage again this year. BEET LEAFHOPPER (Circulifer tenellus) was very abundant on wild hosts. Considerable damage to sugar beets and tomatoes was observed in the panhandle and Crystal City area due to curly top disease, which is transmitted by this insect. ONION THRIPS (Thrips tabaci) occurred in moderate infestations on onions in the onion-growing section. Spotted local infestations of the following occurred - aphids, a tropical mite (Tetranychus marianae), pepper weevil, cowpea curculio, grasshoppers, fall armyworm, potato psyllid, tomato pinworm, blister beetles, squash bugs, leafhoppers, beet armyworm, diamondback moth, flea beetles, false chinch bugs, cutworms, stink bugs, harlequin bug, spider mites, thrips, false wireworm, melonworm, red lettuce aphid, darkling beetles and sweetpotato weevil.

Cotton Insects: Cotton insect populations were generally light because of the severe drought over most of the State. However, in irrigated fields the insect problems were about as severe as they were last year.

CUTWORMS, FALSE WIREWORMS and GARDEN WEBWORM (Loxostege similalis) caused some damage to young cotton in isolated fields. COTTON APHID (Aphis gossypii) infestations appeared early in several areas but did not develop to a major problem, except in a few isolated fields. Damaging THRIPS (Frankliniella sp.) infestations occurred in many areas and heavy infestations occurred in the north and south plains areas. COTTON FLEAHOPPERS (Psallus seriatus) were light in all areas except the north and south plains and a few heavy spotted infestations in central Texas. There were several fields in these areas that were treated. DIFFERENTIAL GRASSHOPPER (Melanoplus differentialis) damaged cotton around field borders. However, most of the damage occurred in isolated fields and no general outbreak on cotton was reported. A very light general infestation of a LEAF MINER (Liriomyza sp.) occurred but very little damage was noticed. CABBAGE LOOPER (Trichoplusia ni) caused a great deal of ragging of leaves in central, east, northeast, north central, west and north and south plains areas, and especially in the irrigated cotton of these areas. Some populations were reduced by a virus disease which appeared in late July and August. BROWN COTTON LEAFWORM (Acontia dacia) caused a considerable amount of ragging of cotton leaves in the irrigated fields of the south central, central and north central areas. BOLL WEEVIL (Anthonomus grandis) infestations were light over most of the State although in some irrigated fields, the population reached a high level. In one field in Robertson County, this insect was found to be resistant to chlorinated hydrocarbons. BOLLWORM (Heliothis zea) infestations occurred in some fields in all of the cotton-growing areas. The heaviest infestations were in irrigated fields. COTTON LEAFWORM (Alabama argillacea) did not cause any economic damage this year. Light to medium infestations of SPIDER MITES occurred through the growing season in spots of several isolated fields. PINK BOLLWORM (Pectinophora gossypiella) populations were high in irrigated cotton along

the Brazos River and in the western area around El Paso. The rest of the State, where pink bollworms occurred, had light to medium infestations. Most of the damage occurred on late-fruited cotton. SALT-MARSH CATERPILLAR (Estigmene acrea) caused little or no economic damage.

Stored Products Insects: As the farm storage of grain increases, stored grain insects become more of a problem. The stored grain insects in the order of importance are rice weevil, a rice moth (Corcyra cephalonica) lesser grain borer, Indian-meal moth and bran beetles (including flat grain beetles, confused flour beetles, saw-toothed grain beetles and a fungus beetle (Typhaea stercorea)). VETCH BRUCHID (Bruchus brachialis) continued to do a lot of damage in the north central part of the State.

Forest, Ornamental and Shade Tree Insects: TURPENTINE BEETLES (Dendroctonus sp.), IPS BEETLES and ENGRAVER BEETLES continued to kill pine trees in the eastern part of the State in Angelina, Houston, Jasper, Newton, Trinity, San Augustine, Anderson, Montgomery, Nacogdoches, Cherokee and Tyler Counties. RED-HEADED PINE SAWFLY (Neodiprion lecontei) infestations were light to medium. BAGWORMS (Thyridopteryx ephemeraeformis) were heavy in the north central counties.

Insects Affecting Man and Animals: CATTLE GRUBS (Hypoderma sp.) continued to cause losses to cattle both in weight and reduction in sale price. SCREW-WORM (Callitroga hominivorax) problem was worse than in the past few years. Normal infestations of horn flies, cattle lice, fleeceworms, ear ticks, mange mites, tabanids, and ticks occurred on livestock. BROWN DOG TICK (Rhipicephalus sanguineus) continued heavy on dogs in several areas of the State. They were very difficult to control with chlorinated hydrocarbons. HOUSE FLY (Musca domestica) continued a problem in livestock barns and pens. Roaches, silverfish, termites, clothes moths and fleas were the major pests in and around homes. A TERMITE (Coptotermes crassus) was found infesting a dry dock in Harris County for the first time.

SUMMARY OF INSECT CONDITIONS - 1956

MARYLAND

Reported by W. C. Harding, Jr.

More Important Pests in 1956: EUROPEAN CORN BORER (Pyrausta nubilalis) damage to canning corn was heavier than normal particularly in Frederick and Carroll Counties late in the season. Field corn infestations were also heavier than normal. In the spring, heavy local outbreaks occurred in wheat in Talbot, Queen Anne and Dorchester Counties and in potatoes in Worcester and Somerset Counties. The 1956 fall population survey showed the State average to be 78 borers per 100 plants compared with 140 in 1955. CORN EARWORM (Heliothis zea)

infestations in early and late sweet corn on the Eastern Shore were down considerably but about normal in the central counties. Damage to the late lima and snap bean crop on the Eastern Shore was below normal. ALFALFA WEEVIL (Hypera postica) activity was held back due to cool, wet weather in the spring. Moderate to heavy infestations were general about the middle of May. Infestations in Washington County reached economic status generally for the first year. The weevil is now of economic importance in all counties except Allegany and Garrett. Loss of alfalfa hay to the weevil is estimated at \$500,000 which is slightly less than in 1955. This decrease in the amount of hay lost is attributed to the late start of the weevil and increases in the number of farmers spraying for this pest. PEA APHID (Macrosiphum pisi) populations on alfalfa were about as heavy as in 1955 and above normal being heaviest in central sections. Alfalfa sprays also included materials to control aphids. On peas, infestations were above normal with 90 percent of the commercial acreages treated. This year was one of the worst years for HORNWORMS (Protoparce spp.). Damage by the first brood in June was heavy in all five tobacco-growing counties. Untreated fields in late June were from 75-90 percent damaged. Spraying against both broods was general. On tomatoes hornworms were light on Eastern Shore, but heavy in the central counties where special sprays were required. APHIDS were abnormally abundant on most crops. GREEN PEACH APHID (Myzus persicae) on tobacco and spinach and the CABBAGE APHID (Brevicoryne brassicae) on cole crops were especially destructive. FLEA BEETLE injury on tobacco was less than in 1955 when the pest was the most destructive on record. FLEA BEETLES were above normal on corn, potatoes, tomatoes and cole crops in all sections. On the Eastern Shore CUTWORM damage to corn, tomatoes, beans, and potatoes was from moderate to heavy. In the central sections CUTWORM injury was light. The predominating cutworm moths caught in the black light trap during the spring and summer at Fairland were the BLACK CUTWORM (Agrotis ypsilon) and the VARIEGATED CUTWORM (Peridroma margaritosa). The most abundant species caught in the fall was the DINGY CUTWORM (Feltia subgothica). MOSQUITOES - Mosquitoes in 1956 were a serious problem particularly on the Eastern Shore where the SALT-MARSH MOSQUITO (Aedes sollicitans) was abundant. The new mosquito control program is now underway and should afford relief.

Corn and Grain Insects: SAP BEETLES (Carpophilus spp.) were heavier than normal in all sections. FALL ARMYWORM (Laphygma frugiperda) populations on sweet and field corn were down considerably from 1954 and 1955. SOD WEBWORMS (Crambus spp.) caused concern early in the season in the central sections and the CORN ROOT APHID (Anuraphis maidi-radicis) caused light injury to field corn in Kent County. ARMYWORM (Pseudaletia unipuncta) local outbreaks occurred on small grains in Worcester and Wicomico Counties early June with some fields treated with insecticides.

Hay and Forage Crops: MEADOW SPITTLEBUG (Philaenus leucophthalmus) infestations were light to moderate on alfalfa, with some localized heavy infestations on red clover in central sections and on hay mixtures in western areas. LESSER CLOVER LEAF WEEVIL (Hypera

nigrirostris) injury to red clover increased over 1955 in central area and on the upper Eastern Shore. POTATO LEAFHOPPER (Empoasca fabae) was from light to moderate on alfalfa but caused some severe injury to some fields in the central counties and on the Eastern Shore.

Soybeans: Principal pests of soybeans during the year that caused light to moderate damage were Japanese beetle (Popillia japonica), spider mites, bean leaf beetle (Ceratoma trifurcata), Mexican bean beetle (Epilachna varivestis), potato leafhopper (Empoasca fabae), green cloverworm (Plathypena scabra) and grasshoppers. BEAN LEAF BEETLE did the most damage to soybeans early in the season.

Fruit - Apple Insects: ROSY APPLE APHID (Anuraphis roseus) was heavier than in the past two years, although readily controlled in the petal-fall spray. ORCHARD MITE populations in general were low. One or two orchards early in the season had heavy infestations of EUROPEAN RED MITE (Metatetranychus ulmi) but these infestations were controlled by the use of acaricides. UNSPOTTED TENTIFORM LEAF MINER (Callisto geminatella) populations were heavy in all orchards where recommended control practices were not followed. RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) caused some damage in the early part of the season, but heavy spraying brought it under control. CODLING MOTH (Carpocapsa pomonella) damage was much less than in 1954 or 1955. Cool and rainy weather was unfavorable for maximum reproduction. APPLE MAGGOT (Rhagoletis pomonella) was reported in one orchard in Frederick County and one orchard in Washington County. Peach Insects PLUM CURCULIO (Conotrachelus nenuphar), ORIENTAL FRUIT MOTH (Grapholitha molesta) and PEACH TREE BORER (Sanninoidea exitiosa) caused little or no damage in commercially-sprayed orchards. CAT-FACING INSECTS caused more damage than usual.

Vegetables: ASPARAGUS BEETLES (Crioceris asparagi and C. duodecimpunctata) were abundant on commercial plantings in Kent and Cecil Counties. Most commercial acreages of snap and lime beans required sprays for MEXICAN BEAN BEETLE (Epilachna varivestis) which was heavier than usual. SPIDER MITES were below normal except on home plantings on the lower Eastern Shore. BEAN LEAF BEETLE (Ceratoma trifurcata) and BEAN APHID (Aphis fabae) were about normal. CABBAGE LOOPER (Trichoplusia ni) very abundant particularly on broccoli on the Eastern Shore. SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) and STRIPED CUCUMBER BEETLE (Acalymma vittata) populations were about normal on cucurbits. There was moderate damage to cucumbers grown for pickles in Calvert County. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) were somewhat below normal on tomatoes and potatoes. POTATO APHID (Macrosiphum solanifolii) was heavy on tomatoes on the lower Eastern Shore. VINEGAR GNATS were again abundant at tomato canneries in September. No reports were received of TOMATO RUSSETT MITE. POTATO LEAFHOPPER unusually damaging.

Tobacco Insects: In tobacco beds the VEGETABLE WEEVIL (Listroderes

costirostris obliquus) did more damage than anytime since it was first found in 1952. Thirteen farms in St. Marys and Calvert Counties reported from light to heavy tobacco-bed damage from the pest. Others that caused injury to tobacco plants in the bed were cutworms, flea beetles and green June beetle (Cotinis nitida) larvae.

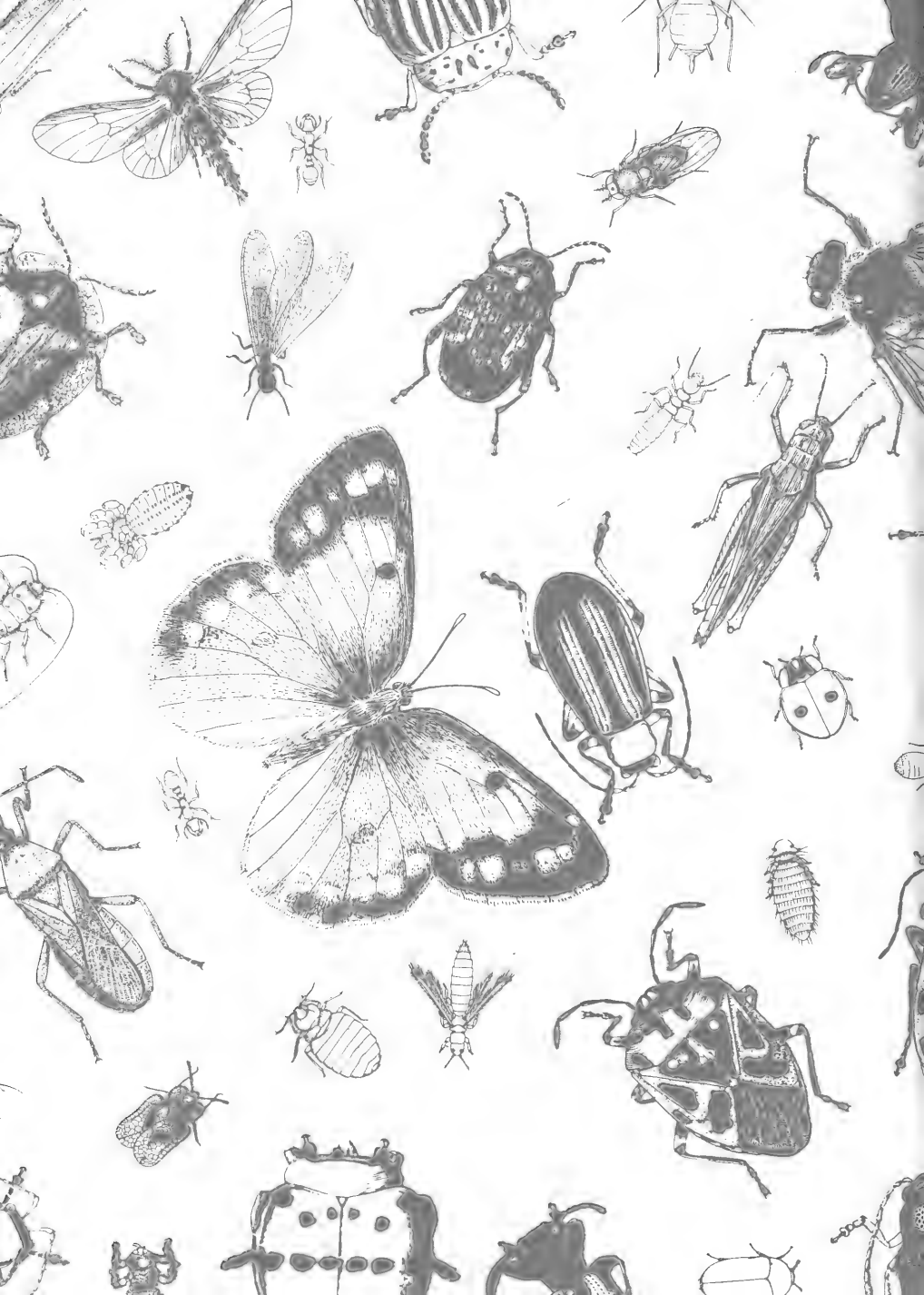
Forest, Shade Tree And Ornamental Insects: Aerial surveys by the Beltsville Forest Insect Laboratory showed PINE SAWFLIES, particularly (Neodiprion pratti), caused heavy defoliation of Virginia pine in the Patuxent River watershed. Some 2,000 acres were involved. Sawfly damage was also reported from southern Maryland and the Eastern Shore. FALL CANKERWORM (Alsophila pometaria) heavily defoliated about 600 acres of hardwoods on Sugarloaf Mountain in western Maryland in May. VARIABLE OAK LEAF CATERPILLAR (Heterocampa manteo) localized outbreaks were observed on white, and southern red oaks in St. Marys County and over the entire Eastern Shore in July and August. NANTUCKET PINE MOTH (Rhyacionia frustrana) caused light to moderate damage to Virginia and watershed pine plantings in central Maryland and to natural stands of loblolly pines on the Eastern Shore. LOCUST LEAFMINER (Chalepus dorsalis) caused heavy injury to black locust during the summer over the entire State, particularly severe in central counties. APHIDS were abnormally abundant on Norway maple, tulip poplar and oaks. Among the more important pests that caused additional trouble on trees, ornamentals, and in the garden were Japanese beetle (Popillia japonica), bagworm (Thyridopteryx ephemeraeformis), euonymus scale (Unaspis euonymi), mimosa webworm (Homadaula albizziae), elm leaf beetle (Galerucella xanthomelaena), fall webworm (Hyphantria cunea), poplar tentmaker (Ichthyura inclusa), eastern tent caterpillar (Malacosoma americanum), boxwood leaf miner (Monarthropalpus buxi), aphids, lace bugs, spider mites, slugs and millipedes. In lawns and pastures grubs of JAPANESE BEETLE and Cyclocephala grubs were destructive in suburban areas in September.

Stored Products: ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) was heavy in stored grain in central areas. CADELLE (Tenebroides mauritanicus) was reported in stored grain from Charles, St. Marys and Washington Counties in August and September. Numerous reports were received of the POTATO TUBERWORM (Gnorimoschema operculella) in stored potatoes in southern Maryland. Other stored product pests that gave trouble were the saw-toothed grain beetle (Oryzaephilus surinamensis), mealworms, Indian-meal moth (Plodia interpunctella) and grain mites.

Man and Animal Insects: WASPS and YELLOW JACKETS caused concern to homeowners in different sections and YELLOW JACKETS were extremely annoying to workers in a fruit and spice processing plant in Baltimore in October. Cases of individuals being bitten by WHEEL BUG (Arilus cristatus) were reported from Kent County. CHIGGER (Eutrombicula alfreddugesi) seemed more abundant than usual. STINGING CATERPILLARS including the SADDLEBACK (Sibine stimulea) and PUSS CATERPILLAR (Megalopyge opercularis) gave trouble to humans

in the early fall in different sections of the State. Other pests that caused concern were eye gnats, fleas and house fly (Musca domestica). COMMON CATTLE GRUB (Hypoderma lineatum) surveys in January and February on 12 farms in Frederick, Montgomery, QueenAnnes, and Harford Counties showed 87 out of 163 young beef animals infested with grubs, with an average of four per animal. Dairy cattle showed 49 out of 214 infested with an average of 3 per animal. HOUSE FLY and BITING FLIES were above normal in all sections. Dogs and cats were bothered considerably by FLEAS in most sections.

Household Insects: Homeowners throughout the State were troubled with silverfish (Lepisma saccharina), ground beetles, ants, cockroaches, wasps, termites, carpet beetles, old-house borer (Hylotrupes bajulus), centipedes and the black widow spider (Latrodectus mactans). Asiatic oak weevil (Cyrtopistomus castaneus) and elm leaf beetle (Galerucella xanthomelaena) caused concern by entering homes. CLOVER MITE (Bryobia praetiosa) was abundant in the spring, entering homes particularly in the Baltimore area.



VOL. 6 No. 52

DECEMBER 28, 1956

5B
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

BOLL WEEVIL hibernation counts from North Carolina, South Carolina and Virginia. (p. 1141).

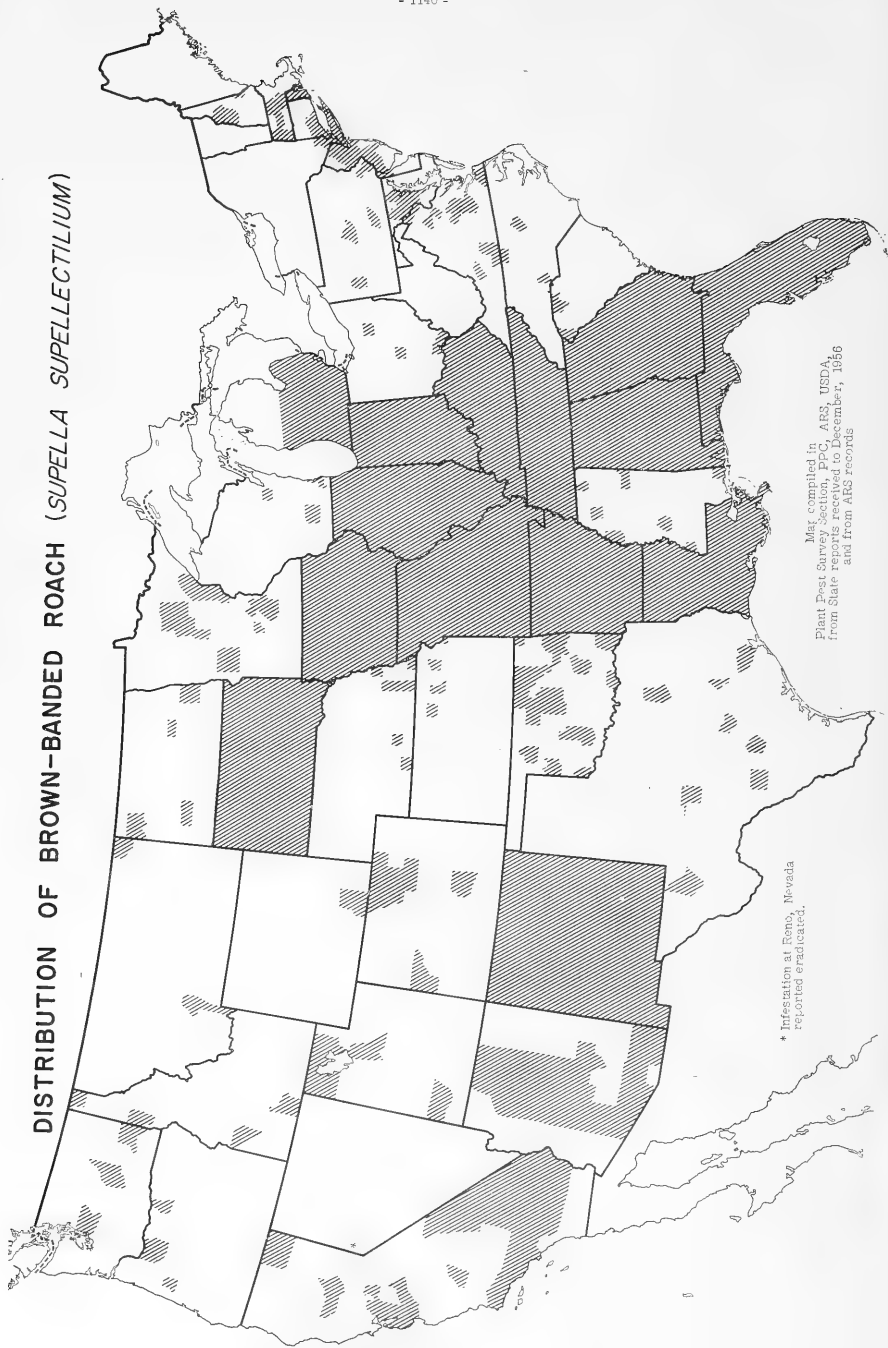
SUMMARY OF INSECT CONDITIONS - 1956 - Wyoming (p. 1143), Montana (p. 1144), North Dakota (1146).

Distribution of BROWN-BANDED ROACH. (p. 1140).

Distribution of RANGE GRASSHOPPERS. (p. 1149).

Reports in this issue are for the week ending December 21 unless otherwise designated.

DISTRIBUTION OF BROWN-BANDED ROACH (*SUPELLA SUPELLECTILUM*)



* Infestation at Reno, Nevada reported eradicated.

Map compiled in Plant Pest Survey Section, PPIC, ARS, USDA, from State Pest Reports for December 7, 1956 and from ARS records

CEREAL AND FORAGE INSECTS

SPOTTED ALFALFA APHID - CALIFORNIA - Infestation found at San Andreas, Dec. 12, for a first record in Calaveras County, bringing total number of counties infested to 38. Progressive, local spread in the Sacramento and San Joaquin Valley areas has been primarily responsible for a 350,000 acre increased infestation over 1955. (Cal. Coop. Rept., Dec. 14).

YELLOW SUGARCANE APHID (*Sipha flava*) - FLORIDA - Lightly infesting pangola grass at Belle Glade, Palm Beach County. (Genung).

FRUIT INSECTS

CALIFORNIA RED SCALE (*Aonidiella aurantii*) - CALIFORNIA - Conditions favorable for build-up in interior districts and trees relatively free of infestations in early season now have light to medium infestations. Normal or above-normal build up in coastal areas. (Sunkist Pest Cont. Cir., December).

COTTON INSECTS

PINK BOLLWORM (*Pectinophora gossypiella*) - CALIFORNIA - Gin trash inspections of 602 bushels at El Centro and 100 in the Bard district showed no larvae. Inspection of 5952 bushels of gin trash in Imperial County, Nov. 19-to Dec. 12 showed no infestations. During this period 4675 bolls were cut and examined from 45 fields with no infestation found. (Cal. Coop. Rept., Dec. 14). ARIZONA - Gin trash inspections begun Oct. 1 now completed. Larvae recovered in three of the five counties in quarantine area--Greenlee, Graham, Cochise. No larvae found in Pima and Santa Cruz Counties nor in any counties in the non-quarantined area--Pinal, Maricopa and Yuma. Of 6086 bushels of gin trash inspected, 213 larvae were recovered. From 245 lint cleaners inspected, seven larvae were recovered. NEW MEXICO - Gin trash inspection completed. Larvae found in each of the gins inspected at Hatch, Deming and Cotton City. Cold weather killed most of larvae in material standing in fields. On Nov. 13, 88 percent of the larvae were alive; on Nov. 29, 100 percent of the larvae were dead. Lint cleaner inspections at three cotton gins in Roosevelt County showed three larvae. (PPC, Western Reg., Dec. 8).

Boll Weevil Hibernation Counts in North Carolina, South Carolina and Virginia: Five areas were selected and 30 farm sites were used in each area. Three samples of surface woods trash consisting of two square yards each were taken at each site. Sampling was begun on Nov. 13 and completed Dec. 13. In area 1, consisting of Orangeburg, Dorchester and Bamberg Counties, South Carolina, an average of 3712 live weevils was found per acre with a range of 0-15,333. In area 2, consisting of Darlington, Marlboro, and Florence Counties, South Carolina and Scotland County, North Carolina, an average of 8635 live weevils per acre was found with a range of 807 to 58,104. In area 3, consisting of Anderson,

Greenville and Spartanburg Counties, South Carolina and Mecklenburg, Cleveland and Union Counties, North Carolina, an average of 6268 live weevils per acre was found with a range of 0-19,368. In area 4, consisting of Nash, Wilson, Franklin and Edgecombe Counties, North Carolina, an average of 4815 live weevils per acre was found with a range of 0-17,754. In area 5, consisting of Southampton, Nansemond, Mecklenburg and Brunswick Counties, Virginia, an average of 4169 live weevils per acre was found with a range of 0-37,122. In Florence County, South Carolina, this year's counts (5,757 per acre) were 1.1 times the average for the period 1938-56, but considerably lower than fall of 1955 when 11,398 weevils per acre were recorded. In only three years (1949, 1952 and 1955) did counts exceed the number found in fall 1956. (Walker, Hopkins, Jernigan).

INSECTS AFFECTING MAN AND ANIMALS

COMMON CATTLE GRUB (Hypoderma lineatum) - FLORIDA - Larvae averaging 5 per animal on 60 inspected at Belle Glade. (Harris, Dec. 5).

STORED PRODUCTS INSECTS

STORED-GRAIN INSECTS - ARKANSAS - Forty bins of rice in Stuttgart-Dewitt areas infested as follows: rice weevil - 1 bin, Tribolium sp. - 12 bins, saw-toothed grain beetle - 16 bins Angoumois grain moth - 12 bins, Indian-meal moth - 3 bins, lesser grain borer - 1 bin, Flat grain beetles - 2 bins, and fungus beetles - 3 bins. (Rouse).

INDIAN-MEAL MOTH (Plodia interpunctella) - OREGON - Adults reared from larvae found in uncracked stored walnuts at Corvallis proved to be this species. Apparently newly-hatched larvae entered nuts through minute openings of imperfectly-sealed nuts. Many reports of stored (cracked) filberts and walnuts being infested by this pest. (Capizzi).

LIGHT TRAP COLLECTIONS

SOUTH CAROLINA - Clemson, December 7-21: Pseudaletia unipuncta 11, Agrotis ypsilon 6, A. malefida 31, Feltia subterranea 4, Peridroma margaritosa 2. ARKANSAS - Fayetteville, November 10-December 20: P. unipuncta 22, A. ypsilon 11, Heliothis zea 14 (none after November 15).

SUMMARY OF INSECT CONDITIONS - 1956

WYOMING

Reported by E. W. Spackman

Highlights: The conditions in Wyoming during 1956 were unusually favorable to grasshopper development. Very heavy populations developed where non-economic numbers were expected. According to the survey reports there were approximately 200,000 acres expected to require control measures and before the season terminated over a million acres were infested with economic numbers. Mosquito populations were quite high again this year. The forest tent caterpillar caused damage to trees in a number of towns. Although the spotted alfalfa aphid was found in the neighboring states, it was not found in Wyoming as of November 30, 1956. Clover head aphid was present in large numbers in Park County causing quite a problem in harvesting red clover seed.

Cereal and Forage Insects: Range GRASSHOPPERS were controlled on 239,852 acres of private-owned land and 30,275 acres of Federal-owned land at a total cost of \$136,824. Throughout the State the dominant species was Aulocara elliotti which caused a high loss of grass. The most severe grasshopper infestation in cropland occurred in Park and Lincoln Counties.

In these areas, Melanoplus bivittatus, M. packardii, and M. femurrubrum were the main species. MORMON CRICKETS were controlled on range land on 6,100 acres of private-owned land and 1,414 acres of Federal-owned land at a total cost of \$4,883. PEA APHID (Macrosiphum pisi) infestations were normally high throughout the State on alfalfa. ALFALFA WEEVIL (Hypera postica) has spread throughout the alfalfa-growing areas. TARNISHED PLANT BUG (Lygus lineolaris) caused some damage in the alfalfa seed crop areas in Fremont County. ALFALFA WEBWORM (Loxostege commixtalis) were reported causing damage in Lincoln County during late June. CLOVER ROOT CURCULIO (Sitona hispidula) adults were found, 1-4 per crown, on alfalfa in western counties where no alfalfa weevil control was applied. A very few SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) were found on alfalfa in the southeast corner of the State. CORN EARWORM (Heliothis zea) started causing damage to field corn in Platte and Goshen Counties during mid-August. CORN LEAF APHID (Rhopalosiphum maidis) caused severe damage again this year to oats and barley in the Big Horn Basin and was also present on corn in Goshen and Platte Counties. EUROPEAN CORN BORER (Pyrausta nubilalis) infestation was found this year. WIREWORMS caused some concern on winter plantings during September in Goshen County.

Truck Crops: POTATO PSYLLID (Paratrioza cockerelli) had moved across Wyoming to the potato-growing areas of Park County by the latter part of July. POTATO LEAFHOPPER (Empoasca fabae) was very light on potatoes near Pine Bluffs. COLORADO POTATO BEETLE (Leptinotarsa decemlineata) became abundant on potatoes at Powell during the second week of July. MEXICAN BEAN BEETLE (Epilachna varivestis) was not found in the northern part but did cause some damage to beans in the Goshen

County area; also some adults were found on alfalfa here. BEET WEBWORM (Loxostege sticticalis) was general on sugar beets through August in Goshen County area. ALFALFA WEBWORM (L. commixtalis) was reported causing damage to sugar beets in Lincoln County during June. EARWIGS caused some concern in gardens in Lincoln County. No other area has reported this insect as a problem, although a specimen was collected at Rawlins during 1955. TOMATO HORNWORMS (Protoparce sp.) also caused some trouble in gardens. STRAWBERRY LEAF ROLLER (Ancyliis comptana fragariae) was present in Worland and SLUGS caused some concern in Lincoln County.

Forest, Ornamental and Shade Tree Insects: MITES were quite general throughout the State on raspberries as well as shrubs. FOREST TENT CATERPILLAR (Malacosoma disstria) was very severe in towns defoliating a large number of trees in Casper and Worland during early June. EUROPEAN ELM SCALE (Gossyparia spuria) populations were quite heavy with very little control being applied. Trees infested with the DOUGLAS-FIR BEETLE (Dendroctonus pseudotsugae) near Hyattville were to be cut for control of the beetle. It was reported that epidemic or near epidemic conditions of the MOUNTAIN PINE BEETLE (Dendroctonus monticolae) existed in lodgepole pine. A secondary BARK BEETLE (tentatively identified as Scolytus tsugae) in Douglas-fir also occurred in Shoshone National Forest. This information of forest insects was supplied by the Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colorado and the Wyoming State Forester. A LEAF MINER was observed causing damage generally to the poplar.

Man and Animal Pests: MOSQUITOES were generally heavy throughout the State. HORN FLIES, CATTLE GRUBS, CATTLE LICE and SHEEP KED were not above normal and did not cause any unusual trouble. CLOVER MITE (Bryobia praetiosa) caused normal annoyance in homes.

SUMMARY OF INSECT CONDITIONS - 1956

MONTANA

Reported by George Roemhild

Cereal and Forage Insects: ARMY CUTWORM (Chorizagrotis auxiliaris) was lighter than usual this year and economic infestations were reported only from scattered spots in the Yellowstone Valley. ALFALFA WEEVIL (Hypera postica) is now present over most of the State east of the Continental Divide and control measures are taken accordingly. BLISTER BEETLES (Lytta nuttalli, L. sphaericollis, L. cyanipennis) were more abundant than usual this year on alfalfa and leguminous ornamentals. They were especially troublesome in the central and northern areas. CLOVER APHID (Anuraphis bakeri) occurred in greater numbers than usual this year, especially in the south central part of the State in Yellowstone, Carbon and Stillwater Counties. A MIRID (Labops sp.) attacked wheat and

crested wheat grass in Fergus and McCone Counties. The DIAMOND-BACK MOTH (Plutella maculipennis) occurred in damaging numbers on mustard in Pondera County late in the season. There were a few reports of ENGLISH GRAIN APHID (Macrosiphum granarium). EUROPEAN CORN BORER (Pyrausta nubilalis) does not appear to be extending its range from the lower Yellowstone Valley in eastern Montana. FALSE WIREWORMS occurred in damaging numbers in eastern and northeastern areas. LYGUS BUGS (Lygus spp.) are of importance in alfalfa seed production in southeastern and south central counties. PALE WESTERN CUTWORM (Agrotis orthogonia) occurred in greater numbers than usual in north central Montana where several thousand acres were either treated or replanted. A MIRID (Stenodema sp.) occurred on tall wheatgrass and crested wheatgrass in Lake and Yellowstone Counties where it did considerable damage. WHEAT HEAD ARMYWORM (Faronta diffusa) was found only in local areas in Chouteau County. WHEAT JOINTWORM (Harmolita tritici) occurred in scattered infestations with the most heavy damage in Stillwater County with 90 percent of the plants in some fields infested. WHEAT STEM SAWFLY (Cephus cinctus) continues to be of considerable economic importance especially in the northeastern part of the State. WIREWORMS damaged grain in the northern tier of counties and the southern mountain valleys. GRASSHOPPERS (rangeland) - Approximately two million acres of range are infested in central, south central, and southwestern Montana. The most damaging species is Aulocara elliotti. Other economic species are Ageneotettix deorum, Amphitornus coloradus, Camnula pellucida, Aeropedellus clavatus. (Cropland species) - Approximately one million acres of cropland are infested in north central and eastern Montana. Economic species are Melanoplus bivittatus, M. mexicanus, M. femur-rubrum.

Fruit Insects: BLACK CHERRY FRUIT FLY (Rhagoletis fausta) occurred in economic numbers in Lake, Flathead, and Ravalli Counties. PEAR-SLUG (Caliroa cerasi) was present in only scattered numbers in western and south central areas. CURRENT APHID (Capitophorus ribis) occurred in the northwestern and south central part of the State. The FOREST TENT CATERPILLAR (Malacosoma disstria) did considerable defoliation to back yard trees in the northern and western areas. SPIDER MITES of various species occurred in unusually large numbers over most of the State on apple, raspberry, currant, and many ornamentals. STRAWBERRY LEAF ROLLER (Ancylis comptana fragariae) caused local economic damage in Broadwater and other counties. Two PLUM MITES (Vasates fockeui and Diptacus gigantorhynchus) caused considerable concern in Lake and Flathead Counties on cherries.

Forest, Ornamental and Shade Tree Insects: During the past few years many shelter belts have been planted in Montana and consequently many new species of defoliating insects are becoming of economic importance. The more common species encountered: ash plant bug (Neoborus amoenus); a cecidomyid causing galls on ash; carpenterworm (Prionoxystus robiniae); cottonwood leaf beetle (Chrysomela scripta); a lepidopterous cottonwood leaf miner; poplar petiole gall aphid (Pemphigus populi-transversus); cottonwood stem gall mites (Eriophyes sp.); elm leaf aphid (Myzocallis ulmifolii);

mourning-cloak butterfly (Nymphalis antiopa); a tent caterpillar (Malacosoma lutescens); and vagabond gall (Mordwilkoja vagabunda). On evergreens the following pests were common: Cooley spruce gall aphid (Chermes cooleyi); a borer (Phloeosinus dentatus); pine needle scale, (Phenacaspis pinifoliae); spruce budworm (Choristoneura fumiferana) and spruce needle miner (Taniva albolineana).

Man and Animal Pests: MOSQUITOES were abundant in heavy soil and irrigated areas of the State. CATTLE LOUSE and GRUB populations appeared to be about normal. WOOD TICKS (Dermacentor sp.) were abundant in eastern Montana and caused some loss in sheep due to tick paralysis.

Stored Grain and Household Pests: Economic stored grain insect infestations appeared very low during the 1955-56 season. Apparently more infestations were present this season. The most common pests are: Laemophloeus pusillus, Tribolium confusum, T. castaneum, Oryzaephilus surinamensis, Tyrophagus sp. The most common household pests in the State are DERMESTIDS, including Attagenus piceus and Trogoderma sp. MITES were found infesting one building; they originated from pigeon nests in an abandoned ventilating system. The SWALLOW BUG (Oeciacus vicarius) was found in a schoolhouse. BLACK WIDOW SPIDERS (Latrodectus mactans) were more numerous than usual. CLOVER MITES (Bryobia praetiosa) were not as numerous.

SUMMARY OF INSECT CONDITIONS - 1956

NORTH DAKOTA

Report by
N. D. Insect and Plant
Pest Reporting Service

Cereal and Forage Insects: A general build-up of economic GRASSHOPPER species continued in many areas. Fall surveys show a potential grasshopper problem existing in three-fifths of the State. Of major importance on cropland during 1956 were Melanoplus bivittatus, M. femur-rubrum, M. differentialis, and M. mexicanus. M. mexicanus showed a substantial increase in numbers over the 1955 season on both cropland and range. An increased population of M. differentialis was also noted on cropland in eastern areas. Grasshopper damage was confined mostly to late crops of flax, alfalfa, and soybeans. Chemical control measures were applied to an estimated one million acres of cropland to protect it from grasshopper damage during the season. Potential infestations point to a possible severe grasshopper outbreak in 1957. EUROPEAN CORN BORER (Pyrausta nubilalis) winter mortality was estimated at 80 percent in major southeastern corn-growing counties. Pupation of overwintering borer was complete on June 29 with moth emergence and egg-laying well underway at that time. Hatch of first generation appeared complete on July 20 with 20 percent of the plants showing borer infestation. The fall abundance survey in eight eastern counties showed borer populations down considerably compared with the high infestation of 1955. The averages

for districts surveyed are as follows:

	Average Infestation	Avg. No. Borers Per 100 Plants
--	---------------------	--------------------------------

District I (Grand Forks and Traill Counties)	48%	38.4
District II (Cass and Richland Counties)	47%	51.7
District III (Ransom and Sargent Counties)	34%	59.5
District V (Barnes and Steele Counties)	36%	28.8

Only a few reports of WIREWORM damage to spring wheat were received during the season. However, the damage was severe in a few of these fields. Areas of most severe infestation by WHEAT STEM SAWFLY (Cephus cinctus) continued to be southern Mountrail, southwestern Ward, and western McLean Counties. Some fields in Williams, Divide, Burke, Renville, Bottineau, and Golden Valley Counties also had heavy infestations. Non-economic infestations were generally the case in other areas of the State. Light trap collection at Fargo showed adult ARMYWORMS May 15. By June 8, numerous moths were being collected (432 collected during a 5-day period). Larval infestations, mostly non-economic, were observed in small grain fields throughout southeastern section during the week of July 20. Some chemical controls were applied but this was confined mostly to certified seed-increase fields of small grain, chiefly barley. SWEETCLOVER WEEVIL (Sitona cylindricollis) defoliation ranged from a trace to 50 percent in fields of seedling sweetclover through northeastern areas. Infestations varied greatly from field to field. In northern valley counties SWEETCLOVER APHID (Myzocallidium riehmii) infested 10-100 percent of the seedling plants. No particular damage was noted in mature fields. However, late June observations showed some leaf yellowing from aphid feeding. A preliminary check of fields in the infested area recently showed good stands of first year sweetclover. First reported occurrence of ALFALFA WEEVIL (Hypera postica) was made in June, 1955. Survey this season shows the weevil infesting five southwestern counties. All infestations were in trace amounts only. No known economic damage has occurred so far. Variable infestations of THRIPS occurred in barley fields throughout eastern North Dakota. Amount of damage has not been determined because of the limited information available on this pest. Several infestations of BLISTER BEETLES requiring chemical control were reported in soybeans and alfalfa this season. For the most part, however, even fairly high populations in these crops did not appear to cause damage where left uncontrolled. Larval infestations of WEBWORMS (Loxostege spp.) damaged soybeans and small grain field margins at several locations. WHEAT STEM MAGGOT (Meromyza americana) infestations were conspicuous in scattered spring wheat fields through southeastern North Dakota. However, for the State as a whole the infestations appeared lighter than for several years. Scattered light infestations WHEAT MIDGE (Sitodiplosis mosellana) attacked spring wheat in eastern Pembina County. ALFALFA CATERPILLAR (Colias philodice eurytheme) adults were numerous over alfalfa fields in southeastern North Dakota during August. Larvae in alfalfa were non-economic.

Truck Crop Insects: Mostly light infestations of COLORADO POTATO BEETLE (Leptinotarsa decemlineata) were present in commercial potato-growing areas of the Red River Valley. Infestations of FLEA BEETLES during June appeared heavier than usual throughout the upper Red River Valley. Lack of control during August of 1955 may have contributed to flea beetle abundance this season. High populations of POTATO LEAF-HOPPER (Empoasca fabae) caused "hopperburn" injury where fields had not been treated regularly. High populations of STRIPED CUCUMBER BEETLE (Acalymma vittata) damaged cucumbers, melons, and squash over a wide area in eastern N. D. Moderate larval infestations of IMPORTED CABBAGEWORM (Pieris rapae) were reported attacking susceptible crucifers this season. Moths were extremely numerous during August.

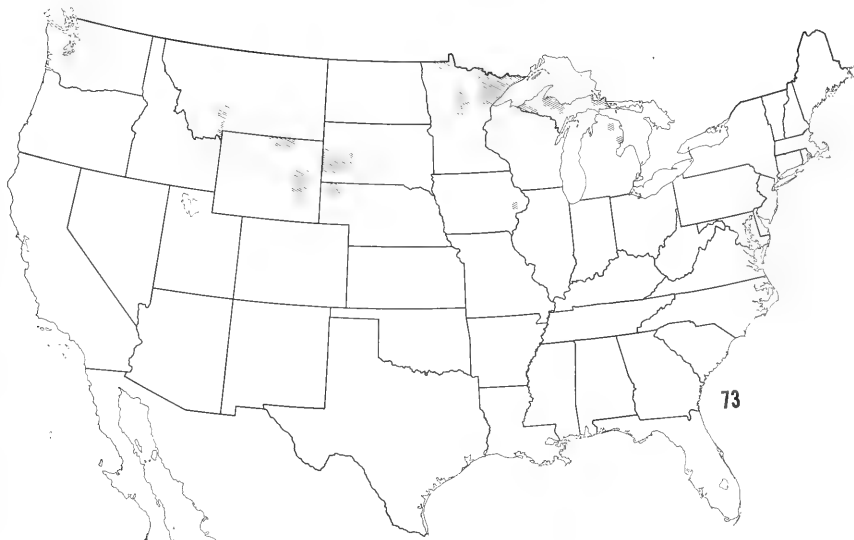
Ornamental and Shade Tree Insects: Heavy infestations of OYSTERSHELL SCALE (Lepidosaphes ulmi) were reported on cotoneaster from many areas. Infestations of PINE NEEDLE SCALE (Phenacaspis pinifoliae) are becoming more numerous in southwestern and northeastern area. Heavy infestations of SPRUCE SPIDER MITE (Oligonychus ununguis) attacked spruce and juniper during early June. Heavy infestations of APHIDS occurred on numerous deciduous and perennial plant species this season. MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) larvae were more numerous this season than in several years. Defoliation of trees was reported from many areas. Defoliation of caragana hedges by BLISTER BEETLES occurred in many areas. FALL WEBWORM (Hyphantria cunea) infestations were distributed over a wide area. Webbing and defoliation of trees in farm groves through southeastern Benson County was extremely heavy. Some groves showed infestations covering 50 to 75 percent of tree surface. Medium to heavy LEAFHOPPER infestations on caragana were common in nursery plantings.

Insects Affecting Man and Animals: SHORT-NOSED CATTLE LOUSE (Haematopinus eurysternus)-Late winter surveys showed medium infestations attacking 28 percent of the animals inspected. Light to medium infestations of CATTLE BITING LOUSE (Bovicola bovis) on young dairy cattle were observed where no chemical control had been applied. Light infestations of LONG-NOSED CATTLE LOUSE (Linognathus vituli) were observed in a few localities during the winter. COMMON CATTLE GRUB (Hypoderma lineatum) was found infesting 43 percent of the animals examined during a February survey conducted in western North Dakota. Infestations were mostly light in nature. Infested animals appeared more numerous in Adams County than in other areas surveyed.

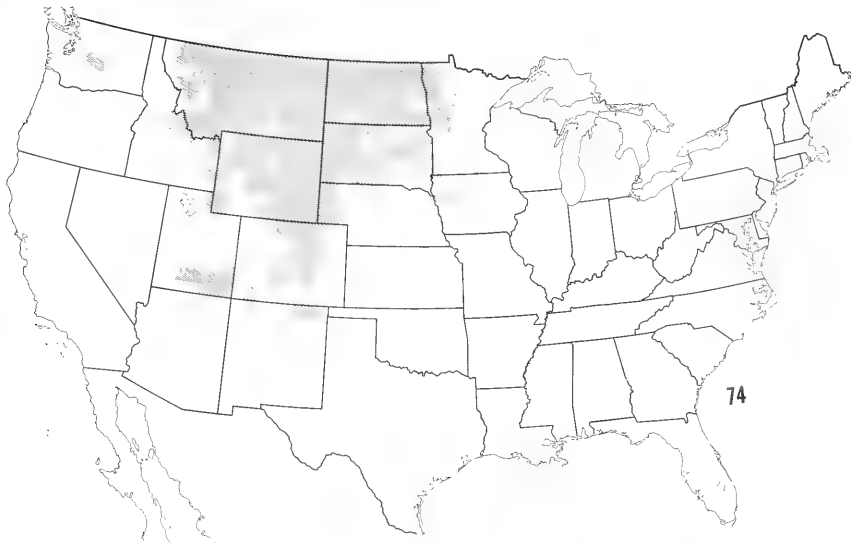
Household Insects: BROWN-BANDED ROACH (Supella supellectilium) was first reported from North Dakota in 1954. Subsequent infestations occurring in widely scattered areas show that this species is becoming established in North Dakota.

DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus huroni Blatchley

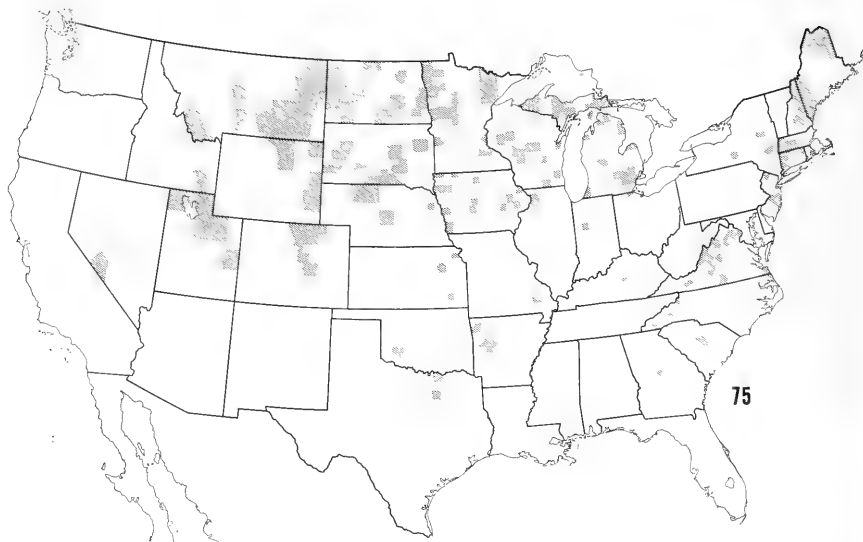


Melanoplus infantilis Scudder

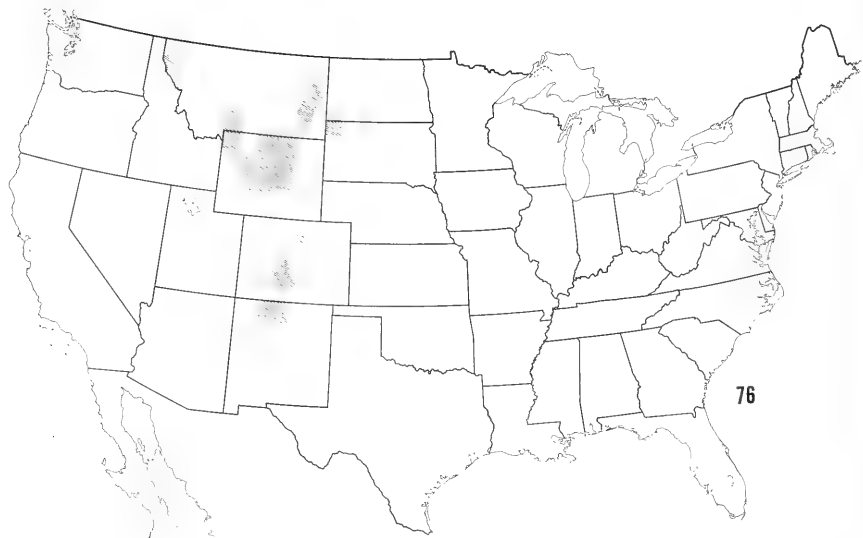


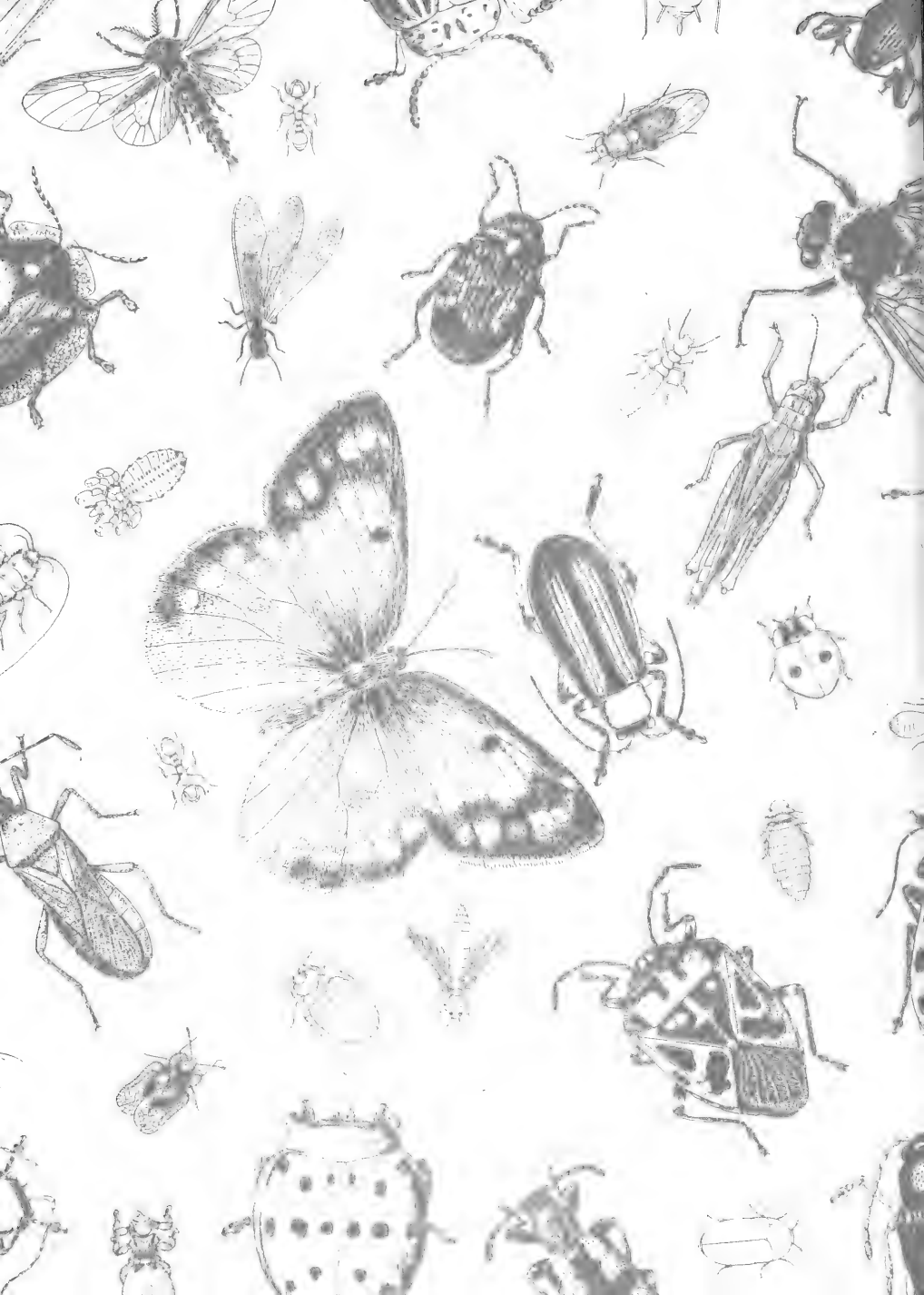
DISTRIBUTION OF RANGE GRASSHOPPERS

Melanoplus keeleri (Thomas)



Melanoplus kennicotti Scudder





VOL. 6 INDEX

1956

SB
823
C77
Ent.

Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL BRANCH

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL BRANCH

PLANT PEST SURVEY SECTION

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

COOPERATIVE ECONOMIC INSECT REPORT

VOLUME 6—1956

INDEX

SPECIAL REPORTS

Aphids - outlook in Maine 1956 - 38, abundance of eggs in northeastern Maine - 423
 Beet leafhopper - conditions in southern Idaho and eastern Oregon - 1955, - 83; outlook for intermountain region - 143; conditions in southern Great Plains - 584
 Boll weevil - hibernation survey 1955 - North Carolina and Mississippi - 3, Tennessee - 38, Arkansas - 56; survival 1956 - Louisiana - 225; Mississippi - 270, North Carolina - 284, Georgia - 284, Virginia - 307, Texas - 306, Arkansas - 354; hibernation 1956 - Louisiana - 1127, North Carolina, South Carolina, Virginia - 1141, Mississippi - 1080
 Chinch bug outlook for 1956 - 94
 Cotton fleahopper survival in Texas - 308
 European corn borer damage estimates in 1955 - 190
 Forest insect conditions 1955 - 201
 Foxglove aphid abundance in Maine - 982
 Grasshoppers - outlook for 1956 - 51; distribution maps 597, 710, 743, 775, 838, 866, 920, 938, 972, 987, 1019, 1036, 1050, 1090, 1122, 1149; acreage treated 1956 - 976
 Gypsy moth conditions 1955 - 148
 spraying summary - 655

Light trap information 1955 - 68
 Maps distribution - sweetclover weevil - 17, apple maggot - 55, Mexican bean beetle - 96, vetch bruchid - 239, corn rootworms - 263, periodical cicada (Brood XIII) - 964, alfalfa weevil - 1074, brown-banded roach - 1140, oriental fruit moth - 1131
 Mediterranean fruit fly - first report from Florida - 350, special summary 471, infestation map - 773, status of program - 1113
 Melon fly, special report - 920
 More important insects - 1955 - 176, 250, 286, 382, 559
 Pink bollworm regulated areas January 1, 1956 - 175
 Potato leafhopper appearance by states in 1955 - 285
 Soybean cyst nematode - found in Wisconsin - 1125, found in Tennessee - 1025
 Summary of insect conditions, 1955 - Alaska - 110, Arizona - 60, Arkansas - p. 108, California p. 500, Canada p. 31, Colorado p. 11, Delaware p. 6, Georgia p. 289, Idaho p. 78, Illinois p. 131, Iran p. 360, Kansas p. 178, Lebanon p. 316, Louisiana p. 65, Maine p. 42, Massachusetts p. 257, Minnesota p. 252, Missouri p. 231, Nebraska p. 26, New York p. 153,

North Carolina p. 100, North Dakota p. 43, Ohio p. 84, Oklahoma p. 68, Oregon p. 120, Pakistan p. 293, Pennsylvania p. 150, South Carolina p. 46, Texas p. 22, Vermont p. 273, Virginia p. 156, Washington p. 127, West Virginia p. 131, Wisconsin p. 274
 Summary of insect conditions, 1956 - Alabama p. 1074, Arizona p. 1061, Delaware p. 1031, Fruit insects in New York - New England p. 1046, Maryland p. 1134, Massachusetts p. 1017, Mississippi p. 1119, Montana p. 1144, North Dakota p. 1146, Rhode Island p. 1100, South Carolina p. 1114, Tennessee p. 1088, Texas p. 1132, Utah p. 1084, Vermont p. 1100, Wyoming p. 1143
 Survey methods - small arthropods - 433, spruce budworm - 533, Saratoga splitbeetle - 563, intensity of sampling 675, jack-pine budworm - 705, larch sawfly - 789, pine tortoise scale - 605, European tent caterpillar - 838, red-headed pine sawfly - 863, shade-topped insects - 1104

COMMON NAMES

Acheomon sphinx (*Pholus acheomon*) 502
 Air sac mite (*Cyrtoides nudus*) 105
 Alaskan spruce beetle (*Dendroctonus borealis*) 218
 Alfalfa caterpillar (*Colias philodice eurytheme*) 22, 25, 60, 141, 235, 281, 327, 348, 369, 392, 450, 483, 514, 636, 658, 688, 719, 752, 788, 815, 845, 881, 887, 927, 962, 978, 994, 1062, 1084, 1147
 Alfalfa looper (*Autographa californica*) 22, 641, 685, 693, 752, 788
 Alfalfa plant bug (*Adelphocoris lineolatus*) 7, 27, 84, 178, 253, 753, 907
 Alfalfa webworm (*Lixocystes commixtalis*) 28, 577, 610, 619, 713, 765, 816, 848, 881, 888, 950, 1143, 1144
 Alfalfa weevil (*Hypera postica*) 7, 28, 44, 79, 100, 114, 120, 150, 158, 167, 181, 271, 280, 304, 326, 345, 370, 392, 417, 450, 479, 511, 523, 543, 561, 577, 608, 627, 635, 659, 665, 689, 719, 728, 754, 815, 849, 908, 927, 1010, 1015, 1031, 1056, 1067, 1084, 1095, 1135, 1143, 1144, 1147
 Alkali bees 650, 702
 Almond nut borer (*Eurytoma amygdali*) 361
 American cockroach (*Periplaneta americana*) 146, 317
 American dagger moth (*Acrontia americana*) 656
 American dog tick (*Dermacentor variabilis*) 10, 31, 48, 379, 401, 463, 495, 527, 768, 998, 1035, 1103
 American plum borer (*Euzophera semifuneralis*) 54, 546, 1033
 Argentinean grass moth (*Gistrotica cersaeiella*) 50, 62, 71, 95, 104, 185, 238, 292, 527, 860, 954, 960, 1014, 1028, 1071, 1076, 1119, 1137

Ants 87, 371, 404, 1081
 Aphids 4, 11, 22, 31, 38, 40, 43, 45, 46, 50, 53, 56, 60, 62, 63, 66, 76, 79, 80, 81, 85, 86, 95, 102, 103, 108, 119, 142, 160, 169, 173, 180, 182, 195, 221, 226, 245, 249, 247, 249, 257, 261, 288, 269, 270, 281, 224, 285, 291, 294, 305, 316, 316, 317, 329, 330, 348, 354, 361, 375, 377, 385, 390, 398, 400, 403, 408, 414, 426, 433, 455, 454, 461, 464, 465, 492, 494, 505, 519, 524, 526, 555, 558, 558, 591, 613, 618, 621, 623, 646, 669, 673, 687, 691, 692, 701, 716, 729, 732, 738, 733, 768, 771, 790, 793, 796, 798, 801, 813, 819, 825, 831, 849, 852, 855, 858, 873, 893, 896, 911, 913, 914, 924, 924, 931, 933, 949, 952, 966, 982, 982, 996, 997, 1009, 1010, 1012, 1014, 1017, 1027, 1040, 1042, 1057, 1061, 1064, 1067, 1068, 1067, 1085, 1101, 1108, 1110, 1114, 1115, 1117, 1120, 1127, 1135, 1137, 1148
 Apple and thorn skeletonizer (*Anthophila pariana*) 122, 516, 963
 Apple aphid (*Aphis pomi*) 9, 85, 101, 121, 151, 153, 152, 231, 318, 329, 371, 373, 395, 406, 419, 522, 578, 612, 628, 638, 652, 660, 691, 703, 738, 756, 788, 801, 817, 850, 943, 1033
 Apple curculio (*Tachytrellus quadricornis*) 254, 454
 Apple grain aphid (*Rhopalosiphum fitchii*) 42, 110, 151, 261, 271, 305, 323, 379, 395, 406, 419, 445, 454, 500
 Apple leaf skeletonizer (*Psorosira hammondi*) 682, 723
 Apple maggot (*Rhagoletis pomonella*) 42, 54, 85, 151, 153, 155, 182, 254, 276, 638, 652, 661, 673, 691, 723,

757, 770, 788, 817, 849, 861, 871, 928, 948, 955, 964, 980, 994, 1026, 1101, 1136
 Apple pandemis (*Pandemis pyrusana*) 121
 Apple rust mite (*Vasates schlechtendali*) 453
 Argentine ant (*Iridomyrmex humilis*) 64
 Army cutworm (*Chorizagrotis auxillaris*) 26, 31, 75, 169, 178, 189, 222, 234, 264, 302, 327, 345, 369, 387, 418, 477, 514, 528, 1002, 1084, 1144
 Armyworms 5, 6, 7, 22, 28, 32, 42, 44, 49, 65, 84, 88, 100, 106, 107, 141, 150, 158, 169, 170, 178, 192, 231, 233, 234, 243, 252, 257, 264, 275, 279, 290, 294, 299, 321, 342, 360, 368, 388, 412, 444, 475, 476, 510, 528, 542, 561, 573, 605, 627, 628, 635, 658, 673, 703, 716, 749, 784, 786, 813, 846, 870, 905, 908, 925, 947, 975, 990, 1031, 1055, 1074, 1077, 1088, 1100, 1116, 1118, 1135, 1147
 Artichoke plume moth (*Platyptilia carduivictoria*) 18, 115, 144, 225, 350, 640, 729
 Ash plant bug (*Neobornus aeneus*) 494
 Asiatic garden beetle (*Autoserica castanea*) 634, 735, 960, 1034
 Asiatic oak weevil (*Cyrtipistonus castaneus*) 9, 101, 184, 636, 701, 734, 765, 861, 897, 917, 935, 965, 1034
 Asparagus beetles 8, 42, 151, 254, 257, 352, 374, 396, 422, 461, 462, 469, 519, 555, 642, 761, 791, 951, 1017, 1086, 1136
 Azalea bark scale (*Coccinoccus azalae*) 403, 1120, 1128
 Azalea lace bug (*Stephanitis pyzoides*) 10, 828, 878, 898, 953,
 Azalea leaf miner (*Gracilaria azalealis*) 87, 356, 671

B

Bagworm (Thyridopteryx
ephemeraformis) 9, 30, 104, 116,
183, 173, 180, 183, 184, 237, 466,
626, 557, 592, 647, 670, 701, 736,
784, 798, 829, 857, 878, 914, 932,
963, 1034, 1039, 1114, 1118, 1120,
1134

Bagworms 49, 86, 309, 561, 624, 736,
738, 765, 770, 798, 898, 915, 955,

Bald-faced hornet (*Vespa maculata*)
879, 1102

Balsam-fir sawfly (*Neodiprion abietis*)
797

Balsam twig aphid (*Myndarus abietinus*)
826

Balsam woolly aphid (*Chermes piceae*)
206, 217

Banana root borer (*Cosmopolites*
sordidus) 285

Banded cucumber beetle (*Diabrotica*
balteata) 48, 460, 878, 882, 947, 981

Dark beetles 26, 40, 292, 590, 827, 967,
1075, 1144

Bean aphid (*Aphis fabae*) 8, 80, 641,
728, 760, 799, 853, 950, 1037, 1136

Bean leaf beetle (*Ceoma ruficincta*)
3, 8, 30, 39, 101, 103, 107, 161,
235, 347, 424, 461, 482, 487, 514,
518, 545, 549, 594, 610, 616, 628,
634, 680, 849, 992, 1025, 1032,
1136

Bean weevil (*Acanthoscelides obtectus*)
224

Bed bug (*Cimex lectularius*) 103, 117,
162, 250, 768, 953, 1102, 1114, 1118

Beech scale (*Crytococcus fagi*) 43, 217,
273

Bees 109

Beet armyworm (*Laphygma eximia*) 53,
63, 64, 361, 427, 503, 524, 562,
728, 732, 795, 881, 913, 962, 994,
1011, 1032

Beet leatherhorn (*Circulifer tenellus*) 12,
23, 28, 63, 83, 141, 143, 180, 247,
283, 307, 331, 351, 373, 379, 392,
396, 460, 489, 503, 520, 549, 583,
594, 614, 685, 695, 728, 791, 850,
911, 949, 959, 986, 1028, 1056,
1086, 1097, 1109, 1129, 1133

Beet webworm (*Loxostege sticticalis*) 32
460, 489, 549, 583, 614, 642, 665,
729, 791, 822, 851, 861, 911, 945,
955, 977, 1144

Bella moth (*Utetheisa bella*) 39

Bertha armyworm (*Mamestra configurata*)
31

Big-eyed bug 430

Billbugs 49, 116, 179, 232, 244, 254, 279,
342, 414, 446, 505, 541, 574, 632

Birch leaf miner (*Femusa pusilla*) 266, 273,
428, 466, 493, 537, 591, 852, 829,
1017, 1102

Birch leaf skeletonizer (*Eucoclitrix*
candensisella) 212, 877

Birch sawfly (*Agge pectoralis*) 859

Biting flies 1137

Black blister beetle (*Epicauta*
pennsylvanica) 164, 253, 900, 928

Black carpet beetle (*Attagenus piceus*)
71, 98, 238, 335, 378, 404, 553, 954,
1103

Black cherry aphid (*Myzus cerasi*) 121,
282, 348, 456, 485, 995

Black cherry fruit fly (*Rhagoletis fausta*)
155, 579, 1145

Black worm (*Agrotis psyllon*) 48, 100,
143, 172, 225, 231, 285, 283, 317,
427, 1119, 1120, 1135

Black flies 43, 46, 355, 401, 467, 527,
592, 648, 800, 1028, 1035, 1043,

Black grain stem sawfly (*Cephus tabidus*)
7, 478, 632

Black-headed budworm (*Acleris variana*)
218, 826

Black-headed fireworm (*Rhynchota*
raevana) 662, 692, 725, 803, 929

Black Hills beetle (*Dendroctonus*
ponderosa) 207, 208, 623, 700, 1086

Black-legged tick (*Ixodes ricinus*)

scapularis) 57, 97, 286

Black-marjined aphid (*Monella costalis*)
62, 983

Black peach aphid (*Anuraphis persicae-*
minor) 395, 638

Black pean aphid (*Melanocallis*
carayae) 23, 66, 67, 292, 892,
949, 983, 1075, 1119

Black scale (*Gaussia oleae*) 18, 54, 75,
223, 456, 501, 503

Black turpentine beetle (*Dendroctonus*
teberrans) 49, 103, 109, 145, 182,
214, 292, 428, 700, 771, 898, 1042,
1044, 1075, 1110

Black vine weevil (*Brachyrrhinus sulcatus*)
835, 953, 1017

Black widow spider (*Latrodectus mactans*)
10, 20, 71, 105, 152, 164, 181, 185,
378, 999, 1146

Elster beetles 22, 79, 120, 182, 234,
235, 480, 495, 545, 549, 597, 582,
610, 638, 640, 659, 663, 686, 694,
719, 728, 755, 759, 770, 792, 801,
816, 848, 851, 881, 891, 906, 1017,
1074, 1120, 1144, 1147, 1148

Bloodsucking conenose (*Tritoma*
sansuiata) 72, 136, 916, 998

Bloodsucking conenose bugs (*Tritoma*
sp.) 28

Blow flies 377, 1087

Blueberry bud mite (*Aceria vaccinii*)
468

Blueberry maggot (*Rhagoletis pomonella*)
43, 54

Bluegrass billbug (*Calendra parvula*) 154

Bluegrass webworm (*Crambus*
terrestris) 234

Boll weevil (*Anthonomus grandis*) 3, 4,
13, 24, 98, 48, 47, 67, 87, 102, 107,
108, 182, 225, 236, 248, 270, 284,
291, 307, 308, 309, 332, 354, 376,
399, 428, 463, 491, 523, 528, 554,
561, 586, 594, 618, 644, 652, 667,
687, 730, 735, 762, 771, 793, 801,
824, 874, 899, 919, 931, 1027,
1057, 1074, 1075, 1088, 1114, 1117,
1120, 1127, 1133, 1141

Bollworms 25, 47, 61, 63, 64, 67, 70,
72, 100, 103, 108, 116, 162, 231,
236, 294, 291, 309, 332, 354, 360,
376, 399, 426, 464, 501, 554,
561, 587, 589, 594, 620, 644, 652,
668, 697, 731, 738, 762, 771, 794,
801, 824, 854, 875, 881, 895, 912,
922, 951, 965, 983, 1027, 1057, 1061,
1063, 1076, 1089, 1117, 1120, 1133,
Booklice (*Liposcelis divinatoria*) 593

Bot flies 145, 184, 702

Boxelder aphid (*Periphyllus nequidinus*)
429

Boxelder bug (*Leptocoris trivittatus*) 5,
10, 81, 87, 108, 118, 146, 152, 163,
165, 174, 181, 185, 198, 227, 228,
271, 311, 378, 582, 801, 879, 917,
935, 954, 985, 1029, 1059, 1088

Boxelder psyllid (*Psylla nequidinus*)

Boxwood leaf miner (*Monarthropalus*
buxi) 164, 197, 285, 310, 377, 429,
915, 1102

Boxwood psyllid (*Psylla buxi*) 10, 429

Bristly cutworm (*Lacinipolia renigera*)
383

Bronze birch borer (*Agrylus annus*)
798, 967

Bronzed cutworm (*Nepheleodes emmedonia*)
235, 456

Brown anisota (*Anisota virginiensis*) 1034

Brown-banded roach (*Supella multipunctata*)
4, 32, 82, 105, 166, 256, 276, 311,
934, 985, 1103, 1111, 1118, 1148

Brown cotton leafworm (*Acontia dacia*)
24, 87, 108, 354, 464, 491, 523, 528,
583, 645, 958, 825, 931, 1133

Brown dog tick (*Rhipicephalus*
sanguineus) 20, 26, 40, 85, 105, 145,
134, 1035, 1043, 1064, 1103, 1118,
1128, 1134

Brown garden snail (*Helix aspersa*) 224

Brown-headed ash sawfly (*Tomostethus*
multicinctus) 256, 466, 557

Brown stink bug (*Euschistus*
impictus) 453, 1038

Brown-tail moth (*Nygmia phaeorrhoea*)
402, 827

Brown wheat mite (*Petrobia latens*) 15, 22,
27, 32, 37, 61, 85, 78, 80, 179, 189,
221, 243, 261, 279, 300, 322, 342,
367, 387, 414, 445, 477, 500, 503,
574, 632, 665, 119, 977, 1023, 1039,
1067, 1079, 1084, 1107, 1125, 1132

Black moth (*Hemileuca mala*) 557, 1034

Buckhorn aphid (*Aphis abbreviata*) 38, 42

Bud moths 674, 692, 930

Bull mite (*Rhizoglyphus echinopus*) 104,
198, 249, 334, 1097

Bumble flower beetle (*Euphoria inda*) 183

Burrowing nematode (*Radopholus similis*)
1128

C

Cabbage aphid (*Brevicoryne brassicae*)
8, 18, 48, 75, 80, 95, 115, 143, 156,
157, 160, 171, 183, 196, 224, 247,
254, 268, 283, 330, 351, 373, 397,
424, 460, 486, 497, 503, 549, 641,
772, 792, 818, 851, 1032, 1041, 1116,
1135

Cabbage caterpillars 86, 257, 317, 361,
397, 665, 673, 694, 703, 1017, 1032

Cabbage looper (*Trichoplusia ni*) 8, 18,
22, 23, 24, 32, 47, 48, 52, 63, 64, 66,
80, 86, 95, 103, 115, 151, 156, 157,
160, 171, 182, 196, 224, 247, 254,
268, 275, 283, 397, 549, 553, 556,
598, 617, 618, 641, 652, 685, 686,
695, 698, 727, 733, 759, 764, 792,
795, 822, 825, 831, 859, 855, 870,
873, 876, 881, 894, 895, 911, 913,
930, 932, 935, 949, 965, 966, 982,
983, 995, 999, 1011, 1015, 1026, 1032,
1056, 1061, 1062, 1063, 1101, 1114,
1116, 1133, 1138

Cabbage maggot (*Hylemya brassicae*) 40,
151, 156, 161, 254, 257, 406, 424,
460, 488, 519, 549, 561, 1017

Cabbage seedpod weevil (*Ceutorhynchus*
assimilis) 80, 373, 461, 488

Cabbage webworm (*Heliova roatialis*)
48, 999

Cadelle (*Tenebroides mauritanicus*) 71,
98, 118, 180, 238, 527, 968, 1014,
1070, 1137

California oakworm (*Phryganica californica*)
303

California prionus (*Pronus californicus*)
396, 1085, 1126

California red scale (*Aonidiella aurantii*)
18, 23, 62, 75, 142, 316, 349, 458,
514

Camellia scale (*Lepidosaphes camelliae*)
117, 163, 285, 1013, 1027, 1114, 1118

Canerworms 45, 256, 465, 493, 557, 591

Carpenter ants (*Camponotus* sp.) 43, 378

Carpenterworm (*Trichostethus robiniae*)
1114, 1116, 1120

Carpet beetles 43, 46, 276, 430, 999, 1129

Carrot beetle (*Ligyrus gibbosus*) 78, 851,
960, 992

Carrot rust fly (*Pella rosae*) 166

Carrot weevil (*Listronotus oregonensis*)
156, 461, 1017

Casemaking clothes moth (*Trichopneutella*)
104, 250, 276

Catalpaphinx (*Ceratoma catalpa*) 9

Cat-facing insect 23, 68, 207, 232, 306,
328, 349, 372, 385, 420, 455, 455, 548,
661, 757, 892, 928, 1085, 1122, 1136

Cat flea (*Ctenocephalides felis*) 46, 1075,
1102, 1118

Cattle biting louse (*Bovicola bovis*) 110,
164, 197, 1104

Cattle grubs (*Hypoderma* sp.) 4, 20, 26,
30, 39, 57, 78, 82, 97, 109, 117, 145,
173, 180, 184, 196, 237, 249, 256,
309, 355, 401, 527, 559, 592, 897,
938, 984, 995, 1014, 1043, 1057, 1070,
1081, 1087, 1089, 1098, 1114, 1123,
1134, 1144, 1146

Cattle lice 4, 20, 26, 30, 40, 43, 57, 71, 76, 97, 105, 117, 145, 157, 164, 173, 180, 197, 227, 237, 249, 271, 286, 293, 333, 355, 430, 916, 998, 1014, 1043, 1053, 1070, 1087, 1098, 1110, 1121, 1132, 1144, 1146, Celery leaf (Udea rubralis) 856
 Celeryworm (Papilio polyxenes asterius) 981
 Chaff scale (Parlatoria perandii) 23, 1030
 Cherry fruit fly (Phaenicia cingulata) 122, 361, 456, 580, 692, 724, 770, 818
 Cherry fruitworm (Grapholita packardii) 662
 Chicken body lice (Menacanthus stramineus) 917, 1118
 Chicken mite (Dermanyssus gallinae) 105, 1118
 Chiggers 105, 256, 625, 672, 702, 800, 1137
 Chinch bugs 22, 28, 49, 69, 84, 94, 100, 106, 150, 178, 232, 233, 261, 321, 341, 358, 366, 411, 445, 478, 497, 509, 540, 571, 605, 628, 632, 657, 694, 716, 749, 753, 867, 871, 905, 924, 975, 1023, 1055, 1079, 1099
 Cicada killer (Sphecius speciosus) 181, 771, 1018
 Cigarette beetle (Lasioderma serricorne) 40, 185, 1121
 Citricola scale (Coccus pseudomagnoliarum) 64, 457, 501
 Citrus blackfly (Aurocanthus woomii) 195, 247, 294, 330, 818, 910, 1010
 Citrus bud mite (Aceria sheldoni) 18, 501
 Citrus mealybug (Pseudococcus citri) 119
 Citrus red yucca (Metatetranychus citri) 3, 18, 23, 42, 194, 224, 247, 306, 349, 421, 729, 458, 501, 816, 1041, 1096
 Citrus rust mite (Phyllocoptes oleovorae) 67, 75, 194, 247, 317, 323, 372, 421, 548, 725, 789, 818, 873, 1041, 1096
 Citrus thrips (Scirtothrips citri) 457, 1062
 Citrus whitefly (Diuraphis citri) 223, 953, 1027, 1076
 Clay-backed cutworm (Arotis gladiaria) 151, 231, 231, 397
 Climbing cutworms 395, 1085
 Clothes moths 26, 1071
 Clover aphid (Anuraphis bakeri) 79, 120, 234, 479, 512, 667, 720, 754, 767, 813, 847, 1144
 Clover cutworm (Scotogramma trifolii) 622, 851
 Clover head caterpillar (Grapholita interstincta) 253
 Clover leafhopper (Cercalialia sannipoliensis) 193, 348, 689
 Clover leaf weevil (Hypera punctata) 7, 22, 49, 142, 150, 153, 169, 181, 193, 222, 234, 267, 271, 280, 304, 326, 345, 370, 379, 389, 417, 451, 479, 541, 577, 703, 767, 847, 1031, 1088
 Clover mite (Bryobia praetiosa) 10, 20, 21, 30, 32, 46, 61, 82, 77, 82, 105, 122, 155, 165, 181, 185, 246, 260, 256, 297, 322, 311, 328, 329, 333, 334, 356, 357, 358, 371, 376, 379, 383, 394, 404, 408, 420, 431, 452, 456, 467, 469, 482, 485, 501, 544, 580, 650, 724, 788, 880, 1029, 1035, 1085, 1088, 1099, 1102, 1119, 1137, 1144, 1146
 Clover root borer (Vastus obscurus) 84, 120, 159, 181, 371, 787, 1009
 Clover root curculio (Sitona hibernica) 16, 28, 79, 120, 159, 171, 181, 222, 234, 267, 281, 289, 302, 327, 345, 370, 389, 417, 451, 500, 511, 576, 659, 787, 815, 962, 1143
 Clover seed chalcid (Bruchophagus gibbus) 28, 61, 69, 182, 500, 561, 889, 721, 785, 815, 999, 1025, 1065
 Clover seed midge (Pezomachus ruficornis) 123
 Clover seed weevil (Microsternus picrostria) 120, 279
 Clover weevils 169, 345, 371, 390, 417, 451, 480, 577
 Cluster fly (Pollenia rudis) 4, 152, 335, 1088, 1099, 1111
 Cockroaches 20, 109, 293, 317, 469, 1088
 Coconut mealybug (Pseudococcus nipae) 95

Cocoon scale (Aspidiotus destructor) 294
 Codling moth (Carpocapsa pomonella) 11, 42, 50, 69, 81, 85, 101, 121, 150, 153, 154, 160, 182, 194, 235, 254, 294, 303, 516, 529, 547, 361, 433, 436, 441, 453, 463, 522, 535, 546, 576, 611, 627, 628, 397, 660, 691, 723, 738, 756, 770, 787, 817, 849, 871, 881, 882, 891, 905, 928, 935, 949, 980, 1010, 1033, 1065, 1101, 1114, 1115, 1134
 Colorado potato beetle (Leptinotarsa decemlineata) 8, 23, 42, 44, 48, 80, 86, 103, 152, 156, 161, 182, 254, 306, 330, 352, 373, 397, 422, 459, 458, 518, 529, 551, 581, 614, 623, 640, 666, 674, 694, 725, 757, 790, 818, 852, 950, 964, 996, 1032, 1120, 1138, 1143, 1148
 Columbian timber beetle (Corthylius columbianus) 735, 968
 Common cattle grub (Hydrophilus lineatus) 67, 71, 164, 227, 377, 625, 1118, 1120, 1138, 1142, 1148
 Conenose bugs (Triatoma spp.) 65, 467, 1064
 Confused flour beetle (Tribolium confusum) 28, 46, 71, 99, 118, 185, 382, 900, 968
 Convergent lady beetle (Hippodamia convergens) 60, 72, 198, 310, 594
 Cooley spruce gall aphid (Chermes cooleyi) 558, 423, 465, 797, 1102
 Corn earworm (Heliothis zea) 6, 8, 11, 22, 23, 26, 42, 44, 47, 48, 49, 50, 61, 62, 68, 69, 78, 84, 100, 102, 103, 106, 107, 113, 115, 150, 156, 158, 172, 179, 182, 183, 232, 233, 235, 236, 254, 257, 265, 274, 289, 294, 331, 327, 328, 337, 417, 423, 437, 450, 508, 540, 575, 594, 607, 628, 633, 652, 657, 661, 673, 685, 703, 717, 738, 750, 770, 781, 801, 812, 831, 845, 851, 871, 881, 882, 886, 890, 904, 924, 928, 944, 950, 955, 958, 970, 975, 981, 989, 1017, 1023, 1031, 1061, 1074, 1085, 1088, 1100, 1101, 1114, 1115, 1116, 1119, 1132, 1133, 1134, 1143
 Cornfield ant (Lasius alienus) 103
 Corn flea beetle (Chaetocnema pulicaria) 6, 84, 156, 189, 232, 282, 300, 412, 446, 497, 540, 674, 717, 751, 865, 1031
 Corn leaf aphid (Rhopalosiphum maidis) 6, 11, 23, 31, 37, 42, 44, 61, 67, 72, 84, 101, 158, 179, 232, 233, 253, 262, 279, 300, 323, 365, 388, 414, 448, 509, 541, 574, 606, 632, 656, 666, 703, 718, 751, 770, 771, 781, 815, 845, 881, 886, 900, 924, 924, 944, 960, 1023, 1031, 1061, 1085, 1143
 Corn root aphid (Anuraphis maidi-radici) 6, 27, 103, 232, 561, 606, 658, 780, 1135
 Corn root webworm (Crambus caliginosellus) 253, 447, 508, 541, 573
 Corn rootworms (Diabrotica spp.) 179, 658, 664, 717, 751, 783, 813, 845, 865, 908, 1074
 Corn sap beetles (Carpophilus spp.) 29, 232, 563, 749, 770, 782, 845, 904, 1135
 Cotton aphid (Aphis gossypii) 24, 67, 103, 108, 162, 236, 291, 317, 360, 445, 801, 876, 951, 997, 1075, 1117, 1133
 Cotton leafworm (Alabama arillacea) 25, 70, 108, 698, 733, 795, 825, 856, 876, 913, 932, 1057, 1133
 Cotton square borer (Strymon melinus) 196, 913, 1120
 Cottony erineum (Dresderus suturalis) 25
 Cotton stem moth (Platyedra viella) 360
 Cottonwood borer (Platycrodera scabator) 670
 Cottonwood leaf beetle (Chrysomela scripta) 30, 215, 258, 403, 1120
 Cottony-cushion scale (Icerya purchasi) 38, 49, 64, 69, 84, 84, 103, 272, 310, 348, 361, 403, 580, 793, 1067, 1062, 1088, 1127
 Cottony maple scale (Pulvinaria numerabilis) 30, 81, 356, 466, 484, 624, 701, 626
 Cowpea aphid (Aphis medicaginis) 53, 158, 280, 360, 379, 416
 Cowpea curculio (Chalcoecyba aeneus) 104, 107, 172, 283, 291, 353, 616,

641, 728, 1012, 1040, 1120
 Cowpea weevil (Callosobruchus maculatus) 98, 928, 1028
 Cranberry fruitworm (Acrobasis vaccinii) 636, 682, 735, 759, 972
 Cranberry cutworm (Rhadotus picipes) 662
 Crane flies 102, 141, 222
 Crickets 87, 181, 686, 780, 889, 897
 Cucumber beetles 550, 770, 792, 823, 874, 894, 1017, 1032, 1068
 Currant aphid (Capitophorus ribis) 517, 580, 1086, 1145
 Currant fruit fly (Epochea canadensis) 421,
 Cutworms 6, 8, 22, 23, 24, 27, 37, 48, 49, 69, 75, 79, 80, 81, 85, 100, 102, 107, 110, 113, 115, 150, 159, 172, 189, 196, 234, 244, 247, 248, 253, 254, 257, 262, 270, 282, 284, 302, 305, 309, 317, 322, 327, 332, 345, 363, 366, 374, 378, 388, 397, 400, 416, 422, 425, 427, 449, 460, 463, 464, 483, 488, 489, 500, 519, 528, 545, 546, 556, 572, 583, 589, 606, 621, 627, 636, 643, 688, 701, 719, 734, 746, 822, 853, 874, 949, 1007, 1031, 1032, 1079, 1100, 1114, 1115, 1137, 1139, 1133, 1135
 Cyclamen mite (Stenotarsonemus pallidus) 67, 86, 255, 285, 462, 502, 647, 666, 729, 767, 931

D

Damsel bug (Nabis spp.) 198, 310, 496, 530
 Darkling beetles 115, 172, 224, 1026
 Date mite (Oligonychus pratensis) 120, 367, 478, 541
 Deer flies 276, 1120, 1114, 1118
 Dermestids 82, 165, 180, 310, 334, 357, 763, 935, 998, 1014, 1043, 1098, 1129, 1149
 Desert corn flea beetle (Chaetocnema ectypa) 82
 Desert locust (Schistocerca gregaria) 293, 360,
 Diamondback moth (Plutella maculipennis) 43, 78, 80, 95, 115, 161, 233, 373, 497, 585, 617, 728, 1145
 Dictyosporum scale (Chrysomphalus dictyosporus) 391
 Differential grasshopper (Melanoplus differentialis) 1133
 Dingy cutworm (Feltia subrotunda) 151, 231, 265, 388, 924, 1135
 Dog flea (Ctenocephales canis) 46, 390, 1076, 1102, 1114, 1118
 Dogwood borer (Thamnosphenia scutella) 933
 Dogwood twig borer (Obrexia tripunctata) 828, 919
 Douglas-fir beetle (Dendroctonus pseudotsugae) 203, 205, 208, 209, 1088, 1144
 Douglas-fir tussock moth (Homocampa pseudotsugata) 208, 797, 823
 Dried-fruit beetle (Carpophilus hemipterus) 672, 909, 1132
 Dried-store beetle (Stegophilus banicorum) 118
 Dusky sap beetle (Carpophilus lugubris) 658, 750, 1031
 Dutch elm disease 652

E

Ear tick (Otobius megnini) 26, 30, 71, 1043, 1058, 1081, 1087
 Earwigs 258, 879, 917, 1018
 Eastern lubber grasshopper (Romalea microptera) 377
 Eastern spruce gall aphid (Chermes abietis) 557
 Eastern subterranean termite (Reticulitermes flavipes) 250, 404, 430, 483, 497, 1103
 Eastern tent caterpillar (Malacosoma americanum) 4, 43, 45, 119, 111, 122, 151, 152, 153, 184, 195, 246, 256, 270, 273, 285, 306, 329, 348, 356, 376, 379, 402, 420, 466, 484, 493, 496, 516, 525, 567, 623, 1094, 1100, 1111
 Eggplant flea beetle (Epiditrix fuscula) 103
 Eggplant lace bug (Garniphysa solani) 103

* Cotton fleashoppers - 24, 108, 231, 332, 375, 400, 427, 492, 524, 528, 594, 796, 1133
 Cotton leaf perforator (Eucallitrus uberrimella) 19, 64, 589, 732, 674, 795, 826, 856, 881, 896, 913, 966, 1061, 1063

Egyptian alfalfa weevil (*Hypa*
brunnescens) 55, 60, 236, 347
Eight-spotted forester (*Allypia*
scotomaculata) 725
Elm calligrapha (*Calligrapha scalaris*)
71, 857
Elm leaf aphid (*Myzocallis ulmifolii*)
71, 700, 829, 1002
Elm leaf beetle (*Galericula*)
xanthomelaena 9, 64, 67, 81, 87, 103,
152, 162, 184, 227, 228, 237, 357, 402,
404, 430, 465, 469, 493, 497, 503,
525, 557, 561, 624, 635, 647, 652,
670, 689, 726, 735, 765, 768, 823,
858, 877, 914, 933, 966, 1034, 1064,
1069, 1102, 1103, 1118, 1120
Elm leaf miner (*Fenusa ulmi*) 700
Elm sawfly (*Cimbex americana*) 45,
557, 561
Elm tree borer (*Saperda tridentata*) 30
Elongate flea beetle (*Systena elongata*)
101, 461
Engelmann spruce beetle (*Dendroctonus*
engelmanni) 205, 207, 208,
209
European grain aphid (*Macrosiphum*
granarium) 7, 15, 29, 31, 37, 40, 42,
44, 61, 69, 78, 120, 158, 179, 233, 254,
261, 275, 300, 341, 365, 388, 414, 477,
500, 510, 606, 658, 751, 783, 1061,
1145
Engraver beetles 25, 104, 699, 967,
1104
Eriophid mites 37, 122, 197, 224, 598,
967, 1039, 1056, 1120
Euonymus scale (*Unaspis euonymi*) 86
Euonymus 249, 359, 915, 933, 1014, 1015,
1017, 1089
European apple sawfly (*Hoplacampa*
tesudinea) 153, 454, 484, 516, 579,
612, 652
European chafer (*Amphimallon majalis*)
541, 561, 632
European corn borer (*Pyrausta nubilalis*)
6, 9, 15, 29, 42, 44, 53, 66, 84, 106,
150, 156, 159, 179, 182, 185, 231,
252, 259, 267, 268, 374, 300, 317,
322, 341, 362, 379, 393, 411, 441,
443, 450, 475, 487, 497, 507, 528,
536, 562, 571, 593, 604, 612, 614,
627, 628, 631, 652, 655, 664, 673,
694, 694, 703, 716, 735, 747, 77,
78, 79, 79, 81, 82, 82, 83, 83, 83, 867,
877, 900, 903, 913, 923, 931, 935,
936, 943, 955, 959, 970, 976, 985,
991, 999, 1007, 1015, 1017, 1023,
1031, 1033, 1055, 1074, 1075, 1079,
1088, 1095, 1100, 1101, 1119, 1134,
1143, 1145, 1146
European earwig (*Forficula auricularia*)
81, 82, 151, 358, 378, 488, 494, 529,
559, 592, 624, 661, 650, 672, 702,
737, 769, 801, 817, 861, 869, 909,
935, 950, 1071, 1087, 1098, 1103
European elm scale (*Gaenysarva spuria*)
30, 180, 237, 309, 356, 406, 531, 647,
699, 735, 765, 877, 952, 1144
European fruit lecanium (*Lecanium corni*)
152, 151, 153, 155, 223, 256, 378
European hornet (*Vespa crabro germana*)
105, 258, 560
European pine sawfly (*Neodiprion sertifer*)
86, 276, 382, 402, 828
European pine shoot moth (*Rhyacionia buoliana*)
152, 153, 155, 157, 382, 402, 427,
493, 558, 622, 648, 868
European red mite (*Metatetranychus ulmi*)
9, 42, 81, 85, 87, 102, 121, 151, 153,
154, 155, 160, 182, 194, 195, 254, 282,
455, 315, 316, 328, 347, 371, 379,
393, 423, 453, 484, 515, 547, 578,
673, 703, 723, 756, 770, 788, 801,
817, 861, 900, 928, 1100, 1136
European spruce sawfly (*Diprion hercyniae*)
928
European wheat stem sawfly (*Cephus ymaeus*)
7, 150, 445
Eye gnats
65, 467, 1064, 1118
Eye-spotted bud moth (*Spilonota ocellana*)
42, 121, 151, 153, 155, 232, 343,
454, 612, 963, 995

605, 695, 679, 687, 703, 720, 739,
770, 771, 783, 812, 844, 853, 865,
862, 898, 905, 918, 927, 931, 936,
944, 969, 975, 991, 999, 1007,
1023, 1031, 1039, 1067, 1074, 1119,
1123, 1135
Fall cankerworm (*Alphopha pometaria*)
153, 163, 183, 184, 232, 333, 465,
827, 1137
Fall webworm (*Hyphantria cunea*) 9, 10,
45, 67, 81, 256, 258, 290, 292,
457, 458, 547, 591, 622, 638, 652,
662, 679, 689, 695, 733, 798, 827,
859, 872, 877, 892, 998, 916, 928,
933, 949, 952, 983, 995, 1017,
1028, 1034, 1034, 1111, 1114, 1119, 1120,
1143
False chinch bugs (*Nysius spp.*) 18, 53,
70, 95, 115, 143, 172, 224, 328,
331, 421, 460, 576, 585, 617, 628,
719, 891, 905, 1120
False wireworms 22, 24, 28, 179, 262,
344, 367, 388, 414, 464, 478, 959,
1138, 1145
Field cricket (*Acheta assimilis*) 65, 269,
414, 583, 755, 879, 893, 917, 945,
970, 1028, 1040, 1059, 1064
Fig scale (*Lepidosaphes ficus*) 465, 503
Fibret bud moth (*Phytophtho aevellana*)
92, 929
Fibret leaf roller (*Archips rosana*) 1126
Fibretworm (*Melissopus latiferraneus*)
725
Fir engraver (*Scolytus ventralis*) 204,
210
Fir needleminer (*Epinotia meritana*) 207
Flannel moths 998
Flat grasshopper 21, 25, 71, 119, 146,
190, 198, 238, 378, 1071
Flat-headed apple tree borer (*Chrysobothris femorata*) 235, 237,
475
Flea beetles 8, 32, 39, 45, 80, 100, 102,
151, 161, 162, 172, 234, 253, 257,
291, 322, 351, 352, 397, 406, 424,
459, 469, 490, 492, 511, 519, 524,
555, 556, 581, 589, 617, 619, 643,
694, 728, 734, 782, 813, 818, 853,
950, 1014, 1017, 1086, 1117, 1135,
1148
Fleashoppers 70, 555, 464, 556, 588, 621,
643, 669, 698, 732, 763, 771, 826,
877
Fleas 26, 105, 152, 164, 293, 527, 592,
648, 672, 737, 879, 917, 1014,
1018, 1089, 1100, 1137
Fleeceworms 28
Flies 57, 58, 65, 109, 117, 933, 429,
467, 527, 558, 592, 625, 627, 669,
935, 1068
Florida red scale (*Chrysomphalus*
acidum) 3, 75, 194, 247, 306, 316,
348, 318, 879, 1041, 1086
Florida wax scale (*Ceroplastes floridensis*)
144, 249, 948, 1122
Flour beetles 68, 180, 198, 238
Flower thrips (*Frankliniella tritici*) 86,
163, 490
Forest scale (*Aspidiotus forbesi*) 194,
235, 579, 838, 1114
Forbes scale caterpillar (*Malacosoma*
distria) 194, 210, 217, 255, 273, 275,
389, 402, 466, 493, 525, 530, 623,
648, 869, 694, 1100, 1144, 1145
Four-lined plant bug (*Poecilocarsus*
lineatus) 696, 767
Four-spotted tree cricket (*Oecanthus*
nitricornis quadripunctatus) 102, 648
Foxglove (*Arum persicicum*) 485
Foxglove aphid (*Myzus solani*) 42
Fruit tree leaf roller (*Archips*
aryrosipala) 153, 254, 454, 484,
Fruit tree leafrollers 516, 561
Fruit worms (*Grapholitha sp.*) 153, 184
Fuller rose beetle (*Pantomorus podmani*)
3, 99, 171, 289, 928
Fungus beetles 21, 25, 82, 185, 1014

Garden weaver (*Loxosteles similis*)
20, 28, 178, 237, 528, 545, 577, 594, 610,
640, 719, 749, 770, 787, 801, 815,
848, 947, 1056, 1133
German cockroach (*Blattella germanica*)
105, 165, 1114, 1118
Giant hornet (*Vespa crabro germana*)
163, 165, 409, 915, 987, 983, 1018,
1114, 1118
Glassy cutworm (*Crymodes devastator*)
121, 445
Gloomy scale (*Chrysomphalus*
tenuirostris) 183
Glover scale (*Lepidosaphes gloveri*)
361
Golden tortoise beetle (*Metriona bicolor*)
39, 617
Grain beetles 238, 737, 934
Granny weevil (*Sitophilus granarius*) 82,
118, 180, 361, 880
Granulate cutworm (*Feltia subterranea*)
48
Grass berry moth (*Paralobos vitanae*)
15, 250, 497, 613, 758, 348, 1036
Grape colaspis (*Colaspis sp.*) 66, 101,
183, 718
Grape flea beetle (*Aaltica chalybea*) 183
Grape leaf folder (*Desmia funerals*) 909
Grape leafhopper (*Scaphocephalus*) 302, 979
Grape leaf skeletonizer (*Harrisina*
americana) 725, 980
Grape mealybug (*Pseudococcus maritimus*)
54, 349, 458, 502, 725
Grape phylloxera (*Phylloxera vitifoliae*)
151, 236, 318, 725, 738
Grapevine aphid (*Aphis illoisensis*) 758
818, 1033
Grasshoppers 71, 11, 22, 24, 27, 32, 43,
48, 61, 62, 69, 70, 78, 84, 86, 100, 101,
102, 107, 121, 152, 160, 162, 178,
180, 231, 232, 238, 239, 239, 239,
252, 273, 290, 300, 322, 341, 358,
366, 387, 399, 406, 411, 443, 475,
497, 500, 507, 525, 528, 539, 554, 561,
572, 589, 594, 603, 622, 625, 631,
645, 652, 656, 656, 673, 674, 683,
696, 703, 715, 724, 727, 733, 747,
758, 791, 771, 779, 769, 793, 811,
824, 831, 843, 867, 881, 887, 898,
903, 911, 923, 930, 943, 955, 959,
970, 979, 980, 991, 1007, 1023, 1031,
1032, 1032, 1055, 1061, 1067, 1084,
1132, 1143, 1145, 1148
Great Basin tent caterpillar (*Malacosoma*
fragilis) 209
Great Basin wireworm (*Ctenicera pruinosa*)
367, 445
Greater wax moth (*Galleria mellonella*)
1059
Greedy scale (*Aspidiotus camelliae*) 117,
226
Greenbug (*Toxoptera graminum*) 22, 31,
37, 40, 42, 44, 55, 69, 93, 101, 119,
141, 169, 179, 186, 221, 223, 243,
261, 279, 299, 321, 341, 365, 387,
414, 445, 477, 511, 574, 975, 1079,
1125, 1132
Green cloverworm (*Plathypena scabra*) 2,
8, 101, 106, 107, 142, 169, 193, 983, 778,
235, 246, 257, 281, 327, 346, 452,
542, 609, 634, 659, 664, 693, 755,
760, 791, 814, 848, 852, 927, 948,
994, 1032
Green-striped cutworm (*Trialeurodes*
vanoparicum) 57, 110, 420
Green June beetle (*Cotinus nitida*) 49,
154, 169, 236, 332, 354, 462, 711,
729, 735, 755, 758, 768, 817, 823,
850, 905, 945, 977, 937, 1015, 1079
Green peach aphid (*Myzus persicae*) 38, 58
Green tree leaf roller (*Archips*
aryrosipala) 153, 254, 454, 484,
269, 282, 194, 224, 246, 254, 267,
269, 283, 291, 307, 311, 331, 348,
373, 374, 375, 396, 399, 406, 419,
424, 424, 450, 463, 464, 490, 503,
501, 534, 646, 552, 576, 522, 580,
616, 618, 667, 658, 726, 793, 822,
823, 857, 893, 910, 995, 1056, 1062,
1114, 1116, 1126, 1135
Green stink bug (*Acrosternum hilare*)
893
Green-striped mapleworm (*Anisota*
rubicunda) 30, 180, 237, 647, 670, 703,
765, 933, 1034
Ground beetles 165, 184, 378
Ground mealybug (*Rhizococcus albifer*) 120
Ground pearls 280, 479, 977, 1119
Gulf Coast tick (*Amblyomma maculatum*)
1121

G

F
Fall armyworm (*Laphygma frugiperda*)
6, 22, 28, 49, 51, 65, 100, 150, 151,
180, 179, 232, 262, 289, 447, 542,

G
Gall insects 45
Garden fleashopper (*Halticus bracteatus*)
263, 616, 797, 932, 347
Garden slugs 45, 82, 110, 153
Garden springtail (*Bourletiella hortensis*)
331, 373, 423, 497, 1123
Garden sphynid (*Scutigerella*
immaculata) 565, 729, 993

Gulf wireworm (*Conoderus amplicollis*) 48
Gypsy moth (*Porthetria dispar*) 43, 148, 212, 217, 258, 273, 382, 402, 465, 493, 580, 622, 765, 797, 828, 918, 952, 1017, 1069, 1100, 1102

H

Hackberry nipple gall (*Pachynsilla velidisa-mamma*) 183, 893
Hairy chinich bug (*Hissus leucopertus hirtus*) 716
Hall scale (*Niilotopsis halli*) 1096
Harlequin bug (*Murgantia histrionica*) 23, 103, 224, 303, 373, 549, 622, 617, 642, 685, 753, 930, 948, 955, 996, 1120

Hawthorn lace bug (*Corythucha cydoniae*) 76, 1011
Head louse (*Pediculus humanus capitis*) 104
Heel flies 71, 82
Hemispherical scale (*Saissetia hemisphaerica*) 406
Hemlock sawfly (*Neodiprion tsugae*) 218
Hemlock scale (*Aspidiotus thysanota*) 646
Hemlock fly (*Chrysobothris descurviata*) 7, 69, 150, 169, 170, 233, 300, 686, 869, 905

Hickory bark beetle (*Scolytus quadripinosus*) 215
Hickory shuckworm (*Caseyrevia caryana*) 23, 104, 194, 292, 1132
Hickory tussock moth (*Haliasturata caryae*) 725, 1034
Hide beetle (*Dermestes maculatus*) 164
Hog lice 157, 271, 1014, 1087
Hog mange mite (*Sarcoptes scabiei* spp.) 157
Holly leaf miner (*Phytomyza* spp.) 10, 164, 285, 428, 967

Honey bee (*Apis mellifera*) 105, 174, 404, 468, 522, 627
Horn aphid (*Phorodon humuli*) 760
Hop flea beetle (*Psyllodes punctulata*) 460
Horned squash bug (*Anasa armigera*) 8, 641, 723
Horn fly (*Phosphoria irritans*) 26, 30, 46, 50, 87, 71, 104, 157, 184, 181, 237, 273, 286, 293, 306, 377, 467, 495, 497, 558, 592, 625, 648, 672, 701, 703, 736, 768, 799, 829, 879, 897, 916, 953, 998, 1043, 1075, 1087, 1089, 1114, 1118, 1144

Hornworms (*Protoparce* spp.) 45, 49, 63, 102, 107, 151, 157, 161, 162, 291, 426, 459, 463, 490, 521, 552, 582, 585, 628, 640, 643, 664, 666, 694, 695, 726, 730, 759, 781, 770, 790, 793, 822, 823, 851, 897, 973, 975, 993, 912, 1021, 1028, 1135
Horse flies 50, 67, 105, 160, 273, 276, 495, 527, 1114, 1118
House cricket (*Acheta domestica*) 294, 405, 1103
House fly (*Musca domestica*) 10, 26, 30, 43, 45, 57, 71, 105, 145, 157, 164, 173, 181, 184, 227, 271, 273, 276, 292, 317, 377, 495, 648, 736, 800, 880, 1074, 1075, 1087, 1088, 1093, 1102, 1118, 1134, 1137

I

Imbricated snout beetle (*Epicauerus imbricatus*) 181, 389
Imported carabean weevil (*Pisaris ramea*) 42, 48, 80, 86, 103, 151, 156, 160, 160, 182, 247, 254, 263, 283, 306, 330, 351, 373, 397, 424, 460, 488, 519, 549, 617, 727, 759, 792, 852, 874, 894, 911, 930, 965, 1101, 1118, 1149
Imported currantworm (*Nematus sabesius*) 45
Imported fire ant (*Solenopsis saevissima richteri*) 1121
Imported willow leaf beetle (*Plagioderia versicolora*) 647, 701, 900, 1102
Indian-meal moth (*Plodia interpunctella*) 21, 25, 33, 119, 148, 180, 238, 292, 378, 768, 882, 954, 968, 1014, 1076, 1111, 1121, 1142
Insidious flower bug (*Orius insidiosus*) 255, 623, 857, 968

Io moth (*Automeris io*) 917
Ips beetles 19, 25, 39, 162, 226, 465, 467, 898, 914, 952, 997, 1042, 1057, 1098, 1134
Iris borer (*Macronoctua onusta*) 878
Iris whitefly (*Aleyrodes spiraeoides*) 315
Italian pear scale (*Epidiaspis picicola*) 223
Itch mites 1070

J - K

Jack-pine budworm (*Choristoneura pinus*) 210, 255, 275, 382, 590, 622, 645, 669, 699, 734, 797
Japanese beetle (*Pontania japonica*) 7, 8, 9, 10, 84, 101, 159, 182, 183, 257, 273, 457, 517, 526, 558, 591, 628, 647, 657, 671, 686, 692, 701, 702, 730, 735, 738, 755, 765, 782, 789, 793, 801, 817, 829, 850, 859, 886, 878, 911, 933, 953, 960, 985, 1002, 1031, 1032, 1089, 1100, 1101, 1102, 1137
Jeffrey pine beetle (*Dendroctonus jeffreyi*) 203
Juniper beetles 395, 421, 757, 872
Juniper scale (*Diapsis carueli*) 81, 86, 270, 465
Juniper webworm (*Dichomeris marjanelina*) 144, 183, 358
Kharpis beetle (*Protoparce granarium*) 58, 64, 80, 286, 310, 381, 498, 500, 673, 880, 897, 1014, 1081, 1111, 1128
Klamath weed beetles (*Chrysolina* spp.) 357, 463, 496, 504, 900, 1093

L

Lace bugs 45, 100, 105, 163, 291, 316, 370, 799, 875, 958, 933, 1118
Lacewing 20, 46, 50, 70, 72, 497, 594, 769, 917, 954
Lady beetles 3, 20, 40, 46, 57, 58, 78, 80, 105, 165, 198, 227, 253, 334, 377, 404, 430, 468, 496, 497, 522, 559, 564, 570, 768, 850, 872, 917, 820, 985, 999, 1015, 1029, 1081, 1121
Larch casebearer (*Coleophora laricella*) 212, 276, 382
Larch sawfly (*Pristiphora erichsoni*) 211, 255, 276, 382, 525, 556, 669, 699, 734, 797, 825, 897, 916
Larder beetle (*Dermestes lardarius*) 46, 164, 955
Large aspen tortrix (*Archips confictana*) 647
Large chicken louse (*Gonolodes nigus*) 1110
Larva crumpler (*Acrobasis indigenella*) 1070
Leaf-footed bugs 23, 422, 612, 616, 823, 929, 1075, 1120
Leafhoppers 15, 29, 89, 91, 83, 100, 101, 142, 171, 182, 193, 231, 246, 261, 269, 291, 294, 302, 328, 346, 360, 395, 416, 449, 482, 484, 497, 513, 529, 551, 579, 583, 616, 628, 640, 664, 673, 694, 718, 729, 738, 754, 770, 785, 799, 797, 817, 820, 874, 892, 911, 926, 931, 933, 945, 965, 981, 999, 1011, 1015, 1042, 1055, 1074, 1085, 1088, 1107, 1148
Leaf miners 22, 24, 48, 63, 64, 95, 154, 160, 182, 244, 296, 257, 400, 420, 452, 463, 477, 498, 545, 550, 555, 585, 606, 666, 686, 720, 798, 851, 893, 928, 951, 981, 996, 1017, 1062, 1097, 1133, 1144
Leaf rollers 19, 21, 25, 53, 63, 64, 81, 122, 247, 302, 330, 429, 525, 542, 557, 617, 679, 689, 613, 693, 697, 728, 738, 799, 855, 877, 881, 913, 915, 949, 1063, 1110, 1127
Leopard moth (*Zeuzera pyrina*) 316
Lepedeza webworm (*Tetralopha scortchiae*) 229, 891, 928, 1009, 1114, 1115
Lesser bulb fly (*Emerus tuberculatus*) 144
Lesser clover leaf weevil (*Hypera nigrostris*) 7, 23, 79, 84, 150, 174, 181, 222, 234, 267, 326, 345, 370, 890, 415, 450, 480, 497, 511, 528, 543, 561, 577, 607, 689, 754, 1031, 1135

Lesser cornstalk borer (*Elasmopalpus lignosellus*) 22, 49, 61, 101, 172, 239, 290, 292, 398, 476, 503, 528, 541, 575, 606, 658, 717, 738, 751, 750, 845, 887, 899, 933, 938, 930, 944, 981, 1040, 1041, 1061, 1074, 1080, 1114, 1115, 1116, 1119, 1132
Lesser grain borer (*Rhyzopertha dominicalis*) 21, 25, 38, 118, 119, 180, 196, 250, 292, 537, 1014, 1098
Lesser peach tree borer (*Cynanthus pictipes*) 23, 67, 107, 151, 155, 290, 348, 681, 1132
Letuce aphids 18, 80, 115, 503, 853
Lice 103, 117, 197, 468, 1089
Lima-bean pod borer (*Etella zinckenella*) 985, 1042
Linden looper (*Erannia tiliraria*) 184
Little carpenterworm (*Pteronoxystus macmurtrei*) 236
Little house fly (*Fannia canicularis*) 1093, 1128
Locust borer (*Megacyllene robiniae*) 766
Locust leaf miner (*Chalepus dorsalis*) 184, 670, 700, 735, 738, 766, 828, 878, 916, 955, 1034, 1089, 1102, 1143
Locust twig borer (*Ecdytolopha insuliciana*) 859, 1034
Lodgepole needleminer (*Recurvaria milleri*) 202
Long star tick (*Amblyomma americanum*) 10, 71, 97, 197, 271, 495, 702, 768, 799, 1121
Long-horned grasshoppers 730, 761
Long-nosed cattle louse (*Lincognathus vituli*) 71, 110, 164, 197, 1120, 1143
Loopers 10, 18, 47, 291, 588, 591, 634, 643, 791
Luna moth (*Actias luna*) 859
Lupine maggot (*Hylemyia lupini*) 193, 289

Lynx bugs 22, 34, 53, 61, 64, 79, 157, 327, 368, 376, 397, 406, 416, 449, 480, 481, 501, 544, 554, 610, 616, 622, 698, 729, 732, 754, 763, 790, 802, 826, 833, 855, 876, 881, 896, 907, 926, 932, 947, 933, 1025, 1061, 1082, 1083, 1084, 1086, 1145

M

Magnolia scale (*Neolecanium cornutum*) 1103
Maize billbug (*Calendula maidis*) 27, 101, 1074
Mange mites 26
Manitids 258, 273
Maple leaf miner (*Paraclemensia acerifoliata*) 273, 965, 1100, 726
Marjined blister beetle (*Epicauta pestifera*) 819
May beetles (*Phyllophaga* spp.) 623, 718
Mayflies 496
Meadow plant bug (*Leptoternus dolabratus*) 121, 451, 1022
Meadow spittlebug (*Philaenus leucophthalmus*) 7, 9, 15, 42, 84, 110, 120, 150, 159, 181, 183, 273, 275, 304, 305, 327, 346, 483, 493, 398, 415, 425, 451, 482, 513, 544, 552, 576, 609, 627, 635, 659, 689, 755, 786, 945, 962, 977, 995, 1031, 1088, 1135
Meal moth (*Cyralis sabiosii*) 1059
Mealworms 91, 190, 238, 393, 574, 623, 914, 917, 953, 1007, 1086
Mediterranean flour moth (*Anagasta kuhniella*) 954, 1058
Mediterranean fruit fly (*Ceratopsia capitata*) 110, 317, 350, 324, 321, 437, 458, 475, 548, 580, 639, 663, 692, 726, 758, 818, 830, 892, 963, 995, 1025, 1080
Melon aphid (*Aphis gossypii*) 29, 63, 70, 234, 647, 374, 532, 695, 728, 760, 910, 956, 1024
Melon fly (*Dacus curcurbitae*) 792, 853, 934, 910, 951, 1028, 1096, 1118, 1127
Melonworm (*Diaphania hyalinata*) 268
Mexican bean beetle (*Ephialtes variatoris*) 3, 12, 24, 43, 48, 86, 95, 101, 102, 156, 167, 181, 182, 257, 273, 275, 284, 289, 291, 368, 416, 423, 487, 514, 518, 550, 561,

561, 616, 627, 628, 641, 665, 674, 675, 759, 782, 852, 873, 893, 900, 950, 992, 996, 1015, 1017, 1032, 1074, 1075, 1086, 1101, 1116, 1120, 1136, 1143

Mexican fruit fly (*Anastrepha ludens*) 115, 349, 486, 545, 662, 818, 1010, 1068, 1120

Midges 43, 82, 102, 256, 330, 324, 354, 401, 627, 769, 830, 1014, 1017, 1033

Millipedes 100, 879, 1015, 1071, 1082

Mimosa webworm (*Homadaula albizziae*) 9, 49, 168, 237, 624, 670, 700, 736, 766, 798, 859, 878, 915, 933, 967, 983, 1034, 1089, 1120

Mites, 37, 45, 54, 60, 62, 63, 75, 76, 78, 66, 86, 95, 105, 108, 122, 222, 284, 285, 294, 307, 328, 383, 393, 406, 457, 528, 558, 576, 625, 670, 700, 719, 736, 785, 799, 861, 882, 991, 997, 1012, 1017, 1034, 1082, 1083, 1091, 1085, 1087, 1101, 1144, 1146

Mole crickets 93, 102, 144, 196, 317, 248

Mormon cricket (*Anabrus simplex*) 78, 121, 322, 641, 897, 443, 507, 541, 574, 634, 658, 674, 749, 750, 887, 1007, 1084, 1143

Mosquitoes 31, 43, 45, 67, 71, 104, 109, 110, 152, 164, 173, 185, 249, 256, 273, 276, 355, 401, 430, 467, 495, 525, 528, 558, 592, 625, 646, 672, 702, 703, 736, 788, 799, 830, 859, 878, 897, 900, 916, 934, 953, 968, 984, 998, 1027, 1043, 1058, 1070, 1075, 1087, 1102, 1114, 1118, 1135, 1144 1144

Mountain-ash sawfly (*Pristiphora geniculata*) 623

Mountain pine beetle (*Dendroctonus monticolae*) 203, 205, 207, 210, 252, 1087, 1144

Mourning-cloak butterfly (*Nymphalis antiopa*) 829, 1148

Mulberry whitefly (*Tetraleurodes mori*) 429

N

Nantucket pine moth (*Rhyacionia frustana*) 30, 108, 162, 184, 214, 237, 292, 428, 590, 622, 738, 952, 966, 983, 1034, 1137

Narcissus bulb fly (*Lampetia aequistris*) 997

Native elm bark beetle (*Hylurgopinus rufipes*) 333, 356

Native holly leaf miner (*Phytomyza ilicicola*) 646, 1034

navel orangeworm (*Paramyeloides venipars*) 502

Nitidulids 66, 87, 223, 347, 353, 374, 398, 462, 452, 490, 720, 754

Northern sawyer (*Monochamus notatus*) 769, 900

Northern cork rootworm (*Diabrotica longicornis*) 27, 84, 232, 253, 703, 751, 900

Northern fowl mite (*Bteliolusys sylvarum*) 105, 152, 1118, 1128

Northern masked chaffer (*Cylocephala borealis*) 945, 1040

Northern mole cricket (*Grylloblatta hexadactyla*) 970, 1103

Norway-minor aphid (*Periphyllus lyropictus*) 31, 456, 625, 701, 735, 766, 829

No-see-ums 1103

O

Oak galls 1114, 1118

Oak lace bug (*Corythucha arcuata*) 670, 735, 765

Oak timberworm (*Arrhenodes minutus*) 236

Oak twig pruners 237, 827, 831

Oblique-banded leaf roller (*Archips rosaceana*) 353, 421, 485

Obscure scale (*Chrysomphalus obscurus*) 223, 265, 967

Old house borer (*Hylotrupes hajulus*) 4, 40, 118, 152, 185, 258, 430, 496,

879, 954, 1044, 1071, 1103

Cleander scale (*Aspidiotus hederace*) 54, 223, 456

Olive fruit fly (*Dacus oleae*) 316, 1010

Olive scale (*Parlatoria oleae*) 54, 66, 115, 223, 318, 349, 361, 456, 466, 503, 724, 1126

Omnivorous leaf tier (*Cnephasia longana*) 120, 122, 425, 452, 520, 585

Onion maggot (*Delia antiqua*) 79, 91, 110, 158, 277, 379, 396, 425, 461, 489, 518, 550, 583, 618, 666, 695, 730, 760, 791, 823, 853, 923, 996, 1011

Onion thrips (*Thrips tabaci*) 9, 15, 23, 46, 85, 97, 115, 257, 289, 283, 317, 352, 461, 511, 583, 618, 666, 695, 728, 791, 823, 853, 874, 1017, 1133

Orange-dog (*Papilio cresphontes*) 26, 914, 916, 932, 952, 986, 1034, 1102

Orange-striped oakworm (*Anisota senatoria*) 26, 914, 916, 932, 952, 986, 1034, 1102

Orange tortrix (*Argyrotaenia citrana*) 32, 225, 249, 502, 695

Orchard mites 85, 194, 195, 223, 305, 329, 347, 348, 371, 395, 453, 611, 638, 662, 691, 723, 738, 756, 788, 817, 831, 850, 891, 900, 909, 928, 963, 980, 994, 1033, 1136

Oriental cockroach (*Blatta orientalis*) 165

Oriental fruit moth (*Grapholitha molesta*) 9, 81, 86, 101, 107, 151, 155, 236, 282, 419, 456, 465, 502, 517, 545, 579, 611, 628, 637, 661, 692, 703, 724, 758, 770, 789, 823, 945, 980, 1033, 1115, 1131, 1136

Oystershell scale (*Lepidosaphes ulmi*) 30, 43, 101, 154, 163, 254, 310, 466, 494, 526, 915, 1146

P

Painted leafhopper (*Enndria inimica*) 28, 416

Pale-striped cutworm (*Agrotis malefida*) 101

Pale-striped flea beetle (*Systema blanda*) 664, 693, 726, 759

Pale tussock moth (*Halictoides tessellaria*) 832

Pale western cutworm (*Agrotis orchonoga*) 26, 32, 300, 342, 365, 445, 514, 1145

Pales weevil (*Hylobius pales*) 19, 25, 152, 162, 214, 226, 270, 355, 590, 622, 1033

Parsnip webworm (*Depressaria heracliana*) 153

Pavement ant (*Tetramorium caespitum*) 58, 311

Pea aphid (*Macrosiphum pisi*) 7, 8, 11, 22, 27, 42, 60, 65, 79, 84, 83, 101, 120, 151, 157, 158, 160, 170, 178, 182, 199, 222, 228, 234, 248 253, 254, 264, 275, 280, 301, 323, 344, 369, 378, 390, 398, 406, 416, 424, 448, 461, 480, 487, 497, 500, 512, 518, 528, 543, 550, 562, 575, 585, 595, 609, 618, 636, 641, 660, 688, 721, 752, 785, 815, 848, 861, 870, 881, 907, 926, 935, 945, 960, 970, 977, 992, 1008, 1025, 1031, 1032, 1040, 1055, 1061, 1062, 1067, 1104, 1107, 1135, 1143

Pea leaf weevil (*Sitona lineata*) 120, 353, 370, 424, 631

Pea moth (*Laspesyria nigricana*) 930

Pea weevil (*Bruchus pisorum*) 22, 91, 104, 157, 185, 422, 561, 616

Peach silver mite (*Vasates cornutus*) 329, 348, 395, 547, 789, 1085

Peach tree borer (*Sannioidea exitiosa*) 239, 35, 70, 81, 102, 107, 155, 236, 238, 365, 637, 692, 757, 963, 1075, 1085, 1114, 1115, 1137, 1138

Peach twig borer (*Anarsia lineatella*) 23, 122, 246, 396, 502, 579, 724, 892, 1033, 1132

Pear leaf blister mite (*Eriophyes pyri*) 121, 305, 379, 415, 547, 712, 861, 691, 757, 892, 928, 1010, 1085

Pear midge (*Contarinia pyrivora*)

154, 406, 455

Pear psylla (*Psylla pyricola*) 121, 154, 246, 282, 305, 315, 372, 379, 419, 455, 485, 502, 545, 594, 612, 637, 661, 724, 757, 949, 995

Pear rust mite (*Eupitimerus pyri*) 122

Pear-slug (*Calliroa cerasi*) 81, 121, 612, 661, 724, 758, 770, 785, 859, 872, 892, 903, 948, 995, 1095

Pear thrips (*Taeniothrips inconspicua*) 81, 222, 305, 330, 348

Pecan bud moth (*Gretchenia bolliana*) 23, 485, 1119

Pecan leaf casebearer (*Acrobasis juglandis*) 330, 457

Pecan nut casebearer (*Acrobasis caryae*) 23, 268, 282, 292, 330, 336, 457, 485, 517, 547, 580, 612, 638, 785, 872, 909, 963, 1132

Pecan phylloxera (*Phylloxera devastatrix*) 23, 485, 1119

Pecan weevil (*Curculio caryae*) 69, 76, 135, 288, 292, 909, 980, 1066, 1116

Pentatomids 1120

Pepper maggot (*Zonosemata ejecta*) 750, 771, 791, 818, 853, 1114, 1116

Pepper weevil (*Anthonomus eugeni*) 1011

Periodical cicada (*Magicicada septendecim*) 559, 580, 612, 648, 662

Pharaoh ant (*Monomorium pharaonis*) 43, 276

Pinkworm (*Dianthana nitidula*) 48, 49, 161, 231, 760, 874, 1080, 1116, 1120

Pillbugs 311

Pine bark aphid (*Pinus strobi*) 26, 116, 144, 493, 590, 624, 646, 797 1118

Pine chafer (*Anomala olivaria*) 646

Pine colaspis (*Colaspis pini*) 215

Pine engravers 116, 204, 205, 213, 333, 428, 556, 915

Pine gall weevil (*Podapion gallicola*) 428, 699, 916

Pine leaf needle aphid (*Pinus pinifoliae*) 43, 56, 256, 278, 425, 235, 1100

Pine needle miner (*Exoteleta pinifoliae*) 356, 362, 526, 556, 646, 734, 1102

Pine needle scale (*Phenacaspis pinifoliae*) 30, 39, 86, 163, 255, 258, 308, 428, 465, 525, 624, 914, 1033, 1148

Pine root collar weevil (*Hylobius radialis*) 152, 922

Pine sawflies 108, 162, 211, 216, 226, 285, 356, 376, 427, 465, 493, 525, 590, 623, 1033, 1137

Pine sawyers 114, 1118

Pine spittlebug (*Aphrophora parallelata*) 256, 382, 494, 525, 556, 590, 648, 669, 699, 877

Pine tip moths 145, 197, 248, 738, 898, 1042

Pine tortoise scale (*Toumevella numismatica*) 212, 256, 275, 403, 428, 591, 1033, 1127

Pine tube moth (*Argyrotaenia pinatubana*) 115, 1033

Pine tussock moth (*Olene plagiata*) 590

Pine webworms 26, 228, 333, 1110

Pink bollworm (*Pectinophora gossypiella*) 125, 56, 70, 116, 144, 172, 225, 270, 294, 305, 354, 360, 400, 426, 491, 501, 523, 565, 620, 645, 668, 732, 763, 795, 825, 895, 913, 951, 965, 997, 1012, 1013, 1027, 1042, 1057, 1069, 1081, 1097, 1109, 1127, 1133, 1141

Pink scavenger caterpillar (*Pyroderes rufi*) 68, 69, 95, 1095

Pitch mass borer (*Vespa pini*) 734

Pitch pine midges (*Retinipidopsis*) spp. 403

Pitch twig moth (*Patrova virginiana*) 403

Plains false wireworm (*Pleocodes opaca*) 352

Plant bugs 9, 39, 154, 236, 253, 290, 379, 385, 445, 449, 450, 517, 544, 576, 610, 659, 834, 668, 673, 689, 721, 785, 816, 848, 870, 891, 962, 966, 977, 994, 1000, 1089

Plum curculio (*Conotrachelus nenuphar*) 9, 23, 42, 70, 85, 88, 151, 194, 197, 182, 194, 235, 254, 267, 292, 290, 305, 329, 348, 372, 394, 419, 456, 484, 515, 546, 578, 612, 627, 628, 661, 637, 724, 757, 788, 1033, 1101, 1115, 1132, 1136

Pumpkin bug (*Anthonomus scutellaris*) 70, 290

Poplar & willow borer (*Sternochetus lapathi*) 735, 766

Poplar borer (*Saperda calcarata*) 45

Poplar tent maker (*Ichthyura inclusa*) 786, 827, 916, 932, 1034

Potato aphid (*Macrosiphum solanifolii*) 32, 38, 42, 48, 53, 373, 422, 518, 521, 551, 582, 615, 628, 640, 664, 693, 622, 851, 910, 956, 1032, 1136

Potato leaf beetle (*Epirixia tenax*) 42, 89, 103, 151, 197, 254, 275, 458, 487, 497, 551, 551, 615, 640, 663, 693, 726, 790, 819, 873, 893, 1101

Potato leafhopper (*Empoasca fabae*) 7, 23, 45, 66, 71, 84, 88, 101, 152, 157, 159, 161, 183, 234, 253, 254, 285, 274, 302, 416, 449, 513, 544, 575, 582, 610, 615, 624, 627, 636, 640, 659, 663, 673, 693, 693, 703, 720, 727, 736, 754, 766, 770, 765, 818, 822, 849, 852, 856, 870, 873, 881, 907, 950, 962, 1000, 1025, 1032, 1033, 1136, 1143, 1148

Potato leafminer (*Paratrioza cockerelli*) 11, 29, 269, 308, 352, 459, 518, 551, 582, 615, 638, 663, 694, 727, 779, 852, 873, 893, 950, 996, 1086, 1143

Potato scab gnat (*Phyxa scabiei*) 29

Potato stalk borer (*Trichobaris trinctata*) 375

Potato tuberworm (*Gnorimoschema operculella*) 21, 48, 164, 174, 227, 284, 317, 300, 981, 996, 1033, 1086, 1117, 1121, 1137

Poultry bug (*Haematosiphon inodorus*) 85

Poultry lice 43, 592, 1087

Poultry mites 1087

Powder post beetles 4, 104, 109, 146, 165, 227, 237, 967

Psocids 46, 238

Punkies 105

Purple scale (*Lepidosaphes bectlei*) 3, 67, 75, 171, 194, 247, 308, 548, 818, 1041, 1056, 1080, 1096

Puss caterpillars (*Megalopyge* sp.) 984, 1044, 1118, 1137

Putnam scale (*Aspidiotus aceris*) 249, 377

382, 670, 764, 857, 877, 898, 932, 985, 1042, 1134

Red-humped caterpillar (*Schizura concinna*) 383, 757, 935, 1115

Red-humped oakworms (*Symmerista sp.*) 734, 1034

Red-legged lam beetle (*Necrobia rufipes*) 184, 194, 551, 934

Red-necked cane borer (*Agrius ruficollis*) 284, 618, 642, 875

Red-necked peanutworm (*Stegasta bosqueana*) 22, 281, 610, 755, 815, 870, 882

Red-pine sawfly (*Neodiprion nanulus*) 623

Red turpentine beetle (*Dendroctonus valens*) 403

Red wax scale (*Ceroplastes rubens*) 226

Rhodes-grass scale (*Aspidiotus graminis*) 141, 813, 1061, 1084

Rhodoendron lace bug (*Stephanitis rhododendri*) 183, 671, 733, 1102

Rhubarb curculio (*Lixus concavus*) 489, 583, 642

Rice water bug (*Corcyra cephalonica*) 25

Rice stink bug (*Solubea pumax*) 65, 106, 342, 685, 718, 770, 788, 801, 845, 868, 905, 925, 945

Rice water weevil (*Lissorhoptrus oryzophilus*) 22, 35, 104, 361, 606

Rice weevil (*Sitophilus oryza*) 21, 25, 50, 68, 71, 78, 104, 118, 180, 198, 238, 290, 292, 751, 782, 960, 1014, 1070, 1071, 1076, 1095, 1119

Rocky Mountain wood tick (*Dermacentor andersoni*) 31, 32

Road aphids 76, 115

Rose aphid (*Macrosiphum rosae*) 183, 497

Rose chaffer (*Macroductylus subsinuatus*) 163, 592, 613, 624, 838, 942, 962, 671, 1017, 1100

Rose curculio (*Rynchites bicolor*) 45

Rose leaf beetle (*Notonota puncticollis*) 10

Rose leafhopper (*Edwardsiana rosae*) 1067

Rosy apple aphid (*Anuraphis rosens*) 85, 121, 151, 154, 182, 194, 231, 305, 395, 406, 419, 454, 484, 516, 611, 638, 691, 723, 788, 1136

Round-headed apple tree borer (*Saperda candida*) 154

Rusty grain beetle (*Leaemphloeus ferrugineus*) 697

Rusty plum aphid (*Hysteronera setariae*) 456, 500, 944, 1058

Rusty tussock moth (*Orgyia antiqua*) 724

Saddleback caterpillar (*Sibine stimulea*) 935, 1137

Saddled prominent (*Heterocampa guttivitta*) 217, 701, 765, 858, 916, 937

Salt-marsh caterpillar (*Estigmene acrea*) 25, 60, 101, 174, 327, 332, 345, 369, 615, 795, 855, 888, 996, 913, 998, 1063, 1134

Salt-marsh mosquito (*Aedes sollicitans*) 10, 401, 786, 788, 800, 1035, 1118, 1128, 1135

Sand flies 429, 467, 527, 648

Sand wireworm (*Horistonotus uhleri*) 231, 694

Saw Rose scale (*Aspidiotus perniciosus*) 23, 95, 154, 223, 258, 290, 308, 329, 372, 487, 546, 612, 789, 995, 1040, 1068, 1074, 1110, 1119, 1132

Sap beetles 6, 151, 633, 718, 813, 868 1135

Sarataa spittlebug (*Aphrophora saratensis*) 211, 258, 382, 699, 734, 784, 916

Satin moth (*Stilpnotia salicis*) 273, 556, 627

Sawflies 66, 478, 509, 541, 574, 591, 627, 952, 955, 985, 1013, 1070, 1097

Saw-toothed grain beetle (*Oryzophilus surinamensis*) 21, 25, 40, 46, 62, 98, 119, 180, 185, 196, 238, 292, 527, 769, 832, 1014, 1071, 1103, 1118

Say stink bug (*Chlorochroa sayi*) 61, 341,

373, 574, 606

Scale insects 370, 57, 76, 86, 97, 117, 249, 356, 467, 485, 503, 557, 591, 648, 967, 1069, 1114, 1118, 1120

Scorpion flies (*Panorpa* sp.) 184, 1111

Screw-worm (*Callitroga hominivorax*) 26, 30, 67, 71, 705, 227, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 1171, 1172, 1173, 1174, 1175, 1176, 1177, 1178, 1179, 1180, 1181, 1182, 1183, 1184, 1185, 1186, 1187, 1188, 1189, 1190, 1191, 1192, 1193, 1194, 1195, 1196, 1197, 1198, 1199, 1200, 1201, 1202, 1203, 1204, 1205, 1206, 1207, 1208, 1209, 1210, 1211, 1212, 1213, 1214, 1215, 1216, 1217, 1218, 1219, 1220, 1221, 1222, 1223, 1224, 1225, 1226, 1227, 1228, 1229, 1230, 1231, 1232, 1233, 1234, 1235, 1236, 1237, 1238, 1239, 1240, 1241, 1242, 1243, 1244, 1245, 1246, 1247, 1248, 1249, 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 1259, 1260, 1261, 1262, 1263, 1264, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272, 1273, 1274, 1275, 1276, 1277, 1278, 1279, 1280, 1281, 1282, 1283, 1284, 1285, 1286, 1287, 1288, 1289, 1290, 1291, 1292, 1293, 1294, 1295, 1296, 1297, 1298, 1299, 1300, 1301, 1302, 1303, 1304, 1305, 1306, 1307, 1308, 1309, 1310, 1311, 1312, 1313, 1314, 1315, 1316, 1317, 1318, 1319, 1320, 1321, 1322, 1323, 1324, 1325, 1326, 1327, 1328, 1329, 1330, 1331, 1332, 1333, 1334, 1335, 1336, 1337, 1338, 1339, 1340, 1341, 1342, 1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1444, 1445, 1446, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1484, 1485, 1486, 1487, 1488, 1489, 1490, 1491, 1492, 1493, 1494, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 1509, 1510, 1511, 1512, 1513, 1514, 1515, 1516, 1517, 1518, 1519, 1520, 1521, 1522, 1523, 1524, 1525, 1526, 1527, 1528, 1529, 1530, 1531, 1532, 1533, 1534, 1535, 1536, 1537, 1538, 1539, 1540, 1541, 1542, 1543, 1544, 1545, 1546, 1547, 1548, 1549, 1550, 1551, 1552, 1553, 1554, 1555, 1556, 1557, 1558, 1559, 1560, 1561, 1562, 1563, 1564, 1565, 1566, 1567, 1568, 1569, 1570, 1571, 1572, 1573, 1574, 1575, 1576, 1577, 1578, 1579, 1580, 1581, 1582, 1583, 1584, 1585, 1586, 1587, 1588, 1589, 1590, 1591, 1592, 1593, 1594, 1595, 1596, 1597, 1598, 1599, 1600, 1601, 1602, 1603, 1604, 1605, 1606, 1607, 1608, 1609, 1610, 1611, 1612, 1613, 1614, 1615, 1616, 1617, 1618, 1619, 1620, 1621, 1622, 1623, 1624, 1625, 1626, 1627, 1628, 1629, 1630, 1631, 1632, 1633, 1634, 1635, 1636, 1637, 1638, 1639, 1640, 1641, 1642, 1643, 1644, 1645, 1646, 1647, 1648, 1649, 1650, 1651, 1652, 1653, 1654, 1655, 1656, 1657, 1658, 1659, 1660, 1661, 1662, 1663, 1664, 1665, 1666, 1667, 1668, 1669, 1670, 1671, 1672, 1673, 1674, 1675, 1676, 1677, 1678, 1679, 1680, 1681, 1682, 1683, 1684, 1685, 1686, 1687, 1688, 1689, 169

grandiosella) 23, 61, 66, 69, 106, 178, 183, 262, 271, 462, 477, 486, 574, 606, 656, 685, 750, 780, 845, 867, 887, 904, 924, 934, 975, 991, 1007, 1039, 1055, 1061, 1132

Southwestern pine beetle (*Dendroctonus barberi*) 206, 208

Spittlebugs 8, 23, 25, 30, 45, 47, 49, 62, 67, 71, 78, 82, 102, 103, 108, 121, 144, 162, 172, 225, 255, 256, 269, 270, 291, 317, 331, 333, 346, 353, 360, 400, 426, 462, 467, 482, 490, 491, 492, 500, 501, 566, 567, 576, 591, 553, 561, 589, 590, 615, 621, 624, 628, 640, 645, 647, 664, 669, 689, 693, 696, 703, 732, 755, 764, 782, 792, 796, 798, 815, 825, 829, 848, 861, 869, 872, 876, 877, 882, 891, 896, 905, 912, 914, 915, 924, 930, 944, 951, 964, 967, 983, 1012, 1081, 1063, 1075, 1089, 1114, 1115, 1117, 1118, 1120, 1128, 1133, 1136, 1145

Spinach leaf miner (*Pegomya hyoscyami*) 549, 555, 614, 730, 1055

Spiny oakworm (*Nimfa stigma*) 1120

Spiraea aphid (*Aphis spiraeicola*) 701, 939, 1026

Spittlebugs 8, 275, 289, 304, 328, 330, 346, 376, 379, 383, 398, 415, 425, 442, 482, 511, 560, 557, 576, 591, 562, 576, 609, 786, 927

Spotted alfalfa aphid 3, 11, 15, 20, 22, 28, 37, 53, 60, 61, 66, 68, 75, 79, 93, 106, 114, 141, 170, 178, 192, 193, 221, 231, 234, 245, 256, 280, 303, 324, 342, 360, 357, 376, 391, 406, 413, 447, 451, 500, 512, 544, 561, 576, 594, 608, 609, 652, 673, 688, 721, 753, 770, 784, 814, 847, 868, 881, 893, 906, 925, 935, 936, 946, 965, 961, 970, 978, 993, 999, 1008, 1015, 1024, 1038, 1044, 1055, 1059, 1061, 1062, 1067, 1079, 1084, 1088, 1095, 1107, 1114, 1115, 1119, 1125, 1132, 1141

Spotted blister beetle (*Epicauta immaculata*) 614

Spotted cucumber beetle (*Diabrotica undecimpunctata howardi*) 8, 39, 130, 156, 181, 182, 347, 406, 450, 497, 520, 532, 910, 962, 1136

Spotted cutworm (*Amathes c-nigrum*) 283

Spring cankerworm (*Paleacrita vernata*) 9, 151, 180, 183, 256, 465, 526

Springtails 105, 141, 142, 169, 228, 479, 423, 99

Spruce budworm (*Choristoneura fumiferana*) 43, 206, 207, 209, 210, 216, 255, 382, 494, 525, 590, 646, 828, 915

Spruce mites 258, 1017

Spruce spider mite (*Oligonychus ununicus*) 39, 86, 465, 1102, 1148

Squash beetle (*Epiplatina borealis*) 641, 724, 930

Squash bugs 8, 39, 70, 103, 520, 528, 535, 566, 642, 865, 793, 770, 792, 853, 874, 884, 910, 931, 1033, 1101

Squash vine borer (*Melittia cucurbitae*) 497, 665, 695, 823, 874, 911, 931, 1033, 1101

Stable fly (*Stomoxys calcitrans*) 30, 45, 71, 181, 237, 273, 278, 625, 768, 860, 879, 882, 916, 934

Stalk borer (*Papaipema nebris*) 101, 150, 152, 254, 458, 589, 621, 642, 683, 667, 716, 747, 750, 893, 1017, 1100, 1101, 1120

Sticktight flea (*Echinophaga gallinacea*) 105, 558, 625, 1070

Stink bugs 22, 23, 39, 61, 64, 269, 322, 446, 459, 463, 602, 519, 520, 522, 553, 586, 611, 619, 839, 863, 866, 694, 696, 700, 719, 761, 786, 792, 796, 816, 824, 845, 870, 881, 891, 914, 924, 930, 947, 965, 983, 999, 1063, 1114, 1116

Stoneflies 27

Stored grain pests 198, 250, 310, 444, 860, 917, 935, 954, 984, 998, 1058, 1111, 1114, 1142

Strawberry aphid (*Pentatrichopus fragaefolii*) 9, 122, 183, 247, 503

Strawberry crown borer (*Tylosderma fragariae*) 93, 107, 462

Strawberry crown moth (*Ramosia bibionipennis*) 666

Strawberry leaf roller (*Ancylics comptana fragariae*) 81, 254, 353, 375, 393, 425, 499, 520, 552, 565, 618, 627, 661, 1012, 1069, 1085, 1088, 1144, 1145

Strawberry root aphid (*Aphis forbesi*) 9, 225, 331, 353, 729, 791, 1033

Strawberry root weevil (*Brachyrhinus crataegi*) 10, 39, 45, 46, 301, 110, 122, 132, 185, 256, 425, 462, 521, 796, 787, 879, 1085

Strawberry spider mite (*Tetranychus atlanticus*) 7, 8, 787, 1032, 1108

Strawberry weevil (*Anthonomus sticticus*) 39, 107, 264, 331, 353, 374, 385, 489, 520, 1033

Strawberry whitefly (*Trialeurodes packardii*) 552, 950

Striped cucumber beetle 42, 45, 49, 70, 86, 156, 157, 161, 182, 257, 327, 461, 488, 520, 550, 583, 617, 698, 641, 664, 674, 695, 703, 760, 770, 931, 1101, 1136, 1148

Striped flea beetle (*Ptylocheilus striatula*) 897

Subterranean termites 82, 1098

Suckly (*Cyrtopeltis minimus*) 102, 619

Sugar-beet root aphid (*Pemphigus betae*) 1026

Sugar-beet root maggot (*Tetanops myaeformis*) 11, 44, 352, 373, 422, 460, 483, 642, 694

Sugarcane beetle (*Eustethla rugiceps*) 39, 66, 101, 280, 290, 388, 413, 446, 478, 510, 561, 574, 751, 1088, 1119

Sugarcane borer (*Diatraea saccharalis*) 23, 66, 262, 341, 387, 387, 477, 541, 656, 813, 945, 1107, 1119, 1132

Sugar-maple borer (*Glyobius coccineus*) 827

SuperB plant bug (*Adelphocoris superbus*) 64, 1094

Swallow bug (*Osciada vicarius*) 1146

Sweetclover aphid (*Myzocalidum richmi*) 176, 244, 457, 574, 609, 887, 915, 813, 847, 970, 907, 935, 1068, 1107, 1147

Sweetclover weevil (*Sitona cylindricollis*) 16, 17, 27, 44, 79, 84, 120, 234, 253, 286, 302, 326, 345, 370, 380, 416, 452, 479, 512, 627, 608, 689, 720, 787, 815, 928, 1084, 1147

Sweetpotato flea beetle (*Chaetocnema confinis*) 66, 489, 617, 628, 642, 695, 819, 874, 931, 981, 997

Sweetpotato hornworm (*Agrius cingulatus*) 291

Sweetpotato weevil (*Cylas formicarius elegantulus*) 18, 54, 68, 115, 1026, 1042, 1126

Sycamore lace bug (*Corythucha ciliata*) 123, 766, 915, 967

Sycamore tussock moth (*Halsidota harrisii*) 828, 1034

Symphylids 151, 422, 955

Syrphid flies 20, 46, 60, 468, 800, 1099

T

Tabanids 26, 71, 109, 237, 429, 468, 592, 625, 648, 672, 701, 768, 799, 830, 860, 879, 897, 968, 984, 1058, 1087, 1102

Tachina flies 78

Tarnished plant bug 7, 8, 27, 69, 152, 154, 155, 156, 169, 178, 193, 222, 235, 246, 258, 266, 280, 304, 315, 327, 347, 393, 413, 449, 513, 528, 551, 594, 615, 703, 758, 770, 792, 970, 1033, 1040, 1056, 1068, 1079, 1101, 1143

Tea scale 1118

Ten-lined June beetle (*Polyplyphia decemlineata*) 1012

Tent caterpillars 334, 372, 396, 402, 408, 420, 483, 578, 700, 1017, 1087

Termites 72, 87, 98, 104, 109, 146, 165, 198, 228, 258, 271, 286, 294, 311, 335, 357, 401, 529, 769, 783, 800, 815, 892, 935, 967, 1018, 1028, 1035, 1035

Texas leaf-cutting ant 25, 114

Thistle aphid (*Anuraphis cardui*) 766

Three-cornered alfalfa hopper (*Stenotus festinus*) 27, 49, 61, 65 (Stenotus) 39, 101-108, 222, 235, 266, 281, 289, 302, 328, 346, 369, 393, 449, 528, 545, 566, 594, 609, 636, 690, 720, 754, 786, 796, 801, 815, 849, 869, 892, 891, 907, 926, 945, 962, 978, 995, 1010, 1028, 1040, 1061, 1074, 1080, 1105

Thrips 18, 23, 24, 37, 43, 44, 47, 62, 63, 70, 95, 101, 103, 107, 108, 115, 120, 162, 193, 236, 289, 291, 304, 309, 331, 333, 336, 380, 389, 375, 398, 417, 427, 449, 494, 483, 488, 492, 514, 524, 528, 545, 547, 555, 561, 577, 581, 586, 588, 609, 617, 621, 636, 645, 659, 669, 720, 733, 751, 764, 767, 786, 826, 890, 899, 1061, 1063, 1117, 1120, 1133, 1147

Thurberia weevil (*Anthonomus grandis thurberia*) 19, 64

Ticks 26, 32, 105, 164, 409, 527, 559, 593, 625, 881, 109

Tobacco budworms (*Heliothis spp.*) 47, 100, 102, 162, 291, 307, 311, 332, 375, 399, 425, 463, 490, 522, 552, 586, 618, 628, 643, 666, 696, 730, 761, 793, 823, 857, 1089, 1114, 1118

Tobacco flea beetle (*Epitrix thurberia*) 47, 102, 161, 196, 248, 289, 284, 307, 331, 354, 375, 398, 399, 425, 462, 487, 490, 521, 522, 555, 582, 587, 604, 686, 730, 761, 793, 822, 823, 875, 1114, 1117

Tobacco hornworms (*Protoparce spp.*) 8, 47, 102, 290, 619, 1032, 1089, 1101, 1114, 1117

Tobacco moth (*Ephestia elutella*) 144, 834

Tobacco thrips (*Frankliniella fusca*) 101, 246

Tobacco wireworm (*Conoderus vespertinus*) 47, 102, 398, 399, 1114, 1117

Tomato fruitworm (*Heliothis zea*) 8, 11, 49, 70, 86, 289, 291, 361, 519, 521, 551, 615, 639, 663, 910, 927, 790, 819, 851, 873, 893, 913, 964, 981, 996, 1011, 1075, 1086, 1116, 1118

Tomato hornworms (*Protoparce spp.*) 8, 42, 80, 615, 1144

Tomato pinworm (*Keiferia lycopersicella*) 18, 63, 224, 929

Tomato psyllid (*Paratrioza cockerelli*) 102, 487

Tomato russet mite (*Vasates lycopersici*) 8, 103, 151, 161, 551, 910, 1028, 1066, 1103, 1136

Tortoise beetles 425, 521, 550, 583, 617, 842, 852, 883

Tree crickets 61, 162, 619

Tropical rat mite (*Rediellonyssus bacoti*) 32, 117, 1035

Tuber flea beetle (*Epitrix tuberis*) 29, 374, 459, 551, 582, 614, 728, 852

Tulip tree scale (*Toumeyella liriiodendri*) 428, 494, 1014, 1097

Turnip aphid (*Rhopalosiphum pseudobrassicae*) 48, 66, 76, 80, 143, 224, 283, 351, 853

Turnip root miner (*Agrius cingulatus* Spp.) 19, 25, 226, 333, 355, 485, 734, 942, 968, 997, 1134

Twig girdler (*Onicides cingulata*) 23, 164

Twig pruner (*Flaphidion villosum*) 95, 762, 911, 918

Two-spotted spider mite 12, 32, 39, 85, 102, 121, 151, 153, 154, 155, 156, 161, 180, 183, 236, 247, 254, 285, 353, 376, 378, 399, 394, 406, 416, 420, 422, 452, 453, 462, 469, 502, 500, 520, 546, 585, 618, 624, 666, 689, 696, 723, 729, 738, 752, 766, 767, 770, 783, 788, 801, 819, 831, 852, 861, 874, 931, 950, 997, 1032, 1085, 1100, 1110, 1128

U

Unspotted tentiform leaf miner (*Callisto geminata*) 9, 181, 305, 372, 398, 455, 484, 516, 546, 579, 611, 692, 724, 757, 788, 817, 1033, 1136
Uropodid mites 970

V

Vagabond crambus (*Crambus vulgivagellus*) 234, 1007
Variable oak leaf caterpillar (*Heterocampa mantee*) 26, 212, 237, 255, 408, 555, 738, 765, 797, 916, 952, 1034, 1137
Varied carpet beetle (*Anthrenus verbasci*) 152
Variegated cutworm (*Peridroma margaritosa*) 26, 65, 100, 106, 222, 234, 253, 265, 281, 366, 393, 418, 450, 849, 1119, 1135
Vedalia (*Rodolia cardinalis*) 54, 82, 84, 361, 504
Vegetable weevil (*Listroderes costirostris obliquus*) 47, 48, 66, 75, 95, 101, 102, 103, 107, 119, 142, 171, 172, 193, 196, 222, 225, 231, 245, 263, 281, 283, 291, 328, 332, 352, 354, 374, 398, 399, 426, 462, 490, 522, 553, 918, 1117, 1120, 1136
Velvetbean caterpillar (*Anticarsia gemmatilis*) 50, 65, 101, 370, 891, 943, 979, 991, 1115
Vetch bruchid (*Bruchus brachialis*) 22, 25, 120, 393, 418, 452, 479, 979, 1025, 1134
Viceroy (*Limnitis archippus*) 310
Vinegar flies 105, 235, 376, 851, 872, 1136
Virginia-creeper leafhopper (*Erythronera ziczac*) 638, 915

W

Walkingstick (*Diaperomera femorata*) 211, 256, 377
Walnut aphid (*Chromaphis juglandicola*) 122, 502, 872
Walnut caterpillar (*Datana integerrima*) 160, 163, 237, 255, 292, 547, 613, 635, 670, 700, 739, 759, 769, 818, 872, 900, 918, 949, 985, 1034, 1119
Walnut husk fly (*Rhagoletis completa*) 502, 872, 980, 1041, 1082
Wasps 165, 469, 1102, 1137
Wax scales 4, 49, 163, 934, 1062, 1110, 1114, 1128
Webworms 9, 22, 45, 69, 323, 406, 483, 514, 577, 594, 610, 700, 766, 853, 870, 927, 932, 982, 1007, 1039, 1115, 1147
Western bean cutworm (*Loxotropa albicosta*) 78, 80, 728, 813, 852, 931
Western black flea beetle (*Phyllotreta pusilla*) 80, 617, 694
Western corn rootworm (*Diabrotica vergifera*) 27
Western grape leaf skeletonizer (*Harrisina brillians*) 547, 579, 725, 925, 945, 963, 999, 1065
Western harvester ant (*Pogonomyrmex occidentalis*) 1065
Western peach tree borer (*Sanninidea exifica graefii*) 223, 268, 613, 850, 920, 1035

Western pine beetle (*Dendroclonus brevicornis*) 204, 205
Western potato flea beetle (*Epitrix subrepta*) 726
Western raspberry fruitworm (*Byturus bakeri*) 761
Western spotted cucumber beetle (*Diabrotica undecimpunctata*) 500, 759
Western striped cucumber beetle (*Acalymna trivittata*) 874
Western tussock moth (*Homocampa vevusta*) 456
Western yellow-striped armyworm (*Prodenia graeana*) 657, 719, 727, 733, 823, 1034, 1086
Wharf borer (*Nacardes melanara*) 152
Wheat curl mite (*Aceria tulipae*) 28, 179, 323, 478, 752, 1125
Wheat head armyworm (*Farona diffusa*) 28, 179, 180, 233, 414, 638, 1145
Wheat jointworm (*Harmolita tritici*) 233, 905, 1145
Wheat midge (*Sitodiplosis mosellana*) 32, 783, 1149
Wheat stem maggot (*Meromyza americana*) 29, 234, 254, 658, 697, 1147
Wheat stem sawfly (*Cephus cinctus*) 44, 79, 478, 606, 752, 783, 813, 1145, 1147
Wheat straw-worm (*Harmolita grandis*) 417
Wheat wireworm (*Agriotes mancus*) 42
Wheel bug (*Ariulus cristatus*) 650, 800, 1137
White apple leafhopper (*Typhlocyba romana*) 516, 561
Whiteflies 63, 75, 163, 294, 618, 669, 733, 934, 1063, 1102, 1127
White-fringed beetles (*Graphognathus* spp.) 102, 633, 848, 970, 992
White grub 22, 69, 84, 102, 179, 189, 317, 354, 367, 388, 393, 511, 693, 791, 925, 960, 977, 1025, 1115
White-lined sphinx (*Celerio lineata*) 65, 335, 650, 759
White-marked tussock moth (*Homocampa leucostigma*) 30, 647, 692, 700, 766, 798, 1034
White peach scale (*Pseudaulacaspis pentagona*) 32, 163, 171, 195, 197, 288, 766, 1013
White-pine aphid (*Chnara strobi*) 623, 826
White-pine sawfly (*Neodiprion pinetum*) 104
White-pine weevil (*Pissodes strobi*) 43, 212, 273, 276, 382, 403, 465, 625, 622, 734, 797, 857, 877, 1102
Willow sawfly (*Nematus ventralis*) 45, 428, 736
Winter grain mite (*Penthaeus major*) 22, 53, 69, 114, 141, 189, 179, 221, 233, 243, 262, 322, 1079, 1107, 1125, 1132
Wireworms 28, 42, 44, 48, 78, 110, 150, 182, 189, 231, 253, 323, 332, 341, 352, 367, 374, 389, 417, 426, 445, 478, 490, 509, 522, 526, 541, 561, 574, 607, 614, 664, 695, 925, 950, 1074, 1075, 1116, 1143, 1145, 1147, 497

Y

Wool maggots 105, 429
Woolly apple aphid (*Eriosoma lanigerum*) 62, 81, 121, 151, 154, 316, 403, 454, 545, 580, 753, 783, 850, 892, 963, 980, 994, 1033, 1085, 1119
Woolly alder aphid (*Prociphilus tessellatus*) 623, 823
Woolly elm aphid (*Eriosoma americanum*) 10, 1034

Yellow jackets 702, 897, 917, 934, 970, 985, 1015, 1029, 1102, 1137
Yellow-margined leaf beetle (*Microtheba ochroleuca*) 332
Yellow-necked caterpillar (*Datana ministra*) 9, 46, 81, 160, 734, 797, 823, 872, 878, 916, 1034
Yellow scale (*Aonidiella citrina*) 223, 349, 457
Yellow spider mite (*Eotetranychus carpini borealis*) 419
Yellow-striped armyworms (*Prodenia* spp.) 25, 63, 64, 66, 101, 160, 232, 289, 306, 509, 606, 694, 719, 752, 786, 814, 816, 846, 851, 891, 892, 911, 915, 927, 947, 999, 1084, 1119
Yellow sugarcane aphid (*Sipha flava*) 1040, 1141

Z

Zebra caterpillar (*Cermica picta*) 581, 636, 911
Zimmerman pine moth (*Dorycteria zimmermani*) 1013

SCIENTIFIC NAMES

- Abbottana clemataria* (a geometrid)
184
- Acaloepale undulata* (a shell moth)
383
- Acalymna* sp.
374
- Acalymna trivittata* (western striped cucumber beetle) 874
- Acalymna vittata* (striped cucumber beetle) 32, 45, 49, 70, 156, 161, 182, 257, 398, 461, 488, 590, 550, 583, 617, 641, 664, 695, 760, 792, 823, 874, 894, 931, 1033, 1101, 1126, 1148
- Acanthoscelides obtectus* (bean weevil) 224
- Acarus siro* (grain mite) 286, 737
- Aceratagallia* sp. (leafhoppers) 139, 302
- Aceratagallia sanguinolenta* (clover leafhopper) 193, 348, 513, 689
- Aceratagalli uhleri* 28, 418, 513, 788, 1015
- Aceria fraxinivorus* (a mite) 86
- Aceria medicaginis* 37
- Aceria paradanthi* 1097
- Aceria sheidoni* (citrus bud mite) 501
- Aceria tulipae* (wheat curl mite) 28, 179, 323, 478, 752, 1039, 1056, 1125
- Aceria vaccinii* (blueberry bud mite) 458
- Achaetoneura archippivora* (a dipterous parasite) 1044
- Acheta* spp. (crickets) 181
- Acheta assimilis* (field cricket) 65, 269, 593, 879, 893, 917, 945, 1026, 1040, 1059, 1064
- Acheta domestica* (house cricket) 294, 335, 1103
- Achorutes* spp. (springtails) 258
- Acleris lispiana* (a tortricid) 1041
- Acleris variana* (black-headed budworm) 218, 826
- Acontia dacia* (brown cotton leafworm) 24, 67, 88, 108, 354, 464, 491, 523, 588, 645, 793, 825, 983
- Acrobasis caryae* (pecan nut case-bearer) 23, 268, 292, 330, 396, 457, 485, 517, 547, 580, 612, 638, 789, 872, 909, 963
- Acrobasis indigenella* (leaf crumpler) 1070
- Acrobasis juglandis* (pecan leaf case-bearer) 330, 457
- Acrobasis vaccinii* (cranberry fruit-worm) 638, 692, 725, 758, 872
- Acrolophus hirtipes* (a grasshopper) 599
- Acrolophus* sp. (a burrowing webworm) 686
- Acroneta americana* (American dagger moth) 858
- Acrosternum hilare* (green stink bug) 455
- Actebia fennica* (black army cutworm) 684
- Actias luna* (luna moth) 859
- Adelphocoris* sp. (a plant bug) 610, 634, 966
- Adelphocoris lineolatus* (alfalfa plant bug) 7, 27, 84, 131, 132, 178, 253, 271, 481, 513, 544, 576, 610, 634, 659, 689, 722, 753, 785, 816, 849, 891, 907, 977
- Adelphocoris rapidus* (rapid plant bug) 27, 131, 132, 178, 236, 275, 392, 481, 513, 544, 576, 610, 634, 659, 785, 816, 907, 927, 977
- Adelphocoris superbus* (superb plant bug) 64, 962
- Aedes* spp. (mosquitoes) 67, 110, 173, 249, 273, 495, 625, 1027, 1043, 1102
- Aedes atlanticus-tormentor* 104
- Aedes bicristatus* 355
- Aedes canadensis* 495
- Aedes cantator* 495, 558
- Aedes dorsalis* 31, 430, 592, 625, 933, 998, 1087
- Aedes excrucians* 467
- Aedes implicatus* 256, 467
- Aedes infirmatus* 526
- Aedes intrudens* 592, 934
- Aedes michellae* 104
- Aedes nigromaculus* 625, 1087
- Aedes riparius* 497
- Aedes sollicitans* (salt-marsh mosquito) 10, 104, 401, 430, 625, 736, 768, 800, 859, 897, 916, 934, 953, 984, 1027, 1035, 1058, 1070, 1118, 1128, 1135
- Aedes spencorii* 256, 495
- Aedes sticticus* 273, 526
- Aedes stimulans* 467
- Aedes taeniorhynchus* 592, 859
- Aedes trivittatus* 916
- Aedes vexans* 194, 256, 273, 467, 526, 625, 830, 916, 998, 1087
- Aeolesthes sarta* (quetta borer) 294
- Aeolopides tenuipennis* (a grasshopper) 600
- Aeolopides turnbulli* 600
- Aeolus* sp. (a wireworm) 509
- Aeropedellus clavatus* (a grasshopper) 599, 1145
- Aerochoreutes carlinianus* (a grasshopper) 717
- Aesphaeropus nigra* (lily weevil) 125
- Aeneotettix deorum* (a grasshopper) 27, 69, 411, 683, 710, 748, 779, 843, 903, 923, 1144
- Aglossa capreae* (murky-meal caterpillar) 104
- Agonoderus lecontei* (seed-corn beetle) 27, 231, 477
- Agrius anxius* (bronze birch borer) 799, 909
- Agrius hyperici* (a klanathweed borer) 227
- Agrius ruficollis* (red-necked cane borer) 284, 618, 642, 875
- Agriotes* sp. (wireworms) 509
- Agriotes mancus* (wheat wireworm) 42, 574
- Agrius cingulatus* (sweetpotato hornworm) 291
- Agroiconota bivittata* (a tortoise beetle) 383, 677, 760, 1120
- Agrotis gladiaria* (clay-backed cutworm) 8, 150, 151, 231, 234, 262, 281, 302, 397, 449, 719, 1031
- Agrotis malefida* (pale-sided cutworm) 77, 98, 101, 118, 146, 174, 251, 288, 314, 1142
- Agrotis orthogonia* (pale western cutworm) 26, 32, 300, 322, 342, 366, 445, 514, 519, 545, 636, 1145
- Agrotis ypsilon* (black cutworm) 6, 8, 21, 40, 48, 58, 77, 88, 98, 100, 118, 123, 143, 146, 172, 174, 196, 199, 225, 229, 231, 244, 248, 251, 285, 272, 283, 288, 314, 318, 317, 338, 358, 359, 380, 427, 449, 470, 488, 498, 519, 531, 545, 572, 596, 626, 636, 651, 680, 688, 704, 742, 749, 772, 803, 832, 862, 880, 890, 918, 937, 956, 969, 986, 1000, 1016, 1030, 1031, 1032, 1045, 1060, 1072, 1083, 1099, 1112, 1119, 1129, 1135, 1142
- Ahasverus advena* (a grain beetle) 126
- Alabama arpillacea* (cotton leafworm) 25, 70, 88, 108, 698, 733, 795, 825, 855, 876, 966, 913, 932, 951, 1057, 1133
- Alcidia frenatus* (mango shoot borer) 294
- Alurocanthus woglumi* (citrus black-fly) 195, 247, 294, 312, 330, 818, 910, 1010
- Aleurodicus cardini* (a whitefly) 75
- Aleyrodes* spp. (whiteflies) 618
- Aleyrodes azaleae* (azalea whitefly) 163
- Aleyrodes spiraeoides* 815, 1127
- Allograpta fracta* (a syrphid) 1099
- Allograpta obliqua* 1039
- Alphitobius piceus* (a fungus beetle) 185
- Alphosilia pometaria* (fall canker-worm) 153, 163, 183, 184, 256, 282, 333, 465, 557, 591, 827, 1137
- Altica* sp. (a flea beetle) 183, 1014
- Altica chalybea* (grape flea beetle) 183
- Altica plicipennis* 373
- Alypia octomaculata* (eight-spotted forester) 725
- Amathes c-nigrum* (spotted cutworm) 253
- Amblyomma americanum* (lone star tick) 10, 71, 197, 271, 430, 465, 559, 702, 768, 799, 1121
- Amblyomma maculatum* (Gulf Coast tick) 559, 1121
- Amblytlytus nasutus* (a plant bug) 1137
- Amelia pallorana* (a tortricid) 132
- Amorbia* sp. (a tortricid) 23
- Amphimallon majalis* (European chafer) 541, 632
- Amphitornus coloradus* (a grasshopper) 27, 411, 711, 1145
- Anabrus simplex* (Mormon cricket) 78, 121, 322, 341, 387, 443, 507, 541, 574, 604, 658, 749, 780, 887, 1007, 1084
- Anacamptis fragariella* (a leaf roller) 123
- Anacamptodes pergracilis* (cypress looper) 215
- Anagata rubicollis* (Mediterranean flour moth) 1058
- Anaphothrips obscurus* (grass thrips) 609
- Anaphothrips zeae* 751
- Anarsia lineatella* (peach twig borer) 23, 122, 396, 502, 579, 724, 892, 1132
- Anasa* spp. (squash bugs) 760
- Anasa armigera* (horned squash bug) 8, 641, 728, 1033
- Anasa tristis* (squash bug) 8, 70, 103, 520, 550, 582, 642, 695, 792, 853, 874, 894, 910, 931, 1033, 1075, 1101
- Anastrepha fraterculus* (a fruit fly) 256, 287
- Anastrepha ludens* (Mexican fruit fly) 115, 349, 486, 548, 662, 818, 1010, 1068, 1126
- Ancylicus compta fragariae* (strawberry leaf roller) 81, 254, 333, 375, 399, 425, 489, 520, 552, 585, 618, 1012, 1069, 1085, 1144, 1145
- Anisoblabus maritima* (an earwig) 879
- Anisotermalus calandreae* (a pteromalid) 59
- Anisota rubicunda* (green-striped maplemower) 30, 180, 237, 647, 670, 765, 933, 1034
- Anisota senatoria* (orange-striped cutworm) 26, 214, 914, 932, 952, 966, 1034, 1102
- Anisota stigma* (spiny oakworm) 1120
- Anisota virginianensis* (an oakworm) 734, 1034
- Anomala binovata* (a chafer) 402
- Anomala olivaria* (pine chafer) 646
- Anomala undulata* (a scarabaeid) 929

Anomis erosa (an okra caterpillar) 799
Anopheles spp. (mosquitoes) 173, 934, 984, 1027
Anopheles crucians 104
Anopheles freeborni 879
Anopheles punctipennis 173, 592
Anthicus floralis (a beetle) 126
Anthrenus eugenii (pepper weevil) 10, 11
Anthrenus grandis (boll weevil) 19, 48, 67, 70, 107, 162, 236, 291, 309, 332, 354, 376, 399, 426, 463, 491, 523, 554, 586, 619, 644, 667, 697, 730, 762, 793, 824, 854, 875, 895, 912, 931, 1027, 1057, 1075, 1088, 1117, 1120, 11, 13
Anthrenus grandis thurberiae (thurberia weevil) 19, 64
Anthrenus scutellaris (plum gouger) 70, 290
Anthrenus signatus (strawberry weevil) 107, 254, 331, 374, 398, 489, 520, 1033
Anthrophila pariana (apple and thorn skeletonizer) 122, 516, 963
Anthrenus spp. (carpet beetle) 43, 430
Anthrenus verbasci (varied carpet beetle) 152
Anticarsia gemmatilis (velvetbean caterpillar) 50, 65, 88, 101, 870, 891, 928, 948, 979, 991
Antonina graminis (Rhodes grass scale) 141, 813, 1064
Anuraphis apifolia (an aphid) 196
Anuraphis bakeri (Clover aphid) 79, 120, 234, 479, 512, 687, 720, 754, 787, 813, 847, 1144
Anuraphis cardui (thistle aphid) 766
Anuraphis helichrysi (a plum aphid) 122, 456
Anuraphis maidi-radicis (corn root aphid) 6, 27, 103, 232, 606, 658, 780, 1115
Anuraphis persicae-niger (black peach aphid) 395, 638
Anuraphis roseus (rosy apple aphid) 43, 85, 121, 151, 154, 182, 194, 281, 305, 329, 395, 419, 454, 484, 516, 611, 638, 691, 723, 788, 1033, 1136
Anuraphis viburnicola (snowball aphid) 403, 466
Aonidia shastae (a scale) 878
Aonidiella aurantii (California red scale) 82, 75, 316, 349, 458, 501, 1141
Aonidiella citrina (yellow scale) 223, 349, 457
Apamea anputatrix (yellow-headed cutworm) 121
Apanteles sp. (a parasite) 23, 234
Apanteles congregatus 830
Aphanotus destructor (a grain beetle) 58
Aphelinus semiflavus (spotted alfalfa aphid parasite) 357, 1059
Aphodius sp. (a scarabaeid) 1107
Apion ulicis (a gorse weevil) 1015
Aphis abbreviata (buckthorn aphid) 38, 42, 423, 664, 819, 873, 893, 1104
Aphis abietina (spruce aphid) 125
Aphis fabae (Bean aphid) 8, 80, 123, 403, 641, 728, 760, 791, 852, 950, 1012, 1032
Aphis forbesi (strawberry root aphid) 9, 225, 331, 353, 729, 791, 1033
Aphis gossypii (cotton aphid, melon aphid) 24, 29, 62, 63, 67, 70, 103, 108, 182, 236, 291, 317, 332, 344, 354, 360, 374, 464, 492, 524, 555, 582, 588, 621, 645, 669, 695, 698, 728, 732, 760, 763, 796, 825, 855, 876, 886, 910, 913, 951, 965, 997, 1062, 1075, 1117, 1133

Aphis illinoisensis (grapevine aphid) 758, 813, 1073
Aphis medicaginis (cowpea aphid) 53, 62, 63, 158, 280, 332, 360, 416, 492, 555, 621
Aphis pomi (apple aphid) 9, 43, 85, 101, 121, 151, 153, 182, 281, 305, 316, 329, 371, 395, 419, 502, 612, 638, 660, 691, 756, 788, 817, 850, 948, 1033
Aphis spiraeicola (spirae aphid) 701, 933, 1026
Aphrophora parallela (pine spittlebug) 235, 392, 493, 525, 536, 590, 646, 669, 699, 877
Aphrophora saratogensis (Saratoga spittlebug) 211, 256, 275, 382, 699, 734, 764
Aphycus helvolus (parasite) 145
Aphytis sp. (a parasite) 361, 504
Aphytis malicorinis (a parasite) 500
Aphus oryzaphagus (a tadpole shrimp) 500
Aphus biggsi (a tadpole shrimp) 500
Aphis mellificans (honey bee) 105, 130, 174, 404, 468, 522, 627
Apterona crenulella (a case making moth) 660
Archips argyrospila (fruit tree leaf roller) 153, 254, 454, 484
Archips conflictana (large aspen tortrix) 647
Archips rosaceana (oblique-banded leaf roller) 123, 353, 421, 485
Archips rosana (filbert leaf roller) 122, 349, 547, 613, 627, 1126
Argas persicus (fowl tick) 495
Arges pectoralis (birch sawfly) 859
Arges scapularis (a sawfly) 1079
Argyria tumidicostalis (a sugarcane borer) 293
Argyrotaenia citrana (orange tortrix) 32, 123, 125, 226, 249, 502, 579, 695
Argyrotaenia pinatubana (pine tube moth) 118, 1033
Argyrotaenia velutinana (red-banded leaf roller) 9, 85, 101, 151, 154, 160, 182, 194, 235, 254, 282, 305, 329, 348, 372, 394, 419, 420, 454, 483, 516, 546, 578, 637, 660, 691, 723, 737, 788, 817, 850, 872, 909, 948, 994, 1010, 1033, 1101, 1136
Arilus cristatus (wheel bug) 650, 800, 1137
Arión aster (a snail) 128
Aristotelia disconotella (a gelechid) 1097
Arphia conspersa (a grasshopper) 711
Arphia pseudonietana (a grasshopper) 712
Arphia simplex (a grasshopper) 712
Arphia xanthoptera (a grasshopper) 744
Arrhenodes minuta (oak timberworm) 236
Ascogaster quadridentata (a braconid parasite) 496
Aspidiotus ancylus (Putnam scale) 249, 377
Aspidiotus camelliae (greedy scale) 117, 225
Aspidiotus destructor (coconut scale) 294, 967
Aspidiotus forbesi (Forbes scale) 194, 235, 579, 638
Aspidiotus heracleae (oleander scale) 54, 223, 455
Aspidiotus ithacae (hemlock scale) 646
Aspidiotus latianae 76
Aspidiotus perniciosus (San Jose scale) 23, 35, 154, 223, 256, 290, 306, 329, 372, 467, 546, 612, 789, 995, 1040, 1068,

1074, 1110, 1119, 1132
Asterolecanium arabis (a scale) 57
Atanuius schwarzi (a beetle) 105
Atalopedes campestris (a skipper) 107, 234
Atanycolus ulmicola (a parasite) 30
Atta texana (Texas leaf-cutting ant) 25, 114
Attagenus sp. 984
Attagenus piceus (black carpet beetle) 71, 238, 335, 378, 404, 430, 559, 1103, 1146
Aulocara sp. (a grasshopper) 715
Aulocara elliptica 49, 411, 603, 631, 673, 744, 748, 1084, 1143, 1145
Autographa sp. (loopers) 18, 634, 791, 951
Autographa biloba 266
Autographa californica (alfalfa looper) 641, 665, 693, 752, 786
Autographa oo 352
Automeris ic (a moth) 917
Autoserica castanea (Asiatic garden beetle) 534, 735, 960, 1034

B

Bactra verutana chrysea (an olethreutid moth) 16
Basilarchia lorquini (a caterpillar) 756
Bedeiomyza bacoti (tropical rat mite) 32, 117, 1035
Bedeiomyza sylvarum (northern owl mite) 105, 126, 152, 799, 1118, 1128
Bedellia sp. (a leaf miner) 981, 996, 1041
Bedellia sommitellenta (morning-glory leaf miner) 1041
Bembecia marginata (rasberry root borer) 123, 129, 269, 931, 965, 983
Bembisia tabaci (a whitefly) 294, 360
Bibio longipes (a March fly) 152
Blatta orientalis (oriental cockroach) 109, 165, 1088
Blattella germanica (German cockroach) 20, 105, 109, 165, 317, 1088, 1118
Blissus leucopterus (chinch bug) 28, 49, 69, 100, 106, 134, 135, 150, 178, 232, 261, 321, 341, 366, 411, 445, 478, 509, 540, 571, 605, 632, 657, 684, 716, 749, 783, 867, 887, 905, 924, 975, 1079, 1099
Blissus leucopterus insularis (a chinch bug) 1023, 1055, 1099
Blissus leucopterus hirtus (hairy chinch bug) 716, 743, 1099
Boopendon auriventris (a grasshopper) 743
Boopendon gracile 743
Boopendon nubilum 69, 775, 887, 975, 1061
Boreus sp. (scorpionflies) 1111
Boreus coloradensis 1111
Bothynoderes punctiventris (a beet rootworm) 361
Bourletiella hortensis (garden springtail) 331, 373, 423, 487, 1033
Bovicola bovis (cattle biting louse) 30, 43, 97, 110, 117, 130, 145, 164, 197, 237, 1070, 1148
Brachycaudus pruni (an aphid) 294
Brachyrhinus sp. 20, 110, 152, 898
Brachyrhinus ovatus (strawberry root weevil) 10, 33, 45, 46, 80, 128, 185, 256, 425, 462, 521, 769, 787, 1085
Brachyrhinus rugosostriatus 10, 1085

- Brachyrhinus sulcatus* (black vine weevil) 124, 935, 953, 1017, 1085
- Brachystola magna* (lubber grasshopper) 775, 887
- Bradynoba obesa* (a grasshopper) 776
- Bradynoba picea* (a fungus gnat) 954, 970, 1121
- Brevicoryne brassicae* (cabbage aphid) 8, 18, 48, 75, 95, 103, 115, 123, 143, 156, 160, 171, 183, 196, 247, 254, 258, 283, 330, 351, 373, 397, 424, 460, 488, 503, 549, 641, 727, 792, 819, 1032, 1041, 1116, 1135
- Brevipalpus lillium* (a false spider mite) 1012
- Bruchophagus gibbus* (clover seed chalcid) 28, 61, 69, 182, 500, 659, 689, 721, 785, 814, 1025, 1085
- Bruchus brachialis* (vetch bruchid) 70, 120, 393, 416, 452, 479, 979, 1025, 1134
- Bruchus pisorum* (pea weevil) 32, 80, 129, 185, 422, 581, 616
- Bruneria brunnea* (a grasshopper) 776
- Bruneria florida* 603
- Eryobia praetiosa* (clover mite) 10, 21, 30, 32, 46, 61, 62, 77, 82, 121, 122, 128, 130, 155, 165, 181, 185, 223, 246, 250, 256, 267, 282, 305, 311, 328, 329, 333, 334, 356, 357, 371, 377, 378, 388, 394, 404, 420, 431, 452, 456, 467, 469, 482, 485, 501, 544, 580, 650, 724, 717, 850, 994, 1029, 1035, 1085, 1099, 1102, 1115, 1138, 1144, 1146
- Buccalatrix canadensisella* (birch skeletonizer) 212, 877
- Buccalatrix thurberiella* (cotton leaf perforator) 19, 64, 589, 732, 764, 795, 826, 856, 896, 913, 966, 1063
- Byturus bakeri* (western raspberry fruitworm) 761
- C**
- Caenurgina erecta* (forage looper) 132
- Calaphis betulella* (an aphid) 646, 1034
- Calendra* spp. (billbugs) 133, 179, 232, 254, 446, 508, 541
- Calendra callosa* 244
- Calendra maidis* (maize billbug) 27, 101, 508, 1074
- Calendra parvula* 130
- Calendra phoeniciensis* 279
- Calendra venetus vestita* 342
- Caloptetrimerus balleyi* (a mite) 963
- Caloriceras* (pear-slug) 51
- Callitriche* 621, 661, 724, 758, 770, 788, 859, 872, 892, 909, 948, 995, 1085, 1145
- Calliephialtes comstockii* (a parasite) 769
- Calligrapha scalaris* (elm calligrapha) 71, 857
- Callisto geminatella* (unspotted tentiform leaf miner) 9, 151, 160, 182, 236, 305, 372, 396, 455, 484, 516, 546, 579, 611, 692, 724, 757, 788, 817, 1033, 1136
- Callitroga hominivorax* (screw-worm) 26, 30, 67, 71, 105, 109, 227, 292, 333, 335, 401, 427, 495, 527, 558, 768, 799, 829, 1058, 1070, 1134
- Callitroga macellaria* (secondary screw-worm) 227, 495, 736, 953
- Callosobruchus maculatus* (cowpea weevil) 925
- Calocalpe undulata* (a moth) 789
- Calonymyne setarius* (a weevil) 652, 769, 970
- Calosoma scrutator* (a ground beetle) 157, 330
- Carmeraria* sp. (an oak leaf miner) 735
- Canula pellucida* (clear-winged grasshopper) 62, 78, 121, 500, 507, 539, 561, 594, 603, 655, 638, 683, 715, 747, 748, 779, 780, 811, 838, 843, 867, 923, 1084, 1145
- Campoplex perdurans* (an ichneumonid) 672, 793
- Campocryptus* spp. (ants) 43, 378
- Campomseris plumipes* (a wasp) 165
- Campylacantha olivacea* (a grasshopper) 838
- Capitophorus ribis* (currant aphid) 517, 580, 1145
- Capnodis* sp. (a buprestid) 316
- Carposcapa pomenella* (codling moth) 9, 11, 42, 50, 69, 81, 85, 101, 121, 128, 150, 153, 160, 182, 194, 235, 254, 294, 305, 316, 329, 347, 361, 394, 419, 453, 483, 502, 515, 578, 611, 637, 660, 691, 723, 756, 787, 817, 849, 871, 891, 908, 928, 948, 980, 1010, 1033, 1085, 1101, 1115, 1136
- Carophilus* spp. (sap beetles) 718, 782, 868, 904, 1135
- Carophilus antiquus* (antique sap beetle) 633, 904
- Carophilus dimidiatus* (corn sap beetle) 76, 25, 233
- Carophilus hemipterus* (dried fruit beetle) 872, 909, 1132
- Carophilus lugubris* (dusky sap beetle) 6, 633, 658, 686, 750, 782, 813, 845, 904, 1031
- Carophilus foveolatus* 139
- Catocalpa* sp. (a phalaenid) 69
- Catorhintha selector* (a coreid) 802
- Celama sorghihella* (sorghum webworm) 511, 717, 752, 783, 1007, 1088
- Celerio lineata* (white-lined sphinx) 5, 128, 335, 650, 759
- Cephalica marginata* (a sawfly) 985
- Cephalonomia waterstoni* (a bethylid) 58
- Cephenemyia* sp. (a bot fly) 145
- Cephus cinctus* (wheat stem sawfly) 44, 79, 478, 606, 752, 783, 813, 1145, 1147
- Cephus pygmaeus* (European wheat stem sawfly) 7, 150, 445
- Cephus tabidus* (black grain stem sawfly) 7, 478, 632
- Ceramica picta* (zebra caterpillar) 581, 636, 911
- Ceratitis capitata* (Mediterranean fruit fly) 316, 350, 421, 457, 471, 486, 517, 548, 580, 639, 663, 692, 724, 758, 818, 830, 892, 963, 995, 1025, 1080
- Ceratoma catalpae* (catalpa sphinx) 9
- Cerrococcus quercus* (an oak scale) 9
- Ceroplastes* sp. (a wax scale) 934, 1032, 1110, 1126
- Ceroplastes ceriferus* (a wax scale) 97, 163
- Ceroplastes floridensis* (Florida wax scale) 144, 239, 948, 1082
- Ceroplastes rubens* (red wax scale) 4, 226
- Cerotoma trifurcata* (bean leaf beetle) 8, 30, 101, 103, 107, 134, 161, 235, 347, 424, 461, 482, 487, 514, 518, 545, 549, 610, 616, 634, 690, 849, 992, 1025, 1032, 1136
- Cerura borealis* (a notodontid) 735, 1034
- Ceutorhynchus assimilis* (cabbage seedpod weevil) 80, 373, 461, 488
- Chaetocnema* spp. (flea beetles) 291, 322
- Chaetocnema confinis* (sweetpotato flea beetle) 66, 489, 417, 642, 695, 819, 874, 931, 981, 997
- Chaetocnema denticulata* (toothed flea beetle) 446
- Chaetocnema ecyta* (desert corn flea beetle) 62
- Chaetocnema pulicaria* (corn flea beetle) 6, 84, 132, 156, 189, 232, 262, 412, 446, 478, 511, 540, 717, 751, 868, 1031
- Chalcidius newnesi* (cowpea curculio) 104, 107, 172, 283, 291, 353, 616, 641, 728, 1012, 1040, 1120
- Chalepus dorsalis* (locust leaf miner) 184, 670, 700, 735, 766, 828, 873, 1054, 1089, 1102, 1137
- Chaoborus* spp. (midges) 830
- Chaoborus punctipennis* 627
- Chelymorpha cassidea* (argus tortoise beetle) 425, 1120
- Chermes abietis* (western spruce gall aphid) 557
- Chermes cooleyi* (Cooley spruce gall aphid) 356, 428, 465, 797, 1102, 1146
- Chermes piceae* (balsam woolly aphid) 43, 124, 206, 217
- Cheyletiella parasitivorax* (a mite) 1111
- Chilo loftini* (a borer) 477
- Chionaspis furfur* (scurfy scale) 102, 154, 377
- Chloelasma conspersa* 839
- Chlorochroa sayi* (Say stink bug) 61, 341, 373, 574, 606, 1063
- Chloropsalta zirdissima* (a cicada) 316
- Chorizans bovis* (a mite) 137, 157
- Choristoneura fuliferana* (spruce budworm) 43, 124, 206, 207, 209, 210, 216, 255, 382, 494, 525, 590, 646, 828, 1146
- Choristoneura pinus* (jack-pine budworm) 210, 255, 275, 382, 590, 622, 646, 669, 699, 705, 734, 797
- Chorizagrotis auxillaris* (army cutworm) 26, 31, 75, 78, 88, 127, 178, 189, 222, 243, 264, 302, 327, 345, 366, 369, 387, 418, 470, 477, 498, 514, 531, 596, 1009, 1060, 1084, 1142
- Chorthippus longicornis* (a grasshopper) 539, 923
- Chortophaga viridifasciata* (a grasshopper) 830
- Chromaphis juglandicola* (walnut aphid) 122, 502, 872
- Chrysobothris* sp. (a buprestid) 966
- Chrysobothris femorata* (flatheaded apple tree borer) 235, 485
- Chrysolina* spp. (klamathweed beetles) 900, 1059
- Chrysolina gemellata* 357, 468, 504, 900
- Chrysolina hyperici* 468, 496, 504, 900
- Chrysomela interrupta* 218
- Chrysomela scripta* (cottonwood leaf beetle) 30, 215, 285, 403, 1120, 1121, 1145
- Chrysomphalus anidum* (Florida red scale) 316, 548, 873, 967
- Chrysomphalus bifasciatus* (a scale) 117
- Chrysomphalus dictyospermi* (dictyosperum scale) 361
- Chrysomphalus lilacinus* (an armored scale) 257

Chrysomphalus obscurus (obscure scale) 285, 967
Chrysomphalus tenebriocosus (gloomy scale) 163
Chrysonyza demandata (an otitid) 5, 98, 238
Chrysops spp. (lacewings) 72, 137, 625, 676, 737, 830, 1029, 1102
Chrysopa oculata (golden-eyed lacewing) 947, 1025, 1068
Chrysopa plorabunda 1067
Chrysops spp. 238, 747, 768, 968
Chrysops excitans (a tabanid) 592
Cimex americana (elm sawfly) 45, 557, 591
Cimex lectularius (bed bug) 109, 117, 132, 250, 768, 963, 1102
Cinara sp. (an aphid) 173, 228, 270, 526, 591, 623, 914, 1034
Cinara chinookiana 1110
Cinara setulosa 1110
Cinara sonata 1110
Cinara Strobeli (white-pine aphid) 623, 645, 826
Cinara tujaefilina 76, 173, 226, 285, 1120
Cinara watsoni 119
Cinara pini 256
Circotettix rabula (a grasshopper) 840
Circotettix undulatus 883
Circulifer tenellus (beet leafhopper) 12, 23, 28, 63, 83, 136, 144, 180, 247, 283, 307, 331, 351, 373, 392, 436, 460, 489, 503, 520, 549, 583, 614, 665, 695, 729, 791, 850, 911, 949, 996, 1026, 1056, 1086, 1097, 1109, 1126, 1133
Cispeps fulvicollis (a lepidopterous larva) 246
Clasoptera achatina (a spittlebug) 330
Clasoptera arizonana 57
Clavigerus smithiae (an aphid) 900
Clepsis peritana (a leaf roller) 474
Cnephia longana (omniverous leaf tier) 120, 122, 425, 452, 520, 585
Cnephia mutata (a black fly) 355, 401, 405
Coccinella sp. (a predator) 317
Cocciniperidum (soft scale) 19, 67, 115, 125, 144, 457, 1128
Coccus pseudomagnoliarum (citricola scale) 457, 501
Colaspis sp. (a colaspis) 66, 101, 183, 718, 734, 796, 849, 870
Colaspis flavida (grape colaspis) 874
Colaspis pini 215, 896
Coleomegilla fuscilabris (a lady beetle) 105, 137
Coleomegilla maculata 404
Colias sp. 360, 672, 686
Colias philodice eurytheme (alfalfa caterpillar) 28, 132, 141, 235, 281, 327, 346, 369, 392, 450, 483, 514, 636, 658, 688, 719, 752, 786, 815, 848, 887, 908, 927, 962, 979, 994, 1062, 1084, 1147
Coleophora sp. (a casebearer) 152
Coleophora laricella (larch casebearer) 212, 276, 382
Collops spp. (predators) 60, 72, 800
Collops balteatus 145, 334, 947, 1023
Collops adrimaculatus 496
Collops vittatus 627, 737
Conoderus amplicollis (Gulf wireworm) 48
Conoderus falli 374, 426, 664
Conoderus vagus 48
Conocorus hesperianus (tobacco wireworm) 47, 102, 398, 399, 1117
Conophthorus sp. (a beetle) 827

Conotelus mexicanus (a beetle) 334
Contarinia pyrivora (pear midge) 154, 455
Contarinia sorghicola (sorghum midge) 66, 290, 1115
Conotrachelus nenuphar (plum curculio) 5, 25, 42, 70, 85, 151, 154, 160, 182, 194, 235, 254, 267, 282, 290, 305, 329, 348, 372, 394, 419, 455, 484, 515, 546, 578, 612, 637, 661, 724, 757, 788, 1033, 1101, 1115, 1132, 1136
Conozoa walluta (a grasshopper) 883
Coptodisca sp. (a helioselid) 898
Coptotermes sp. 769, 800
Coptotermes crassus (a termite) 800, 1134
Corcya cephalonica (rice moth) 25, 1134
Cordillalacris crenulata (a grasshopper) 411, 884
Cordillalacris occipitalis 884
Coryphista meadii (a barberry leaf-worm) 828
Corythucha sp. (a tingid) 421, 878
Corythucha arcuata (oak lace bug) 670, 735, 765
Corythucha ciliata (sycamore lace bug) 183, 766, 915, 967
Corythucha cydoniae (hawthorn lace bug) 76, 1011
Corthylus columbianus (Columbian timber beetle) 735
Cosmopolites sordidus (banana root borer) 285
Cotinis nitida (green June beetle) 49, 137, 159, 169, 236, 332, 354, 462, 718, 724, 755, 758, 789, 817, 823, 850, 905, 945, 977, 1079, 1137
Cotinis texana (a June beetle) 726, 757, 789, 872
Crambus sp. (a sod webworm) 102, 387, 509, 658, 1102, 1135
Crambus caliginosellus (horn root webworm) 253, 447, 508, 509, 541, 573
Crambus dorsipunctellus 120
Crambus plumbifimbriellus 120, 127
Crambus terretrullus (bluegrass webworm) 234
Crambus topiarius (cranberry girdler) 127
Crambus vulgivagellus (vagabond crambus) 234, 323, 1007
Cratypedes neglectus (a grasshopper) 920
Creontiades debilis (a mirid) 24
Cricoceras asparagi (asparagus beetle) 8, 42, 254, 352, 396, 422, 461, 489, 519, 585, 642, 761, 951, 1086, 1136
Cricoceras duodecimpunctata (spotted asparagus beetle) 519, 642, 1086, 1136
Crymodes devastator (glassy cutworm) 121, 127, 302, 445, 500
Cryptococcus fagi (beech scale) 43, 217
Cryptolaemus mrontouzeri (a mealybug predator) 357, 504
Cryptotermes cavifrons (a termite) 311
Ctenicera lobatus (a wireworm) 110
Ctenicera pruinina noxia (Great Basin wireworm) 387, 445, 509
Ctenocephalides spp. (fleas) 46, 293, 648, 879, 917, 1041
Ctenocephalides canis (dog flea) 830, 1102, 1118
Ctenocephalides felis (cat flea) 1075, 1102, 1118
Cuclitogaster heteroglyphus (chicken head louse) 43
Cuneta lateralis (a leafhopper) 302
Culex spp. (mosquitoes) 1027, 1102
Culex erythrorhox 1087
Culex nigripalpus 104
Culex pipiens (northern house mosquito) 104, 495

Culex tarsalis 31, 355, 495, 625, 859, 897, 998, 1087
Culicoides spp. (midges) 1014
Culiseta sp. (a mosquito) 110
Culiseta inornata 625
Cyclocephala sp. (small chestnut weevil) 526, 1011
Cyclocia caryae (pecan weevil) 69, 76, 195, 268, 292, 909, 980, 1056, 1116
Cuterebra sp. (a rabbit bot) 737
Cyclocephala sp. (a chafer) 85, 1110, 1137
Cyclocephala borealis (northern masked chafer) 945, 1040
Cyclocephala immaculata (southern masked chafer) 30, 179, 925
Cylas formicarius elegantulus (sweetpotato weevil) 18, 66, 1026, 1042
Cyrtopistonus castaneus (Asiatic oak weevil) 9, 184, 846, 701, 734, 765, 861, 897, 917, 935, 985, 1034, 1138
Cyrtopeltis minimus (suckfly) 102, 619
Cyrtoides nudus (an air sac mite) 105

D

Dactyloctenium bicolor (a grasshopper) 920
Dacus cucurbitae (melon fly) 792, 820, 821, 853, 894, 910, 951, 1026, 1096, 1108, 1127
Dacys cleae (olive fruit fly) 316, 1010
Dasynura leguminicola (clover seed midge) 120
Dasynura mali (a midge) 43
Dasynura pyri (a leaf midge) 662
Datana sp. (a caterpillar) 818
Datana integerrima (walnut caterpillar) 160, 163, 237, 255, 292, 547, 613, 638, 670, 700, 758, 789, 818, 872, 949, 995, 1034, 1116
Datana major (an azalea caterpillar) 933, 1013, 1120
Datana ministra (yellow-necked caterpillar) 9, 45, 81, 160, 214, 734, 797, 829, 872, 878, 1034
Deidamia inscriptum (a sphinx moth) 184
Deloyala guttata (mottled tortoise beetle) 583
Dendroctonus spp. (bark beetles) 19, 25, 227, 365, 465, 590, 734, 827, 1134
Dendroctonus approximatus (Colorado pine beetle) 209
Dendroctonus arizonicus (Arizona pine beetle) 209
Dendroctonus barberi (southwestern pine beetle) 208, 209
Dendroctonus borealis (Alaskan spruce beetle) 218
Dendroctonus brevicornis (western pine beetle) 124, 204, 205
Dendroctonus convexifrons (round-headed pine beetle) 209
Dendroctonus engelmanni (Engelmann spruce beetle) 205, 207, 208, 699
Dendroctonus frontalis (southern pine beetle) 49, 103, 162, 213, 292, 376, 1075
Dendroctonus jeffreyi (Jeffrey pine beetle) 203
Dendroctonus monticolae (mountain pine beetle) 203, 205, 207, 210, 826, 1087, 1144
Dendroctonus ponderosae (Black Hills beetle) 207, 209, 623, 700, 1086

Dendroctonus pseudotsugae (Douglas-fir beetle) 124, 203, 205, 206, 209, 1086, 1144
Zimmarctonus terebrans (black turpentine beetle) 49, 103, 109, 162, 214, 292, 428, 700, 1075, 1110
Dendroctonus valens (red turpentine beetle) 403, 952
Depressaria heracliana (parsnip webworm) 152
Dermacentor sp. 1146
Dermacentor andersoni (Rocky Mountain wood tick) 31, 32, 1086
Dermacentor variabilis (American dog tick) 10, 31, 46, 401, 430, 468, 495, 527, 593, 768, 998, 1035, 1103
Dermanyssus gallinae (chicken mite) 105, 118
Dermestes ater (black larder beetle) 835
Dermestes lardarius (larder beetle) 46, 164
Dermestes maculatus (hide beetle) 164
Derobrachus germinatus (a cerambycid) 735
Deroceras reticulatum (gray garden slug) 128
Derotmema haydenii (a grasshopper) 838
Desmia funeralis (grape leaf folder) 909
Diabrotica spp. (corn rootworms) 125, 179, 684, 751, 792, 798, 813, 868, 908, 928
Diabrotica balteata (banded cucumber beetle) 49, 141, 450, 874, 878, 947, 981, 1074
Diabrotica longicornis (northern corn rootworm) 27, 84, 133, 229, 253, 263, 684, 717, 751, 785, 813, 845, 868, 908, 928
Diabrotica undecimpunctata (western spotted cucumber beetle) 123, 500, 759
Diabrotica undecimpunctata howardi (spotted cucumber beetle, southern corn rootworm) 8, 27, 70, 103, 134, 141, 156, 159, 161, 169, 171, 182, 232, 263, 266, 302, 347, 450, 482, 514, 520, 582, 607, 717, 751, 783, 813, 823, 874, 894, 908, 910, 992, 1033, 1074, 1136, 1143
Diabrotica virgifera (western corn rootworm) 27, 263, 717, 751, 813, 845, 928
Diactrisia obliqua (a caterpillar) 294
Dialeurodes citri (citrus whitefly) 223, 953, 1027, 1075
Diaphana hyalinata (melonworm) 268
Diaphana nitidalis (pickleworm) 48, 161, 291, 760, 874, 1080, 1116, 1120
Diaperhoma femorata (walkingstick) 211, 255, 877
Diaspis carulea (juniper scale) 81, 86, 270, 463, 467
Diatraea crambidoides (southern cornstalk borer) 101, 571, 604, 888, 943, 1023, 1107, 1119
Diatraea grandiosella (southern corn borer) 23, 61, 66, 93, 106(see *Z. grandiosella*)
Diatraea saccharalis (sugarcane borer) 23, 66, 262, 311, 341, 367, 387, 477, 541, 556, 813, 945, 1107, 1119, 1132
Dichomeris marginella (juniper webworm) 144, 183, 356
Dichromorpha viridis (a grasshopper) 938
Dikraneura absenta (a leafhopper) 718

Dikraneura carneola (a leafhopper) 307, 365
Dioryctria sp. 214, 968, 1097
Dioryctria amatella 898
Dioryctria zimmermani (Zimmerman pine moth) 1013
Diprion spp. (pine sawflies) 211
Diprion hercyniae (European spruce sawfly) 828
Diprion similis (introduced pine sawfly) 255, 623, 857, 966
Diptacus gigantorhynchus (a plum mite) 122, 305, 1145
Dissosteira carolina (Carolina grasshopper) 843, 939
Dissosteira longipennis (High Plains grasshopper) 939
Dissosteira spurcata 940
Dociostaurus maroccanus (Moroccan locust) 360
Dolerus sp. (a sawfly) 541
Dolerus collaris 541
Dolerus unicolor 135, 136
Drepanocterus leonardus (a grasshopper) 441, 940
Drosophila spp. (vinegar flies) 157, 238, 375
Drosophila hydei 105
Dyscinetus morator (a scarabaeid) 1079
Dysdercus suturellus (cotton stainer) 25

E

Earias fabia (spotted bollworm) 294
Earias insulana (spiny bollworm) 294, 317, 360
Ecdytolopa insitiana (locust twig borer) 859, 1034
Echidnophora gallinacea (sticktight flea) 105, 358, 625, 1070
Ectopris crepuscularia (a geometrid) 184
Edwardsiana rosae (rose leafhopper) 1087
Elaphidion villosum (twig pruner) 95, 237, 758, 827, 914
Elasmopalpus lignosellus (lesser cornstalk borer) 22, 49, 61, 101, 172, 289, 388, 476, 509, 541, 573, 606, 658, 717, 751, 780, 845, 867, 889, 893, 908, 930, 944, 981, 1040, 1041, 1061, 1074, 1080, 1115, 1119, 1132
Eleodes spp. (false wireworms) 28, 179, 262, 344, 387, 388, 417, 466, 959
Elleodes opaca (plains false wireworm) 352
Eliada caniplaga (a notodontid) 184
Empoasca spp. (leafhoppers) 132, 142, 171, 193, 221, 234, 246, 281, 302, 328, 346, 380, 449, 402, 551, 616, 729, 757, 874, 911, 926, 931, 965, 981, 1011
Empoasca abrupta 729
Empoasca devassans 294
Empoasca fabae (potato leafhopper) 7, 29, 45, 69, 71, 84, 88, 101, 132, 152, 159, 161, 183, 234, 253, 265, 274, 302, 416, 449, 485, 613, 544, 551, 573, 582, 610, 615, 624, 636, 640, 659, 663, 689, 693, 720, 727, 736, 754, 760, 785, 790, 816, 822, 849, 852, 856, 870, 873, 907, 945, 950, 962, 1009, 1025, 1032, 1136, 1143, 1148
Empoasca filamenta 694, 729, 852, 1086
Empoasca solana (southern garden leafhopper) 66, 819, 853
Empria ignota (strawberry sawfly) 255

Endria inimitica (painted leafhopper) 28, 416
Eotetranychus carpinii borealis (yellow spider mite) 419
Eotetranychus multiguttuli (a mite) 86
Eotetranychus sexmaculatus (six-spotted mite) 517, 389
Eotetranychus weldoni 1021
Eotetranychus willamettei 121, 1085
Eotetranychus yumenis 54, 62, 457, 723, 1062
Ephestia sp. 53, 292
Ephestia clutella (tobacco moth) 104, 934, 1014
Epicaerus formidolosus (a weevil) 915
Epicaerus imbricatus (imbricated snout beetle) 181, 389
Epicauta spp. (blister beetles) 30, 79, 120, 133, 235, 289, 480, 582, 610, 659, 688, 694, 719, 726, 816, 848, 891, 908, 1120
Epicauta bispinosa 582, 759, 851
Epicauta cinerea (clematis blister beetle) 891
Epicauta fabricii (ash-gray blister beetle) 577, 908
Epicauta immaculata (a blister beetle) 512, 729
Epicauta maculata (spotted blister beetle) 549, 851
Epicauta pennsylvanica (black blister beetle) 133, 164, 235, 253, 577, 816, 848, 891, 908, 928
Epicauta pestifera (margined blister beetle) 133, 694, 755, 759, 819
Epidiaspis pircicola (Italian pear scale) 223
Epilachna borealis (squash beetle) 641, 728, 930
Epilachna chrysomelina (melon beetle) 361
Epilachna varivestis (Mexican bean beetle) 147, 29, 42, 96, 101, 156, 161, 182, 257, 273, 275, 284, 289, 291, 396, 416, 423, 487, 514, 518, 550, 581, 616, 641, 665, 693, 759, 792, 852, 873, 893, 950, 992, 996, 1011, 1032, 1075, 1086, 1101, 1116, 1120, 1136, 1143
Epinotia meritana (fir needle miner) 1086
Epitrimerus pyri (pear rust mite) 122
Epitrix cucumeris (potato flea beetle) 42, 103, 156, 161, 182, 254, 275, 397, 424, 459, 487, 551, 581, 615, 640, 663, 693, 726, 790, 819, 873, 893
Epitrix fuscula (eggplant flea beetle) 103
Epitrix hirtipennis (tobacco flea beetle) 47, 102, 161, 196, 248, 269, 307, 331, 354, 375, 398, 399, 441, 423, 462, 487, 520, 521, 522, 553, 582, 586, 643, 667, 696, 730, 761, 793, 822, 823, 875, 1117
Epitrix subcristata (western potato flea beetle) 726
Epitrix tuberosa (tuber flea beetle) 29, 374, 459, 557, 582, 614, 726, 852
Epizeuxis lubricalis (a moth) 234
Epochra canadensis (currant fruit fly) 125, 421
Eranthis tuberosa (linden looper) 184
Eremiacris virgata (a grasshopper) 987
Erinnivus alope (a hornworm) 799
Eriococcus azaleae (azalea bark scale) 407, 1120, 1128
Eriophyes sp. (a mite) 197, 1145
Eriophyes loewi 898
Eriophyes prunidenissae 95, 224

Eriophyes pyri (pear leaf blister mite) 121, 305, 372, 455, 516, 547, 612, 661, 691, 757, 892, 928, 1010
Eriosoma lanigerum (woolly apple aphid) 107, 62, 81, 121, 151, 154, 316, 403, 454, 546, 580, 756, 788, 850, 892, 963, 980, 994, 1033, 1034, 1085, 1119
Eritetix simplex (a grasshopper) 987
Ernobius spp. (a beetle) 214
Erythroneura sp. (a leafhopper) 183, 872, 892
Erythroneura elegans 1087
Erythroneura elegantula 502
Erythroneura variabilis 502
Erythroneura Zizcae (Virginia-creeper leafhopper) 395, 579, 639, 797, 915, 1087
Esigella pini (an aphid) 119
Estigmene acrea (salt-marsh caterpillar) 25, 101, 174, 327, 332, 346, 369, 615, 795, 855, 896, 913, 951, 1063, 1134
Etiella zinckenella (lima bean pod borer) 93, 102
Eucerpacia betulae (a birch aphid) 110
Eucosma gloriola (a twig moth) 900, 1013
Eucosma sonomana 256
Euthetia rufescens (sugarcane beetle) 66, 101, 134, 146, 174, 280, 290, 388, 413, 446, 478, 510, 574, 751, 1088, 1119
Eumerus tuberculatus (lesser bulb fly) 144
Eupedecae volucris (a syrphid) 1099
Euphoria inda (bumble flower beetle) 183
Eurygaster integriceps (senn pest) 317, 360
Eurytetranychus buxi (a mite) 526
Eurytoma anygula (almond nut borer) 361
Eurytoma pistaciae (pistachio nut borer) 361
Euschistus sp. (a stink bug) 694
Euschistus conspersus 549, 502
Euschistus cuscutidifoides 855, 824
Euschistus impictiventris 786, 891, 1062, 1063
Euschistus servus (brown stink bug) 322, 328, 395, 463, 520, 522, 552, 586, 619, 845, 870, 892
Euschistus tristigmus (dusky stink bug) 328, 395, 455, 548, 892
Euschistus variolarius (one-spot stink bug) 328, 892
Eutrombicula alfareddui (chigger) 800, 1137
Euxoa detersa 27, 245, 606
Euxoa ochrogaster (red-backed cutworm) 80, 127, 129, 388, 488, 514, 615
Euzophera semifuneralis (American plum borer) 54, 546, 1033
Evergestis forficalis (a cabbage-worm) 21
Exoteleia pinifoliella (pine needle miner) 356, 382, 526, 556, 646, 734, 1102

F

Fannia sp. 467
Fannia canicularis (little house fly) 527, 872, 1089, 1128
Farona diffus (wheat head armyworm) 29, 179, 233, 414, 470, 633, 783, 1145
Fascista cercerisyella (a leaf roller) 429, 557
Feltia sp. 489
Feltia subguthica (dingy cutworm) 6, 8, 151, 231, 234, 265, 380, 388, 432, 449, 470, 572, 626, 924, 1032, 1135
Florinia theae (tea scale) 163, 377, 1075

Feltia subterranea (granulate cutworm) 5, 21, 40, 48, 58, 77, 88, 98, 118, 146, 174, 196, 199, 229, 251, 272, 288, 314, 338, 359, 498, 531, 596, 651, 680, 704, 742, 772, 803, 832, 862, 880, 899, 919, 937, 956, 969, 986, 1000, 1016, 1030, 1045, 1060, 1072, 1083, 1099, 1112, 1129, 1142
Fenusa pusilla (birch leaf miner) 255, 273, 428, 466, 493, 557, 591, 829, 1017, 1102
Fenusa ulmi (elm leaf miner) 700
Forficula auricularia (European earwig) 81, 82, 129, 151, 356, 378, 468, 494, 529, 559, 592, 624, 650, 661, 672, 702, 737, 769, 817, 861, 889, 909, 935, 950, 1071, 1087, 1103
Formica sp. (an ant) 371
Frankliniella spp. (thrips) 24, 70, 331, 427, 489, 492, 555, 636, 1133
Frankliniella bispinosa 289
Frankliniella fusca 101, 246, 636
Frankliniella gossypiana 826, 860, 1065
Frankliniella moultoni 95
Frankliniella occidentalis 69, 545, 1063
Frankliniella tritici (flower thrips) 86, 183, 289, 490
Frankliniella vacchii 43
Furcaspis biformis (a scale) 97

G

Galerucella decora (a leaf beetle) 45
Galerucella xanthomelaena (elm leaf beetle) 9, 64, 67, 81, 87, 109, 129, 137, 152, 162, 184, 227, 237, 357, 402, 404, 430, 465, 469, 493, 497, 603, 525, 557, 624, 647, 670, 639, 736, 735, 765, 798, 829, 858, 877, 914, 933, 966, 1034, 1064, 1089, 1102, 1103, 1118, 1120, 1137, 1138
Galleria mellonella (greater wax moth) 1059
Gargaphia solani (eggplant lace bug) 103
Geocoris sp. (a predator) 672
Geocoris decoratus 334
Glioschrochilus fasciatus (a nitidulid) 754
Glioschrochilus quadrisignatus 129
Glycobius speciosus (sugar-maple borer) 827
Glycycaphus destructor (a mite) 286
Glyphodes phyalis (a moth) 59
Gnimoschena ocellatella 361
Gnimoschena operculella (potato tuberworm) 21, 45, 164, 174, 227, 284, 317, 800, 981, 996, 1033, 1086, 1117, 1121, 1137
Goniodes gigas (large chicken louse) 1110
Gossyparia spuria (European elm scale) 30, 180, 237, 309, 356, 591, 647, 699, 735, 765, 877, 952, 1144
Gracilaria azaleella (azalea leaf miner) 87, 356, 671
Gracilaria perseae (a leaf roller) 949
Graphomathus spp. (white-fringed beetles) 102, 226, 633, 845, 970, 992
Grapholitha sp. (a fruitworm) 184
Grapholitha interstinctana (clover head caterpillar) 133, 253
Grapholitha molesta (oriental fruit moth) 9, 101, 107, 151, 155, 236, 282, 419, 456, 485, 502, 517, 545, 579, 611, 637, 661, 682, 724, 758, 789, 929, 948, 950, 1033, 1115, 1131, 1136

Grapholitha packardii (cherry fruitworm) 1119
Gratiana pallidula (a tortoise beetle) 488, 521
Gretchena bolliviana (pecan bud moth) 485, 1119
Grylloblatta sp. (a mole cricket) 317
Grylotalpa hexadactyla (northern mole cricket) 102, 970, 1103
H
Hadrotettix trifasciatus (a grasshopper) 748, 988
Haematopinus eurysterus (short-nosed cattle louse) 43, 46, 87, 117, 150, 137, 164, 197, 118
Haematopinus suis (hog louse) 271, 1014
Haematosiphon inodorus (poultry bug) 85
Haemogamasus oudemansi (a mite) 286
Haemolaepus megaventralis (a mite) 100, 625
Halisdota carayae (hickory tussock moth) 725, 1034
Halisdota harrisii (sycamore tussock moth) 825, 1034
Halisdota tessellaris (pale tussock moth) 932
Halticus bracteatus (garden flea-hopper) 269, 616, 727, 792, 907
Hamamelistes spinosus (an aphid) 558
Harmolita grandis (wheat straw-worm) 417
Harmolita tritici (wheat jointworm) 135, 233, 905, 1145
Harrisina sp. 929, 963
Harrisina americana (grape leaf skeletonizer) 725, 980
Harrisina brillians (western grape leaf skeletonizer) 547, 579, 725, 929, 948, 963, 1085
Helcon pedalis (a braconid) 702
Heliaula rufa (a grasshopper) 988
Heliothis spp. (budworms) 61, 62, 100, 150, 162, 163, 322, 523, 554, 586, 587, 618, 620, 643, 644, 666, 668, 696, 697, 730, 731, 761, 762, 793, 794, 823, 824, 854, 875, 895, 908, 912, 925, 932, 955, 1027, 1057, 1061, 1063, 1120
Heliothis armigera (a bollworm) 360
Heliothis phloxipaga 64, 124
Heliothis virescens (tobacco budworm) 21, 47, 77, 88, 100, 102, 108, 109, 277, 291, 307, 311, 314, 332, 338, 359, 375, 380, 399, 425, 432, 463, 470, 490, 496, 498, 522, 531, 552, 554, 596, 616, 626, 651, 666, 680, 704, 731, 742, 772, 803, 832, 857, 862, 880, 899, 919, 932, 937, 956, 969, 986, 1000, 1016, 1030, 1045, 1057, 1060, 1072, 1083, 1089, 1116
Heliothis zea (bollworm, corn earworm, tomato fruitworm) 5, 6, 11, 21, 22, 25, 26, 42, 44, 47, 48, 58, 61, 62, 64, 67, 69, 70, 77, 78, 84, 88, 98, 100, 102, 106, 108, 115, 123, 134, 146, 150, 159, 156, 158, 162, 172, 174, 179, 182, 199, 229, 232, 236, 251, 254, 257, 265, 269, 272, 274, 288, 289, 291, 312, 314, 315, 327, 338, 359, 361, 369, 380, 387, 399, 411, 424, 442, 447, 470, 477, 498, 501, 508, 519, 521, 531, 540, 551, 554, 575, 596, 610, 615, 626, 633, 639, 651, 657, 661, 663, 668, 680, 685, 693, 704, 717, 727, 731, 742, 749, 750, 772, 781, 790, 803, 812, 819, 823, 832, 846, 851, 862, 871, 873,

880, 888, 893, 899, 904, 908, 910, 919, 924, 929, 932, 937, 944, 950, 951, 956, 959, 964, 969, 975, 981, 986, 991, 996, 1000, 1011, 1016, 1017, 1023, 1030, 1031, 1045, 1057, 1060, 1072, 1074, 1075, 1083, 1085, 1086, 1088, 1099, 1100, 1101, 1112, 1115, 1116, 1119, 1120, 1129, 1132, 1134, 1142, 1143

Helix aspersa (brown garden snail) 224

Hellula rogatalis (cabbage webworm) 48

Hematopinus spp. (cattle lice) 30

Hemerocampa leucostigma (white-marked tussock moth) 30, 647, 692, 700, 766, 798, 1034

Hemerocampa osiari (see *H. pseudotsugata*)

Hemerocampa pseudotsugata (Douglasfir tussock moth) 204, 206, 797, 828

Hemerocampa testata (western tussock moth) 125, 456

Hemitepripis memnonis (a wireworm) 664

Hemileuca maia (buck moth) 557, 1034

Hemileuca tricolor 1014

Hermetia illucens (a stratiomyid) 238, 1028, 1099

Hesperotettix speciosus (a grasshopper) 1002

Hesperotettix viduus 1002

Heterocampa guttivalva (saddled prominent) 217, 701, 765, 858, 967

Heterocampa manteo (variable oak leaf caterpillar) 26, 212, 214, 227, 235, 403, 556, 765, 797, 952, 1034, 1137

Heterocoelus graminicola (a mealybug) 323, 574, 1007

Heterodera glycines (soybean cyst nematode) 1067, 1125

Hippelates collusor (an eye gnat) 65, 467, 1064, 1118

Hippiscus rugosus (a grasshopper) 1003

Hippodamia sp. 426, 464

Hippodamia savagesi (convergent lady beetle) 20, 58, 60, 72, 105, 137, 145, 227, 266, 310, 334, 404, 447, 496, 559, 672, 737, 934, 947, 1024, 1062, 1067, 1068

Hippodamia paranthesis 137, 404

Hippodamia sinuata 404

Histiogona americanum (a mite) 1081

Homadula albizziae (mimosa webworm) 9, 49, 163, 237, 624, 670, 700, 736, 766, 798, 859, 878, 915, 933, 967, 983, 1034, 1089, 1120, 1137

Hoplia oregona (a beetle) 485

Hoplocampa festudinella (European apple sawfly) 153, 544, 484, 516, 579, 612

Hoplochaitophorus quercicola (an aphid) 1057

Horistonotus uhlerii (sand wireworm) 231, 784

Howardia biclavis (a scale) 97

Hydrellia griseola (a rice leaf miner) 717

Hydrobaenus sp. (a midge) 769

Hylastinus obscurus (clover root borer) 94, 120, 132, 159, 181, 371, 787, 1009

Hylemya antiqua (onion maggot) 79, 110, 123, 129, 136, 156, 257, 352, 396, 425, 461, 489, 518, 550, 583, 618, 666, 695, 730, 760, 820, 853, 929, 996, 1011

Hylemya brassicae (cabbage maggot) 80, 129, 151, 156, 196, 254, 267, 424, 460, 488, 519, 549, 1017

Hylemya cilicrura (seed-corn maggot) 5, 11, 27, 48, 70, 78, 80, 101, 135, 156, 224, 231, 257, 268, 307, 328, 331, 334, 344, 355, 374, 376, 388, 397, 399, 422, 447, 461, 464, 477, 521, 541, 550, 609, 617, 633, 642, 687, 819, 1017, 1026, 1031, 1032, 1069, 1116

Hylemya floralis (turnip maggot) 110

Hylemya lupini (lupine maggot) 193, 289

Hylobius pales (pales weevil) 19, 109, 152, 162, 214, 270, 355, 590, 622, 1033

Hylobius radialis (pine root collar weevil) 152, 932

Hylotrupes bajulus (old house borer) 4, 40, 118, 152, 165, 258, 430, 496, 879, 954, 1044, 1071, 1103, 1138

Hylurinus rufipes (native elm bark beetle) 333, 356

Hymaneraria nervosa (a stink bug) 322

Hyperba humuli (a phalaenid) 911

Hyperba sp. 886

Hyperba brunneipennis (Egyptian alfalfa weevil) 53, 60, 246, 347

Hyperba meles 169, 181, 289, 326, 345, 371, 390, 417, 451

Hyperba nigrirostris (lesser clover leaf weevil) 7, 28, 79, 84, 131, 150, 171, 181, 222, 234, 289, 326, 345, 370, 390, 415, 451, 480, 511, 543, 577, 607, 689, 754, 1031, 1136

Hyperba posticus (alfalfa weevil) 7, 28, 41, 79, 100, 120, 128, 150, 158, 181, 267, 280, 304, 326, 345, 370, 392, 417, 450, 479, 511, 543, 577, 608, 635, 659, 665, 689, 719, 725, 754, 815, 849, 908, 927, 1010, 1031, 1056, 1067, 1084, 1095, 1135, 1143, 1144, 1147

Hyperba punctata (clover leaf weevil) 7, 49, 131, 142, 150, 159, 170, 181, 192, 226, 234, 267, 280, 304, 326, 345, 370, 389, 417, 451, 479, 541, 577, 787, 947, 1031, 1088

Hyphantria cunea (fall webworm) 9, 10, 45, 67, 81, 214, 256, 258, 290, 292, 485, 547, 591, 622, 638, 662, 670, 698, 758, 789, 798, 827, 859, 872, 877, 892, 929, 933, 949, 952, 963, 995, 1017, 1033, 1034, 1111, 1119, 1120, 1137, 1148

Hyphochlora alba 1003

Hyphodera spp. 180, 184, 527, 1134

Hypoderma bovis (northern cattle grub) 20, 26, 30, 109, 130, 1087

Hypoderma lineatum (common cattle grub) 20, 35, 67, 71, 76, 130, 154, 173, 196, 227, 249, 377, 527, 559, 625, 1043, 1087, 1118, 1120, 1138, 1142, 1148

Hysteroneura setariae (rusty plum aphid) 455, 500, 944, 1056

Hysterochora stygiaria (a moth) 755

Ichthyura inclusa (poplar tent maker) 766, 827, 932, 1034, 1137

Idiocerus atkinsoni (mango leafhopper) 294

Idiocerus stali (pistachio leafhopper) 361

Idiostatus sp. (a cricket) 780

Idiostatus elegans 780

Idiostatus magnificus 780

Ips spp. (engraver beetles) 109, 205, 213, 218, 226, 699, 827, 1098

Ips avulsus 104, 162, 213, 898, 1075, 109C

Ips calligraphus 104, 162, 1075, 1098

Ips confusus 204

Ips grandicollis 104, 1075, 1098

Ips interperctus 218

Ips oregoni 204

Ips pini (pine engraver) 116, 162, 292, 332, 428, 558

Iridomyrmex humilis (Argentine ant) 64

Itionia vificola (a grape tube gall) 102, 369

Itoplectis conquisitor (a parasite) 769

IXodes 300, 32

IXodes ricinus (black-legged tick) 57, 288

J

Julus sp. (a garden millipede) 98

K

Keiferia lycopersicella (tomato pinworm) 18, 63, 224, 929

Kermes sp. (a scale) 591

Kermes pubescens 557

L

Labops sp. (a mirid) 1144

Labops heperius (a plant bug) 127

Lachnus salignus (an aphid) 1014, 1042

Lacinipolia renigera (bristly cutworm) 131, 327, 388

Laemophloeus spp. 130

Laemophloeus ferrugineus (rusty grain beetle) 897

Laemophloeus pusillus (flat grain beetle) 71, 238, 376, 917, 1146

Lambdina sp. (a phytid) 968

Lambdina athasaria pellucidiaria (a looper) 10, 216, 403

Lambdina fiscellaria fiscellaria 216

Lampetia equestris (narcissus bulb fly) 129, 997

Laphygma exigua (beet armyworm) 53, 63, 64, 381, 427, 503, 524, 532, 728, 732, 795, 908, 913, 944, 962, 994, 1010, 1062

Laphygma frugiperda (fall armyworm) 5, 21, 22, 28, 49, 62, 65, 68, 77, 88, 98, 106, 118, 150, 159, 160, 174, 179, 199, 232, 262, 289, 291, 338, 359, 447, 542, 596, 605, 626, 635, 651, 680, 687, 704, 720, 742, 772, 783, 803, 812, 832, 844, 853, 862, 868, 880, 888, 899, 905, 908, 919, 927, 931, 937, 944, 956, 959, 969, 975, 986, 991, 1000, 1007, 1016, 1025, 1030, 1031, 1039, 1045, 1055, 1060, 1067, 1072, 1074, 1083, 1099, 1112, 1119, 1129.

1132, 1135
Lasioderma serricorne (cigarette beetle) 40, 185
Lasius alienus americanus (corn-field ant) 103
Lasius claviger (smaller yellow ant) 1128
Laspyresia caryana (hickory shuck worm) 23, 104, 194, 292, 1132
Laspyresia nigricana (pea moth) 760, 930
Latroctes mactans (black widow spider) 10, 20, 71, 105, 152, 164, 378, 999, 1138, 1146
Lecanium corni (European fruit scale) 122, 151, 153, 223, 256, 579
Lecanium fletcheri (Fletcher scale) 648
Lecanium nigrofasciatum 151
Lecanium prunosum 421, 498
Lecanium quercifex 249, 356, 376
Lecaniosaphes becklii (purple scale) 67, 171, 361, 548, 1056, 1080
Lepidosaphes camelliae (camellia scale) 117, 163, 285, 674, 1013, 1027, 1118
Lepidosaphes ficus (fig scale) 485, 503
Lepidosaphes gloverii (Glover scale) 361
Lepidosaphes ulmi (oystershell scale) 30, 43, 101, 154, 163, 254, 310, 466, 494, 526, 915
Lepisma saccharina (silverfish) 1138
Leprus cyranus (a grasshopper) 1004
Leprus robustus (a grasshopper) 1004
Leprus wheeleri 1019
Leptinotarsa decemlineata (Colorado potato beetle) 8, 29, 42, 44, 48, 80, 103, 123, 132, 152, 156, 161, 182, 254, 306, 330, 352, 373, 397, 422, 459, 488, 518, 551, 581, 614, 640, 664, 694, 726, 759, 790, 818, 852, 950, 964, 996, 1032, 1120, 1136, 1143, 1148
Leptoconops torrens (a gnat) 145
Leptocoris trivittatus (boxelder bug) 5, 10, 81, 105, 118, 146, 152, 163, 165, 174, 181, 185, 198, 227, 271, 311, 378, 892, 891, 879, 917, 935, 954, 985, 1029, 1059
Leptoglossus phyllopus (leaf-footed bug) 422, 548, 616, 823, 929, 1075, 1120
Leptoglossus stigma 602, 612
Leptopterna dolabrata (meadow plant bug) 121, 379, 451, 481, 513, 1032
Leptopterna ferrugata 388
Ligyrus gibbosus (carrot beetle) 76, 136, 851, 950, 992
Ligyrus subtropicus (a white grub) 1025
Limax sp. (garden slugs) 82
Limnitis archippus (viceroxy) 310
Limonius spp. (wireworms) 417, 509
Limothrips denticornis (thrips) 44
Linognathus vituli (long-nosed cattle louse) 71, 97, 110, 130, 164, 197, 237, 1120, 1148
Liposcelis divinatorius (booklouse) 393
Liriomyza sp. (a serpentine leaf miner) 23, 24, 48, 60, 63, 64, 95, 115, 152, 391, 398, 427, 459, 489, 550, 583, 606, 720, 819, 851, 874, 929, 1062, 1075, 1133
Lissorhopterus oryophilus (rice water weevil) 606
Lissorhopterus simplex (rice water weevil) 65, 106
Listrodectes sticticus obliquus (vegetable weevil) 47, 48, 66, 75, 95, 101, 107, 142, 171, 172, 193, 196, 222, 225, 231, 248, 269, 281, 283, 291, 292
Luperinus sp. (a bark beetle) 26

326, 332, 352, 354, 374, 398, 399, 426, 462, 490, 522, 553, 1117, 1120, 1137
Listronotus oregonensis (carrot weevil) 156, 461, 1017
Litargus balteatus (a mycetophagid) 1098
Lithocolletis sp. (a leaf miner) 420, 546, 928
Lithocolletis crataegella 122, 154
Lithophane sp. (a fruitworm) 184
Lixophaga diatraeae (a parasite) 311
Lixus sp. (a rhubarb curculio) 489, 533, 424
Lobiopa insularis (a nitidulid) 66, 223, 353, 374, 398, 462, 940
Longistigma sp. (an aphid) 882
Longistigma caryae 429, 997, 1027
Longitarsus waterhousei (mint rice beetle) 128, 791
Loxagrotis albicosta (western bean cutworm) 79, 728, 813, 981
Loxostege spp. (webworms) 65, 483, 514, 577, 610, 852, 962, 1009, 1147
Loxostege commitalis (alfalfa webworm) 28, 577, 610, 614, 719, 786, 816, 848, 888, 927, 950, 1143, 1144
Loxostege similis (garden webworm) 28, 178, 545, 577, 610, 690, 719, 749, 789, 815, 848, 947, 1056, 1133
Loxostege stictialis (beet webworm) 32, 460, 489, 549, 583, 614, 642, 665, 729, 791, 822, 851, 911, 927, 945, 977, 1144
Lyctus spp. (powder post beetles) 104, 227, 237
Lydella sp. (a corn borer parasite) 274
Lygus spp. (lygus bugs) 63, 79, 123, 253, 327, 368, 392, 449, 513, 576, 610, 616, 634, 729, 754, 785, 848, 849, 853, 891, 907, 927, 947, 966, 1009, 1025, 1084, 1145
Lygus elisus 127, 193, 327, 368, 392, 501, 513, 576, 610, 634, 721, 729, 754, 763, 785, 848, 870, 876, 896, 932, 1084
Lygus hesperus 61, 63, 64, 127, 193, 327, 368, 416, 576, 610, 721, 729, 754, 763, 785, 802, 848, 870, 876, 896, 926, 932, 1062, 1063, 1084
Lygus lineolaris (tarnished plant bug) 7, 8, 27, 64, 69, 131, 141, 152, 154, 169, 178, 193, 222, 235, 236, 246, 258, 265, 275, 280, 282, 304, 327, 347, 368, 393, 395, 416, 449, 455, 481, 501, 513, 544, 551, 576, 610, 615, 634, 659, 689, 759, 785, 792, 816, 891, 927, 977, 994, 1009, 1025, 1032, 1040, 1056, 1068, 1079, 1101, 1143
Lytta cyanipennis (a blister beetle) 1144
Lytta nuttalli 1144
Lytta sphaericollis 1144

Macrosiphum barri 62, 80, 398, 853
Macrosiphum granarium (English grain aphid) 7, 15, 29, 31, 37, 42, 44, 63, 78, 106, 120, 135, 158, 179, 233, 261, 275, 300, 341, 365, 388, 414, 445, 477, 500, 510, 606, 658, 751, 783, 1061, 1145
Macrosiphum pisae (pea aphid) 7, 11, 27, 42, 60, 65, 79, 84, 93, 101, 120, 129, 131, 142, 151, 158, 170, 178, 182, 192, 222, 234, 246, 253, 264, 275, 280, 309, 323, 344, 369, 390, 398, 415, 422, 448, 461, 480, 487, 500, 512, 518, 543, 550, 575, 581, 609, 616, 636, 641, 660, 688, 721, 728, 752, 785, 815, 848, 870, 891, 907, 926, 933, 945, 960, 977, 992, 1009, 1025, 1031, 1032, 1040, 1055, 1062, 1067, 1084, 1107, 1135, 1143
Macrosiphum rosae (rose aphid) 129, 183
Macrosiphum scoliops 970
Macrosiphum solanifolii (potato aphid) 32, 38, 42, 48, 53, 129, 373, 422, 423, 518, 521, 551, 582, 615, 664, 919, 822, 851, 893, 910, 965, 1032, 1108, 1138
Macrosteles fascifrons (six-spotted leafhopper) 12, 28, 45, 233, 254, 322, 346, 366, 417, 449, 452, 482, 513, 642, 760, 822, 945, 1086
Magicicada cassini (a cicada) 964
Magicicada septendecim (periodical cicada) 559, 580, 612, 646, 662, 964
Malacosoma spp. (tent caterpillars) 129, 136, 579
Malacosoma americanum (eastern tent caterpillar) 9, 43, 45, 116, 142, 151, 152, 153, 184, 195, 246, 256, 270, 273, 285, 306, 329, 349, 366, 376, 402, 420, 466, 484, 493, 496, 516, 557, 623, 1017, 1034, 1100, 1119, 1137
Malacosoma disstria (forest tent caterpillar) 125, 153, 184, 210, 217, 255, 275, 278, 372, 382, 402, 466, 493, 509, 622, 625, 646, 669, 699, 1017, 1100, 1144, 1145
Malacosoma fragilis (Great Basin tent caterpillar) 493, 700, 1087
Malacosoma lutescens 1146
Malacosoma pluviale 125, 372
Manestha brassicae (cabbage moth) 98, 99
Manes sp. (a configurata (bertha armyworm) 31)
Mansonina perturbans (a mosquito) 1087
Mantis religiosa (European mantis) 273
Margarodes sp. (a ground pearl) 1119
Margarodes meridionalis 479, 977
Matsucoccus resinosa (a scale) 216, 1069
Megaclypeus robiniae (locust borer) 759
Megalopyge sp. (a puss caterpillar) 1064
Megalopyge opercularis (puss caterpillar) 935, 984, 1137
Melanocallis caryaeifoliae (black grape aphid) 66, 97, 292, 892, 949, 963, 1075, 1119
Melanoplus spp. (grasshoppers) 7, 107, 134, 135, 136, 273, 290, 300, 322, 387, 443, 507, 561, 572, 603, 640, 683, 715, 749, 779, 780, 843, 1031, 1032, 1055
Melanoplus alpinus 1019
Melanoplus angustipennis 1020
Melanoplus arizonae 1020

Melanoplus bivittatus (two-striped grasshopper) 27, 69, 69, 78, 121, 178, 232, 234, 252, 274, 366, 443, 475, 507, 539, 561, 572, 603, 631, 656, 683, 715, 747, 748, 749, 811, 843, 923, 943, 1036, 1084, 1143, 1145, 1146

Melanoplus bohemani 1050

Melanoplus borealis 1050

Melanoplus bowditchi 1051

Melanoplus bruneri 1051

Melanoplus cinereus 1052

Melanoplus complanatus 1052

Melanoplus confusus 274, 411, 1090

Melanoplus dawsoni 1091

Melanoplus devastator (devastating grasshopper) 500, 655, 715, 1091, 1095

Melanoplus differentialis (differential grasshopper) 24, 27, 69, 70, 133, 178, 232, 234, 235, 236, 252, 274, 500, 539, 572, 603, 628, 656, 683, 715, 748, 749, 843, 873, 881, 903, 923, 943, 1133, 1146

Melanoplus discolor 1092

Melanoplus godgei 1092

Melanoplus fasciatus 1122

Melanoplus femur-rubrum (red-legged grasshopper) 27, 69, 78, 101, 132, 178, 232, 235, 236, 252, 274, 475, 500, 507, 539, 572, 603, 604, 631, 632, 656, 683, 715, 747, 748, 749, 789, 811, 843, 867, 881, 903, 923, 930, 943, 959, 970, 991, 1023, 1084, 1122, 1143, 1145, 1146

Melanoplus aviduus 1123

Melanoplus foedus 1123

Melanoplus gladstoni 1124

Melanoplus glaucipes 1124

Melanoplus huroni 1149

Melanoplus infantilis 1149

Melanoplus keeleri 1150

Melanoplus kennicottii 1150

Melanoplus lakinius 887, 975, 1061

Melanoplus marginatus (migratory grasshopper) 50, 747

Melanoplus mexicanus (Watson grasshopper) 11, 27, 62, 69, 73, 100, 121, 127, 132, 178, 232, 235, 236, 252, 274, 366, 411, 443, 475, 500, 507, 539, 572, 628, 656, 683, 715, 747, 748, 749, 811, 843, 867, 881, 887, 903, 923, 955, 975, 1039, 1084, 1145, 1146

Melanoplus packardii (Packard grasshopper) 252, 747, 748, 1084, 1143

Melanoplus regalis 887, 975, 1061

Melanoplus spp. (wireworms) 28, 231, 367, 631

Meligethes nigrescens (a nitidulid) 120, 123, 347, 482, 720, 754

Melipotis acontioides (a phalaenid) 1027

Melissopus latiferreanus (filbert-worm) 725

Melittia cucurbitae (squash vine borer) 665, 695, 822, 874, 911, 931, 1033, 1101

Melolontha melolontha (a chafer) 317

Meloe spp. (blister beetles) 719

Melophagus ovinus (sheep ked) 197, 309, 333, 340, 1088

Menacanthus stramineus (chicken body louse) 43, 91, 1118

Mermiria sp. (a grasshopper) 779, 923

Meromyza americana (wheat stem maggot) 29, 234, 254, 658, 684, 1147

Mesogramma marginata (a syrphid) 1099

Metallus rubi (a leaf miner) 666

Metatetranychus citri (citrus red mite) 171, 224, 349, 421, 429, 453, 501, 1041

Metatetranychus ulmi (European red mite) 9, 42, 81, 95, 102, 121, 128, 151, 153, 160, 162, 194, 195, 223, 254, 282, 305, 316, 329, 347, 371, 394, 420, 453, 483, 501, 515, 547, 578, 611, 638, 662, 691, 723, 756, 788, 817, 850, 892, 909, 928, 980, 994, 1100, 1033, 1133, 1120

Metronia bicolor (golden tortoise beetle) 425, 550, 583, 617, 1120

Metronia bivittata 425

Microtrochus picirostris (clover seed weevil) 120, 479

Micronyzus formosanus (an aphid) 1108

Microphanurus semistriatus (a scellionid) 360

Microtermes spp. (termites) 294

Microtheca ochroloma (yellow-margined leaf beetle) 352

Mindarus abietinus (balsam twig aphid) 326

Minola scitulella (a moth) 122

Mocis spp. (grass loopers) 289, 977, 1095

Monarthropalus buxi (boxwood leaf miner) 164, 197, 285, 310, 377, 429, 935, 1102, 1137

Monella costalis (black-margined aphid) 62, 963

Monochamus carolinensis 1118

Monochamus notatus (northeastern sawyer) 759

Monomorium pharaonis (Pharaoh ant) 43, 276

Monophadnoides geniculatus (raspberry sawfly) 585

Monoxia spp. (a chrysoemid) 769

Mordwilkoja vagabunda (cigar vagabond aphid) 1146

Morseiella flaviventris (a grasshopper) 887, 975, 1061

Mozena obtusa (a coreid) 736

Murgantia histrionica (harlequin bug) 23, 103, 302, 549, 582, 617, 642, 695, 759, 930, 949, 965, 996, 1120

Musca domestica (house fly) 10, 26, 30, 43, 45, 57, 65, 71, 105, 117, 164, 183, 181, 184, 227, 271, 273, 276, 292, 317, 333, 377, 429, 495, 527, 558, 592, 648, 672, 800, 1075, 1088, 1089, 1102, 1118, 1134, 1138

Muscina stabulans (false stable fly) 82

Myiopardalis pardalina (a melon fly) 361

Myzaphis bucktoni (an aphid) 967

Myzocallidium fiehni (sweetclover aphid) 178, 244, 452, 575, 609, 687, 755, 813, 814, 847, 870, 907, 935, 1068, 1107, 1147

Myzocallis sp. (an aphid) 81

Myzocallis corylli 122, 349, 613

Myzocallis ficaria 81

Myzocallis ulmifolia (elm leaf aphid) 71, 700, 828, 1034, 1145

Myzus cerasi (black cherry aphid) 121, 282, 348, 456, 485, 995

Myzus dianthi 4, 130, 181, 329, 331, 348, 354, 372, 374, 375, 396, 399, 419, 423, 424, 426, 456, 463, 484, 490, 503, 521, 524, 546, 552, 582, 586, 616, 618, 664, 667, 696, 726, 761, 793, 819, 822, 823, 857, 893, 910, 995, 1056, 1062, 1108, 1116, 1126, 1135

Myzus solani (foxglove aphid) 42, 423, 664, 819, 893, 1108

N

Nabis spp. (damselfly bugs) 198, 310, 334, 496, 737, 830, 934, 947

Nabis alternatus 198, 334, 1067

Nabis ferox 198, 1025, 1057, 1068

Nacerdes melanura (wharf borer) 152

Necrobia rufipes (red-legged ham beetle) 164, 198, 559, 984

Nematus parvus (a sawfly) 591

Nematus ribesii (imported currant-worm) 45

Nematus ventralis (willow sawfly) 45, 428, 736

Nemocetes sordidus (a weevil) 462

Nemocetes incompitus (a strawberry weevil) 128, 520

Neoborus amoenus (ash plant bug) 494, 1145

Neoclytus acuminatus (red-headed ash borer) 847

Neodiprion spp. (sawflies) 204, 211, 216, 256, 493, 525, 590, 1013, 1033

Neodiprion abottii 162

Neodiprion abietis (balsam fir saw-fly) 797, 1013

Neodiprion americanus banksianae (Jack-pine sawfly) 211, 525

Neodiprion burkei (lodgpole pine sawfly) 208

Neodiprion clemens 1097

Neodiprion lecontei (red-headed pine sawfly) 25, 104, 162, 214, 216, 256, 292, 382, 670, 764, 857, 877, 898, 932, 966, 1097, 1134

Neodiprion nanus (red-pine saw-fly) 211, 493, 525, 623

Neodiprion pinetum (white-pine saw-fly) 104, 493

Neodiprion pratti 216, 427, 465, 827, 1137

Neodiprion sertifer (European pine sawfly) 86, 211, 216, 276, 382, 402, 493, 828

Neodiprion taedaes linearis 108, 214, 216, 285, 358, 376, 427, 623

Neolecanium cornurum (magnolia scale) 859

Neolygus caryae (hickory plant bug) 661

Neolygus omnivagus 548, 661

Neolygus quercalibae 661

Neoprociphilus aceris (an aphid) 10

Neorhynchocephalus sackinii (a Nemestrinid) 121

Neosteingilla texana (a coccid) 70, 910

Nephelodes emmedonia (bronzed cut-worm) 136

Nepticula sericeopeza (a seed miner) 10

Nezara viridula (southern green stink bug) 322, 422, 426, 463, 520, 522, 548, 552, 586, 619, 694, 870, 874, 905, 965, 1026, 1075

Nilotaspis halli (Hall scale) 1096

Noctuella rufifascialis (a caterpillar) 309

Nodonota puncticolis (rose leaf beetle) 10

Nomia melanderi (an alkali bee) 126, 130, 702

Nomia nortoni 650

Nomius pygmaeus (stink bug) 33

Nomophila noctuella (a moth) 160

Nymphalis antiopa (mourning-cloak butterfly) 829, 1146, 1148

Nysius spp. (false chinch bug) 331, 421, 450, 891, 905, 1120

Nysius ericae (false chinch bug) 18, 33, 70, 95, 115, 143, 172, 224, 328, 719

Nysius raphanus 585, 617

Nygmia phaeorrhoea (brown-tail moth) 402, 527

0

leaf cutter) 273, 966, 1100
Paralobesia viteana (grape berry moth) 151, 290, 316, 613, 758, 948, 1085
Paranyelops venipars (navel orange-worm) 502
Paratriozia cockerelli (potato psyllid, tomato psyllid) 11, 23, 269, 306, 352, 422, 459, 487, 518, 551, 562, 615, 639, 663, 694, 727, 790, 852, 873, 893, 950, 996, 1086, 1143
Paria sp. (a strawberry rootworm) 912, 931
Parlatoria crotonis (a scale) 97
Parlatoria oleae (olive scale) 54, 56, 115, 223, 316, 349, 361, 456, 466, 503, 724, 1128
Parlatoria protegandii (chaff scale) 1080
Parlatoria proteus 249
Pecarococcus javalii (a louse) 197
Pectinophora gossypiella (pink bollworm) 19, 25, 70, 88, 144, 225, 270, 294, 309, 354, 360, 400, 426, 491, 501, 523, 555, 620, 645, 668, 732, 831, 795, 825, 895, 913, 951, 965, 997, 1012, 1027, 1042, 1057, 1069, 1081, 1097, 1109, 1127, 1133, 1141
Pedioclus humanus capitatus (head louse) 104
Pegomya hyoscyami (spinach leaf miner) 349, 585, 614, 730, 1056
Pemphigus balsamiferae (an aphid) 7012
Pemphigus betae (sugar-beet root aphid) 1026
Pemphigus bursarius 503
Pemphigus populi-transversus (poplar petiole gall aphid) 1145
Pentastirum erythrogastrum (a mite) 39
Pentatrichopus tacegallii (a mite) 39
 (strawberry aphid) 3, 122, 183, 247, 503
Penthaleus major (winter grain mite) 22, 69, 114, 141, 169, 179, 221, 233, 243, 268, 322, 1079, 1107, 1125, 1132
Peridroma margaritosa (variegated cutworm) 26, 65, 88, 100, 106, 118, 123, 131, 146, 174, 199, 222, 229, 234, 244, 248, 251, 253, 265, 272, 281, 288, 314, 315, 338, 359, 366, 380, 393, 400, 418, 427, 432, 450, 470, 476, 498, 531, 545, 596, 626, 651, 680, 704, 719, 742, 749, 772, 803, 832, 848, 862, 880, 898, 919, 937, 958, 969, 986, 1000, 1016, 1030, 1045, 1060, 1072, 1083, 1112, 1119, 1129, 1135, 1142
Periphyllyps lyropictus (Norway maple scale) 1081, 1085, 625, 701, 735, 766, 829, 858, 1042
Periphyllyps negundinis (boxelder aphid) 429
Periplaneta americana (American cockroach) 148, 317, 1088
Pterilinus oregonus (a weevil) 122, 520
Petrobia apicalis (a mite) 66, 171, 222, 328, 346
Petrobia latens (brown wheat mite) 15, 22, 27, 32, 39, 61, 68, 78, 80, 128, 179, 189, 221, 243, 261, 279, 300, 322, 342, 367, 387, 414, 445, 477, 500, 509, 574, 632, 660, 685, 718, 719, 977, 1023, 1039, 1067, 1079, 1084, 1110, 1123, 1132
Petrova virginiana (a pitch twig borer) 403, 556
Pharaxonotha kirschi (a grain beetle) 5
Phenacaspis nysaeae (a scale) 285, 310
Phenacaspis pinifoliae (pine needle scale) 30, 39, 86, 163, 256, 258, 309, 428, 465, 467, 525, 624, 1033, 1146, 1148
Phigalia titea (a geometrid) 184, 391

Philaenus leucophthalmus (meadow spittlebug) 7, 9, 15, 42, 84, 110, 120, 123, 132, 150, 159, 181, 273, 275, 304, 307, 328, 346, 366, 393, 398, 415, 425, 451, 482, 513, 544, 552, 576, 609, 635, 659, 689, 755, 786, 945, 962, 977, 1031, 1088, 1135
Phloeobroma quadrimaculata (a grasshopper) 68, 874, 748
Phloeosinus dentatus (a bark beetle) 1146
Phloeosinus rubicundulus 125
Phloeosinus sequoiae 125
Phloeosinus scarabaeoides 316
Photatotes nebrascensis (a grasshopper) 955, 976, 1061
Pholus achemon (achemon sphinx) 508
Phorocera claripennis (a parasite) 1044
Phoronid humuli (hop aphid) 124, 760
Phylogadina californica (California oakworm) 503
Phyllocoptruta oleivora (citrus rust mite) 87, 317, 372, 421, 548, 725, 789, 873
Phyllophaga spp. (white grubs) 62, 85, 179, 395, 511, 623, 718, 846, 925, 960
Phyllophaga americana 421
Phyllophaga ephillida 698
Phyllophaga fusca 256
Phyllophaga pleroma 189
Phyllophaga rugosa 256
Phyllophaga trisita 256
Phyllotreta aerea (a flea beetle) 151
Phyllotreta cruciferae 8, 351, 460, 641, 819, 1032
Phyllotreta pusilla (western black flea beetle) 617, 694
Phyllotreta viridula (striped flea beetle) 352, 397
Phylloxera castanea (a phylloxera) 1120
Phylloxera devastatrix (pecan phylloxera) 285, 115
Phylloxera vitifoliae (grape phylloxera) 151, 236, 316, 725, 758
Phytomyza ilicis (holly leaf miner) 10, 102, 125, 164, 428, 967, 1034
Phytomyza ilicicola (native holly leaf miner) 648
Phytomyza nigra 120
Phytophaga destructor (hessian fly) 27, 69, 135, 150, 169, 179, 233, 300, 686, 869, 905
Phytoptus avellanae (filbert bud mite) 122, 929
Pieris sp. (cabbageworms) 317
Pieris brassicae 361
Pieris protodice (southern cabbage-worm) 29, 31, 930
Pieris rapae (imported cabbageworm) 8, 42, 48, 80, 103, 151, 156, 161, 182, 247, 254, 268, 283, 306, 330, 351, 361, 373, 397, 424, 460, 488, 515, 549, 617, 665, 694, 732, 759, 792, 822, 852, 874, 894, 911, 930, 965, 1032, 1101, 1116, 1148
Pineus floccus (an aphid) 915
Pineus pinifoliae 43, 256, 826, 1100
Pineus strobi (pine bark aphid) 56, 116, 144, 493, 590, 624, 646, 797
Pissodes approximatus (a weevil) 152, 851
Pissodes nemorensis 109, 214
Pissodes strobi (white-pine weevil) 43, 212, 273, 276, 382, 403, 465, 525, 622, 734, 797, 857, 877, 1102
Plagiostera versicolora (imported willow leaf beetle) 647, 701, 1102
Plagiognathus albus (a plant bug) 9
Plagiostera gillettei (a cricket) 886

P

Pachylobius picivorus (a weevil) 109, 214
Pachynematus sporax (a sawfly) 300, 445, 500, 574
Pachypsylla celtidis-mamma (hackberry nipple gall) 163, 623
Pachypsylla celtidis-vesiculosa 623
Pachystethus obliqua (a scarabaeid) 382
Pachyzancla bipunctalis (southern beet webworm) 70, 224, 960, 1026, 1069
Pachyzancla phaeopteralis (a sod webworm) 905, 1023
Palaearctia vernata (spring canker-worm) 4, 138, 151, 180, 183, 256, 356, 465, 526, 591
Panaphis juklandis (a walnut aphid) 122
Panchlora cubensis (a cockroach) 20
Pandemis spp. (tortricids) 662
Pandemis pyrusana (a moth) 121
Pantomorus godmani 171, 289, 933
Papaipema nebris (stalk borer) 101, 150, 152, 232, 254, 459, 589, 621, 642, 663, 687, 718, 727, 750, 893, 1017, 1100, 1101, 1120
Papilio polyxenes asterius (celery-worm) 981
Paraclemensia acerifoliella (maple

- Plathypena scabra* (green clover-worm) 7, 8, 101, 133, 142, 169, 193, 222, 235, 246, 257, 266, 281, 327, 346, 369, 452, 542, 661, 634, 659, 664, 693, 753, 760, 791, 814, 848, 852, 908, 927, 948, 994, 1032, 1136
- Platyedra vilella* (cotton stem moth) 360
- Platynota nigrocervina* (a leaf roller) 725
- Platynota rostrana* 23
- Platynota stultana* (a leaf roller) 19, 53, 60, 63, 64, 302, 542, 589, 728, 733, 877, 861, 913, 915, 980, 1063, 1127
- Platypeltia carduictyla* (artichoke plume moth) 18, 115, 144, 225, 352, 460, 729
- Plectrodera scalator* (cottonwood borer) 870
- Pleurophorus caesus* (a scarabaeid) 461
- Plodia interpunctella* (Indian-meal moth) 33, 137, 238, 292, 378, 768, 811, 968, 1076, 1111, 1143, 1137, 1142
- Plutella maculipennis* (diamond-back moth) 48, 76, 95, 115, 161, 283, 373, 397, 585, 617, 665, 728, 822, 930, 1017, 1145
- Pnyxia scabries* (potato scabemat) 29
- Podapion gallicola* (pine gall weevil) 428, 699
- Poecilopaeus lineatus* (four-lined plant bug) 696, 767
- Pogonomyrmex barbatus* (red harvester ant) 72
- Pogonomyrmex occidentalis* (western harvester ant) 1085
- Poleites* spp. (wasps) 869
- Pollenia rudis* (cluster fly) 152, 1088, 1099, 1111
- Polygona interrogationis* (a nymphalid) 691
- Polyphila* sp. (a June beetle) 317
- Polyphylla decemlineata* (ten-lined June beetle) 1012
- Polyphylla fullo* 317
- Popillia japonica* (Japanese beetle) 7, 8, 9, 10, 101, 159, 182, 215, 213, 213, 457, 517, 526, 558, 591, 647, 657, 671, 686, 692, 701, 730, 735, 755, 765, 782, 789, 799, 801, 817, 829, 850, 859, 868, 878, 911, 933, 953, 960, 985, 1009, 1031, 1032, 1089, 1100, 1101, 1102, 1136, 1137
- Portheria dispar* (gypsy moth) 43, 212, 217, 258, 273, 382, 402, 465, 493, 590, 622, 797, 828, 932, 1017, 1069, 1100, 1102
- Praon* spp. (parasites) 317, 357, 360, 765
- Praon paltans* 1059
- Prionoxystus macmurtrei* (little carpenterworm) 236
- Prionoxystus robiniae* (carpenterworm) 1116, 1120, 1145
- Prionus californicus* (California prionus) 396, 1085, 1126
- Pristiphora geniculata* (mountain - ash sawfly) 823
- Pristiphora erichsonii* (larch sawfly) 211, 255, 276, 382, 525, 556, 669, 699, 734, 739, 797, 828, 859
- Proctiphilus traxinifolii* (an aphid) 45
- Prociplidus tessellatus* (woolly alder aphid) 591, 623, 828
- Prodenia* spp. (yellow-striped armyworms) 60, 53, 64, 174, 816, 719, 786, 851, 853
- Prodenia eridania* (southern armyworm) 650
- Prodenia litura* 360
- Prodenia ornithogalli* (yellow-striped armyworm) 28, 66, 98, 101, 118, 146, 150, 174, 199, 229, 232, 251, 272, 288, 289, 306, 314, 315, 338, 358, 359, 380, 432, 470, 498, 509, 531, 586, 606, 626, 651, 680, 824, 739, 742, 752, 772, 786, 803, 832, 848, 851, 862, 874, 880, 899, 911, 915, 919, 927, 937, 947, 956, 969, 986, 1000, 1016, 1030, 1045, 1099, 1112, 1119, 1128, 1084, 1099, 1112, 1119, 1139
- Prodenia praefica* (western yellow-striped armyworm) 687, 719, 727, 733, 893, 1084
- Profenus* sp. (a leaf miner) 1097
- Prophyasca andersoni* (a slug) 128
- Prothlotermes simplex* (a termite) 98
- Protosium hirtipes* (a black fly) 355, 401, 1035
- Protophthirus cognatus* (a thrip) 217
- Protoparce* spp. (hornworms) 49, 63, 72, 107, 151, 157, 162, 291, 426, 459, 463, 490, 521, 552, 582, 585, 615, 619, 640, 643, 666, 673, 694, 726, 726, 730, 759, 761, 790, 793, 822, 823, 851, 857, 873, 875, 893, 910, 912, 1063, 1086, 1089, 1135, 1144
- Protoparce quinquemaculata* (tomato hornworm) 7, 42, 88, 338, 359, 432, 470, 498, 531, 552, 586, 596, 626, 651, 666, 680, 696, 704, 742, 772, 803, 832, 862, 880, 899, 919, 937, 956, 969, 986, 1000, 1016, 1030, 1045, 1072
- Protoparce sexta* (tobacco hornworm) 8, 47, 88, 102, 146, 290, 432, 470, 498, 521, 531, 552, 586, 596, 626, 651, 680, 704, 742, 772, 803, 832, 862, 880, 899, 919, 937, 956, 969, 986, 1000, 1016, 1030, 1032, 1072, 1101, 1117
- Protorthodes insincta* (a cutworm) 131
- Psallus seriatus* (cotton fleahopper) 24, 1008, 236, 332, 355, 375, 400, 427, 492, 556, 585, 621, 645, 763, 1133
- Pseudaletia unipuncta* (armyworm) 3, 6, 21, 28, 32, 40, 42, 44, 45, 48, 58, 65, 69, 77, 83, 90, 98, 100, 106, 118, 135, 141, 146, 150, 158, 174, 178, 192, 199, 229, 231, 233, 244, 251, 252, 264, 272, 275, 279, 288, 290, 294, 299, 314, 315, 321, 338, 342, 358, 359, 365, 380, 389, 412, 432, 444, 470, 476, 498, 510, 531, 542, 573, 596, 605, 626, 635, 651, 658, 680, 704, 718, 742, 749, 772, 783, 803, 813, 832, 846, 862, 880, 899, 905, 919, 925, 937, 956, 969, 975, 986, 1000, 1016, 1030, 1031, 1045, 1055, 1060, 1067, 1072, 1074, 1083, 1088, 1099, 1112, 1119, 1129, 1135, 1142
- Pseudania paeoniae* (a peony scale) 4, 163
- Pseudaulacaspis pentagona* (white peach scale) 32, 183, 171, 195, 197, 268, 467, 766, 1013
- Pseudococcus cuspidata* (a mealybug) 258, 953
- Pseudococcus juniperi* 180, 877
- Pseudococcus maritimus* (grape mealybug) 54, 349, 458, 502, 725
- Pseudococcus nipae* (coconut mealybug) 45
- Pseudohylesinus* spp. (silver fir beetles) 205
- Pseudophilippia quantianci* (a pine scale) 226
- Pseudopsylla includens* (a phalaenid) 1126
- Pseudosphinx tetrio* (a caterpillar) 311
- Psila rosae* (carrot rust fly) 123, 156
- Psilocephala faginella* (an oecophorid) 1034
- Psiloptera drummondii* (a buprestid) 929
- Psorophora* spp. (mosquitoes) 71, 592
- Psorophora ciliata* 1058
- Psorophora howardi* 495, 953
- Psoroptes equi ovis* (sheep scab mite) 76, 97, 164, 197, 309, 559, 672, 799, 916, 1061, 1110
- Psorosia hammondii* (apple leaf skeletonizer) 662, 723
- Psylla buxi* (boxwood psyllid) 10, 429
- Psylla floccosa* 503
- Psylla nequandinis* (boxelder psyllid) 1087
- Psylla pyricola* (pear psyllid) 121, 128, 154, 246, 282, 305, 372, 419, 455, 485, 502, 545, 612, 637, 661, 692, 724, 757, 948, 996
- Psylla uncatoides* 57, 503
- Psyllodes punctulata* (hop flea beetle) 32, 460
- Pterocalidium trifolii* (yellow clover beetle) 37, 66, 133, 150, 178, 182, 393, 415, 451, 481, 575, 847, 960
- Pterochlorus persicae* (an aphid) 361
- Pulvinaria* sp. (a scale) 125
- Pulvinaria annuum-bilias* (cottony-maple scale) 30, 81, 356, 466, 494, 624, 701, 828
- Puto* sp. (a mealybug) 208, 1086
- Pyralis farinalis* (meal moth) 1059
- Pyrausta nubilalis* (European corn borer) 6, 15, 29, 42, 44, 53, 69, 84, 88, 106, 124, 134, 150, 156, 159, 179, 182, 190, 231, 252, 257, 262, 274, 300, 317, 321, 341, 366, 387, 411, 442, 459, 475, 487, 507, 539, 571, 604, 612, 614, 631, 655, 664, 684, 694, 716, 747, 749, 779, 790, 811, 822, 843, 867, 887, 903, 923, 931, 943, 959, 975, 991, 1007, 1017, 1023, 1033, 1055, 1079, 1088, 1095, 1100, 1101, 1119, 1134, 1143, 1145, 1146
- Pyrrilla perpusilla* (sugarcane pyrrilla) 293
- Pyrodercus rileyi* (pink scavenger caterpillar) 995, 1095

R

- Rachiplusia ou* (a moth) 497
- Radopholus similis* (burrowing nematode) 1011, 1126
- Ramosia bibi* (stem-borer) (strawberry crown moth) 123, 666
- Rhaphidopaipa* sp. (a beetle) 290
- Recurvaria milleri* (lodgpole needle miner) 203
- Retilicermes* sp. (a termite) 815, 1035, 1121
- Retilicermes flavipes* (eastern subterranean termite) 72, 104, 228, 250, 286, 357, 404, 430, 469, 497, 1043, 1103
- Retilicermes hageni* 98
- Retilicermes hesperus* 126, 130, 1043
- Retinidiplosis* sp. (pitch midges) 356, 403
- Retinidiplosis incopis* 403, 1033
- Retinidiplosis resinicol* (a) 403
- Rhabdopterus picipes* (cranberry rootworm) 682
- Rhagoletis cerasi* (a cherry fruit fly) 361
- Rhagoletis cingulata* (cherry fruit fly) 122, 128, 456, 580, 692, 724, 770, 818
- Rhagoletis completa* (walnut husk fly) 128, 502, 872, 949, 980
- Rhagoletis fausta* (black cherry fruit fly) 155, 379, 1145

Rhagoletis pomonella (apple maggot) 42, 54, 85, 151, 153, 182, 254, 276, 638, 661, 691, 723, 757, 788, 817, 849, 871, 928, 948, 964, 980, 994, 1025, 1101, 1136

Rhinacloa forticornis (a fleahopper) 1063

Rhinocola targioni (pistachio psyllid) 361

Rhipicephalus sanguineus (brown dog tick) 20, 26, 40, 65, 105, 145, 860, 897, 934, 1035, 1043, 1064, 1103, 1118, 1128, 1134

Rhizoceros falcifer (ground nealybug) 120

Rhizoglyphus echinopus (bulb mite) 104, 198, 249, 334

Rhopalosiphum berberidis (an aphid) 467

Rhopalosiphum fitchii (apple grain aphid) 37, 42, 110, 151, 261, 305, 323, 329, 395, 419, 445, 454, 500, 1033

Rhopalosiphum granarium (English grain aphid) 61

Rhopalosiphum maidis (corn leaf aphid) 5, 28, 31, 37, 42, 44, 61, 69, 84, 101, 106, 158, 179, 232, 253, 262, 279, 300, 323, 365, 388, 414, 446, 509, 541, 574, 606, 632, 658, 686, 718, 751, 781, 813, 845, 868, 904, 924, 944, 960, 1023, 1031, 1061, 1085, 1143

Rhopalosiphum pseudoavenae 31

Rhopalosiphum pseudobrassicae (turnip aphid) 48, 53, 66, 76, 143, 224, 263, 351, 853

Rhopalosiphum rufomaculatum 1042

Rhopobota naevana (black-headed fireworm) 124, 129, 692, 725, 909, 929

Rhopobota naevana siliifoliola 125, 130, 428, 494, 624, 682

Rhyacionia sp. (a pine tip moth) 898

Rhyacionia buoliana (European pine shoot moth) 86, 152, 184, 210, 275, 329, 402, 427, 493, 556, 622, 646, 966

Rhyacionia frustana (Nantucket pine moth) 30, 108, 162, 184, 214, 237, 292, 428, 557, 590, 622, 952, 966, 983, 1034, 1137

Rhynchophytus ficifoliae (a mite) 503

Rhynchites auratus (a curculio) 361

Rhynchites bicolor (rose curculio) 45

Rhynchophorus crenatus (a billbug) 116

Rhyzopertha dominica (lesser grain borer) 180, 250, 292, 527, 917

Rodolia cardinalis (vedalia) 361, 374

Roga (microptera (a braconid)) 334

Romalea microptera (eastern lubber grasshopper) 377

S

Saissetia oleae (black scale) 54, 75, 223, 456, 501, 503

Salicix affinis (a webworm) 9, 700, 766, 1034

Sannioidea exitiosa (peach tree borer) 23, 50, 70, 81, 102, 107, 155, 185, 236, 290, 395, 637, 757, 963, 1075, 1085, 1115, 1132, 1136

Sannioidea exitiosa graefii (western peach tree borer) 223, 268, 613, 692, 850, 980, 1085

Saperda calcarata (roundborer) 45

Saperda candida (poundheaded apple tree borer) 154

Saperda tridentata (elm borer) 30

Sarcophaga aldrichi (a sarcophagid) 256, 275

Sarcoptes scabiei suis (a mange mite) 157

Scaeva pyrastris (a syrphid) 1099

Scaptomyza aletus (southern mole cricket) 102, 196

Schistocerca americana (American grasshopper) 683

Schistocerca gregaria 293, 360

Schistocerca lineata 747

Schizura concinna (red-humped caterpillar) 383, 757, 1115

Schoenobius incertulas (rice stem borer) 294

Scirpomyza obscurus (a root weevil) 127

Scirpophaga nivella (a sugarcane borer) 293

Scirtothrips citri (citrus thrips) 457, 1062

Scotia dubia (a parasite) 934

Scolytus spp. (fir engraver beetles) 205

Scolytus multistriatus (smaller European elm bark beetle) 30, 71, 180, 212, 215, 237, 249, 271, 273, 428, 494, 557, 581, 669, 798, 858, 877, 914, 952, 1102

Scolytus quadrispinosus (hickory bark beetle) 215

Scolytus rugulosus (shot-hole borer) 107, 517

Scolytus tsugae 827, 1144

Scolytus ventralis (fir engraver) 204, 210

Scotogramma trifolii (clover cutworm) 327, 351

Scutigera limmaculata (garden symphlyid) 128, 585, 729, 983

Sehirus cinctus (a stink bug) 816

Sesamia cretica (corn stem borer) 120

Sibine stimulea (saddleback caterpillar) 935, 1137

Silpha bituberosa (a carrion beetle) 32

Simulium spp. (black flies) 467, 592, 1102

Simulium decorum 401, 1035

Simulium venustum 43, 46

Sinoxylon ceratoniae (a bostrichid) 20

Siphia flava (yellow sugarcane aphid) 243, 1040, 1141

Siphona irritans (horn fly) 30, 46, 50, 67, 71, 109, 130, 164, 181, 237, 273, 286, 309, 377, 467, 495, 558, 592, 625, 648, 672, 701, 736, 768, 799, 829, 879, 897, 916, 953, 998, 1043, 1075, 1087, 1088, 1118

Sirex aereolatus (a horntail) 935

Sitotroites graminum (a mite) 234, 32, 783, 1147

Sitodiplosis mosellana (wheat midge) 32, 783, 1147

Sitona spp. (weevils) 131, 451, 480

Sitona cylindricollis (sweetclover weevil) 15, 17, 27, 44, 79, 84, 120, 234, 253, 266, 302, 326, 345, 370, 390, 416, 452, 479, 480, 512, 577, 608, 689, 720, 787, 815, 928, 1084, 1147

Sitona hispidula (clover root curculio) 18, 29, 120, 159, 171, 181, 222, 234, 267, 281, 289, 302, 327, 345, 370, 389, 447, 451, 500, 511, 576, 659, 787, 815, 962, 1143

Sitona lineata (pea leaf weevil) 120, 123, 126, 129, 353, 370, 424, 931

Sitona scissifrons 450, 480, 512, 577, 962

Sitophilus granarius (granary weevil) 71, 115, 130, 180, 361, 360, 1098

Sitophilus oryza (rice weevil) 50, 68, 104, 130, 180, 238, 290, 292,

751, 782, 917, 954, 960, 1070, 1076, 1095, 1098, 1119

Sitotroga cerealella (Angoumois grain moth) 50, 68, 71, 104, 137, 185, 238, 292, 860, 917, 954, 960, 1071, 1076, 1119, 1137

Solenopsis saevissima richteri (imported fire ant) 1121

Solenopotes capillatus (a louse) 20, 97, 117, 145, 1121

Solibus pumax (rice stink bug) 65, 105, 322, 342, 685, 718, 783, 845, 868, 905, 925, 945

Spangonius albofasciatus (a mirid) 63, 669, 1063

Spangotoma furcata (a midge) 330

Sparganotus sp. (a tortricid) 692

Sphecius speciosus (cicada killer) 181, 1018

Sphenotrota lafereti (a peach borer) 294

Spilonota sp. (a bud moth) 980

Spilonota ocellana (eye-spotted bud moth) 42, 121, 151, 153, 282, 348, 454, 612, 963, 995

Spissistilus festinus (three-cornered alfalfa hopper) 61, 64, 69, 101, 106, 222, 235, 266, 281, 289, 302, 328, 346, 369, 393, 449, 545, 586, 609, 636, 690, 720, 754, 786, 796, 815, 849, 869, 891, 907, 926, 945, 962, 979, 992, 1018, 1025, 1040, 1061, 1074, 1080, 1115

Stegasta bosqueella (red-necked peanutworm) 291, 610, 755, 815, 870

Stegomyia anisacum (drug-store beetle) 118

Stenotarsonemus pallidus (cyclamen mite) 57, 86, 125, 128, 255, 285, 462, 502, 647, 666, 729, 767, 931

Stenopoda sp. (a mirid) 1145

Stephanitis spp. (lace bugs) 163, 799

Stephanitis pyri 316

Stephanitis pyrioides (azalea lace bug) 10, 799, 828, 878, 898, 934, 962

Stephanitis rhododendri (rhododendron lace bug) 183, 671, 736, 799, 1102

Stephanopachys rugosus (a beetle) 129, 275, 556, 827

Sternonchetus lapathi (poplar and willow borer) 735, 766

Stictiphys californicus (a grasshopper) 500

Stilpnotia salicis (satin moth) 125, 1033, 1087, 1102

Stiretus anchora (a bug) 860

Stomoxys calcitrans (stable fly) 30, 45, 71, 181, 237, 273, 276, 768, 860, 879, 916, 934, 1033, 1087, 1102

Strymon melius (cotton square borer) 795, 913, 1120

Supella supellectilium (brown-banded roach) 4, 20, 32, 82, 105, 109, 165, 256, 276, 311, 317, 934, 985, 1088, 1103, 1111, 1118, 1148

Symmerista sp. 734

Symmerista albifrons (red-humped oakworm) 1034

Symphoromyia hirta (a snipe fly) 1034, 1087, 1102

Synanthedon pictipes (lesser peach tree borer) 23, 67, 107, 151, 155, 290, 348, 661, 1132

Synnema lynosyrana (a moth) 1059

Syringopis temperatella (a moth) 1034

Systema spp. (flea beetles) 291, 492

Systema blanda (pale-striped flea beetle) 556, 664, 693, 726, 719

Systema elongata (elongate flea beetle) 101, 461

Systema marginalis 734

Systema taeniata 424

T

<i>Tabanus</i> spp. (horse flies) 67, 180, 273, 495, 897, 984	<i>Thamnospecia pyri</i> (pear borer) 1033	665, 666, 694, 696, 727, 733, 759, 764, 792, 795, 822, 825, 852, 855, 870, 873, 876, 894, 895, 911, 913, 930, 932, 949, 951, 965, 966, 982, 995, 1011, 1017, 1026, 1032, 1056, 1062, 1063, 1101, 1133, 1136
<i>Tabanus</i> abactor 766, 968, 1058	<i>Thamnospecia scitula</i> (dogwood borer) 535	
<i>Tabanus</i> americanus 495, 625, 879	<i>Thaumtopsis pectinifer</i> (a sod webworm) 27	
<i>Tabanus</i> atrivatus (black horse fly) 495, 625, 648, 968	<i>Thecabius populi-moniilis</i> (a root aphid) 129	
<i>Tabanus</i> carolinensis 237	<i>Thoracaphis umbellulariae</i> (an aphid) 891	<i>Trichopoda pennipes</i> (a parasite) 860
<i>Tabanus</i> lasiophthalmus 672	<i>Thrips</i> sp. 360	
<i>Tabanus</i> lineola 495, 625, 768	<i>Thrips</i> tabaci (onion thrips) 9, 23, 48, 95, 115, 257, 269, 283, 317, 331, 352, 427, 461, 468, 492, 518, 555, 583, 618, 666, 695, 728, 823, 853, 874, 1017, 1133	<i>Tritidaphis phaseoli</i> (an aphid) 983, 1040
<i>Tabanus</i> nictitans 648	<i>Thyanta custator</i> (a stink bug) 328, 395, 947	<i>Trigonotylus brevipennis</i> (a plant bug) 448
<i>Tabanus</i> mularis 495	<i>Thyridopterix ephemeriformis</i> (bagworm) 9, 39, 104, 116, 137, 163, 173, 180, 183, 184, 237, 466, 526, 557, 592, 647, 670, 701, 736, 764, 798, 829, 857, 878, 914, 932, 963, 1034, 1069, 1118, 1120, 1134, 1137	<i>Trigonotylus dohertyi</i> 633
<i>Tabanus</i> sulcifrons 238, 968	<i>Thyridopteryx</i> sp. 360	<i>Trimerotropis</i> spp. (grasshoppers) 500, 603
<i>Tabanus</i> trimaculatus 1058	<i>Tinea</i> bicisselliella (a clothes moth) 1071	<i>Trimerotropis pallidipennis</i> pallidipennis 62
<i>Tabanus</i> tripilus 860	<i>Tinea</i> pellionella (casemaking clothes moth) 104, 250, 276	<i>Trioxys</i> sp. (a braconid) 360
<i>Tachypterellus quadrigibbus</i> (apple curculio) 234, 454	<i>Tipula</i> quoyi (a crane fly) 141	<i>Trioxys utilis</i> 1059
<i>Taeniothrips inconspicues</i> (pear thrips) 81, 282, 305, 330, 348	<i>Tipula simplex</i> 141, 222	<i>Trogoderma</i> spp. (dermestids) 357, 998, 1104, 1098, 1146
<i>Taniva albolineana</i> (spruce needle miner) 1146	<i>Tomaspis bicincta</i> (a spittlebug) 289	<i>Trogoderma boron</i> 1040, 334, 769, 1098
<i>Temnochila virescens</i> (a predacious beetle) 40	<i>Tomastethus multicinctus</i> (brown-headed asid sawfly) 256, 466, 577	<i>Trogoderma granarium</i> (khapra beetle) 5, 58, 64, 180, 286, 310, 361, 496, 500, 673, 860, 897, 1014, 1081, 1111, 1128
<i>Tendipes plumosus</i> (a midge) 256	<i>Tortrix pallorana</i> (a tortricid) 908	<i>Trogoderma parabile</i> 357, 984, 1043
<i>Tenebroides mauritanicum</i> (cadelle) 71, 238, 917, 968, 1070, 1137	<i>Toumeyella liriodendri</i> (tuliptree scale) 428, 994, 968, 1014, 1097	<i>Trogoderma sternale</i> 21
<i>Tetanops myopaeformis</i> (sugar-beet root maggot) 11, 44, 352, 373, 422, 460, 489, 642, 894	<i>Toumeyella numismaticum</i> (pine tortoise scale) 212, 256, 275, 403, 428, 591, 1033, 1127	<i>Trogoderma versicolor</i> 21, 180, 310, 1129
<i>Tetraleurodes mori</i> (mulberry scale) 234	<i>Toxoptera graminum</i> (greenbug) 22, 31, 37, 42, 44, 65, 69, 93, 101, 141, 169, 179, 189, 221, 233, 243, 261, 279, 299, 321, 341, 365, 387, 414, 445, 478, 511, 574, 975, 1079, 1125	<i>Tychius griseus</i> (a weevil) 787
<i>Tetralopha</i> sp. (a webworm) 932	<i>Toxorhynchites rutilus</i> septentrionalis (a mosquito) 104	<i>Tychius stephensi</i> 132
<i>Tetralopha melanogrammas</i> (a webworm) 9, 700, 766, 1034	<i>Trialeurodes abutilonea</i> (a whitefly) 63, 1063	<i>Tylocladema fragariae</i> (strawberry crown borer) 107, 462
<i>Tetralopha robustella</i> (pine webworm) 214, 353, 1110	<i>Trialeurodes vaporariorum</i> (greenhouse whitefly) 57, 110, 163, 422	<i>Typhaea stercoraria</i> (a fungus beetle) 250, 126, 1134
<i>Tetralopha scortchii</i> (lespedeza webworm) 289, 891, 928, 1009, 1115	<i>Triatomina</i> spp. (bloodsucking conenose bugs) 26, 65, 467	<i>Typhlodromus</i> sp. (a mite) 128
<i>Tetramorium caespitum</i> (pavement ant) 58, 311	<i>Triatomina rubida</i> uhleri 1064	<i>Typhlodromus rhenus</i> 75
<i>Tetranychus</i> spp. (spider mites) 30, 63, 67, 78, 81, 144, 172, 182, 269, 294, 307, 360, 662, 723, 732, 798, 848, 930, 967, 1120	<i>Triatomina sanguinea</i> (bloodsucking conenose) 72, 196, 916, 998	<i>Tyrophagus</i> sp. (a mite) 76, 1146
<i>Tetranychus atlanticus</i> (strawberry spider mite) 7, 8, 103, 698, 755, 787, 796, 848, 855, 951, 1032, 1064, 1108	<i>Tribolium</i> spp. (flour beetles) 119, 292, 310, 917, 1014, 1058, 1142	<i>Tyrophagus linteri</i> 1081
<i>Tetranychus canadensis</i> 788	<i>Tribolium castaneum</i> (red flour beetle) 130, 238, 1098, 1146	
<i>Tetranychus cinnabarinus</i> 796	<i>Tribolium confusum</i> (confused flour beetle) 21, 46, 71, 185, 238, 954, 968, 1146	
<i>Tetranychus desertorum</i> (desert mite) 103, 172, 225, 269, 331, 353, 997	<i>Trichobius</i> sp. (stalk borer) 373	
<i>Tetranychus lobosus</i> 225, 269, 331, 353	<i>Trichogramma</i> spp. (a parasite) 781	
<i>Tetranychus marianae</i> 964, 1133	<i>Trichoplusia ni</i> (cabbage looper) 8, 18, 23, 24, 32, 47, 62, 64, 66, 95, 103, 115, 141, 152, 156, 169, 171, 182, 196, 247, 254, 268, 272, 275, 283, 291, 338, 359, 380, 397, 497, 549, 553, 589, 617, 618, 641,	
<i>Tetranychus mediantii</i> 128, 348, 371, 611, 788, 1085		
<i>Tetranychus schoenoi</i> 102, 103, 691		
<i>Tetranychus telarius</i> (two-spotted spider mite) 8, 12, 32, 39, 43, 103, 129, 124, 151, 153, 154, 156, 172, 180, 183, 236, 247, 254, 285, 307, 353, 371, 376, 394, 416, 420, 425, 452, 453, 462, 482, 489, 501, 502, 503, 520, 547, 555, 598, 625, 611, 618, 621, 624, 660, 666, 689, 696, 718, 723, 729, 736, 752, 755, 756, 760, 782, 788, 796, 819, 848, 850, 852, 869, 874, 882, 892, 905, 928, 931, 944, 950, 997, 1001, 1032, 1033, 1064, 1085, 1100, 1110, 1128		
<i>Tetranychus tumidus</i> (tumid spider mite) 103, 815, 891		

U

<i>Udea rubigalis</i> (celery leaf tier) 856, 951
<i>Umbonia crassicornis</i> (a thornbug) 56
<i>Uonymia</i> spp. (eonymus scale) 86, 163, 249, 467, 859, 915, 933, 1014, 1017, 1089, 1137
<i>Uranotenia lowii</i> (a mosquito) 104
<i>Utethisia bella</i> (bella moth) 39

V

<i>Vanduzeeia triguttata</i> (a treehopper) 1068
<i>Vasates atlantazaleae</i> (a mite) 86
<i>Vasates cornutus</i> (peach silver mite) 329, 348, 395, 547, 789
<i>Vasates fockeui</i> 122, 128, 456, 579, 691, 1145
<i>Vasates lycopersici</i> (tomato russet mite) 8, 103, 124, 151, 161, 551, 910, 1026, 1086, 1108
<i>Vasates masalongoi</i> 967
<i>Vasates quadripedes</i> (maple bladder-gall mite) 86

V

Vasates schlechtendali (apple
rust mite) 453, 662, 756
Vespa crabro germana (giant hornet)
105, 165, 238, 469, 650, 915,
967, 983, 1018, 1118
Vespa mima pini (pitch mass borer)
734
Vespula spp. (yellow jackets) 934,
1015
Vespula maculata (bald-faced
hornet) 879, 1102
Voria ruralis (a parasite) 1044

W

Walshia amorphella (a gall moth) 416
Wohlfahrtia opaca (a sarcophagid)
1087

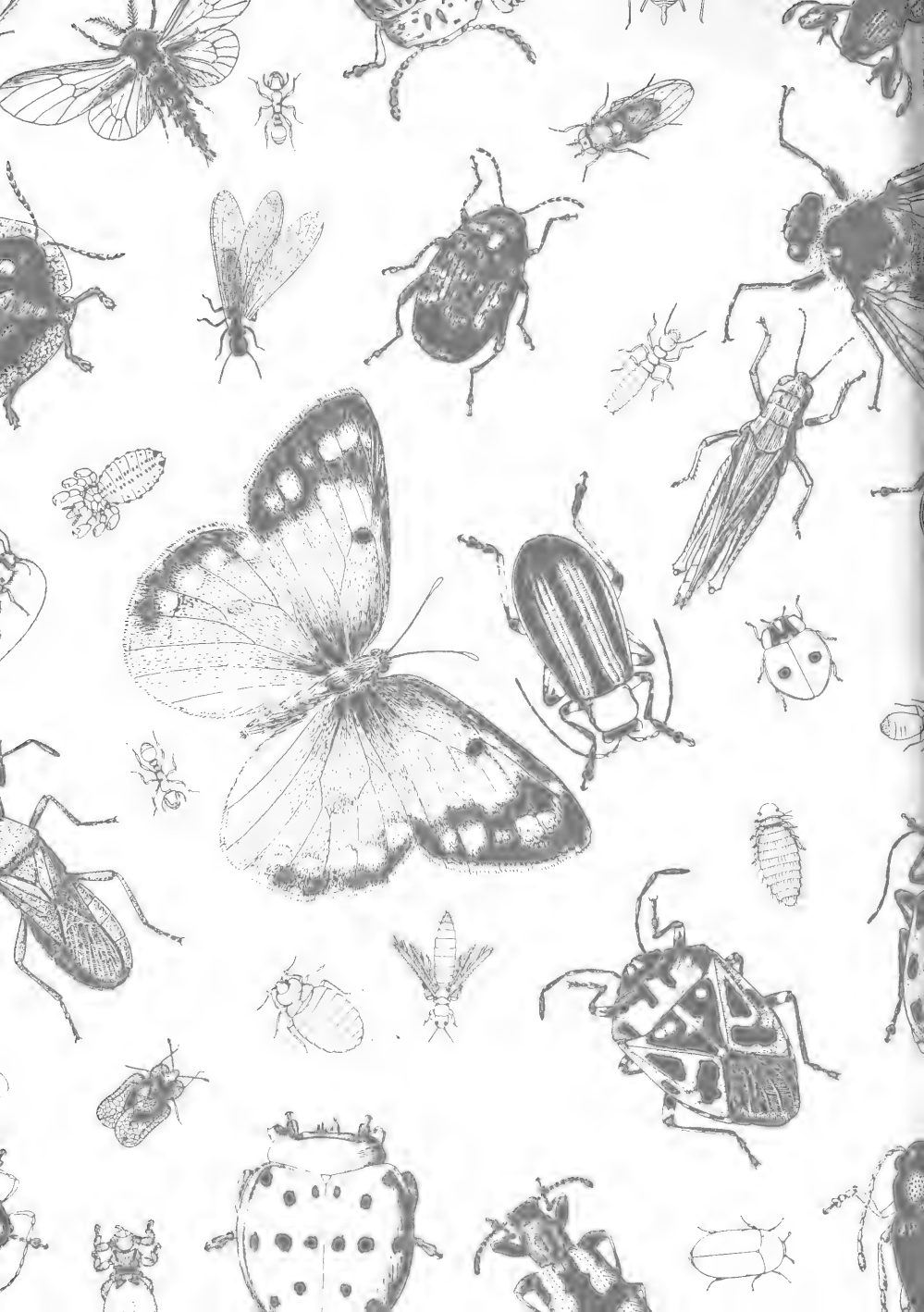
X

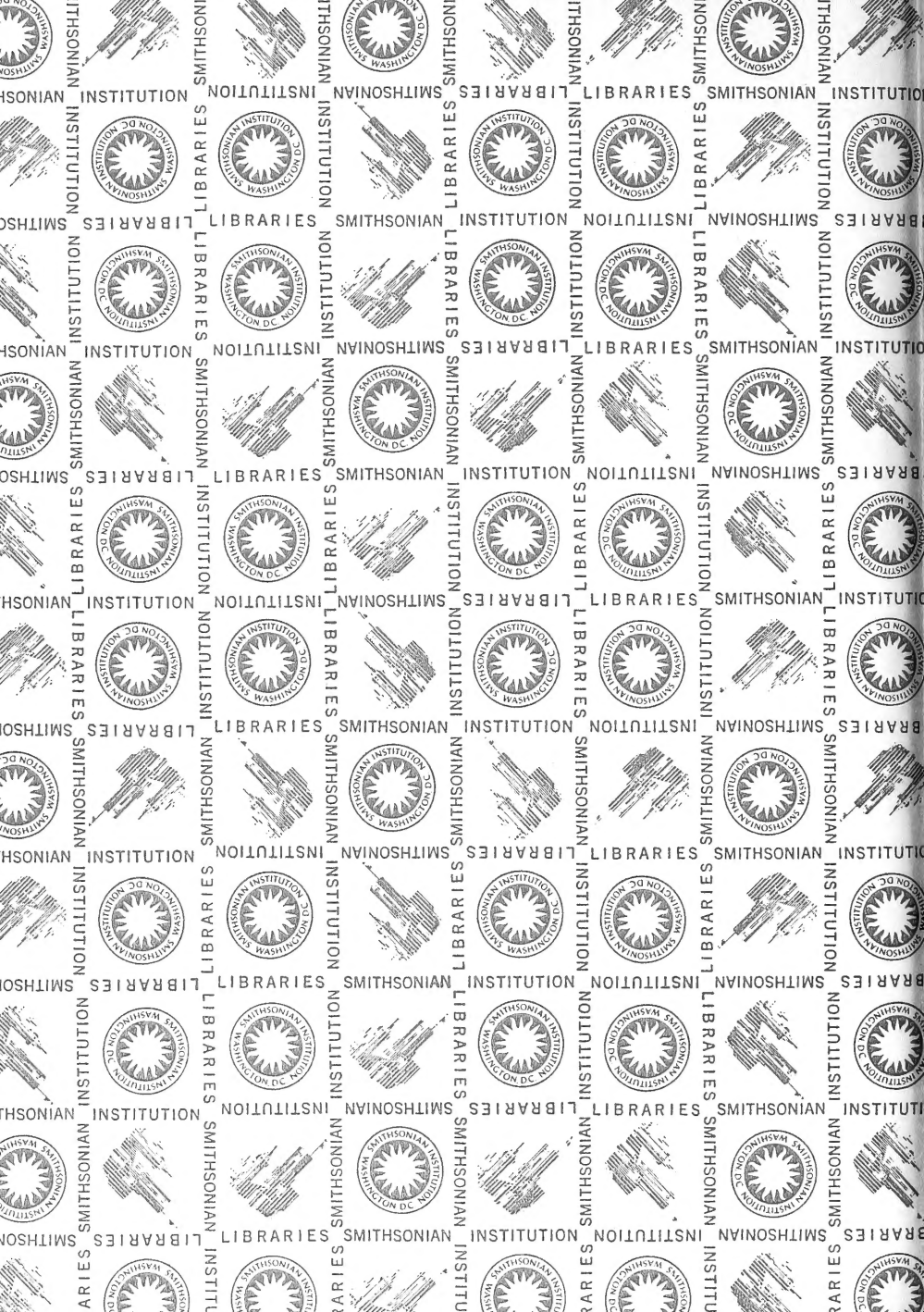
Xanthopastis timais (a phalaenid)
39
Xylobiops basilaris 104
Xylocoris flavipes (an anthecorid)
58
Xylocrius agassizi (a gooseberry
borer) 123

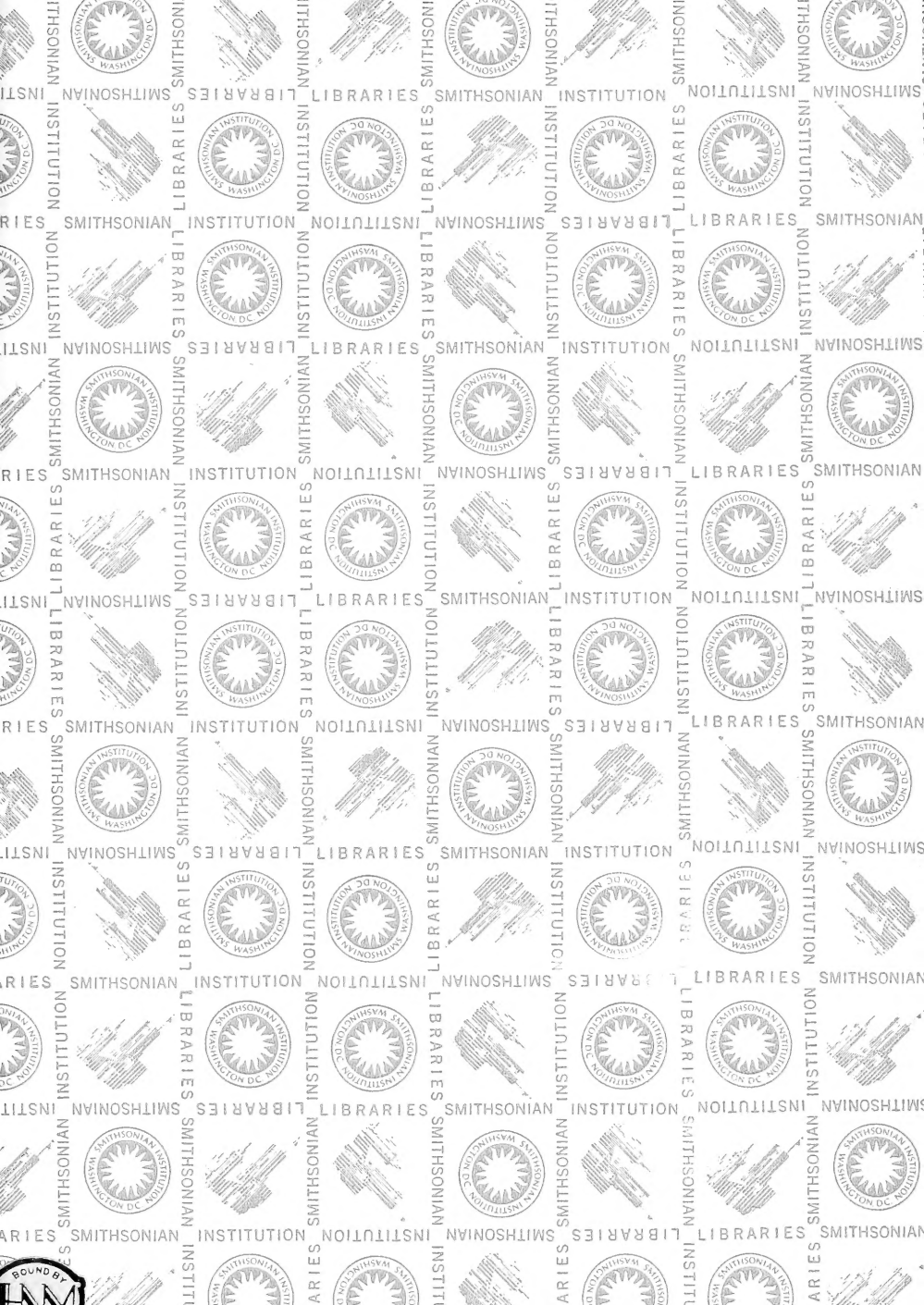
Z

Zeadiatraea grandiosella (south-
western corn borer) 179, 189,
232, 262, 279, 341, 412, 477,
508, 574, 606, 656, 685, 750,
780, 845, 867, 887, 904, 924,
943, 959, 975, 991, 1007, 1039,
1055, 1061, 1132
Zelus sp. (a predator) 737
Zonosmata electa (pepper maggot)
730, 819, 833, 1116
Zootermopsis angusticollis (a
termite) 72, 404









SMITHSONIAN INSTITUTION LIBRARIES



3 9088 01271 7377